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ABSTRACT

This publication is the completed portion of the high school segment of a comprehensive program for contemporary curriculum design in vocational education. The entire program embraces career development curriculum for Kindergarten through Grade 12 and utilizes extensive teacher-student participation in the development of instructional materials. This document presents completed materials of the planned four major units of: (1) self-awareness, (2) occupational information, (3) work attitudes, and (4) job exploration with hands-on experiences. The first chapter is devoted to a discussion of career orientation including statements of philosophy and objectives. The second chapter includes instructional material for the unit on job exploration with hands-on experiences. Specific topics include: (1) Appliance Service, (2) Auto Industries, (3) Commercial Foods, (4) Health Occupations, (5) Ornamental Horticulture, and (6) Welding. Pertinent questions and answers regarding general occupation information, and illustrated activities are presented for each topic. (GEB)

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HANDS ON

A COMPREHENSIVE PROGRAM OF
CAREER ORIENTATION
FOR
HIGH SCHOOL STUDENTS

EDITED BY WILLIAM W. JOLLY

KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
DEPARTMENT OF VOCATIONAL EDUCATION
KNOXVILLE, TENNESSEE
1971

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FOREWORD

HANDS ON IS AN EXAMPLE OF AN EVOLVING CURRICULUM DESIGN IN CAREER DEVELOPMENT UTILIZING EXTENSIVE TEACHER-STUDENT PARTICIPATION IN THE DEVELOPMENT OF INSTRUCTIONAL MATERIALS. THIS PROJECT, THEREFORE, BECOMES ANOTHER EFFORT ON THE PART OF THE KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION TO PRODUCE AND EVALUATE CONTEMPORARY CURRICULUM.

FULL CREDIT MUST BE GIVEN TO THE KNOX COUNTY DIRECTOR OF VOCATIONAL EDUCATION FOR CONCEIVING SUCH A NOVEL MEANS OF IMPLEMENTING CAREER GUIDANCE AT THE HIGH SCHOOL LEVEL. ACKNOWLEDGEMENT MUST ALSO BE GIVEN TO THE ENTIRE KNOX COUNTY VOCATIONAL STAFF FOR THEIR PROFESSIONAL ASSISTANCE DURING THE PAST FOUR YEARS OF EXPERIMENTATION IN THE PROGRAM AND FOR THEIR WILLINGNESS TO CONTRIBUTE TO THE FUTURE DEVELOPMENT AND IMPLEMENTATION OF THIS PROJECT IN VOCATIONAL EDUCATION.

DR. MILDRED E. DOYLE, SUPERINTENDENT
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION

PREFACE

HANDS ON IS A PUBLICATION DEALING WITH THE COMPLETED PORTION OF THE HIGH SCHOOL SEGMENT OF A COMPREHENSIVE, EXEMPLARY PROGRAM FOR CONTEMPORARY CURRICULUM DESIGN IN VOCATIONAL EDUCATION. THE ENTIRE PROGRAM EMBRACES CAREER DEVELOPMENT CURRICULUMS FOR KINDERGARTEN THROUGH TWELTH GRADE. IT IS FUNDED BY THE TENNESSEE DEPARTMENT OF VOCATIONAL EDUCATION UNDER THE PROVISIONS OF PART D OF THE VOCATIONAL EDUCATION AMENDMENTS OF 1968 AND IS BEING ADMINISTERED BY THE KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION UNDER THE TITLE OF CONTEMPORARY CURRICULUM FOR CAREER DEVELOPMENT.

MATERIAL WAS DEVELOPED FOR HANDS ON IN AN EFFORT TO PROVIDE A COMPREHENSIVE PROGRAM OF HIGH SCHOOL CAREER ORIENTATION CURRICULUM INVOLVING FOUR MAJOR UNITS OF INSTRUCTION: (1) SELF-AWARENESS, (2) OCCUPATIONAL INFORMATION, (3) WORK ATTITUDES, AND (4) JOB EXPLORATION WITH HANDS-ON EXPERIENCES. AT PRESENT, THE MAJOR PORTION OF THE COMPLETED MATERIAL IN HANDS ON DEALS WITH THE UNIT OF INSTRUCTION, "JOB EXPLORATION WITH HANDS-ON EXPERIENCES." THE REMAINING THREE UNITS ARE STILL UNDER DEVELOPMENT, BUT ARE SEEN IN HANDS ON IN LESSON PLAN AND OUTLINE FORM. IMPLEMENTATION AND EVALUATION OF THE PROGRAM WILL TAKE PLACE AT THREE KNOX COUNTY HIGH SCHOOLS (CARTER, HALLS, AND DOYLE) DURING THE SCHOOL YEAR OF 1971-72.

ACKNOWLEDGEMENTS

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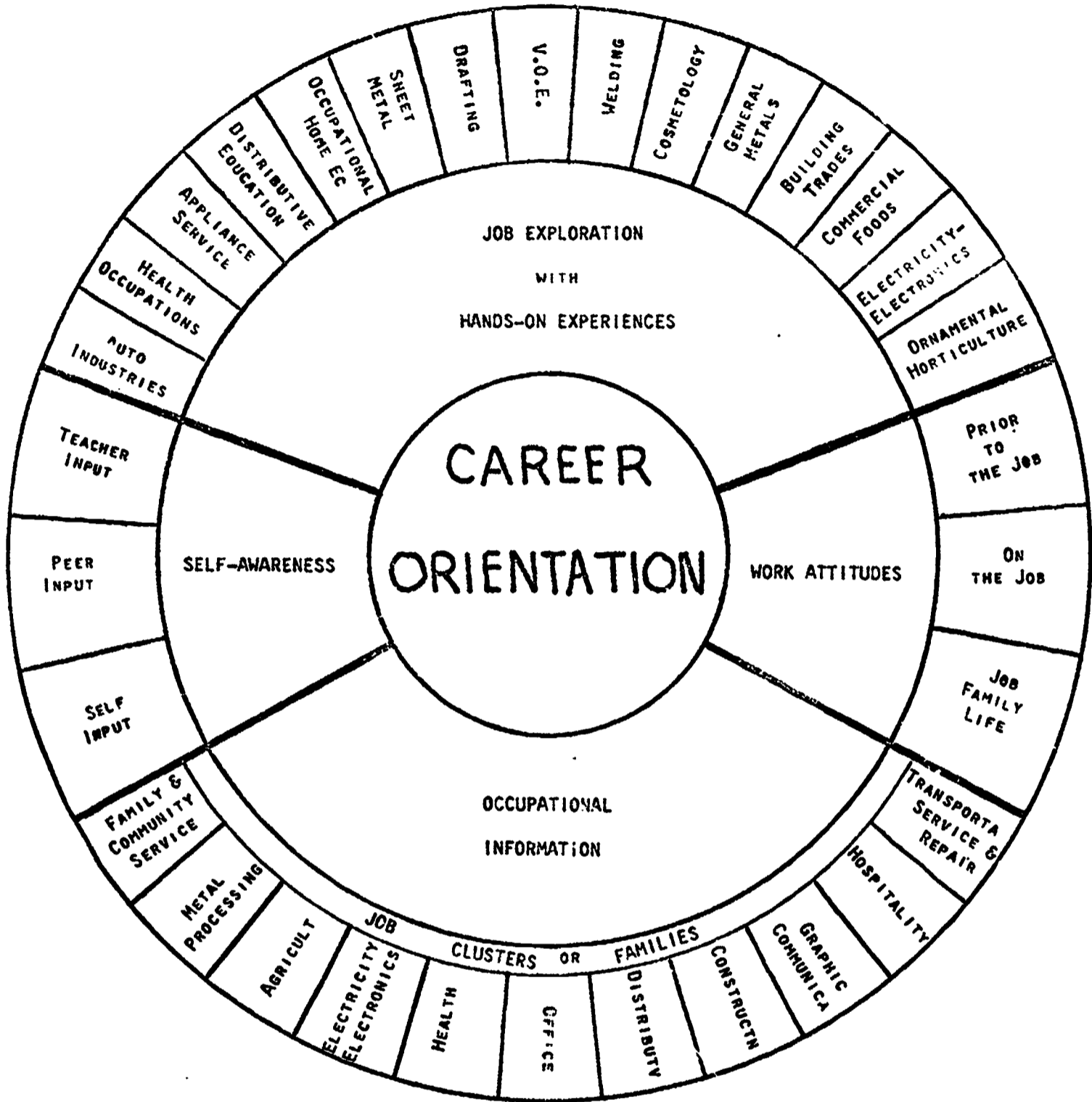
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CHAPTER 1 -- CAREER ORIENTATION

INTRODUCTION

THE PURPOSE OF THIS SECTION OF HANDS ON IS TO PRESENT AN OUTLINE OF THE TOTAL CAREER ORIENTATION CONCEPT AND CLASSROOM IMPLEMENTATION. A DETAILED PRESENTATION WILL BECOME AVAILABLE AS INSTRUCTIONAL MATERIAL IS MORE THOROUGHLY DEVELOPED AND EVALUATED.

ZONE ANALYSIS



CAREER ORIENTATION

PHILOSOPHY

THE CAREER ORIENTATION CURRICULUM CONSISTS OF COURSE ACTIVITIES AND UNITS OF INSTRUCTION DESIGNED TO MEET THOSE PUPIL NEEDS WHICH ARE OUTGROWTHS OF THE INDUSTRIAL AND CULTURAL ASPECTS OF AMERICAN DEMOCRACY. EMPHASIS IN INSTRUCTION IS PLACED UPON SOCIAL AND PERSONAL NEEDS RELATED TO THE USE OF INDUSTRIAL GOODS AND SERVICES AND THE GROWTH OF CULTURAL IDEALS RELATED TO THE HOME AND THE COMMUNITY.

CAREER ORIENTATION ACTIVITIES ARE EXPLORATORY AND WILL CONTINUE TO BE EXPLORATORY UNTIL PUPILS REQUIRE MORE SPECIALIZED TRAINING IN COLLEGE OR VOCATIONAL, TRADE, AND INDUSTRIAL INSTITUTIONS. THE BASIS FOR THESE EXPLORATORY EXPERIENCES IS THE WELL-ESTABLISHED NEED OF ADOLESCENTS TO BE ABLE TO HAVE PRACTICAL OPTIONS IN THEIR CAREER DECISION-MAKING PROCESSES.

THE CAREER ORIENTATION CURRICULUM OFFERS ORIENTATION TO AN INDUSTRIAL ENVIRONMENT AND A PRODUCTIVE LIFE BY PROVIDING OCCUPATIONAL INFORMATION, PERSONAL AWARENESS ACTIVITIES, HANDS-ON EXPERIENCES IN A VARIETY OF JOB SKILLS, EXPLORATION INTO POSITIVE JOB ATTITUDES, AND A VARIETY OF LEISURE AND HOBBY PURSUITS TO MEET THE PARTICULAR INTERESTS AND NEEDS OF EACH INDIVIDUAL.

CAREER ORIENTATION

OBJECTIVES

1. TO PROVIDE STUDENTS WITH HANDS-ON EXPERIENCES IN ALL VOCATIONAL LABORATORIES.
2. TO PROVIDE STUDENTS WITH GENERAL OCCUPATIONAL INFORMATION RELATED TO AT LEAST ELEVEN JOB CLUSTERS.
3. TO TEACH STUDENTS AT LEAST THREE JOB ATTITUDES, NAMELY, RESPONSIBILITY, COOPERATION, AND SATISFACTION.
4. TO TEACH SAFETY PROCEDURES FOR VOCATIONAL LABORATORY EXPERIENCES IN SUCH A WAY THAT STUDENTS WILL LEARN SAFETY FOR ACTUAL JOB EXPERIENCES.
5. TO PROVIDE A TOTAL CAREER ORIENTATION PROGRAM WHICH WILL ENABLE STUDENTS TO DEVELOP A POSITIVE SELF-IMAGE.
6. TO PROVIDE A TOTAL CAREER ORIENTATION PROGRAM WHICH WILL ENABLE STUDENTS TO MAKE A TENTATIVE CAREER DECISION BY AGE 16.
7. TO PROVIDE TEACHERS WITH MATERIALS AND RESOURCE INFORMATION FOR DEVELOPMENT OF INSTRUCTIONAL UNITS.
8. TO ASSIST TEACHERS IN THE DEVELOPMENT OF UNITS OF INSTRUCTION BASED ON PROJECT GOALS AND MEASURABLE PERFORMANCE OBJECTIVES.
9. TO ASSIST SCHOOL ADMINISTRATIVE AND GUIDANCE PERSONNEL IN THE IMPLEMENTATION OF CAREER DEVELOPMENT PROGRAMS.
10. TO UTILIZE COMMUNITY RESOURCES, ESPECIALLY THE CONSULTATIVE TALENT OF VOCATIONAL AND COLLEGE INSTITUTIONS, FOR CAREER ORIENTATION CURRICULUM DEVELOPMENT.

THESE OBJECTIVES OR PROJECT GOALS ARE IN THE PROCESS OF BEING TRANSLATED INTO PERFORMANCE OBJECTIVES FOR NINTH GRADE STUDENTS. THE INSTRUCTIONAL UNITS IN CHAPTER II OF THIS VOLUME, DEALING WITH JOB EXPLORATION AND HANDS-ON EXPERIENCES, ARE AN EXAMPLE OF THIS EFFORT. ADMITTEDLY, SELF-CONCEPT, OBJECTIVE #5, IS DIFFICULT TO DEFINE, TEACH, AND MEASURE. NEVERTHELESS, THIS PROJECT WILL REPRESENT AN ATTEMPT TO STUDY THIS PHENOMENON.

THESE GOALS ARE BY NO MEANS TO BE CONSIDERED FINAL OR COMPLETE. THEY WILL BE MODIFIED, ADDED TO, OR DELETED AS NEED ARISES WITH THE PRIMARY GOAL ALWAYS IN MIND, NAMELY, THAT THE STUDENT DEVELOP THE MEASURE OF SELF-CONFIDENCE WHICH WILL ENABLE HIM TO MAKE AT LEAST A TENTATIVE CAREER DECISION BASED ON CURRENT CAREER INFORMATION AND A REALISTIC AND POSITIVE VIEW OF HIMSELF.

CAREER ORIENTATION
A ONE-SEMESTER PROGRAM AT DOYLE HIGH SCHOOL
COURSE OUTLINE & UNITS OF INSTRUCTION

INSTRUCTOR
MR. WAYMAN R. SEXTON

WEEK	<u>FIRST SEMESTER</u>						
1 -	ORIENTATION TO THE TOTAL PROGRAM						
2 -	SAFETY						
3 -	OCCUPATIONAL INFORMATION RELATED TO THE VOCATIONAL LABORATORIES						
4 -	VISITATION OF VOCATIONAL LABORATORIES (JOB EXPLORATION WITH HANDS-ON EXPERIENCES) AND HANDS-ON PROJECT IN CAREER ORIENTATION LAB						
5 -	"	"	"	"	"	"	"
6 -	"	"	"	"	"	"	"
7 -	"	"	"	"	"	"	"
8 -	SELF-AWARENESS						
9 -	WORK ATTITUDES						
10 -	EMPLOYABILITY SKILLS						
11 -	VISITATION OF VOCATIONAL LABORATORIES (JOB EXPLORATION WITH HANDS-ON EXPERIENCES) AND HANDS-ON PROJECT IN CAREER ORIENTATION LAB						
12 -	"	"	"	"	"	"	"
13 -	"	"	"	"	"	"	"
14 -	"	"	"	"	"	"	"
15 -	"	"	"	"	"	"	"
16 -	"	"	"	"	"	"	"
17 -	RETURN VISIT TO VOCATIONAL LABORATORIES AND CAREER ORIENTATION LAB PROJECTS						
18 -	"	"	"	"	"	"	"

SECOND SEMESTER

REPEAT PROGRAM OF THE FIRST SEMESTER FOR WEEKS 19-36

THE CARTER HIGH SCHOOL CAREER ORIENTATION PROGRAM WILL BE INITIATED IN THE FALL OF 1971. TENTATIVE PLANS ARE THAT THE COURSE OUTLINE AND UNITS OF STUDY WILL BE MODELED AFTER THE DOYLE HIGH SCHOOL PROGRAM.

CAREER ORIENTATION - A TWO-SEMESTER PROGRAM
HALLS HIGH SCHOOL
COURSE OUTLINE & UNITS OF STUDY

INSTRUCTORS

MR. HUGH B. JENKINS
(GROUP A)

MRS. EDDIE M. DEBORD
(GROUP B)

WEEK

- | | |
|--|--|
| 1 - GROUPS A & B - ORIENTATION TO THE TOTAL PROGRAM | |
| 2 - GROUP (A) - SAFETY | GROUP (B) - OCCUPATIONAL INFORMATION ON BUSINESS |
| 3 - GROUP (A) - OCCUPATIONAL INFORMATION (RELATED TO EACH VOCATIONAL LABORATORIES) | GROUP (B) - CAREERS AND INDIVIDUAL EXPLORATION OF JOBS |
| 4 THRU 14 GROUP (A) - VISITATION OF VOCATIONAL LABORATORIES (JOB EXPLORATION WITH HANDS-ON EXPERIENCES) | GROUP (B) - BUSINESS ORIENTATION |
| 15 - GROUP (B) - SAFETY | GROUP (A) - OCCUPATIONAL INFORMATION ON BUSINESS |
| 16 - GROUP (B) - OCCUPATIONAL INFORMATION RELATED TO EACH VOCATIONAL LABORATOR | GROUP (A) - CAREERS AND INDIVIDUAL EXPLORATION OF JOBS |
| 17 THRU 26 GROUP (B) - VISITATION OF VOCATIONAL LABORATORIES (JOB EXPLORATION WITH HANDS-ON EXPERIENCES) | GROUP (A) - BUSINESS ORIENTATION |
| 27 - GROUP (A) - RETURN VISIT TO VOCATIONAL LABORATORIES | GROUP (B) - CAREER ORIENTATION LAB PROJECTS |
| 28 - GROUP (B) - RETURN VISIT TO VOCATIONAL LABORATORIES | GROUP (A) - CAREER ORIENTATION LAB PROJECTS |
| 29 - SELF-AWARENESS | |
| 30 - EMPLOYABILITY SKILLS | |
| 31 - EMPLOYABILITY SKILLS | |
| 32 - WORK ATTITUDES | |
| 33 - WORK ATTITUDES | |
| 34 - GENERAL OCCUPATIONAL INFORMATION | |
| 35 - GROUP (A) - HANDS-ON PROJECT | GROUP (B) - PLAN SCHEDULE AND EVALUATION FOR NEXT YEAR |
| 36 - GROUP (B) - HANDS-ON PROJECT | GROUP (A) - PLAN SCHEDULE AND EVALUATION FOR NEXT YEAR |

CHAPTER 11 - JOB EXPLORATION WITH HANDS-ON EXPERIENCES

INTRODUCTION

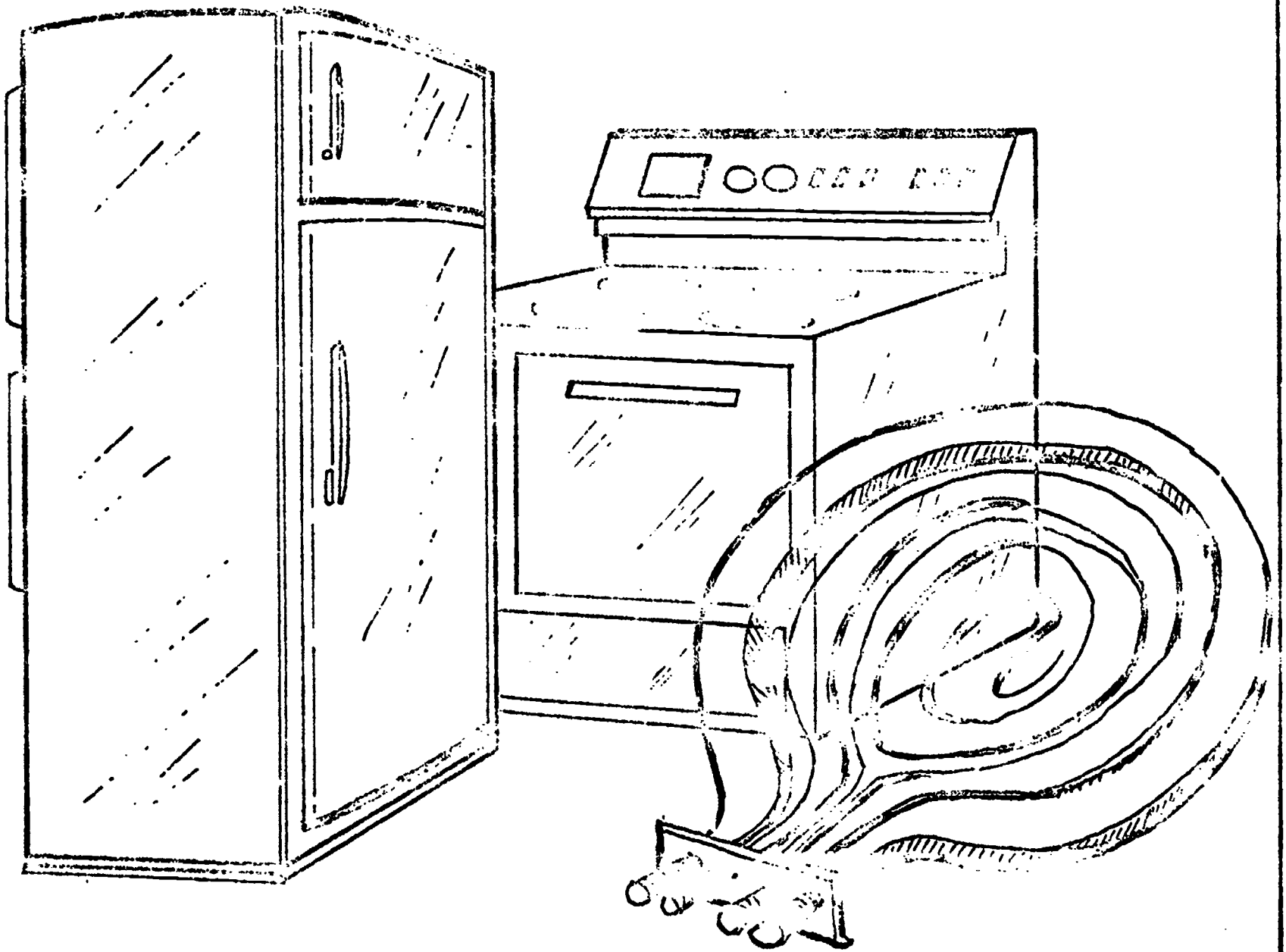
THE PURPOSE OF THIS SECTION OF HANDS ON IS TO PRESENT COMPLETED INSTRUCTIONAL UNITS RELATED TO "JOB EXPLORATION WITH HANDS-ON EXPERIENCES." THESE LESSONS, DEVELOPED BY THE CLASSROOM INSTRUCTOR, ARE TO BE USED BY THE STUDENT AS A GUIDE FOR HANDS-ON EXPERIENCES DURING HIS VISITS TO THE VOCATIONAL LABORATORIES.

EACH LESSON CONTAINS GENERAL INFORMATION RELATED TO THE PARTICULAR TRADE OR SKILL INDICATED AND AN ILLUSTRATED STEP-BY-STEP OPERATION PROCEDURE.

ON THE AVERAGE A STUDENT WILL SPEND THREE DAYS IN EACH VOCATIONAL LABORATORY AVAILABLE. HE SHOULD BE ABLE TO CARRY OUT A PARTICULAR OPERATION OR EXPERIENCE WITH LITTLE OR NO INSTRUCTOR INVOLVEMENT.



AN INTRODUCTION TO



APPLIANCE SERVICE

PART A OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO APPLIANCE REPAIR

BY RAY THOMPSON

SOME INTERESTING FACTS ABOUT APPLIANCE REPAIR

1. WHAT KIND OF WORK IS DONE?

WORK IS USUALLY AVAILABLE FOR APPLIANCE INSTALLERS, INSTALLER-REPAIRMEN, SERVICEMEN, PARTS SALESMEN, FACTORY REPRESENTATIVES, DISTRIBUTOR REPRESENTATIVES AND SERVICE MANAGERS.

2. WORKING CONDITIONS:

THE SERVICEMAN MAY WORK IN A WELL-LIGHTED AND WELL-EQUIPPED SHOP OR HE MAY MAKE SERVICE CALLS ON APPLIANCES IN THE CUSTOMER'S HOME.

3. SALARY SCALE:

THE SALARY MIGHT VARY FROM \$80 TO \$200 PER WEEK DEPENDING ON THE TYPE OF JOB AND THE SKILL OF THE WORKER.

4. TYPE OF CLOTHING WORN:

THE SERVICEMAN USUALLY WEARS A CLEAN UNIFORM, HOWEVER, THIS DEPENDS UPON THE EMPLOYER. A MANAGER MIGHT WEAR A DRESS SUIT WITH SHIRT AND TIE.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: A SERVICE-MAN SHOULD BE ABLE TO WORK WELL WITH HIS HANDS. HE SHOULD BE ABLE TO UNDERSTAND ELECTRICAL DRAWINGS AND DIAGRAMS AND BE ABLE TO SERVICE MALFUNCTIONING ELECTRICAL OR MECHANICAL EQUIPMENT.

PERSONALITY CHARACTERISTICS: HE SHOULD BE WELL-GROOMED AND ABLE TO WORK WELL WITH OTHERS. IT IS OFTEN NECESSARY TO CONTROL YOUR TEMPER AND CONSOLE AN ANGRY CUSTOMER.

EDUCATION QUALIFICATIONS: THE QUALIFIED SERVICEMAN WILL HAVE A HIGH SCHOOL EDUCATION AND VOCATIONAL SCHOOL PREPARATION IN APPLIANCE SERVICE. HE MIGHT ALSO HAVE SPECIAL TRAINING WITH A CERTAIN BRAND OF APPLIANCE SUCH AS GENERAL ELECTRIC, WHIRLPOOL, WESTINGHOUSE, ETC.

YOUR FIRST EXPERIENCE IN APPLIANCE REPAIR WILL BE:

TO CHECK AND REPLACE THE DEFECTIVE SURFACE ELEMENT OF A RANGE.

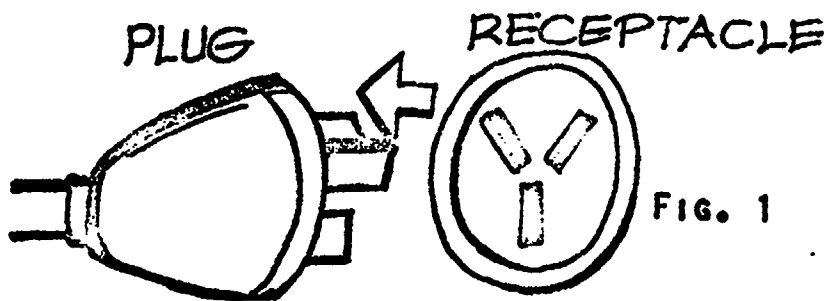
STEPS TO FOLLOW IN CHECKING AND REPLACING THE SURFACE ELEMENT OF A RANGE:

TOOLS AND MATERIALS NEEDED: RANGE WITH ONE DEFECTIVE SURFACE UNIT, REPLACEMENT UNIT, ELECTRICAL PLIERS, LONG NOSE PLIERS, LARGE AND SMALL SCREWDRIVER, VOLT OHM METER

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. REMOVE THE RANGE FROM THE POWER SOURCE FIG. 1



THE PLUG INTO THE 220 VOLT RECEPTACLE IS USUALLY A THREE FOOT CORD CONNECTED TO THE CENTER OF THE RANGE. GRASP IT BY THE INSULATED PART AND PULL IT STRAIGHT OUT. BE SURE NOT TO TOUCH ANY EXPOSED METAL AS YOU REMOVE THE PLUG.

2. RAISE THE SURFACE UNIT FIG. 2

SLIGHT PRESSURE ON THE UNIT TOWARD THE BACK AND UP WILL RAISE IT. THIS WILL EXPOSE THE SCREW WHERE THE UNIT HINGES.

3. REMOVE THE SCREW WITH A COUNTER-CLOCKWISE TWIST FIG. 3

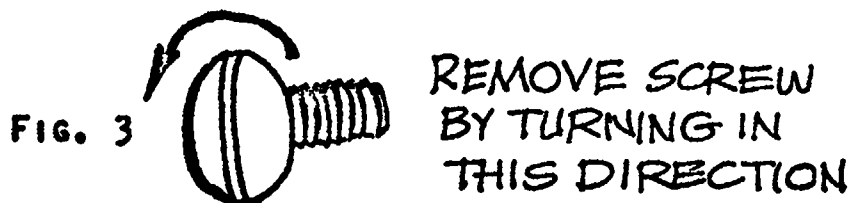
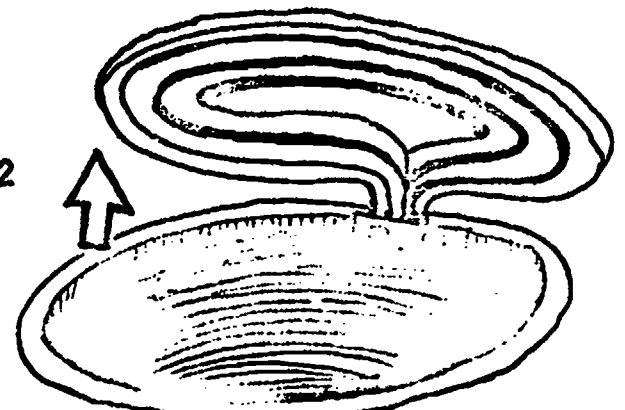


FIG. 2



LIFT UNIT TO REMOVE FROM RANGE

4. LAY THE UNIT ON TOP OF THE RANGE, BOTTOM UP, TO EXPOSE THE SCREW THAT SECURES THE WIRE

USE SOMETHING SOFT SUCH AS A TOWEL TO PROTECT THE TOP OF THE RANGE.

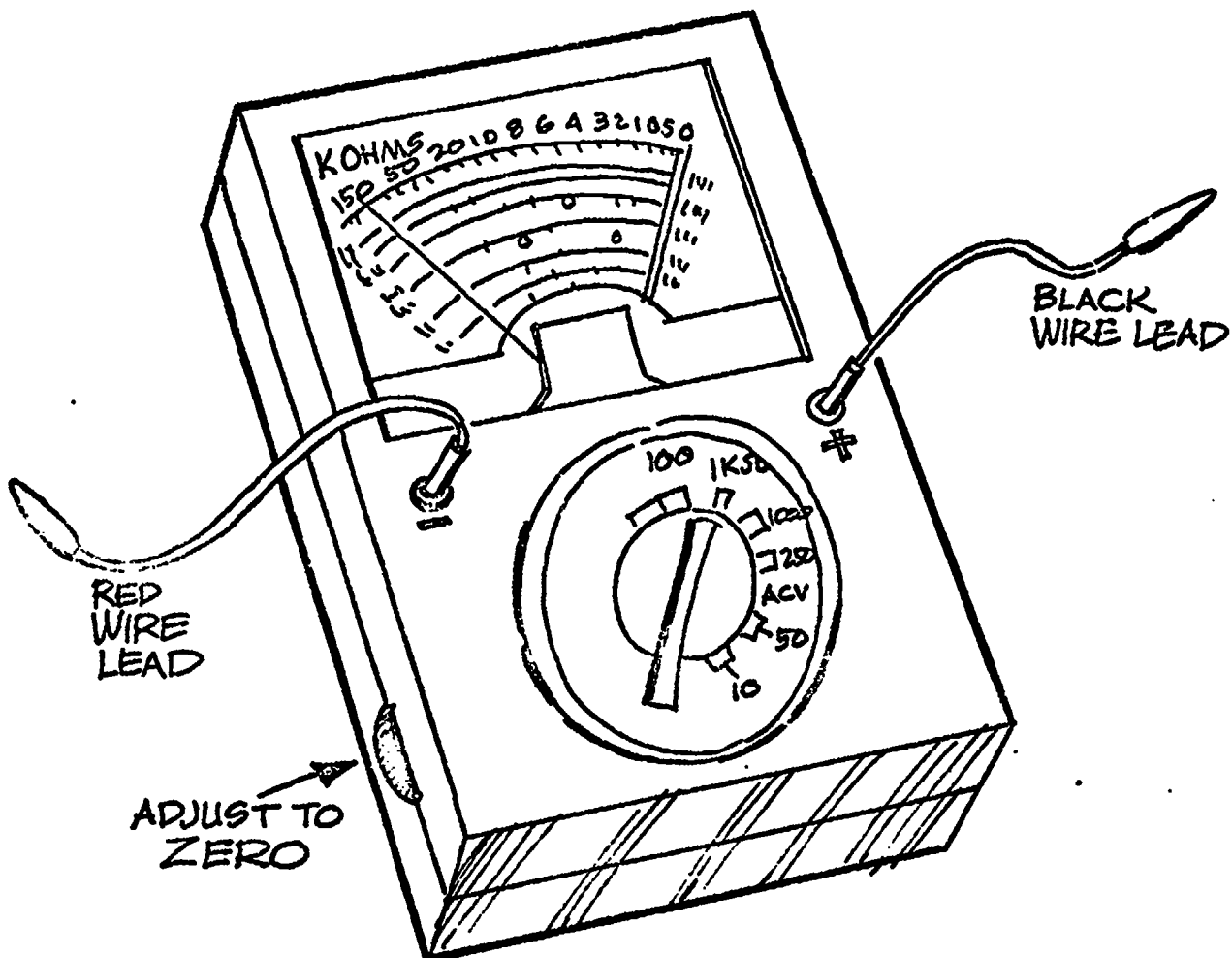
WHAT YOU MUST DO

5. PLACE THE RED WIRE LEAD OF THE OHM METER INTO THE HOLE ON THE SURFACE OF THE METER MARKED WITH (-). THE BLACK WIRE GOES INTO THE (+) HOLE

WHAT YOU MUST KNOW

BE CAREFUL NOT TO DROP THE METER. IN STEPS 5-7 YOU ARE PREPARING THE OHM METER. FIG. 4

FIG. 4



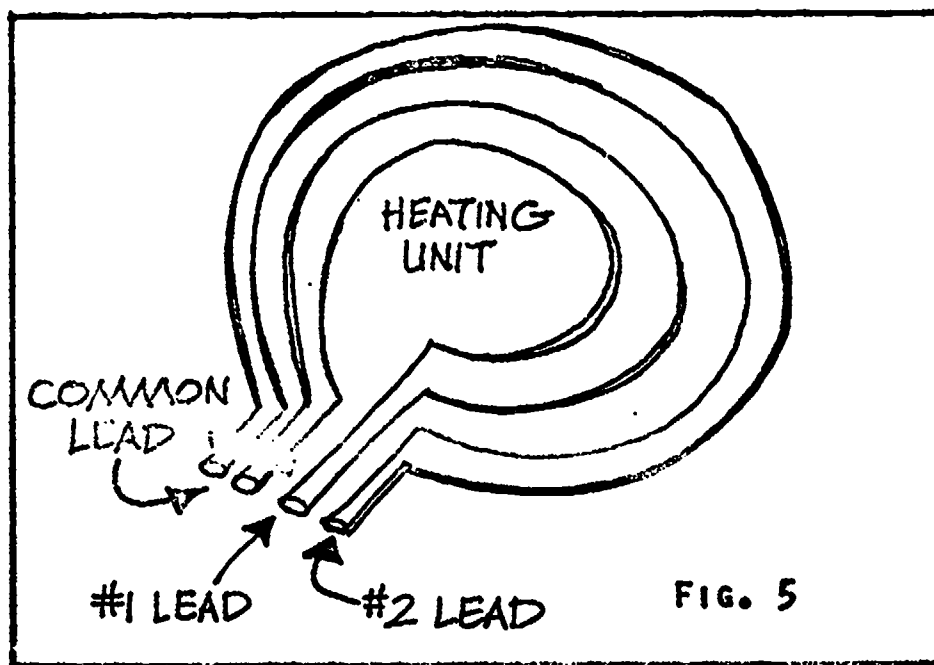
6. SET CENTER SWITCH TO $1K\Omega$
7. TOUCH THE OTHER ENDS OF THE RED AND BLACK WIRES TOGETHER

THE RED NEEDLE SHOULD MOVE TO RIGHT OF SCALE TO ZERO. IF THE NEEDLE DOES NOT MOVE ALL THE WAY TO ZERO, TURN KNOB ON THE LEFT OF METER (OHMS ADJUST) UNTIL THE POINTER STANDS OVER ZERO.

WHAT YOU MUST DO

WHAT YOU MUST KNOW

8. REMOVE THE WHITE WIRE FROM THE UNIT. THIS WIRE IS MARKED "COMMON." FIG. 5



9. PUT THE RED WIRE LEAD OF THE OHM METER ON THE COMMON TERMINAL OR SCREW

10. PUT THE BLACK WIRE LEAD OF THE OHM METER ON TERMINAL #1 ----->

THE NEEDLE SHOULD MOVE TO THE RIGHT OF THE SCALE (ALMOST TO ZERO). THE UNIT NEEDS TO BE REPLACED IF THERE IS NO READING.

11. LEAVE THE RED WIRE LEAD OF THE OHM METER ON COMMON AND MOVE THE BLACK WIRE LEAD FROM #1 TERMINAL TO #2 ----->

THE METER SHOULD READ NEAR 50 OHMS. IF THERE IS NO READING, REPLACE THE UNIT.

12. LEAVE THE RED LEAD ON COMMON AND MOVE THE BLACK LEAD TO ANYWHERE ON THE TOP OF THE UNIT WHERE THERE IS NO ELECTRICAL CONNECTION ----->

IF THERE IS A READING, REPLACE THE UNIT. A READING ON THE OHM METER WITH THESE CONNECTIONS INDICATES A SHORT.

WHAT YOU MUST DO

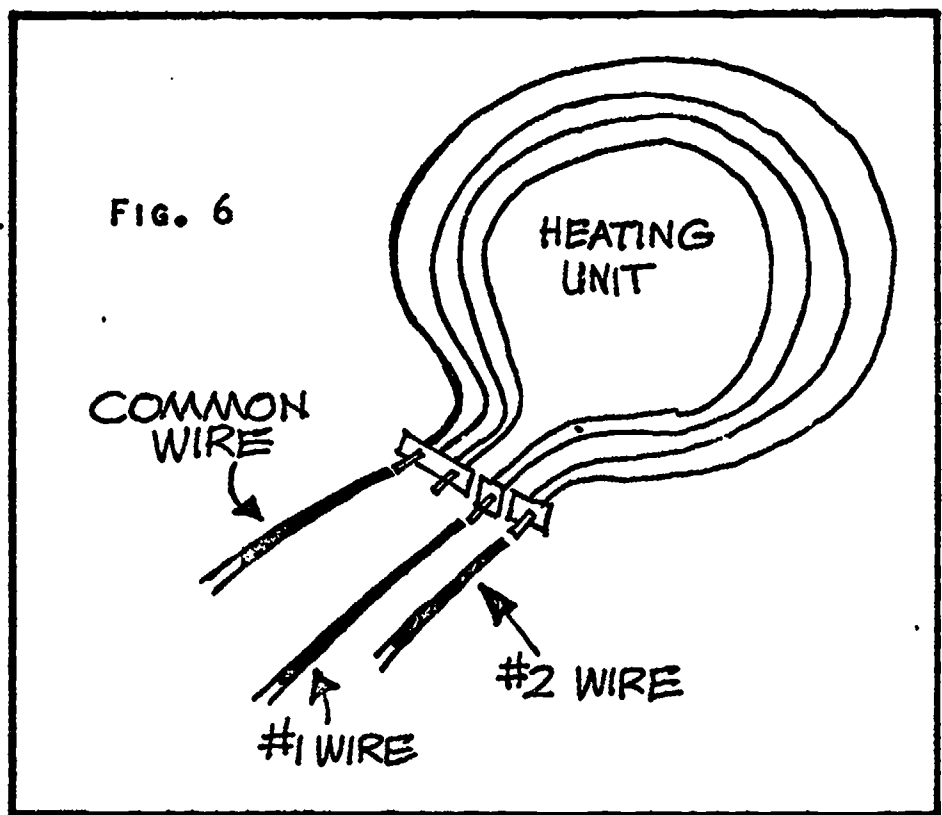
13. SECURE THE CORRECT UNIT TO REPLACE THE DEFECTIVE ONE
14. DRAW A DIAGRAM OF THE WIRES GOING TO THE UNIT AND LABEL THE COLOR OF EACH WIRE ----->

15. DISCONNECT THE WIRES FROM THE DEFECTIVE UNIT
16. REPLACE THE WIRES, BEING CAREFUL TO REPLACE THEM PROPERLY -FIG. 6

WHAT YOU MUST KNOW

DIFFERENT MANUFACTURERS USE DIFFERENTLY COLORED WIRES. IF THE WIRES ARE CROSSED, THE UNIT WILL NOT WORK PROPERLY. THEREFORE, YOU NEED TO MAKE NOTE OF THE COLOR OF THE WIRE WHICH GOES TO TERMINAL #1 AND THE COLOR OF THE WIRE WHICH GOES TO TERMINAL #2. MOST MANUFACTURERS USE WHITE FOR COMMON, BUT YOU SHOULD CHECK ON THIS UNIT TO BE SURE THAT COMMON IS WHITE.

--> REFER TO YOUR DIAGRAM FOR THE PROPER CONNECTIONS.



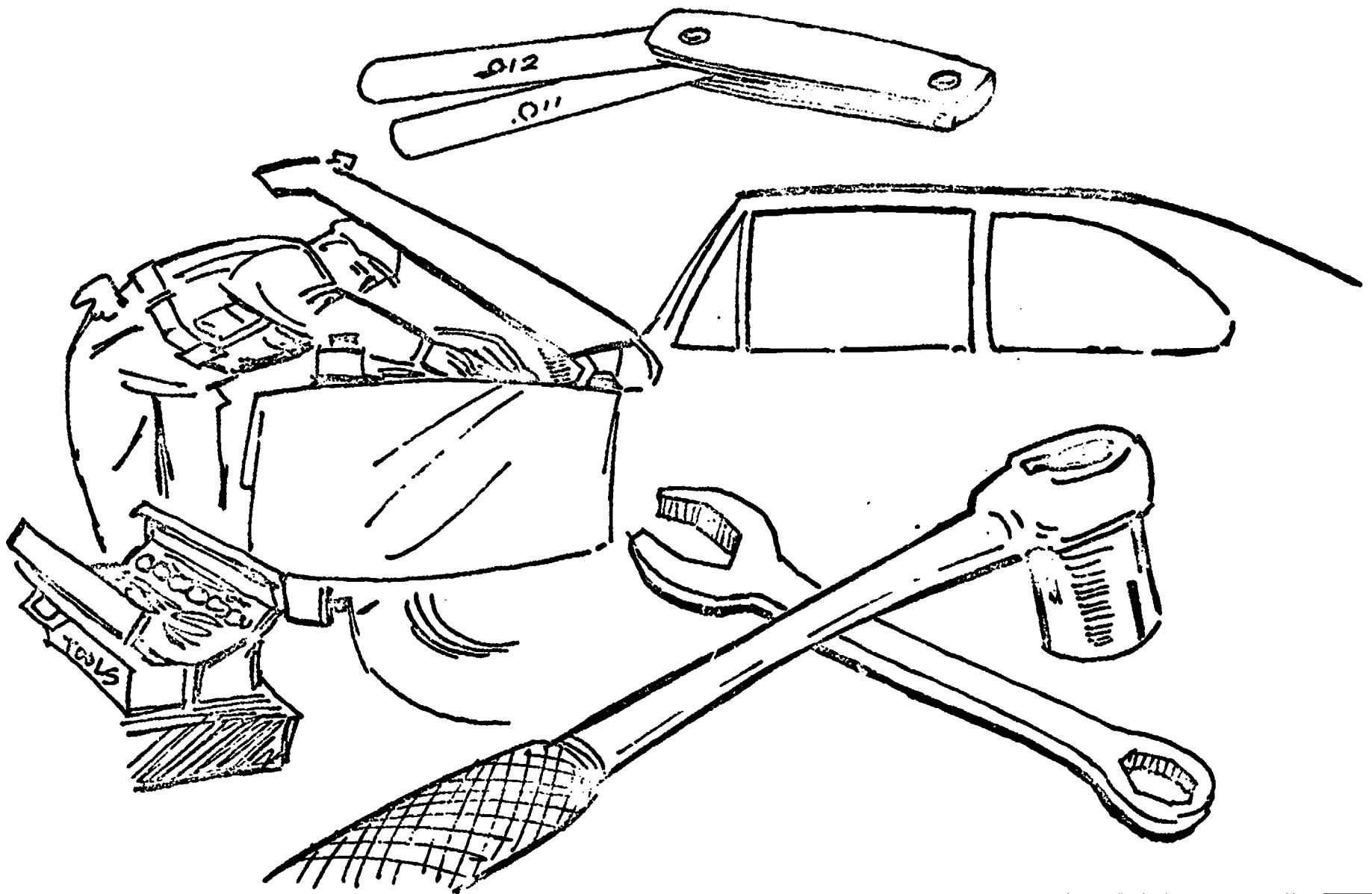
17. REPLACE THE SCREW WHERE THE UNIT HINGES

18. LOWER THE UNIT INTO THE RANGE ----->

DO NOT PLUG THE RANGE IN UNTIL THE INSTRUCTOR OR THE STUDENT ASSISTANT HAS CHECKED YOUR WORK.



AN INTRODUCTION TO



AUTO INDUSTRIES

PART C OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO

AUTO INDUSTRIES

BY ERNEST VINEYARD
WOODROW WILSON

SOME INTERESTING FACTS ABOUT AUTO INDUSTRIES

1. WHAT KIND OF WORK IS DONE?

AN AUTOMOBILE MECHANIC MIGHT WORK IN A SERVICE STATION, AN AUTOMOBILE DEALERSHIP, OR A REPAIR SHOP. THE WORK INVOLVES THE LOCATION OF MALFUNCTIONING EQUIPMENT AND THE INSTALLATION AND THE REPAIR OF PRACTICALLY ANY OF THE MECHANICAL PARTS OF CARS. SPECIALTY AREAS MIGHT INCLUDE TUNE-UP AND DIAGNOSIS, BREAKS, AUTOMATIC TRANSMISSION, FRONT-END, ELECTRICAL SYSTEM, AIR-CONDITIONING, AND BODY REPAIR.

2. WORKING CONDITIONS:

MOST WORK IS PERFORMED INDOORS IN A REPAIR SHOP. MANY OLDER SHOPS ARE COLD IN THE WINTER AND HOT IN THE SUMMER. HOWEVER, NEWER BUILDINGS ARE WELL HEATED AND ARE PROVIDED WITH GOOD VENTILATION DURING SUMMER. THE SHOP IS USUALLY NOISY AND THE WORK IS OFTEN GREASY AND DIRTY.

3. SALARY SCALE:

THE SALARY VARIES GREATLY FROM ONE SHOP TO ANOTHER. THE INEXPERIENCED MECHANIC CAN EXPECT \$1.75 TO \$2.25 PER HOUR. A MORE EXPERIENCED MECHANIC CAN EARN ABOUT \$4.00 TO \$5.00 PER HOUR. IN MANY SHOPS THE WORKER RECEIVES ONE HALF OF A TEN DOLLAR FLAT RATE.

4. TYPE OF CLOTHING WORN:

MOST SHOPS REQUIRE UNIFORMS.

5. PERSONAL QUALITIES NECESSARY:

IN ADDITION TO HAVING TO WORK WELL WITH BOTH THE MANAGEMENT AND HIS FELLOW WORKERS, THE MECHANIC MUST BE ABLE TO REMAIN EVEN-TEMPERED AND COURTEOUS IN DEALING WITH ANGRY CUSTOMERS.

MANIPULATIVE SKILLS: THE MECHANIC SHOULD BE ABLE TO WORK EFFICIENTLY WITH A LARGE VARIETY OF HAND TOOLS.

EDUCATIONAL QUALIFICATIONS:
MOST EMPLOYERS PREFER TO HIRE HIGH SCHOOL GRADUATES.

6. OTHER FACTS OF INTEREST:

A QUALIFIED MECHANIC IS ALMOST ALWAYS ABLE TO FIND A JOB. HOWEVER, HE MUST BE PREPARED TO KEEP PACE WITH THE MANY CHANGES THAT ARE MADE IN AUTOMOBILES EACH YEAR.

YOUR FIRST EXPERIENCE IN AUTO INDUSTRIES WILL BE:

TO CHANGE A FLAT CAR TIRE:

INTRODUCTION -- PLEASE READ CAREFULLY:

RUBBER TIRES ABSORB SOME ROAD IRREGULARITIES AND PROVIDE TRACTION FOR DRIVING AND BRAKING. TIRE CASINGS ARE MADE OF LAYERS OF CORD (PLIES) IMPREGNATED WITH RUBBER.

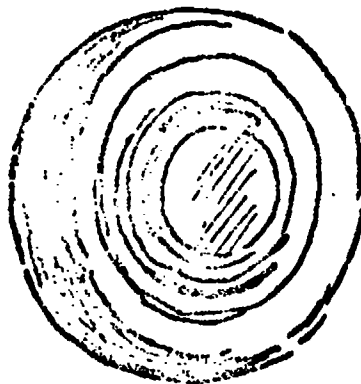
MOST PASSENGER CARS TIRES CONTAIN 2 PLY WITH 4 PLY RATING. IN USING 2 PLY TIRES WITH 4 PLY RATING INSTEAD OF 4 PLYS, THE CORDS ARE DOUBLED. THIS GIVES THE SAME STRENGTH AS THE 4 PLY BUT PROVIDES A MORE FLEXIBLE WALL FOR A SMOOTHER RIDE.

TIRE TREAD PATTERNS ARE DESIGNED TO MINIMIZE ROAD NOISE AND AT THE SAME TIME TO DEVELOP THE BEST TRACTION POSSIBLE.

SLITTING THE TREAD INTO MANY SMALL BLOCKS IS EFFECTIVE IN MINIMIZING SKIDDING. THE SMALL BLOCKS SCRAPE THE PAVEMENT DRY AND MAINTAIN TRACTION UNDER BRAKING PRESSURE.

REFERENCE:

AUTOMECHANICS BY HAROLD T. GLENN.



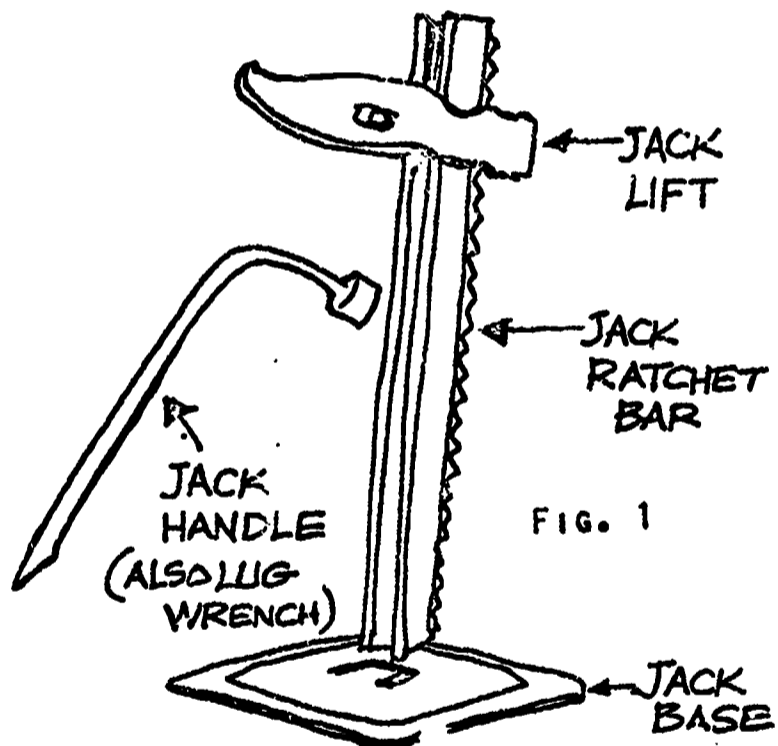
STEPS TO FOLLOW IN CHANGING A FLAT CAR TIRE:

TOOLS AND MATERIALS NEEDED: BUMPER JACK
LUG WRENCH
SCREWDRIVER
SPARE TIRE

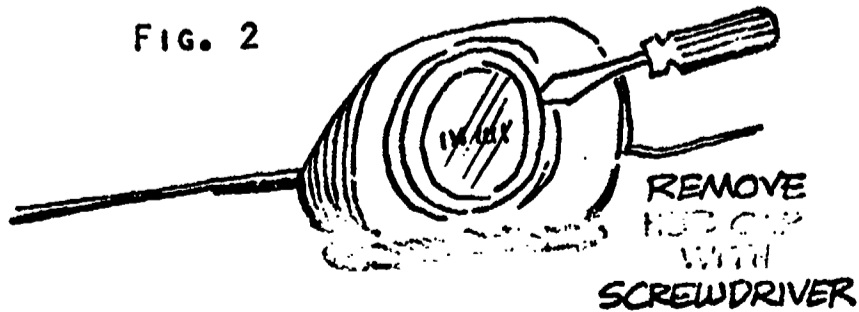
WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. PARK IN AS LEVEL A SPOT AS POSSIBLE--> THE MORE LEVEL THE SPOT, THE LESS LIKELY IT IS THAT THE CAR WILL ROLL OFF THE JACK.
2. THE CAR SHOULD BE IN PARK OR IN GEAR WITH THE EMERGENCY BRAKE ON-----> THESE MEASURES ALSO KEEP THE CAR FROM ROLLING.
3. IF YOU ARE WORKING ON A REAR WHEEL, INSERT A BLOCK BOTH IN FRONT OF AND BEHIND THE FRONT WHEEL
4. REMOVE THE SPARE WHEEL AND THE JACK FROM THE CAR
5. ASSEMBLE THE JACK FIG. 1



6. REMOVE THE HUB CAP OR THE WHEEL COVER WITH A SCREWDRIVER FIG. 2
7. LOOSEN THE WHEEL NUTS



WHAT YOU MUST DO

8. PLACE THE JACK IN THE NOTCH OF THE BUMPER
9. RAISE THE CAR UNTIL THE TIRE IS OFF THE GROUND FIG. 3
10. REMOVE THE WHEEL MOUNTING NUTS
11. REMOVE THE WHEEL AND THE TIRE FROM THE HUB
12. ROLL IT OUT OF THE WAY

13. TAKE THE SPARE AND INSTALL IT ON THE HUB

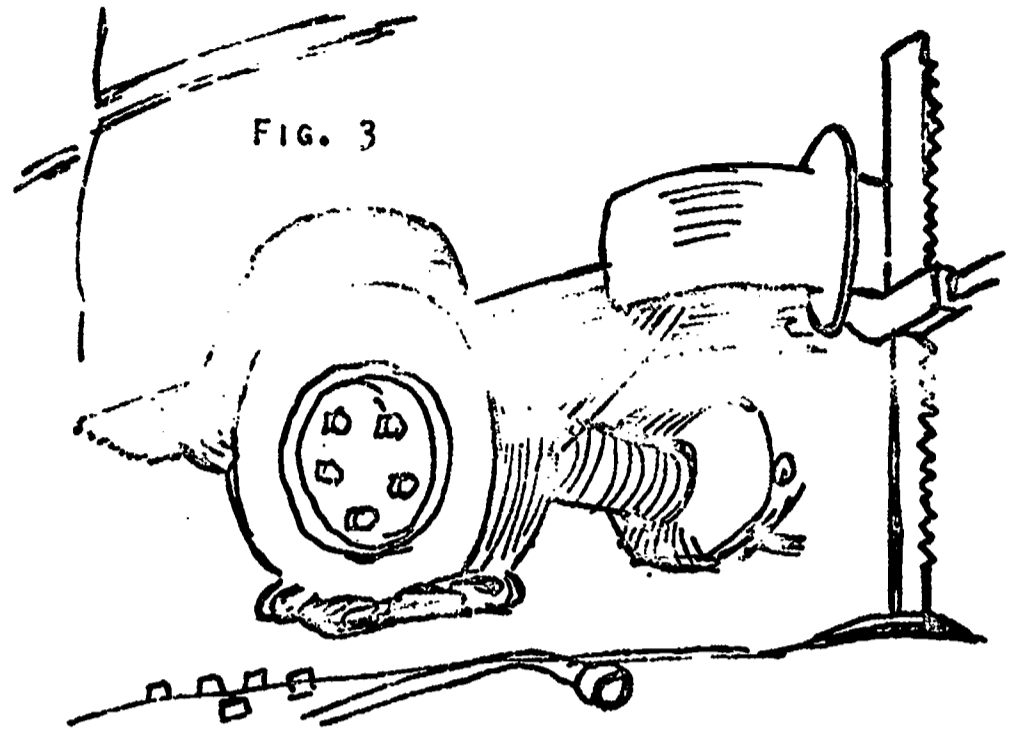
14. START ALL OF THE MOUNTING NUTS AND RUN THEM UP "FINGER TIGHT" FIG. 4 →

15. WITH THE LUG WRENCH, TIGHTEN ONE NUT

16. ACROSS FROM THAT MOUNTING NUT TIGHTEN ANOTHER ONE, KEEPING THE WHEEL AS STRAIGHT ON THE HUB AS POSSIBLE

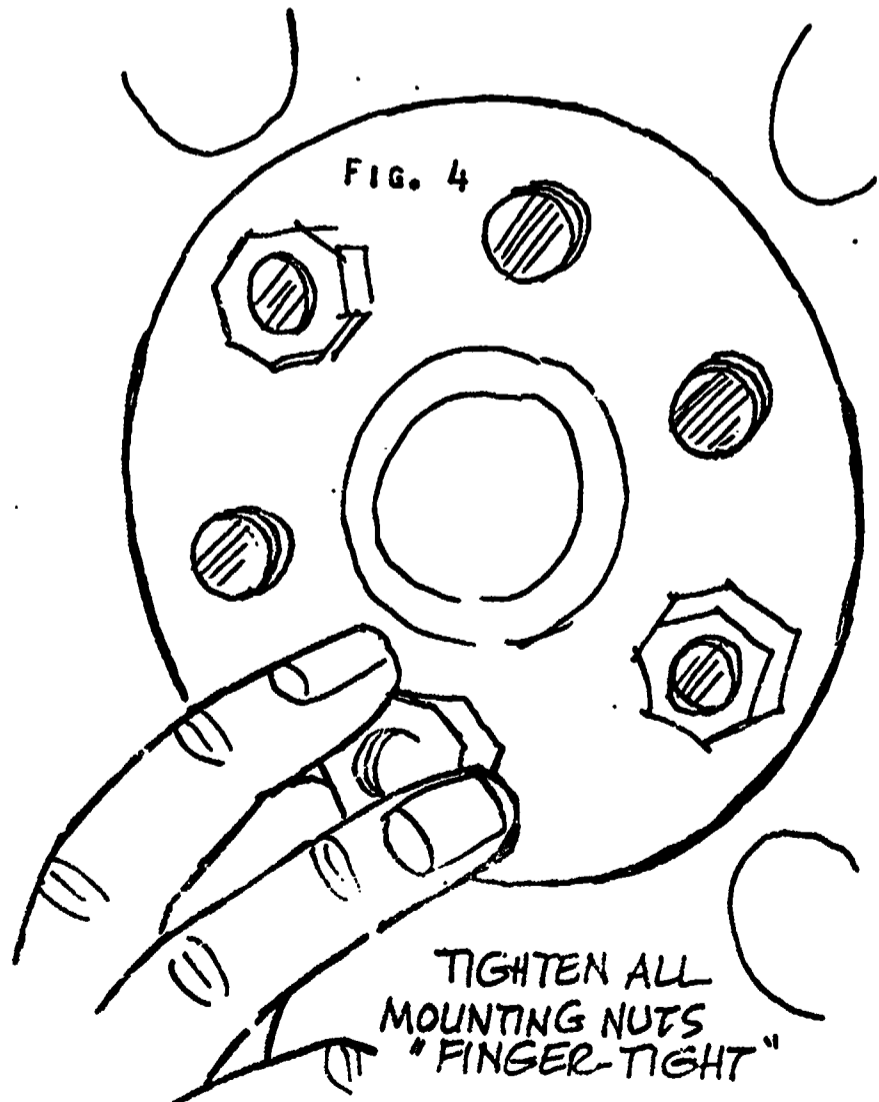
17. RETIGHTEN THE REST OF THE NUTS FINGER TIGHT

WHAT YOU MUST KNOW



RAISE CAR UNTIL TIRE IS OFF THE GROUND.

"FINGER TIGHT" IS TIGHTENING AS MUCH AS YOU CAN USING ONLY YOUR FINGERS.



TIGHTEN ALL MOUNTING NUTS "FINGER-TIGHT"

WHAT YOU MUST DO

18. WHEN ALL OF THE MOUNTING NUTS ARE FINGER TIGHT, PUSH THE HANDLE OF THE JACK DOWN SLIGHTLY. THEN SHIFT THE JACK TO "DOWN"
19. TO LOWER YOUR CAR, YOU MUST NOW WORK THE JACK HANDLE (THE LUG WRENCH) JUST AS YOU DID TO RAISE IT FIG. 5
20. RETIGHTEN THE MOUNTING NUTS WITH THE LUG WRENCH
21. INSTALL THE HUB CAP OR THE WHEEL COVER
22. PUT THE SPARE, THE LUG WRENCH, THE SCREWDRIVER, AND THE JACK BACK INTO CAR
23. REMOVE THE BLOCKS FROM THE FRONT WHEELS

WHAT YOU MUST KNOW

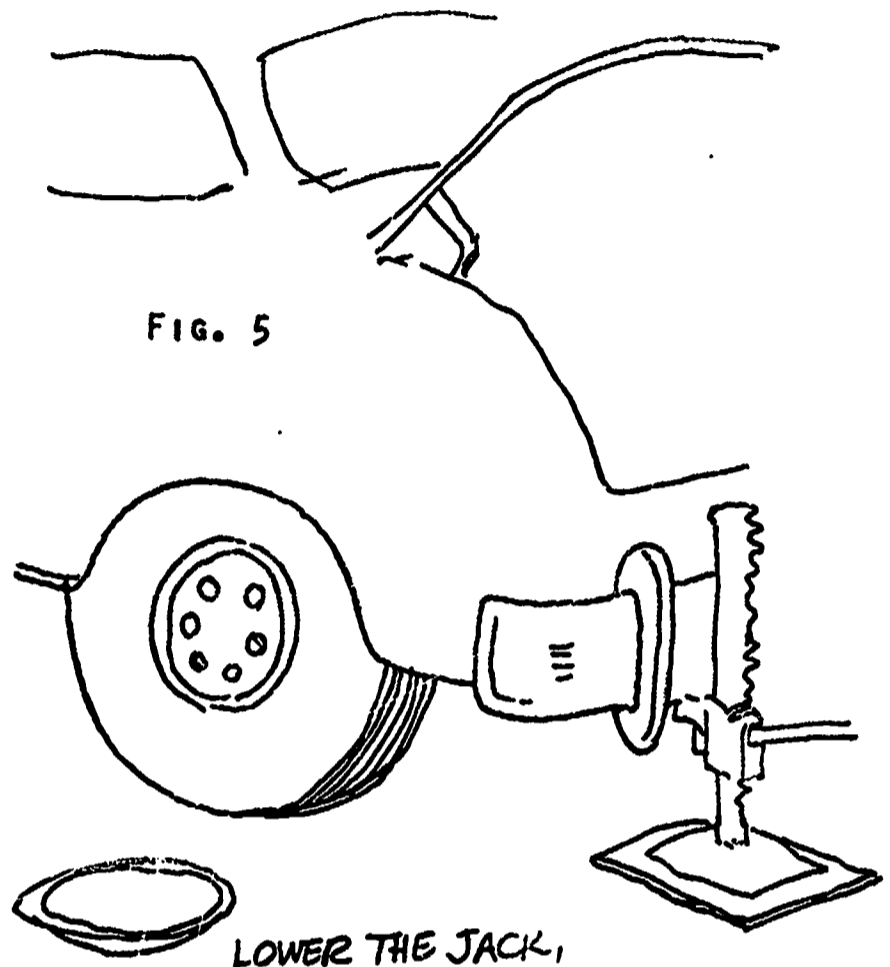


FIG. 5

LOWER THE JACK,
REPLACE THE HUB-CAP,
AND PUT THE FLAT-TIRE
IN THE TRUNK.

YOUR SECOND EXPERIENCE IN AUTO INDUSTRIES IS:

**TO REMOVE A TIRE FROM THE RIM USING
A TIRE MACHINE, TO REPLACE THE TIRE ON
THE RIM, USING THE SAME MACHINE, AND
TO INFLATE THE TIRE.**

INTRODUCTION -- PLEASE READ CAREFULLY:

TIRE MACHINES OF THIS TYPE ARE USED IN SERVICE STATIONS AND TIRE DEALERSHIPS THROUGHOUT THE COUNTRY. WITHOUT THEM, REMOVING A TIRE FROM THE RIM AND REPLACING IT ON THE RIM WOULD BE A MUCH LESS EFFICIENT OPERATION.

THOUGH THE DETAILS VARY FROM ONE MACHINE TO ANOTHER, THE PROCEDURES FOR REMOVING THE TIRE FROM THE RIM AND FOR REPLACING IT ON THE RIM ARE FAIRLY STANDARD. LIKEWISE, THE PROCEDURE FOR INFLATING THE TIRE APPLIES REGARDLESS OF THE TYPE OF TIRE MACHINE.

BE ESPECIALLY CAREFUL WHEN INFLATING THE TIRE. READ AND FOLLOW ALL OF THE DIRECTIONS ON TIRE INFLATION.

REFERENCES:

**COATS THREE STAR TIREMAN OPERATING
INSTRUCTIONS, THE COATS COMPANY, INC.**

STEPS TO FOLLOW IN LOOSENING THE TOP AND BOTTOM BEADS:

TOOLS AND MATERIALS NEEDED: TIRE WHEEL CLAMPING CONE
VALVE CORE REMOVER BEAD LOOSENER TOOL
TIRE MACHINE

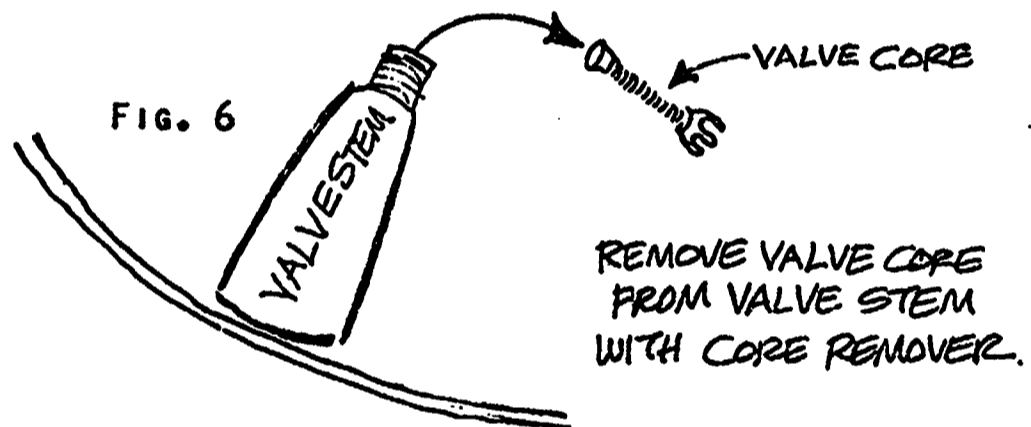
WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

LOWER BEAD

1. REMOVE THE VALVE CORE TO RELEASE AIR FROM THE TIRE -- FIG. 6

UNSCREW THE VALVE CORE WITH THE VALVE CORE REMOVER



2. PLACE THE WHEEL ON THE STAND WITH THE WIDE HALF OF THE RIM ON THE TABLE AND WITH THE POSITIONING PIN THROUGH A LUG HOLE

3. IF THE TIRE IS THE SAFETY LINER TYPE, THE PROCEDURE DIFFERS FROM THE FOLLOWING STEPS

CHECK WITH YOUR INSTRUCTOR TO FIND OUT WHETHER OR NOT YOU ARE DEALING WITH A SAFETY LINER TIRE.

4. SCREW THE WHEEL CLAMPING CONE DOWN FINGER TIGHT ON THE WHEEL AFTER ALL OF THE AIR IS OUT OF THE TIRE

BE SURE THAT THE CONE IS CENTERED IN THE WHEEL.

5. RAISE THE LOWER BEAD LOOSENER LEVER AS FAR AS POSSIBLE

THE BEADS ARE THE STRIPS AROUND THE INNER EDGES OF THE TIRE THAT COME IN CONTACT WITH THE RIM.

6. HOLD IT IN THIS POSITION UNTIL NO MORE AIR COMES FROM THE TIRE VALVE

WHAT YOU MUST DO

WHAT YOU MUST KNOW

7. IF THE LOWER BEAD HAS NOT LOOSENED AT THIS TIME, LOWER THE HANDLE UNTIL THE SHOE CONTACTS THE RIM, THEN ROTATE THE BEAD LOOSENER ABOUT THE LENGTH OF THE SHOE (45 DEGREES) TO THE LEFT OR RIGHT AND RAISE THE HANDLE AGAIN FIG. 7

THIS WILL LOOSEN NEARLY ALL TIRES.

8. HOWEVER, IF THE TIRE IS STILL NOT LOOSENED, REPEAT THIS LAST STEP UNTIL THE LOWER BEAD IS FREE

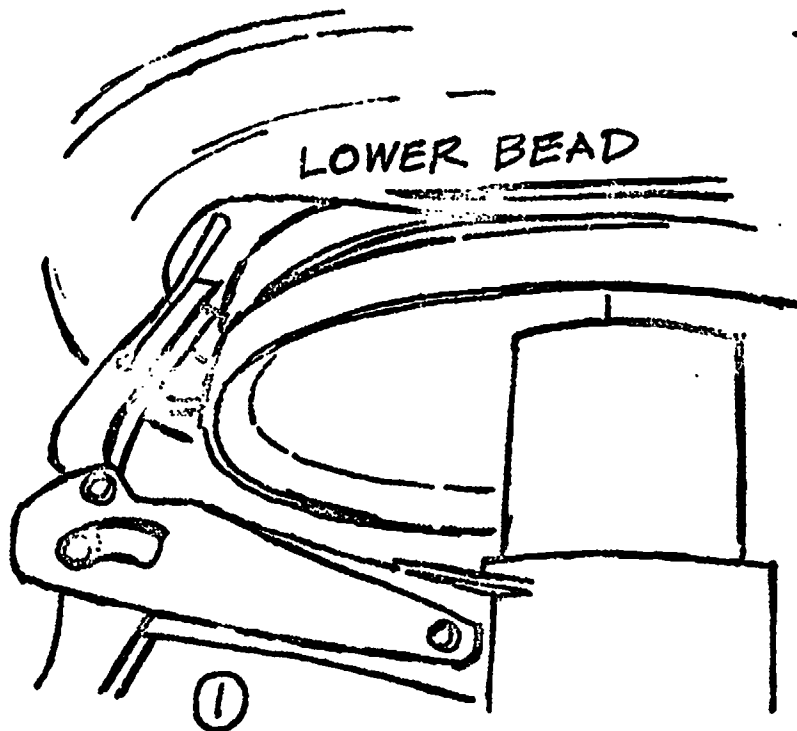
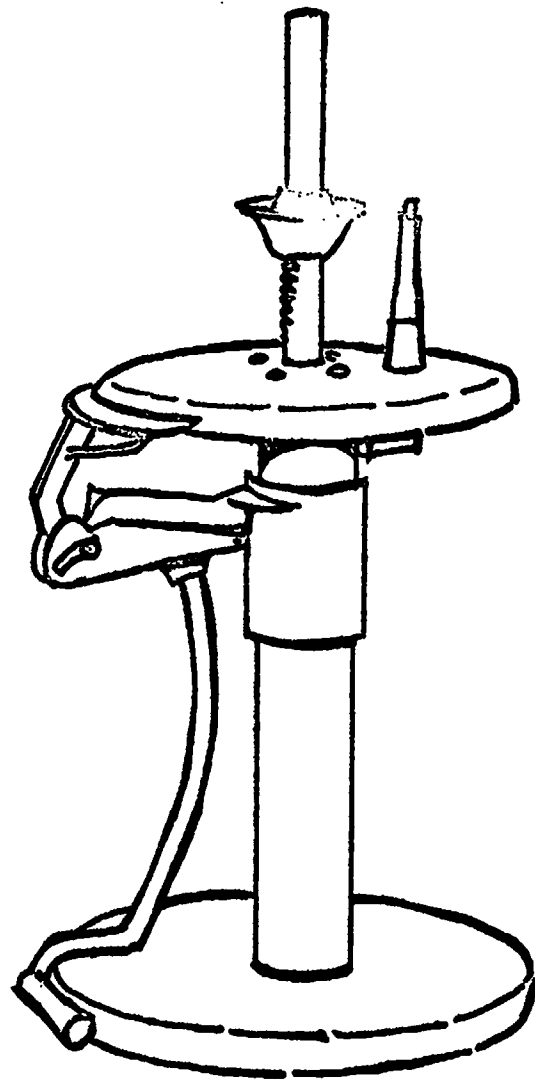
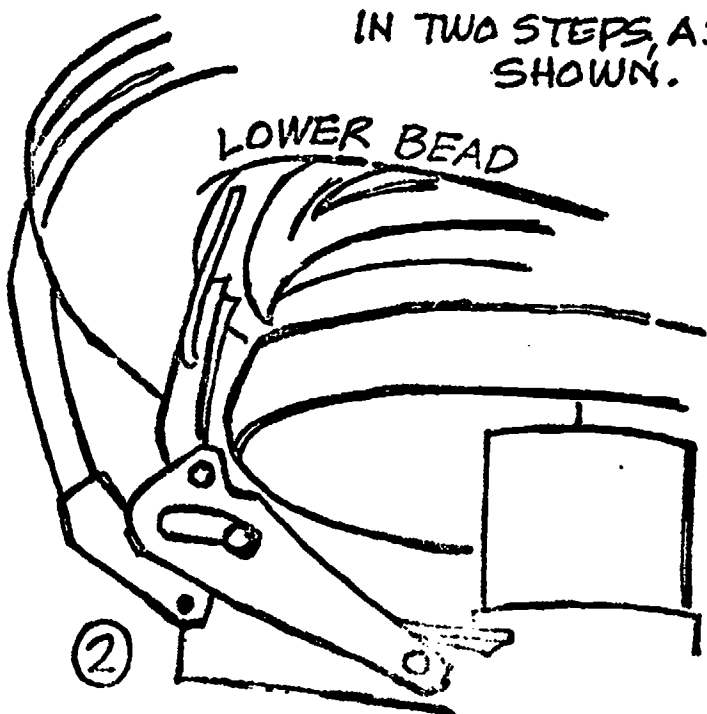


FIG. 7

LOOSEN LOWER BEAD IN TWO STEPS AS SHOWN.



A TIRE REMOVING MACHINE

WHAT YOU MUST DO

WHAT YOU MUST KNOW

TOP BEAD

9. SLIDE THE TUBING END OF THE BEAD LOOSENER TOOL OVER THE CENTER POST FIG. 8
10. SLOWLY EXERT PRESSURE DOWNWARD ON THE HANDLE
11. LET UP ON THE HANDLE TO ALLOW THE LOOSENER ARM TO LOWER ON THE CENTER POST TO OBTAIN GREATER LEVERAGE
12. WITH ONE HAND HOLDING THE SHOE TIGHTLY AGAINST THE RIM, PRESS DOWN .
13. IF NECESSARY, MOVE TO THE LEFT OR TO THE RIGHT A FEW INCHES AND REPEAT THE PROCESS UNTIL THE BEAD IS LOOSENED

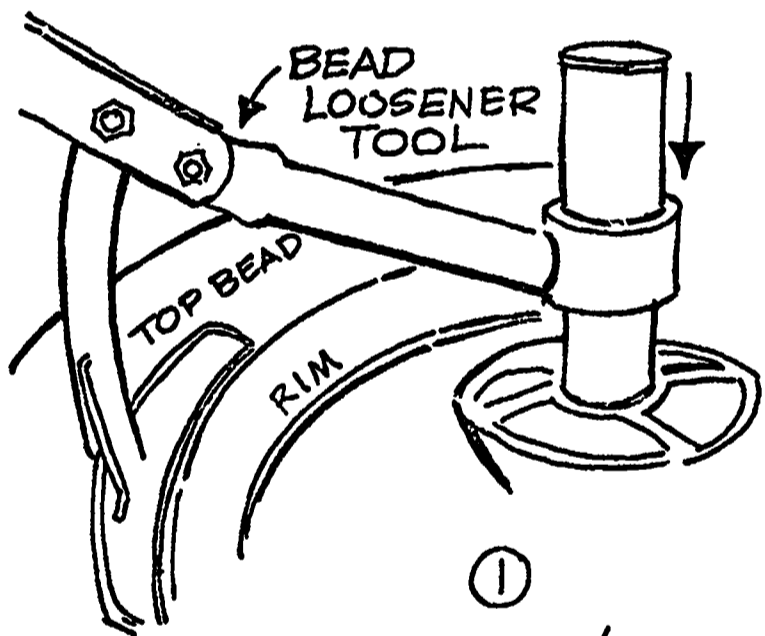
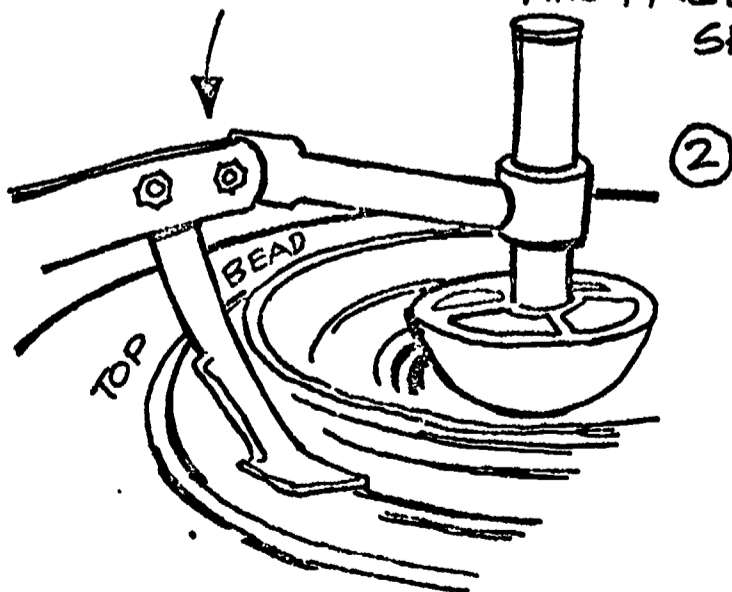


FIG. 8

TO LOOSEN TOP BEAD,
ATTACH LOOSENER TOOL
AND PRESS DOWN, AS
SHOWN.



STEPS TO FOLLOW IN REMOVING THE TIRE FROM THE RIM:

TOOLS AND MATERIALS NEEDED: TIRE
TIRE MACHINE
LUBRICANT
COMBINATION TOOL

WHAT YOU MUST DO

1. ALWAYS APPLY LUBRICANT TO BOTH THE TOP AND THE BOTTOM BEADS
2. PUSH THE TOP BEAD ON ONE SIDE OF THE TIRE DOWN INTO THE DROP CENTER OF THE RIM AND INSERT THE TAKE-OFF END OF THE COMBINATION TOOL UNDER THE TOP BEAD ON THE OPPOSITE SIDE OF THE TIRE - FIG. 9

WHAT YOU MUST KNOW
TO DO THESE STEPS

3. MOVE YOUR HANDS TO THE OPPOSITE END OF THE TOOL AND PULL THE TOOL IN A CLOCKWISE DIRECTION UNTIL THE ENTIRE UPPER BEAD IS ABOVE THE RIM FIG. 10

-----> THE DROP CENTER OF THE RIM IS THE DEEPEST POINT IN THE RIM.

-----> THE TRAILING ARM PREVENTS THE TIRE FROM SLIPPING BACK OVER THE RIM DURING THE DEMOUNTING OPERATION.

FIG. 9

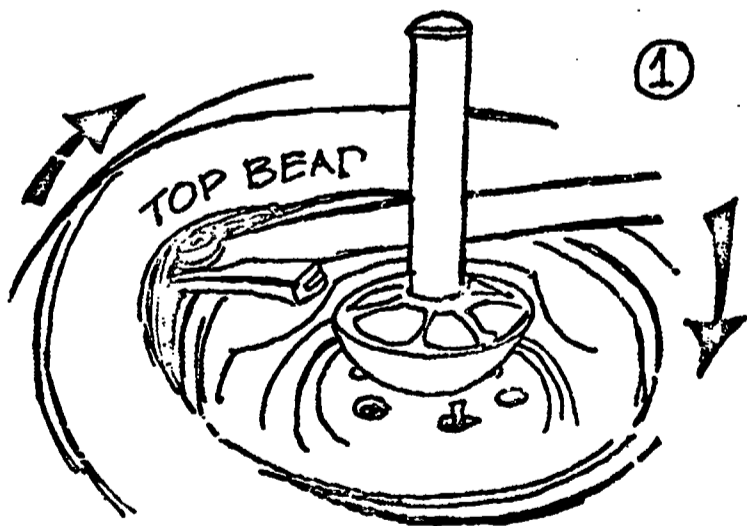
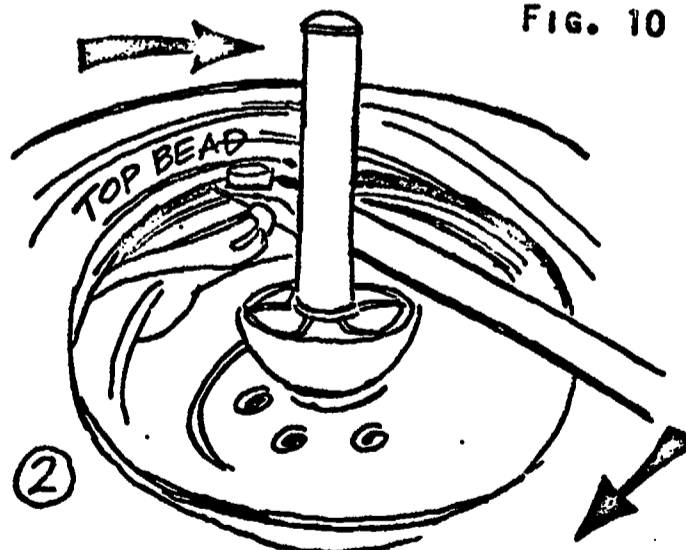


FIG. 10



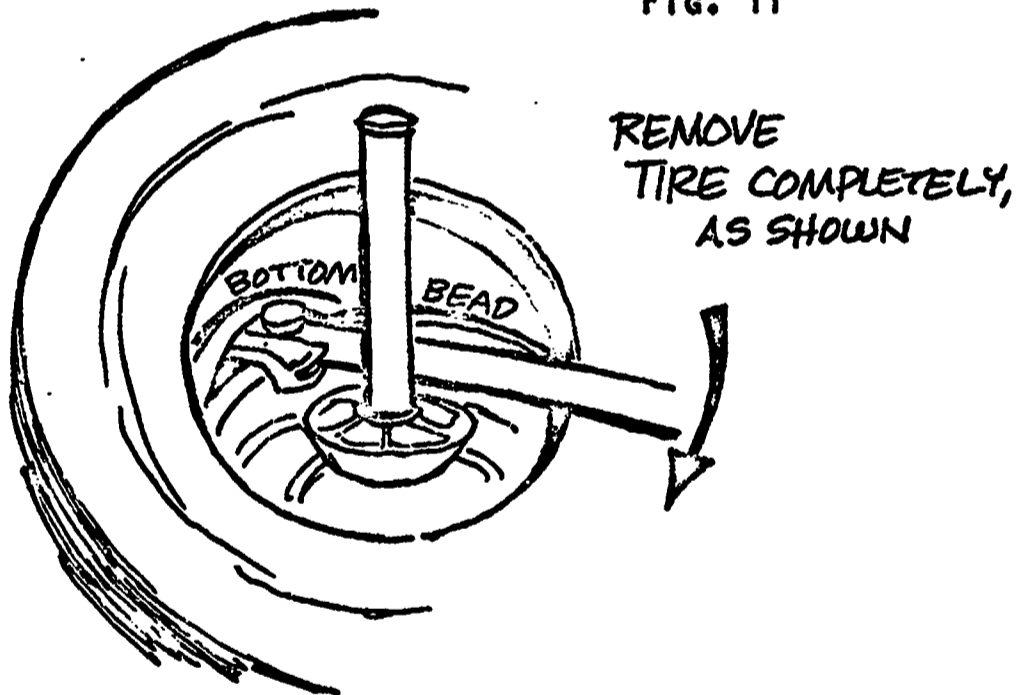
USE THE TAKE-OFF TOOL
AS SHOWN.

WHAT YOU MUST DO

4. IF THE TIRE CONTAINS A TUBE, TAKE IT OUT BEFORE REMOVING THE LOWER BEAD
5. WITH THE TOP BEAD ABOVE THE RIM, LIFT AND PUSH THE BOTTOM BEAD ON ONE SIDE OF THE TIRE INTO THE DROP CENTER OF THE RIM AND INSERT THE TAKE-OFF END OF THE TOOL UNDER THE BOTTOM BEAD ON THE OPPOSITE SIDE OF THE TIRE
6. MOVE YOUR HANDS TO THE OPPOSITE END OF TOOL AND PULL THE TOOL IN A CLOCKWISE DIRECTION TO REMOVE THE TIRE FIG. 11

WHAT YOU MUST KNOW

FIG. 11



STEPS TO FOLLOW IN MOUNTING THE TIRE ON THE RIM:

TOOLS AND MATERIALS NEEDED: TIRE COMBINATION TOOL
TIRE MACHINE AIR HOSE
LUBRICANT

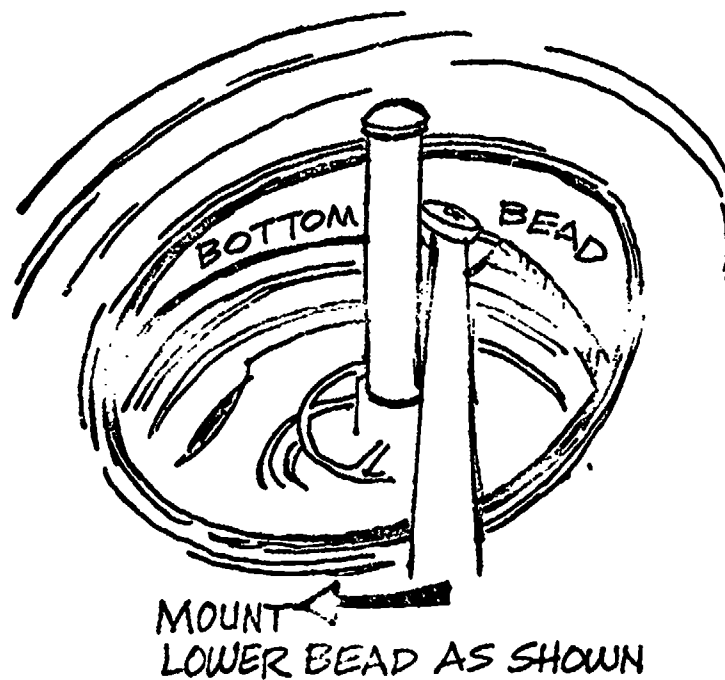
WHAT YOU MUST DO

BOTTOM BEAD

1. ALWAYS APPLY A RUBBER LUBRICATION ON BOTH TOP AND BOTTOM BEADS
2. IF A TUBE IS USED, INSERT THE TUBE INTO THE CASING
3. ADD AIR TO ROUND OUT THE TUBE
4. APPLY RUBBER LUBRICANT TO THE EXPOSED TUBE SURFACE
5. PLACE THE RIM ON THE STAND WITH THE WIDE HALF OF THE RIM ON THE TABLE AND WITH THE POSITIONING PIN THROUGH A LUG HOLE FIG. 12

WHAT YOU MUST KNOW TO DO THESE STEPS

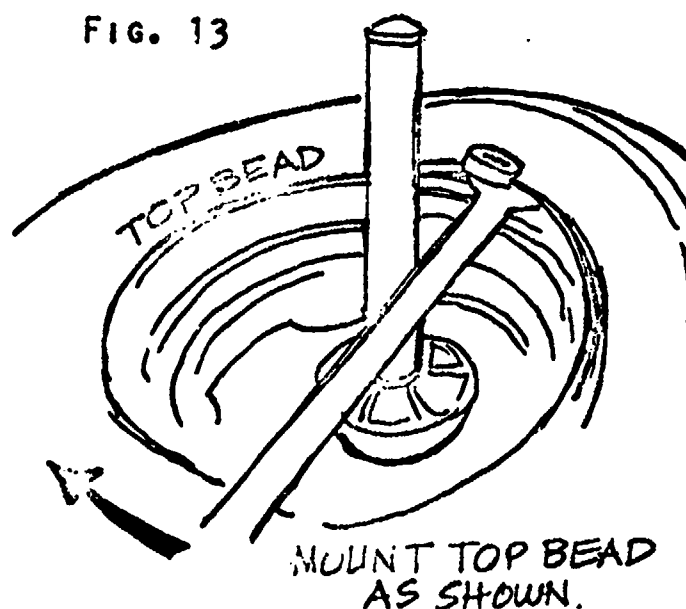
FIG. 12



6. PLACE THE TIRE LOOSELY ON THE RIM ----->
7. PLACE THE HOOK END OF THE COMBINATION TOOL BETWEEN THE LOWER BEAD AND THE TOP OF THE RIM WITH THE HOOK OVER THE WHEEL RIM FLANGE FIG. 13
8. MOVE YOUR HANDS TO THE OPPOSITE END OF THE TOOL AND PULL THE TOOL IN A CLOCKWISE DIRECTION
9. IF THE TIRE ROTATES WITH THE TOOL, HOLD THE TIRE WITH YOUR LEFT HAND WHILE PULLING ON THE TOOL

DO NOT FORCE THE BOTTOM BEAD INTO THE RIM WELL UNTIL YOU HAVE PLACED THE HOOK END OF THE COMBINATION TOOL IN POSITION.

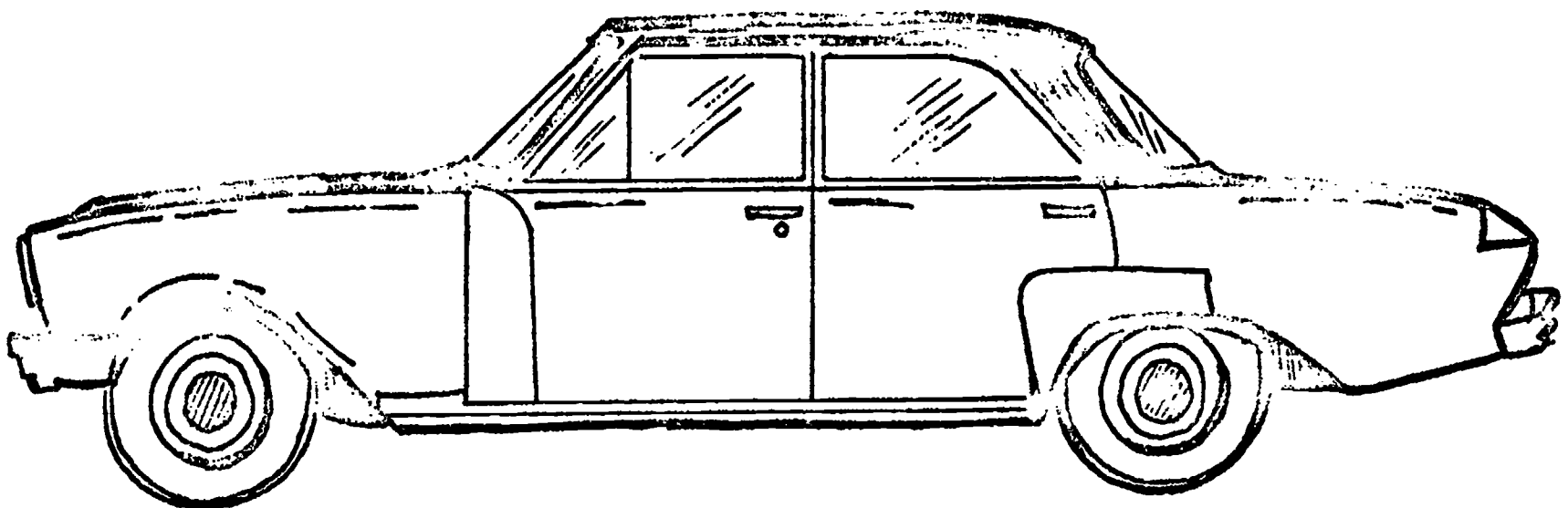
FIG. 13



TOP BEAD

10. FOLLOW STEPS 7-9 WITH THE TOP BEAD

WITH EMPHASIS ON



AUTO BODY

PART B OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO
AUTO BODY

BY DAVID WOOD

SOME INTERESTING FACTS ABOUT AUTO BODY:

1. WHAT KIND OF WORK IS DONE?

THE BODIES OF CARS AND COMMERCIAL VEHICLES ARE REPAIRED AND REFINISHED. THIS INVOLVES GLASS INSTALLATION, METAL STRAIGHTENING, PAINTING (INSIDE AND OUT), TRIM REMOVAL AND REPLACEMENT, WIRING REPAIR AND REPLACEMENT, PANEL REPLACEMENT (BOLT-ON AND WELD-ON), FRAME REPAIR, MECHANICS (FRONT ENGINE ACCESSORIES, KNEES AND MOTOR SUPPORTS). IN A BODY SHOP YOU MIGHT WORK AS A:

METAL-MAN
PAINTER
NEW PARTS-MAN
USED PARTS-MAN
GLASS INSTALLER
SHOP FOREMAN
PAINT STORE COUNTERMAN
FRAME REPAIRMAN

2. WORKING CONDITIONS:

WORK IS USUALLY DONE INSIDE A WELL-LIGHTED, DUSTY, NOISY SHOP. THE AREA IS HEATED IN THE WINTER BUT IS PROBABLY NOT AIR CONDITIONED IN THE SUMMER.

3. SALARY SCALE:

THE EARNINGS OF AUTO-BODY REPAIRMEN VARY ACCORDING TO THE TYPE OF EMPLOYER AND THE SECTION OF THE COUNTRY. AS LOW AS \$1.00 AN HOUR FOR INEXPERIENCED HELP OR AS HIGH AS \$4.00 AN HOUR FOR A TRAINED, EXPERIENCED REPAIRMAN MAY BE EARNED. SOME JOBS PAY A GUARANTEED SALARY PLUS COMMISSION OR A COMMISSION ONLY. IN THE LOCAL AREA, SOME COMMERCIAL AUTO BODY REPAIR SHOPS LET THE REPAIRMAN KEEP 50% TO 60% OF AN \$8.00 PER HOUR FLAT RATE.

4. TYPE OF CLOTHING WORN:

COMFORTABLE WORK CLOTHES SHOULD BE WORN. THEY SHOULD BE NEITHER TOO LOOSE NOR TOO TIGHT.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: THE AUTO BODY WORKER SHOULD BE ABLE TO USE TOOLS WELL ENOUGH TO DO THE MECHANICAL, PAINTING, AND STRAIGHTENING WORK REQUIRED. HE SHOULD HAVE GOOD ENOUGH EYESIGHT TO SHAPE METAL AND ALIGN PANELS.

PERSONALITY CHARACTERISTICS: IT IS NECESSARY TO BE ABLE TO DEAL WELL WITH OTHER WORKERS, THE MANAGEMENT, AND THE CUSTOMER.

EDUCATION QUALIFICATIONS: A HIGH SCHOOL EDUCATION IS ESSENTIAL. IN ADDITION, AREA VOCATIONAL SCHOOL TRAINING WILL NORMALLY MERIT A HIGHER STARTING SALARY.

6. OTHER FACTS OF INTEREST:

THE AUTO BODY TRADE IS A STABLE PROFESSION WITH MANY OPPORTUNITIES FOR WORKING WITH OTHERS AND FOR OPERATING YOUR OWN BUSINESS.

YOUR FIRST EXPERIENCE IN AUTO BODY WILL BE:

TO MASK A CAR DOOR BY COVERING WITH THE PROPER WIDTHS OF PAPER AND TAPE THOSE PARTS OF THE DOOR WHICH ARE NOT TO BE PAINTED.

INTRODUCTION -- PLEASE READ CAREFULLY:

CERTAIN PARTS OF THE CAR ARE MASKED SO THAT THEY WILL BE PROTECTED FROM THE PAINT AND THE PAINT MIST WHEN THE REST OF THE CAR IS PAINTED.

MASKING TAPE IS USED AROUND THE EDGES OF ALL AREAS TO BE MASKED. LARGE AREAS ARE THEN FILLED IN WITH PAPER AND THE EDGES ARE SEALED WITH TAPE. SMALL AREAS ARE COVERED WITH TAPE ONLY. BE CAREFUL NOT TO USE TOO MUCH TAPE. DO NOT USE MASKING TAPE TO COVER AN AREA THAT CANNOT BE COVERED WITH 4 STRIPS OF TAPE. IF MORE THAN 4 STRIPS ARE REQUIRED, COVER THE PART WITH PAPER.

OVERTAPING OCCURS WHEN THE TAPE OR THE PAPER GOES PAST THE AREA THAT SHOULD BE COVERED AND COVERS AN AREA THAT SHOULD BE PAINTED.

WHEN YOU UNDERTAPE YOU EXPOSE SOME OF THE AREA THAT SHOULD BE COVERED.

STEPS TO FOLLOW IN MASKING A CAR DOOR:

TOOLS AND MATERIALS NEEDED:	CAR DOOR HOLDER	MASKING PAPER (OR SOME OTHER HEAVY DUTY PAPER)
	CLEAN RAGS	1/4" ROLL OF MASKING TAPE
	TOOTH BRUSH	3/4" ROLL OF MASKING TAPE
	RAZOR BLADE	1/8" ROLL OF MASKING TAPE
	GREASE AND WAX REMOVER	

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. PLACE THE DOOR ON THE DOOR HOLDER--> BE SURE THAT THE DOOR IS SAFELY ON THE HOLDER.
2. CLEAN THE DOOR AND THE CHROME WITH CLEAN, GREASE AND CHEMICAL FREE RAGS-----> USE A GREASE AND WAX REMOVER ON THE DOOR AND ON THE CHROME. THE RAGS MUST BE CLEAN.
3. USE THE TOOTHBRUSH TO CLEAN DIRT FROM THE EDGE OF THE CHROME FIG. 1
4. DRY THE AREA THOROUGHLY
5. PLACE A 3/4" STRIP OF TAPE AROUND ALL CHROME AND ALL GLASS THAT IS WIDE ENOUGH TO BE FILLED IN WITH PAPER--> IF THE AREA IS TOO LARGE TO BE COVERED WITH 4 STRIPS OF TAPE, THEN IT SHOULD BE COVERED WITH PAPER.

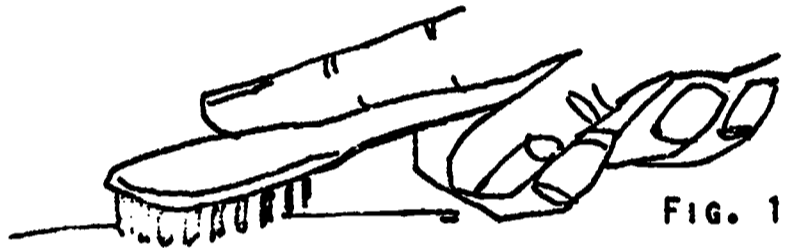


FIG. 1
A TOOTH BRUSH GETS THE DIRT OUT.

DO NOT OVERTAPE OR UNDERTAPE THE AREA.

6. FILL IN THE WIDE AREAS WITH THE MASKING PAPER-- FIG. 2 -----> FOLD THE PAPER NEATLY. KEEP THE PAPER FLAT AND MAKE SURE THAT IT FOLLOWS THE CONTOURS OF THE DOOR. USE A GOOD QUALITY PAPER. MASKING PAPER OR MEAT WRAPPING PAPER IS GOOD. NEWSPAPERS ARE NOT ADEQUATE.

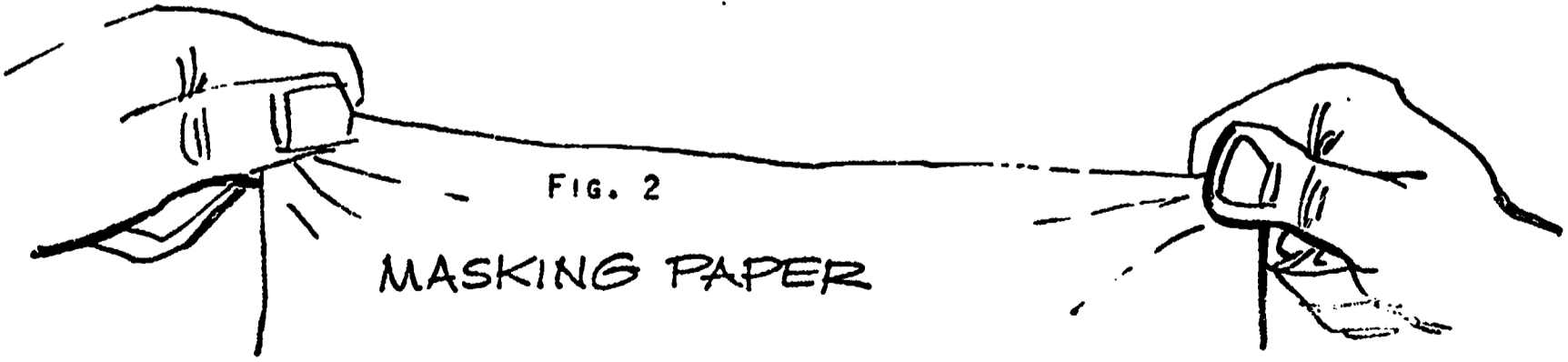


FIG. 2
MASKING PAPER

WHAT YOU MUST DO

7. SEAL OFF ALL AREAS BY TAPING DOWN THE EDGES OF THE MASKING PAPER WITH MASKING TAPE

8. TAPE ALL OF THE REST OF THE CHROME, THE EMBLEMS, AND THE NAMEPLATES-----▶

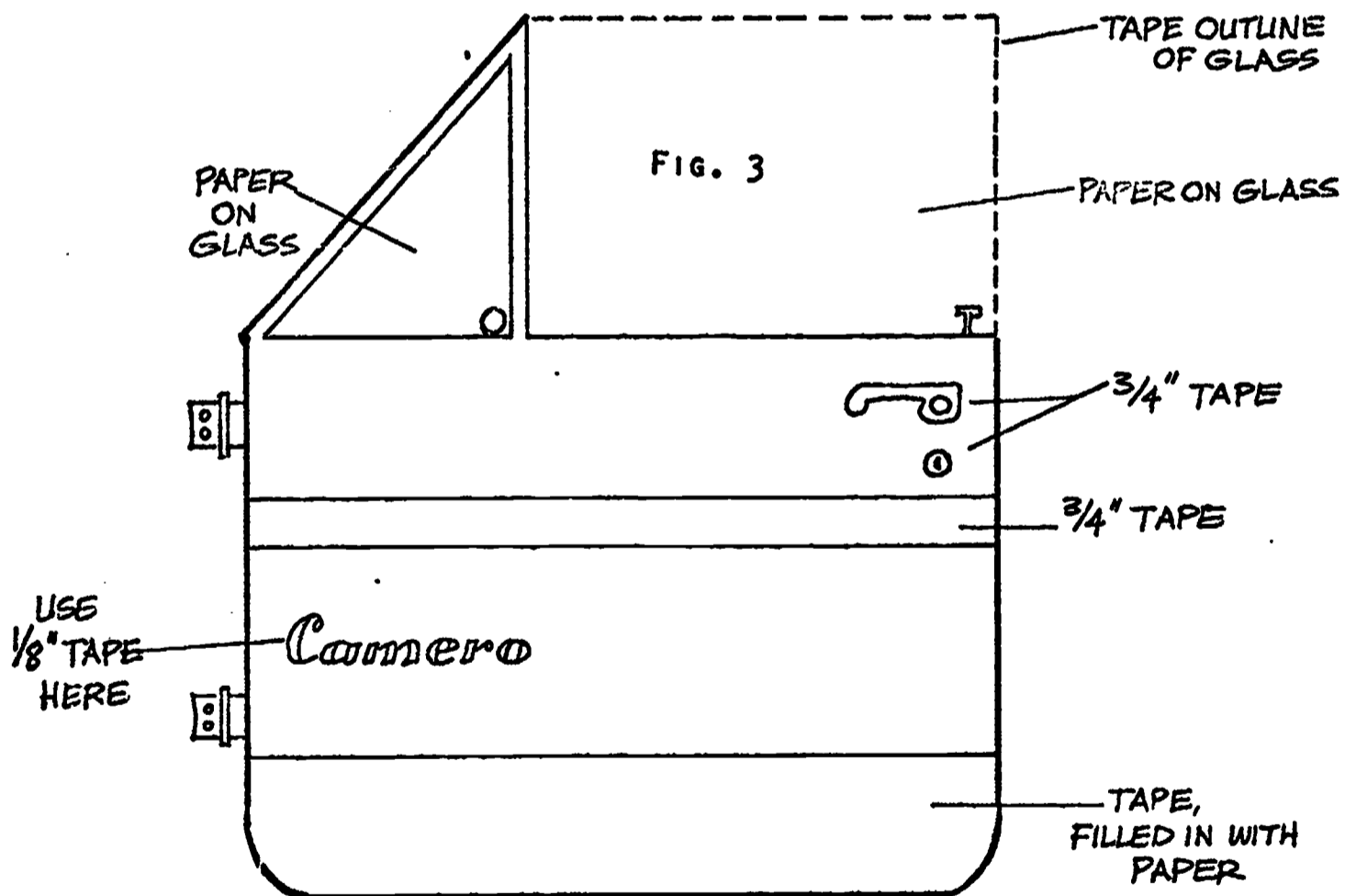
USE TAPE THAT MATCHES THE WIDTH OF THE PIECE THAT IS BEING TAPED. FIG. 3

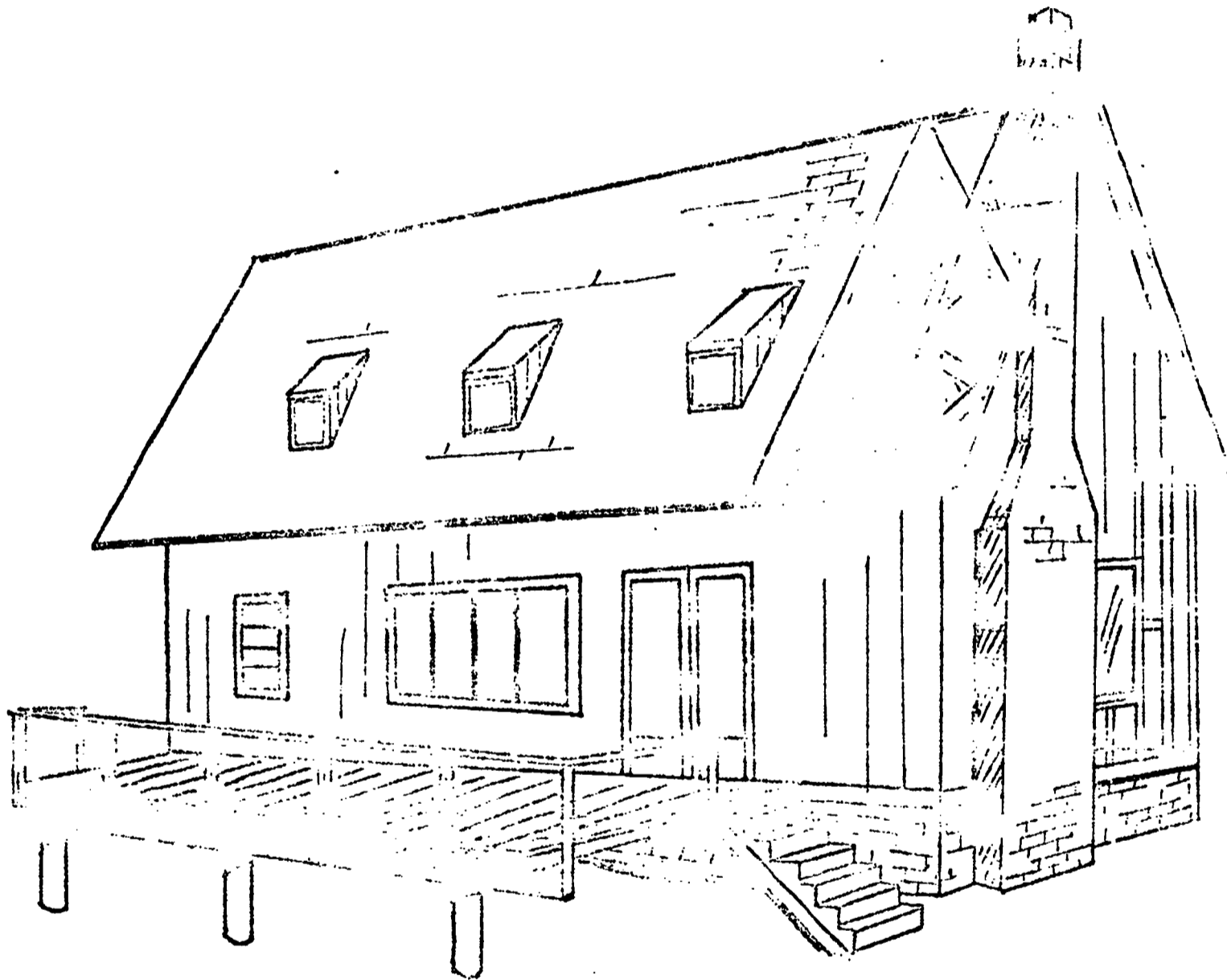
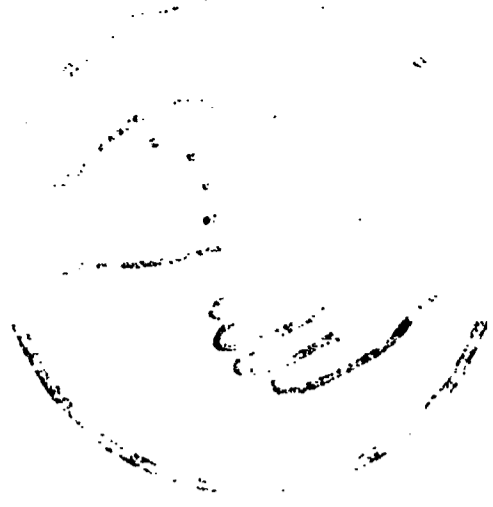
9. USE A RAZOR BLADE TO TRIM THE EXCESS TAPE AND PAPER

10. CHECK YOUR WORK-----▶

CHECK FOR UNDERTAPING AND OVERTAPING.

11. ASK THE INSTRUCTOR TO INSPECT YOUR WORK





WILLIAM H. HARRIS

PART D OF PLANS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO
BUILDING TRADES

BY JESSE W. COOK
WOODROW MCKINNEY

SOME INTERESTING FACTS ABOUT BUILDING TRADES

1. WHAT KIND OF WORK IS DONE?

CARPENTRY
PLUMBING
MASONRY
ELECTRICAL WIRING

2. WORKING CONDITIONS:

ABOUT 40% OF THE WORK IS CONDUCTED INDOORS. COMFORT OF THE WORK OUTSIDE VARIES ACCORDING TO THE WEATHER. ALL OF THESE POSITIONS REQUIRE MANUAL LABOR.

3. SALARY SCALE:

LOCAL WAGE SCALE FOR UNION JOURNEY-
MEN:

CARPENTER - \$5.55 / HR.
BRICK MASON - \$6.42 / HR.
ELECTRICIAN - \$5.91 / HR.
PLUMBER - \$7.27 / HR.

UNION LABORERS BEGIN AT ABOUT \$3.60 / HR. HOWEVER, A NON-UNION LABORER BEGINS AT \$2.00 - \$2.50 PER HR. WHILE A NON-UNION CARPENTER RECEIVES \$3.00 - \$4.50 PER HR.

4. TYPE OF CLOTHING WORN:

WORK CLOTHES THAT ARE COMFORTABLE AND ALLOW FOR EASY MOVEMENT ARE USUALLY NECESSARY. SAFETY SHOES ARE PREFERABLE TO ORDINARY WORK SHOES.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: YOU MUST BE STRONG AND ABLE TO USE ALL OF THE NECESSARY TOOLS WELL. YOU SHOULD BE VERSATILE ENOUGH IN BUILDING SKILLS TO BE ABLE TO ADAPT TO CHANGES WITHIN THE BUILDING PROFESSION.

PERSONALITY CHARACTERISTICS: YOU SHOULD BE ABLE TO FOLLOW DIRECTIONS AND WORK WELL WITH OTHERS.

EDUCATIONAL QUALIFICATIONS: A HIGH SCHOOL DIPLOMA IS NEEDED. FOR ADVANCEMENT INTO GENERAL CONTRACTING ONE SHOULD RECEIVE ADDITIONAL TRAINING IN AREAS SUCH AS DRAFTING.

6. OTHER FACTS OF INTEREST:

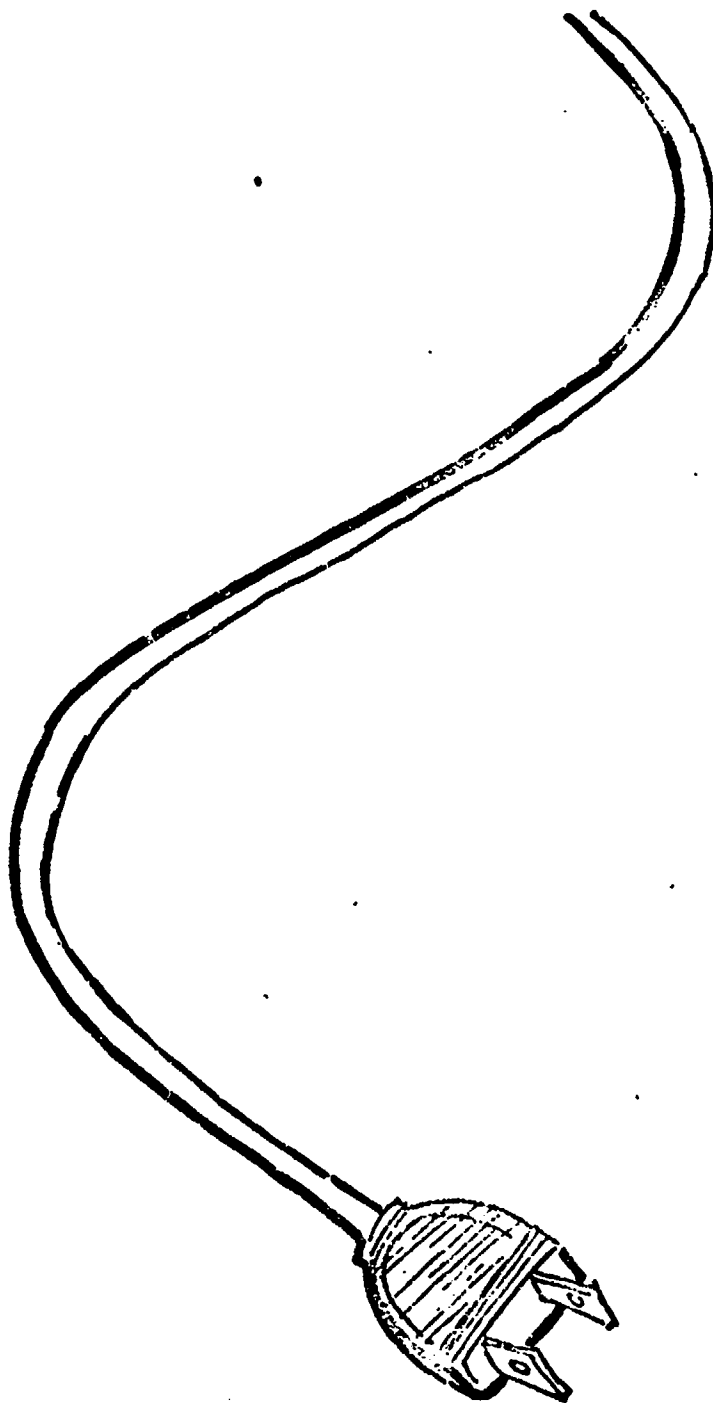
IF ONE IS WILLING TO WORK HARD, THIS FIELD HAS UNLIMITED OPPORTUNITIES.

YOUR FIRST EXPERIENCE IN BUILDING TRAINING WILL BE:

TO WIRE A SINGLE POLE SWITCH INTO
A LIGHT CIRCUIT.

INTRODUCTION -- PLEASE READ CAREFULLY:

A LARGE PART OF THE WORK DONE ON
A NEW BUILDING IS THE INSTALLATION OF
ELECTRICAL WIRING. FOR THE SAFETY OF
THE BUILDING, ALL OF THE WIRING MUST
BE DONE ACCURATELY. DO NOT LEAVE ANY
BARE WIRES EXPOSED. BE VERY CAREFUL
THAT YOU ARE NOT WORKING WITH "LIVE"
WIRES.



STEPS TO FOLLOW IN WIRING A SINGLE POLE SWITCH INTO A LIGHT CIRCUIT:

TOOLS AND MATERIALS NEEDED:	12-2 ROMEX W/GROUND	1 WALL BOX
	1 CEILING BOX	1 SINGLE POLE SWITCH
	1 LIGHT FIXTURE W/BULB	4 #2 WIRE NUTS
	STAPLES	1 ROLL ELECTRICAL TAPE
	2 #16D NAILS	6' RULE
	ELECTRICIAN'S PLIERS	HAMMER
	SCREWDRIVER	2 #8D NAILS
	POCKET KNIFE	

WHAT YOU MUST DO

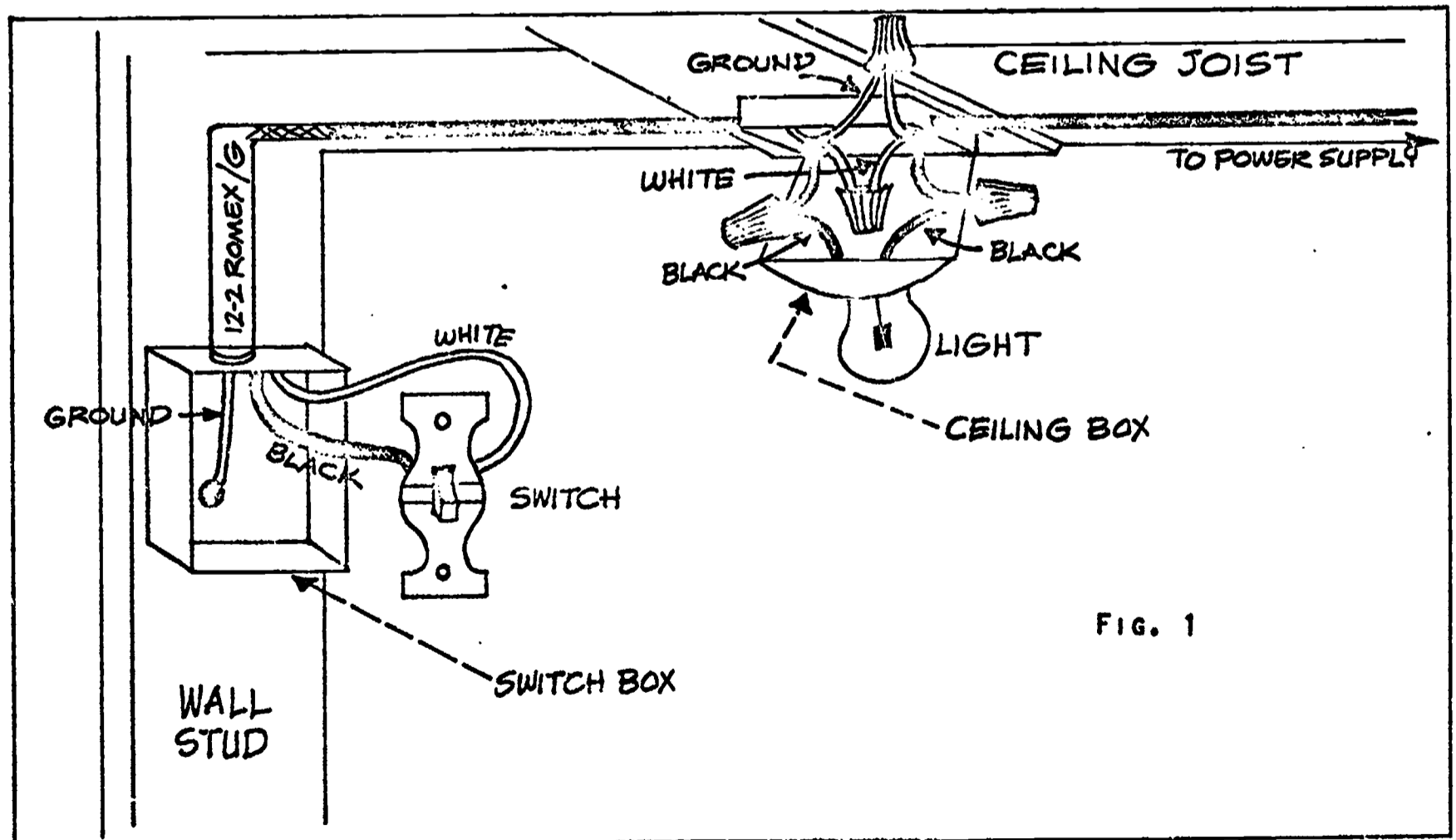
WHAT YOU MUST KNOW
TO DO THESE STEPS

1. NAIL THE SWITCH BOX TO THE STUDS
WITH 2 #16 D NAILS----->

PLACE THE SWITCH BOX SO THAT THE TOP OF THE BOX IS 52" FROM THE FLOOR. THE BOX SHOULD STICK OUT 1/2" FROM THE STUD SO THAT IT WILL BE EVEN WITH THE WALL BOARD WHEN THE WALL IS COMPLETED. FIG. 1

2. NAIL THE CEILING BOX TO THE
CEILING JOIST WITH 2 #8 D NAILS----->

PLACE THE CEILING BOX IN THE DESIRED LOCATION AND EXTEND IT 1/2" BELOW THE CEILING JOIST SO THAT IT WILL BE EVEN WITH THE COMPLETED CEILING. FIG. 1

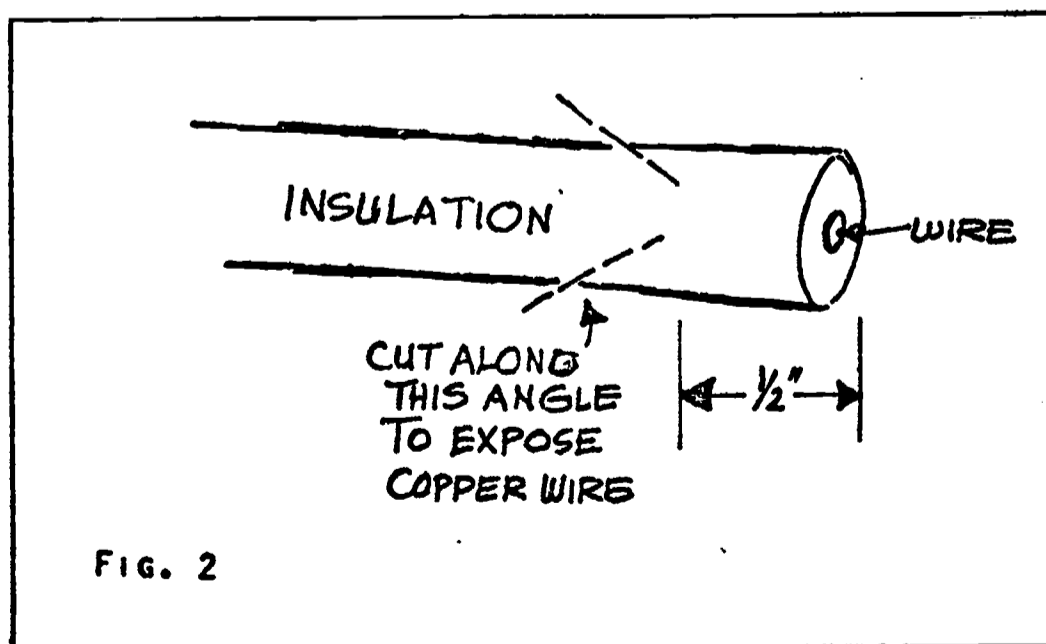


WHAT YOU MUST DO

WHAT YOU MUST KNOW

3. REMOVE THE KNOCKOUT PLUGS-----→ THE KNOCKOUT PLUGS ARE AREAS OF THE METAL THAT CAN BE REMOVED TO MAKE HOLES FOR THE WIRES TO ENTER.
4. RUN THE ROMEX CABLE FROM THE POWER SUPPLY TO THE CEILING BOX-----→ YOUR INSTRUCTOR WILL CONNECT THE CABLE TO A POWER SUPPLY AFTER HE HAS INSPECTED YOUR WORK.

AT VARIOUS INTERVALS STAPLE THE CABLE TO THE STUDS AND TO THE CEILING JOIST TO HOLD IT IN PLACE.
5. RUN THE ROMEX CABLE FROM THE SWITCH BOX TO THE CEILING BOX-----→ STAPLE THE CABLE TO THE STUDS AND JOISTS.
6. TIGHTEN THE WIRE CLAMPS PROVIDED IN THE BOXES-----→ THE CLAMPS PREVENT THE WIRE FROM BEING PULLED OUT OF THE BOX. ONLY TIGHTEN THE SCREW ENOUGH TO SECURE THE WIRE.
7. REMOVE THE INSULATION FROM THE WIRE BY CUTTING IT AT A SLANT, AS IN SHARPENING A PENCIL. EXPOSE 1/2 INCH OF COPPER CONDUCTOR. FIG. 2

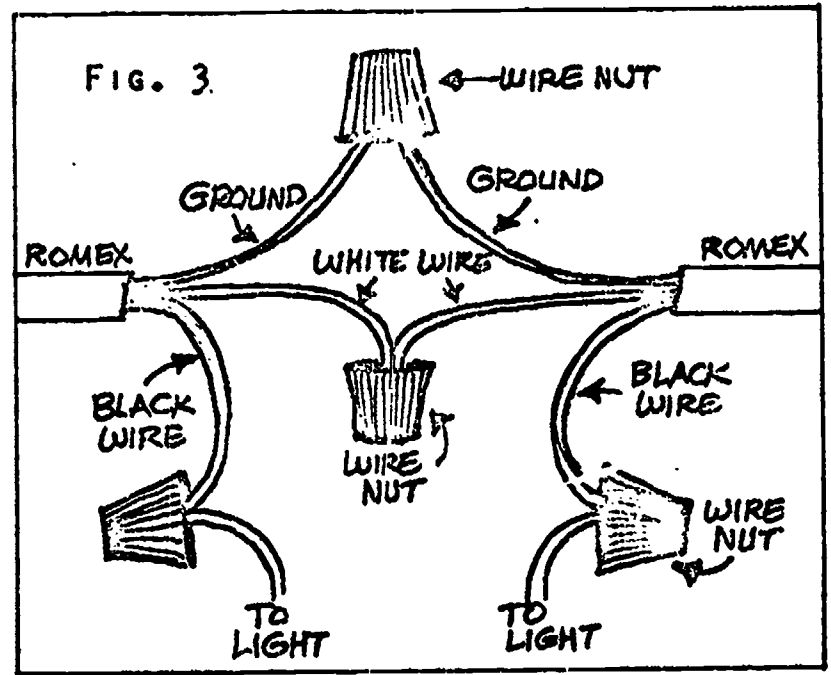


WHAT YOU MUST DO

8. CONNECT THE WIRES AS SHOWN ON THE DIAGRAM- FIG. 3

WHAT YOU MUST KNOW

USE WIRE NUTS (SOLDERLESS CONNECTORS) TO CONNECT THE WIRE. SCREW THE CONNECTORS OVER THE WIRES.



9. TAPE ALL CONNECTIONS

WRAP THE TAPE AROUND THE WIRE NUTS AND THE INSULATED PORTION OF THE WIRE TO SECURE THE WIRE NUTS.

10. INSTALL THE SWITCH INTO THE BOX

11. MAKE SURE THAT NO SCREWS OR BARE WIRES TOUCH THE SWITCH BOX

IF THEY DO, A SHORT CIRCUIT MIGHT RESULT.

12. PLACE THE COVER OVER THE SWITCH

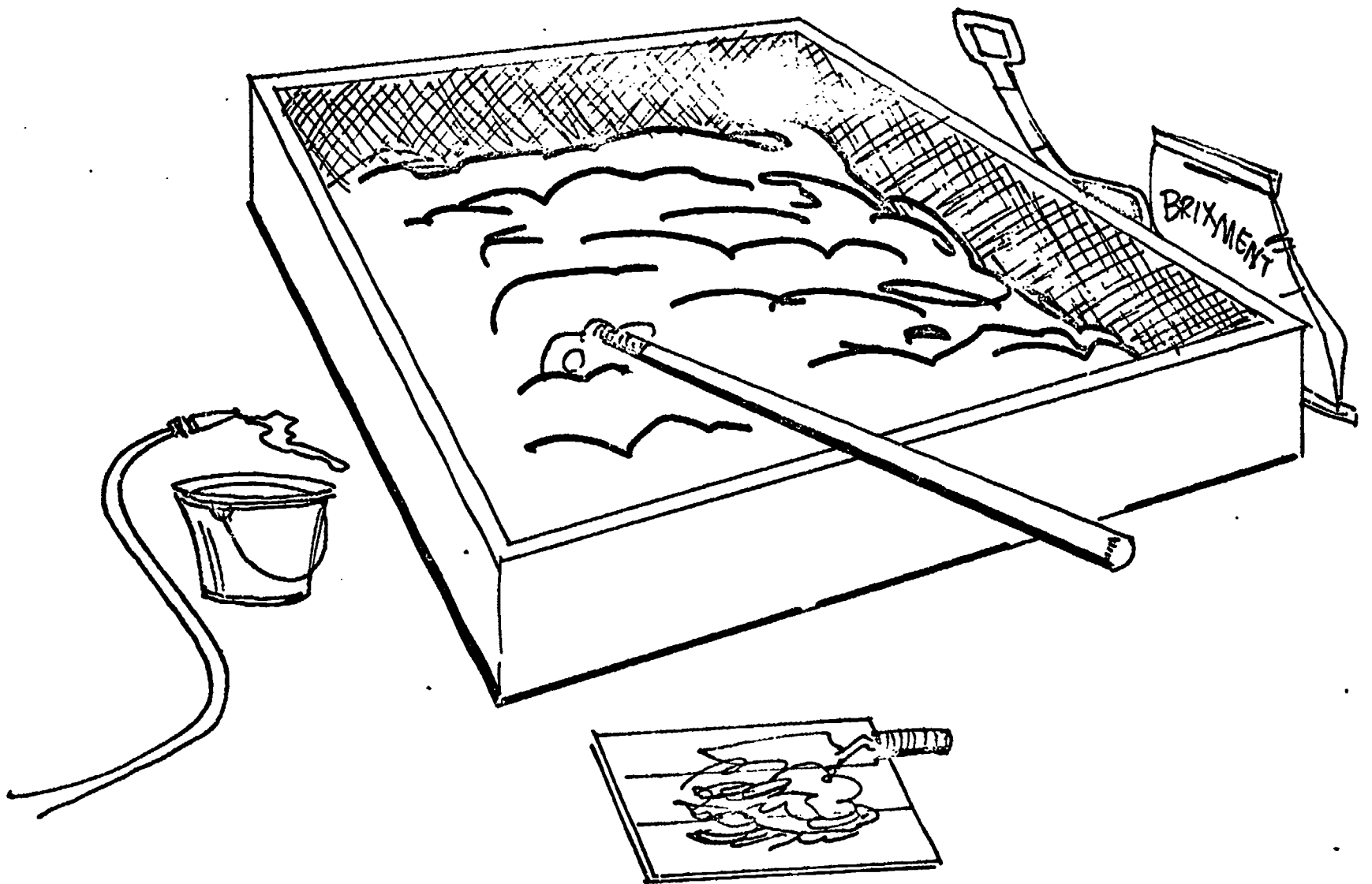
13. INSTALL THE FIXTURE IN THE CEILING BOX

YOUR SECOND EXPERIENCE IN BUILDING TRADES WILL BE:

**TO MIX MORTAR AND TO CLEAN UP THE
EQUIPMENT USED IN MIXING THE MORTAR.**

INTRODUCTION -- PLEASE READ CAREFULLY:

**IT IS IMPORTANT THAT BRICKSMENT
AND SAND ARE WELL MIXED BEFORE WATER
IS ADDED.**



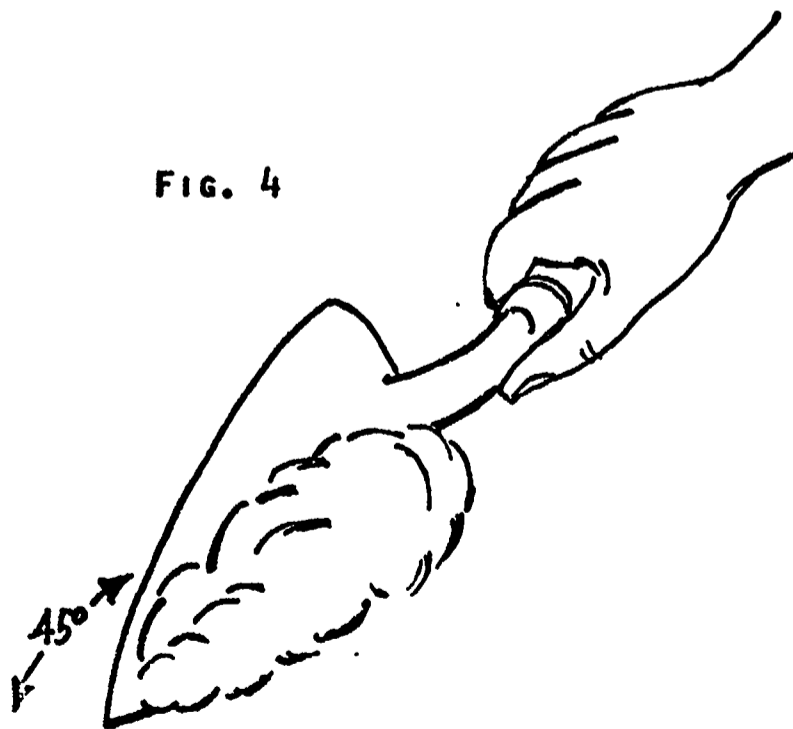
STEPS TO FOLLOW IN MIXING MORTAR:

TOOLS AND MATERIALS NEEDED: MORTAR BOX WATER HOSE
MORTAR HOE SHOVEL
BRICKSMENT SAND
WATER TROWEL

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. SET UP THE MORTAR BOX IN A LEVEL POSITION
2. CLEAN THE BOX AND THE HOE OF ANY DIRT, LEAVES, OR DRIED MORTAR WHICH MIGHT CHIP OFF INTO THE MIX
3. PLACE THE PROPER RATIO OF SAND AND BRICKSMENT IN THE MORTAR BOX-----> THE PROPER RATIO IS 2 TO 1 (2 PARTS SAND AND 1 PART BRICKSMENT).
4. THOROUGHLY MIX THE SAND AND THE BRICKSMENT-----> USING THE DRY MORTAR HOE, MIX THE SAND AND THE BRICKSMENT UNTIL THE MIXTURE IS A UNIFORM COLOR. IT IS IMPORTANT THAT THEY BE WELL MIXED.
5. ADD SOME WATER TO THE MIXTURE AND MIX IT WELL WITH THE MORTAR HOE-----> DO NOT ADD THE WATER CONTINUOUSLY. YOU SHOULD ADD SOME WATER, MIX WELL, THEN TEST THE CONSISTENCY OF THE MIXTURE.

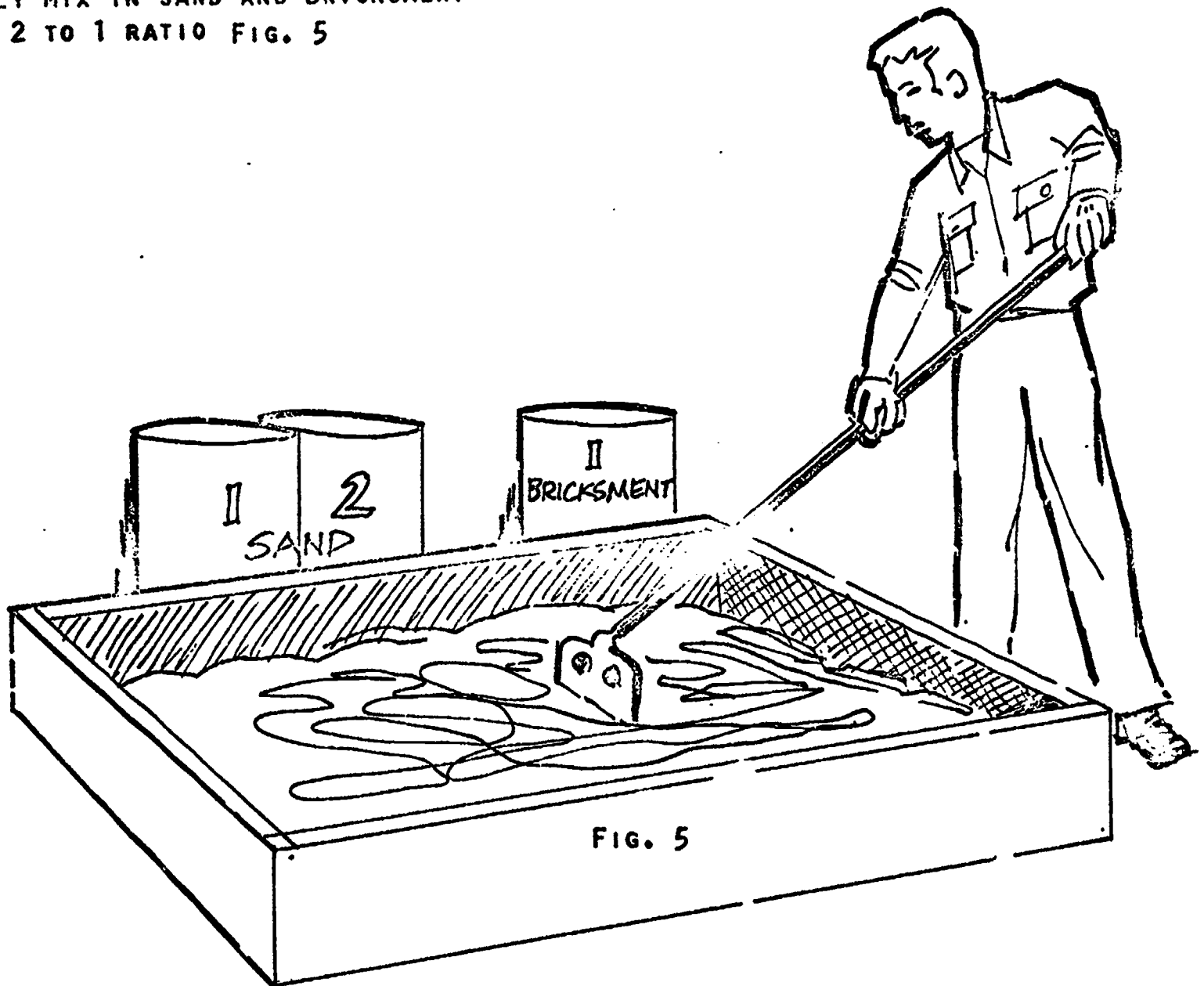


THE MIXTURE IS READY WHEN YOU CAN SCOOP SOME MORTAR ONTO THE TROWEL, SHAKE IT SLIGHTLY, AND HAVE IT REMAIN ON THE TROWEL EVEN WHEN THE TROWEL IS TIPPED AT A 45° ANGLE. FIG. 4

WHAT YOU MUST DO

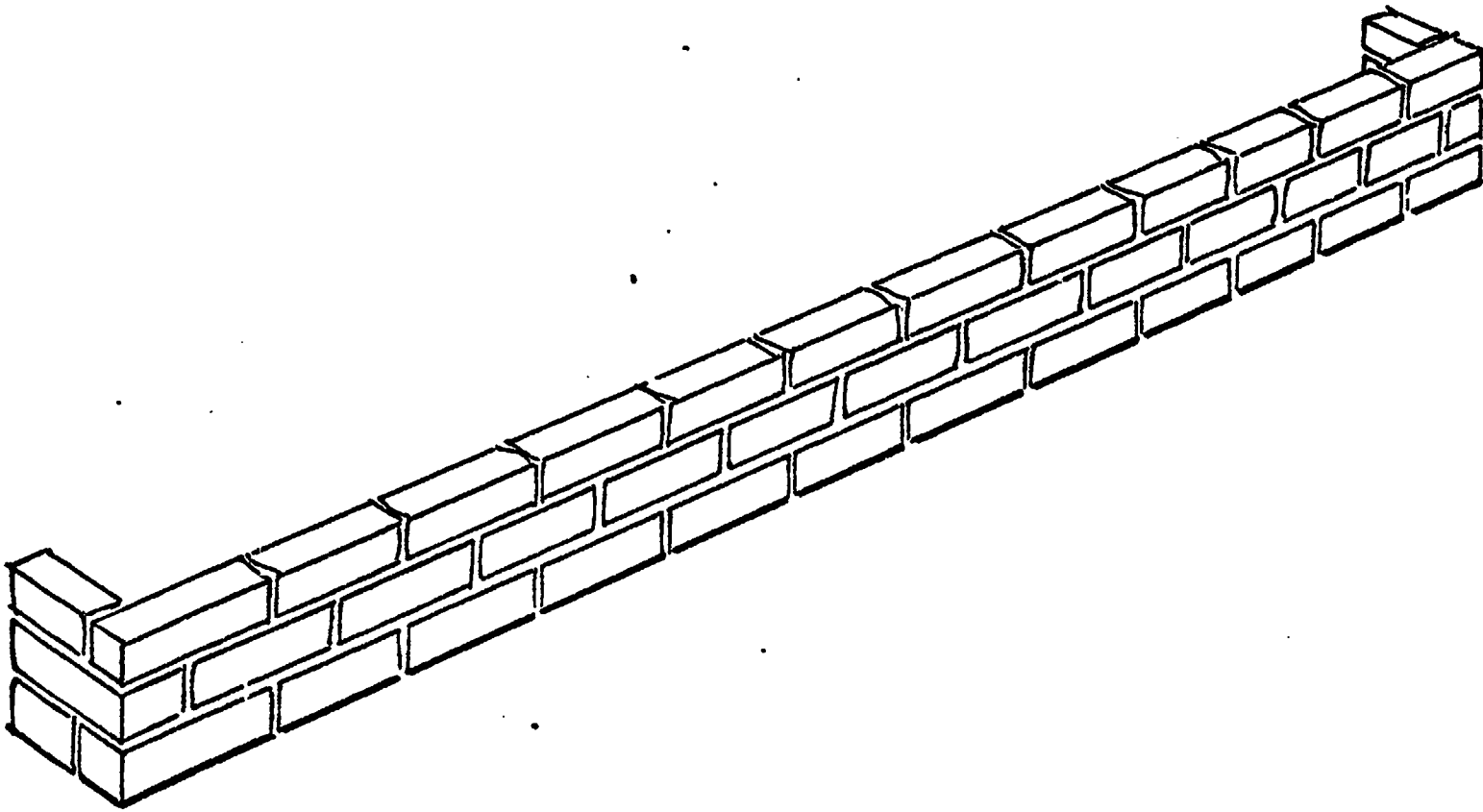
6. KEEP REPEATING STEP 5 UNTIL THE MORTAR IS THE DESIRED CONSISTENCY
7. IF THE MORTAR IS TOO WET (SOUPY), SLOWLY MIX IN SAND AND BRICKSMENT IN A 2 TO 1 RATIO FIG. 5

WHAT YOU MUST KNOW



YOUR THIRD EXPERIENCE IN BUILDING TRADES IS:

TO MIX YOUR OWN MORTAR AND TO LAY
A BRICK WALL THREE BRICKS HIGH, WITH A
CORNER ON EACH END.



STEPS TO FOLLOW IN MIXING MORTAR AND LAYING A BRICK WALL:

TOOLS AND MATERIALS NEEDED:	TROWEL	MORTAR BOARD
	LEVEL	JOINT ROD
	BRICK HAMMER	FRAMING SQUARE
	LINE	8" BRICKS
	LINE BLOCKS	BRICKSMENT
	6' RULE	SAND
	CHALK LINE	WATER

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

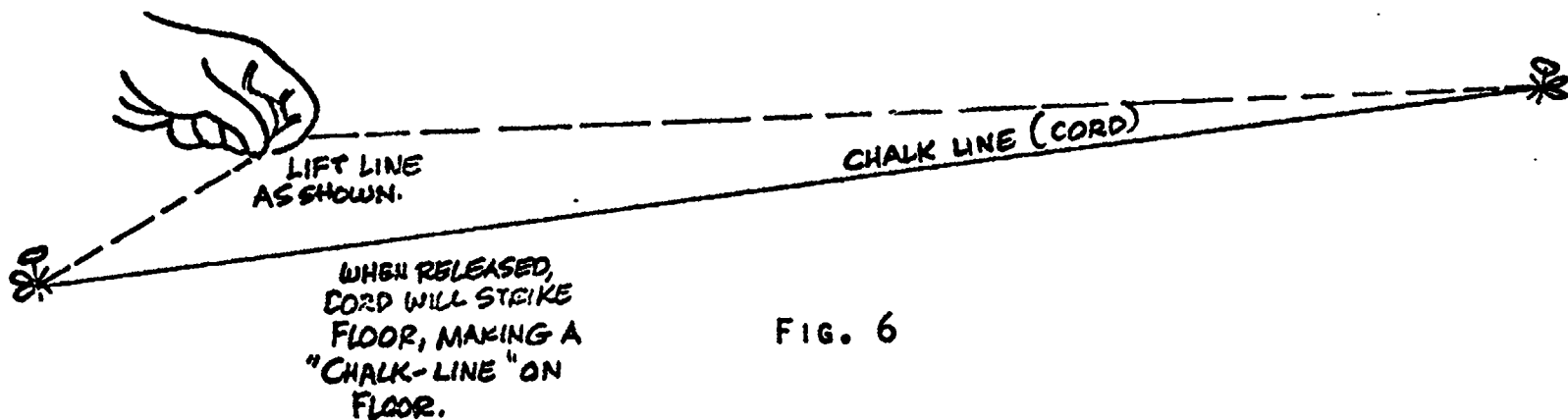
1. FIND OUT WHERE THE BUILDING SITE IS (THE WORK AREA IN THE SHOP)

2. LOCATE THE SPOTS ON THE FLOOR THAT WILL BE THE APEXES (THE TIPS OR POINTS) OF THE CORNERS-----▶

THE CORNERS WILL BE 8' 5" APART.

3. STRIKE A CHALK LINE BETWEEN THE APEXES OF THE CORNERS- FIG. 6 -----▶

THE CHALK LINE IS STRETCHED BETWEEN TWO POINTS. YOU THEN LIFT THE TAUT LINE OFF THE FLOOR AND RELEASE IT, THUS "STRIKING" THE CHALK LINE ON THE FLOOR.



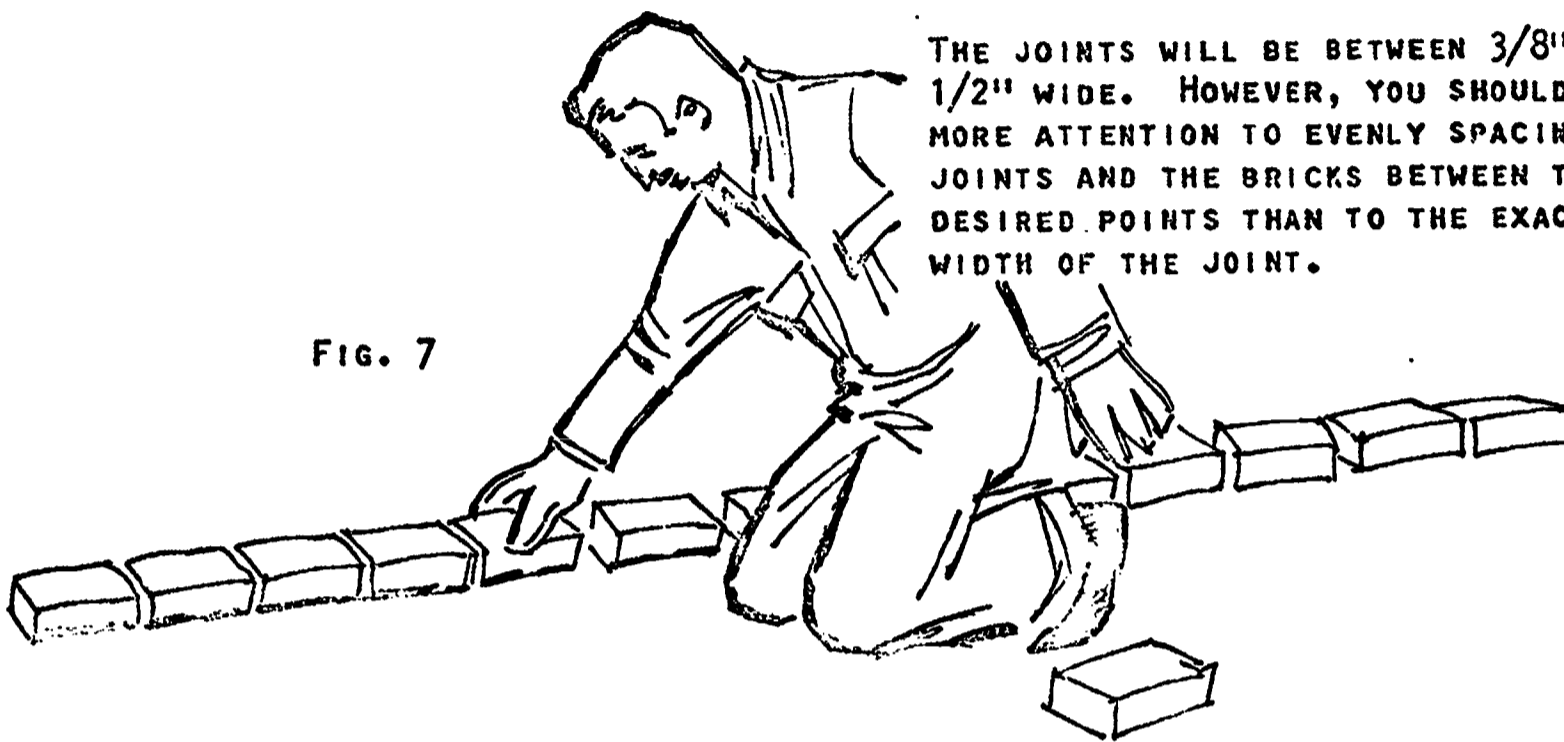
4. USE A FRAMING SQUARE TO CHALK THE CORNERS

WHAT YOU MUST DO

5. WITHOUT ANY MORTAR, MAKE A TRIAL LAYOUT OF ONE ROW OF THE BRICKS----->

LAY DRY BRICKS FLUSH AGAINST THE LINE TO DETERMINE THE PATTERN AND THE MORTAR JOINTS. FIG. 7

FIG. 7



THE JOINTS WILL BE BETWEEN $\frac{3}{8}$ " AND $\frac{1}{2}$ " WIDE. HOWEVER, YOU SHOULD PAY MORE ATTENTION TO EVENLY SPACING THE JOINTS AND THE BRICKS BETWEEN THE DESIRED POINTS THAN TO THE EXACT WIDTH OF THE JOINT.

6. MIX THE MORTAR----->

REFER TO THE EXPERIENCE IN MIXING MORTAR.

7. PUT SOME MORTAR ON THE MORTAR BOARD

8. REMOVE THE DRY BRICK FROM EACH CORNER AND PLACE IT WITHIN REACH

9. SPREAD THE MORTAR EVENLY ABOUT 1" DEEP ALONG THE CHALK LINE OF THE LONG SIDE OF ONE CORNER

10. LAY THE CORNER BRICK (BRICK #1)----->

BED (SET) THE BRICK BY STRIKING IT WITH THE TROWEL HANDLE UNTIL THE JOINT IS $\frac{3}{8}$ " THICK. THIS BRICK MUST BE LEVEL, EXACTLY ON THE POINT WHERE THE CORNER IS LOCATED, AND SQUARE WITH THE WALLS.

11. LAY BRICKS 2 AND 3----->

FILL THE CROSS JOINTS WITH THE SURPLUS MORTAR AS EACH BRICK IS LAID. THE CROSS JOINTS ARE THE JOINTS BETWEEN THE ENDS OF EACH BRICK.

WHAT YOU MUST DO

12. CHECK TO SEE THAT THIS COURSE (ROW) IS LEVEL (USE THE LEVEL) FIG. 8

13. CHECK TO SEE THAT THE CORNER IS SQUARE (USE THE FRAMING SQUARE)

14. LAY THE SECOND COURSE (BRICKS 4, 5, AND 6)----->

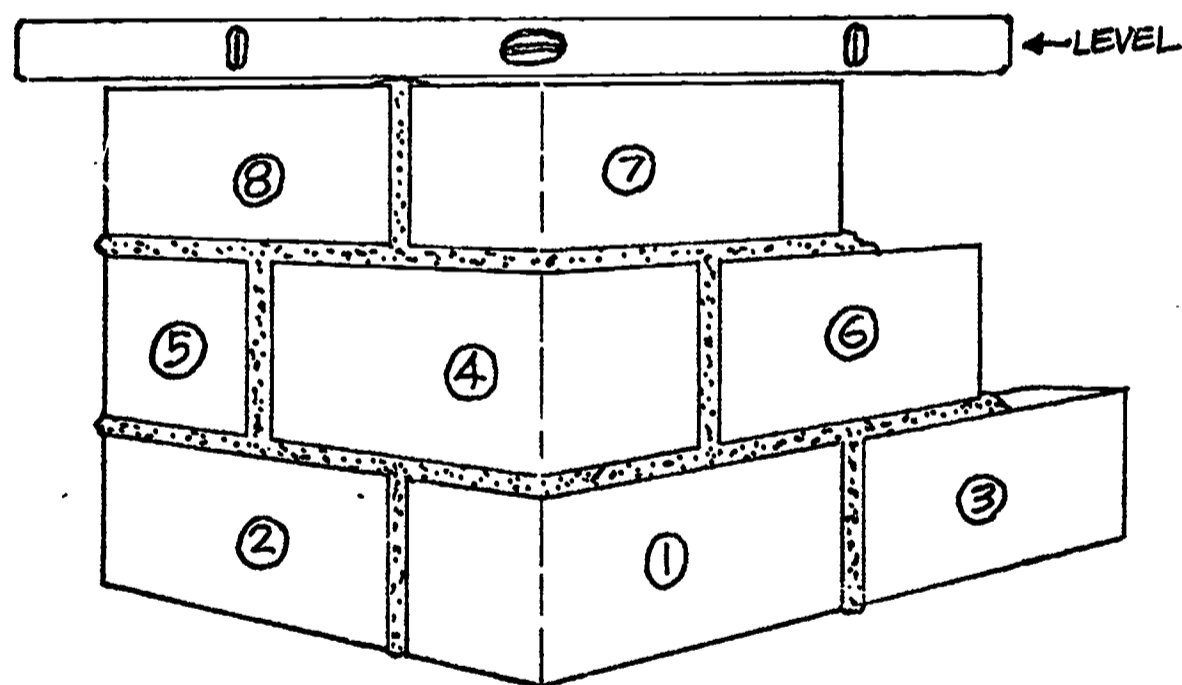
IT WILL PROBABLY BE NECESSARY TO BREAK BRICK 5 IN HALF WITH A SHARP BLOW OF THE BRICK HAMMER. THE BROKEN EDGE SHOULD BE TURNED TOWARD THE INSIDE OF THE WALL.

AFTER LAYING THESE BRICKS, REPEAT STEPS 12 AND 13.

15. LAY THE THIRD COURSE (BRICKS 7 AND 8)----->

AFTER LAYING THE THIRD COURSE, REPEAT STEPS 12 AND 13.

FIG. 8

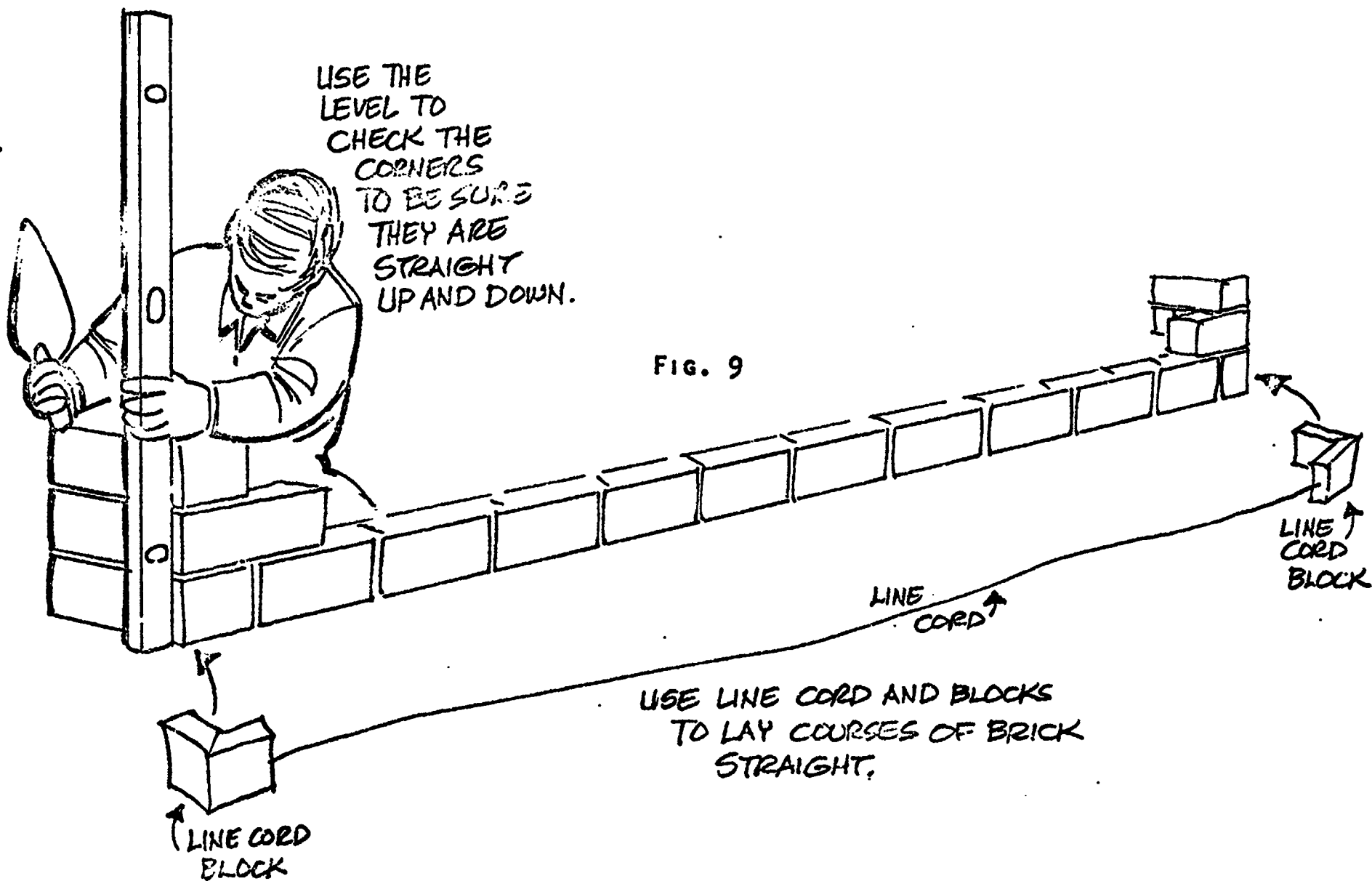


NOTE NUMBERED SEQUENCE OF BRICKS TO BUILD A CORNER.

CHECK EACH COURSE WITH LEVEL.

WHAT YOU MUST DO

16. MAKE SURE THAT THE CORNER IS PLUMB (THAT THE SIDES ARE STRAIGHT UP AND DOWN - NOT LEANING IN OR OUT)- FIG. 9 ▶ USE THE LEVEL FOR THIS.
17. REPEAT STEPS 9-16 WITH THE OTHER CORNER
18. FASTEN THE LINE CORD AND THE LINE CORD BLOCKS AT THE TOP OF THE 1ST COURSE... FIG. 9 -----▶ STRETCH THE CORD TIGHT.

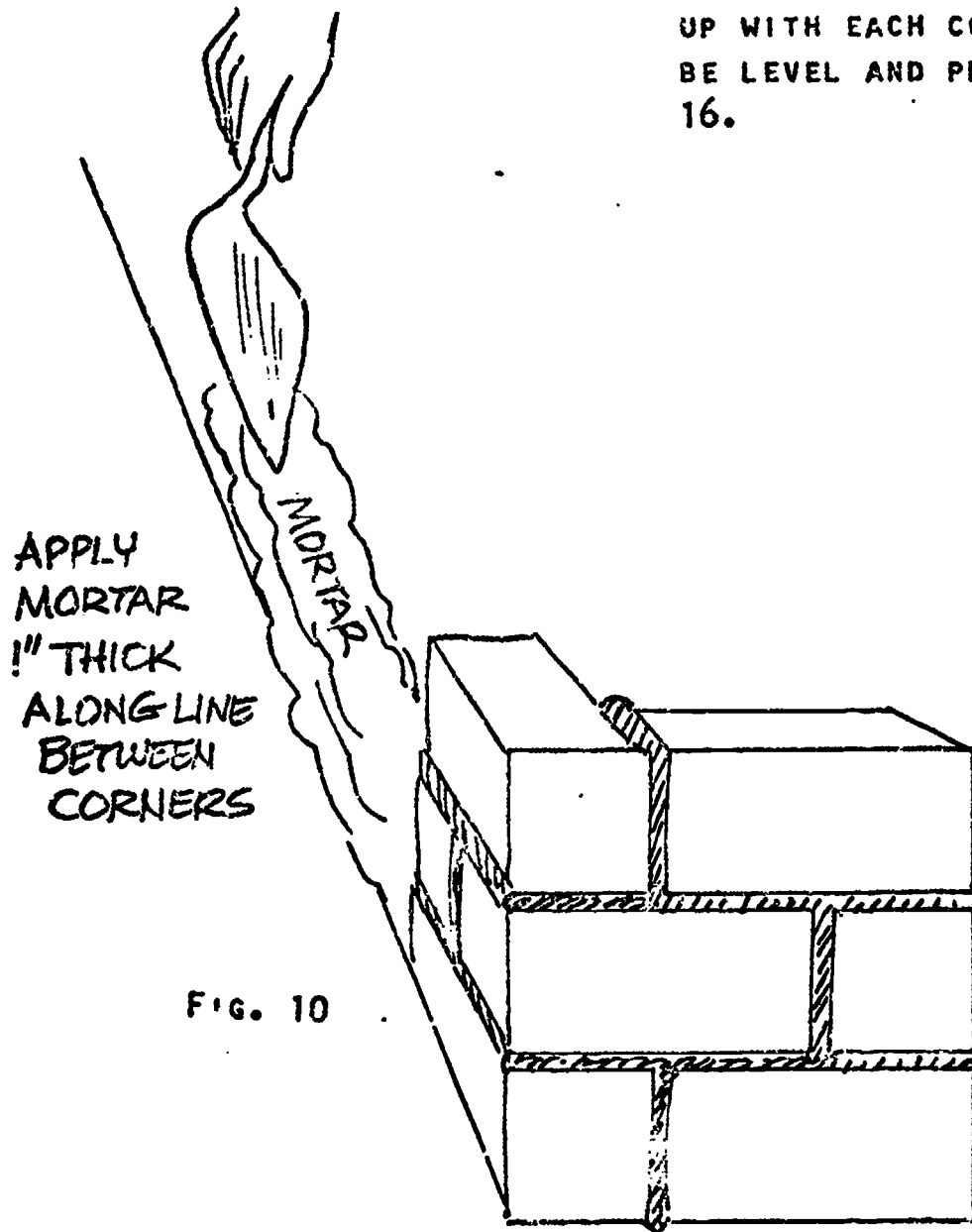


WHAT YOU MUST DO

19. APPLY MORTAR 1" THICK ALONG THE LINE BETWEEN THE CORNERS FIG. 10

20. BED THE BRICK ALONG THE LINE-----> THE BRICK IS SET BY STRIKING IT WITH THE TROWEL HANDLE UNTIL THE MORTAR IS 3/8" THICK.

21. LAY THE 2ND AND 3RD COURSES-----> MOVE THE LINE CORD AND THE LINE BLOCK UP WITH EACH COURSE. THE COURSES SHOULD BE LEVEL AND PLUMB. SEE STEPS 12 AND 16.



22. CLEAN THE BRICK----- USE THE TROWEL TO REMOVE SURPLUS MORTAR.

23. USING THE JOINT ROD, RUB THE JOINTS UNTIL THEY ARE CONCAVE AND CLEAN

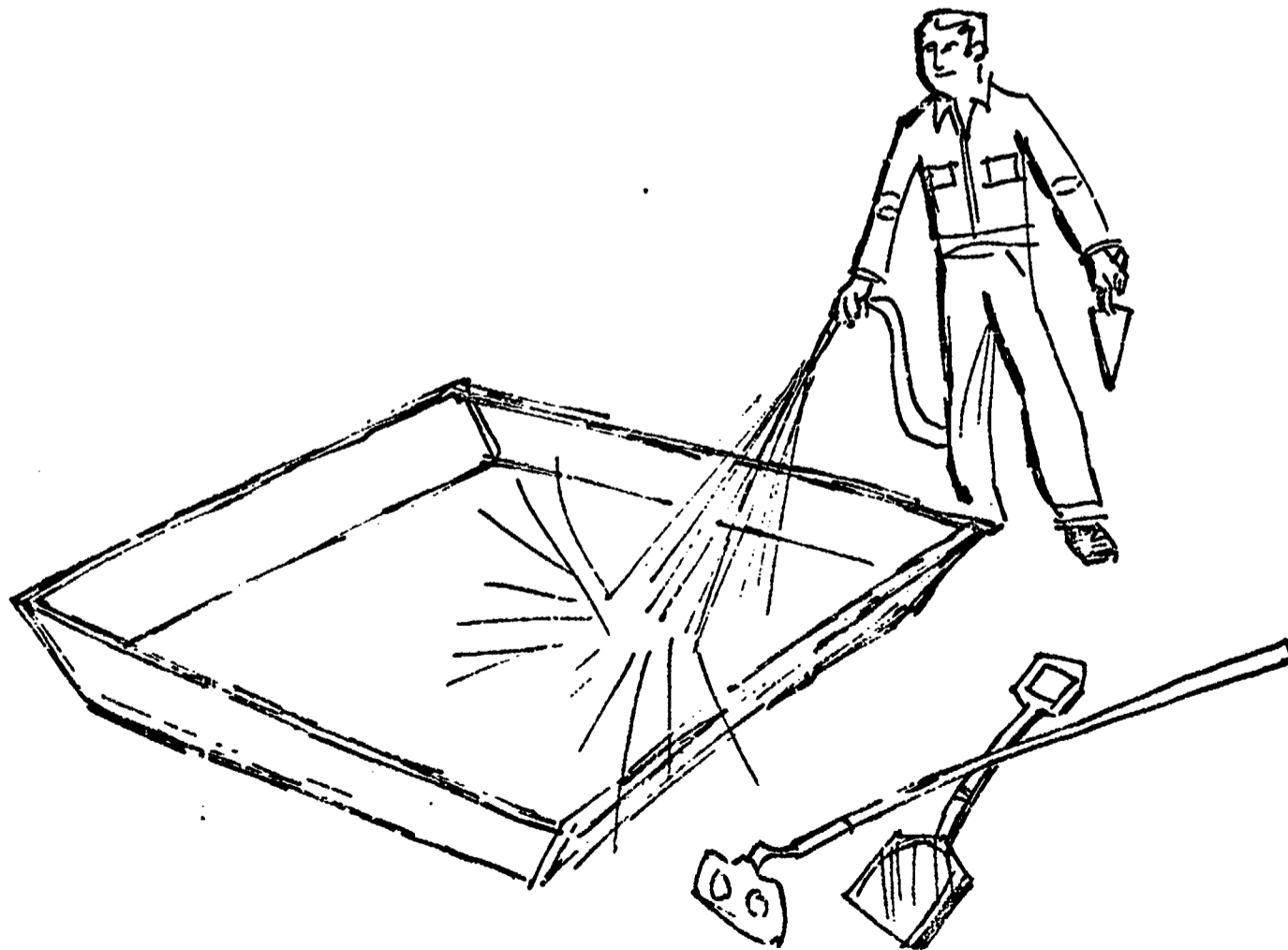
24. CLEAN YOUR EQUIPMENT AND PUT AWAY YOUR MATERIALS----- SEE THE EXPERIENCE ON MIXING MORTAR AND CLEANING UP THE WORK SITE.

STEPS TO FOLLOW IN CLEANING UP THE EQUIPMENT AND THE WORK SITE AFTER THE MORTAR IS USED OR DISCARDED:

WHAT YOU MUST DO

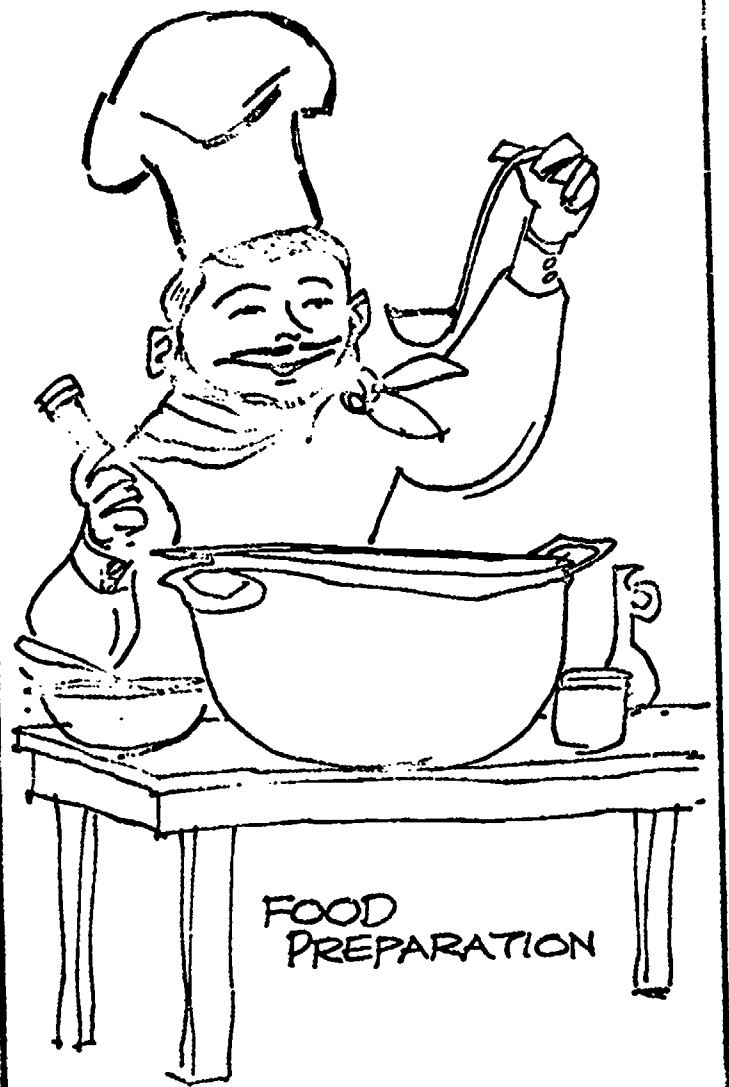
*WHAT YOU MUST KNOW
TO DO THESE STEPS*

1. REMOVE THE SOILD WASTE FROM THE MORTAR BOX, THE HOE AND THE TROWEL----> USE THE HOE TO SCRAPE THE MORTAR BOX.
2. RINSE THE MORTAR BOX, THE MORTAR HOE AND THE TROWEL WITH A STRONG FLOW OF WATER
3. INSERT THE HOE AND THE TROWEL IN THE SAND PILE AND RUB THEM BACK AND FORTH-> THIS WILL CLEAN THEM TO A BRIGHT FINISH.
4. REPLACE THE EQUIPMENT IN THE PROPER STORAGE AREA-----> TURN THE MORTAR BOX UPSIDE DOWN. PLACE THE HAND TOOLS WHERE YOU ARE INSTRUCTED. CUT OFF THE WATER AND COIL THE HOSE.
5. CLEAN UP THE WORK SITE





AN INTRODUCTION TO



Commercial Foods

PART E OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO

COMMERCIAL FOODS

BY MOLLY HEIDEL

SOME INTERESTING FACTS ABOUT COMMERCIAL FOODS

1. WHAT KIND OF WORK IS DONE?

MENU PLANNING
FOOD PURCHASES
FOOD STORAGE
FOOD AND BEVERAGE PREPARATION
CURB WORK
SALES AND SERVICE OF FOOD
HOSTESSING
DISH AND POT WASHING
GENERAL CLEANING OF EQUIPMENT

2. WORKING CONDITIONS:

THERE IS USUALLY A CLOSE RELATIONSHIP WITH OTHER PEOPLE. MOST NEW RESTAURANTS HAVE IDEAL WORKING CONDITIONS, WITH NEW EQUIPMENT AND AIR CONDITIONING. OLD RESTAURANTS, WHICH OFTEN LACK AIR CONDITIONING AND HAVE OLD EQUIPMENT, GENERALLY HAVE POOR WORKING CONDITIONS.

3. SALARY SCALE:

BEGINNERS DO NOT ALWAYS START WITH THE MINIMUM WAGE. THE SALARY STRUCTURE IS DIFFERENT WITH DIFFERENT JOBS. FOR EXAMPLE, WAITRESSES ARE USUALLY ALLOWED TO KEEP TIPS IN ADDITION TO THEIR SALARY.

4. TYPE OF CLOTHING WORN:

UNIFORMS ARE REQUIRED IN ALMOST ALL FOOD SERVICE JOBS. SHOES SHOULD BE COMFORTABLE AND NEAT.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: EFFICIENCY AND SPEED ARE IMPORTANT IN MOST FOOD SERVICE OCCUPATIONS.

PERSONALITY CHARACTERISTICS: A FOOD SERVICE WORKER SHOULD BE FRIENDLY AND ALERT TO THE NEEDS OF OTHERS.

EDUCATIONAL QUALIFICATIONS: A HIGH SCHOOL EDUCATION IS DESIRABLE. MANY AREAS REQUIRE VERY LITTLE TRAINING. HOWEVER, ADVANCED EDUCATION AND TRAINING ARE NECESSARY FOR OTHER AREAS SUCH AS MENU PLANNING.

6. OTHER FACTS OF INTEREST:

WITH THE ADOPTION OF THE 4 DAY WORK WEEK THE HOSPITALITY INDUSTRY WILL CONTINUE TO GROW. MORE PEOPLE WILL EAT OUT MORE OFTEN. DEMANDS FOR EMPLOYEES WILL INCREASE.

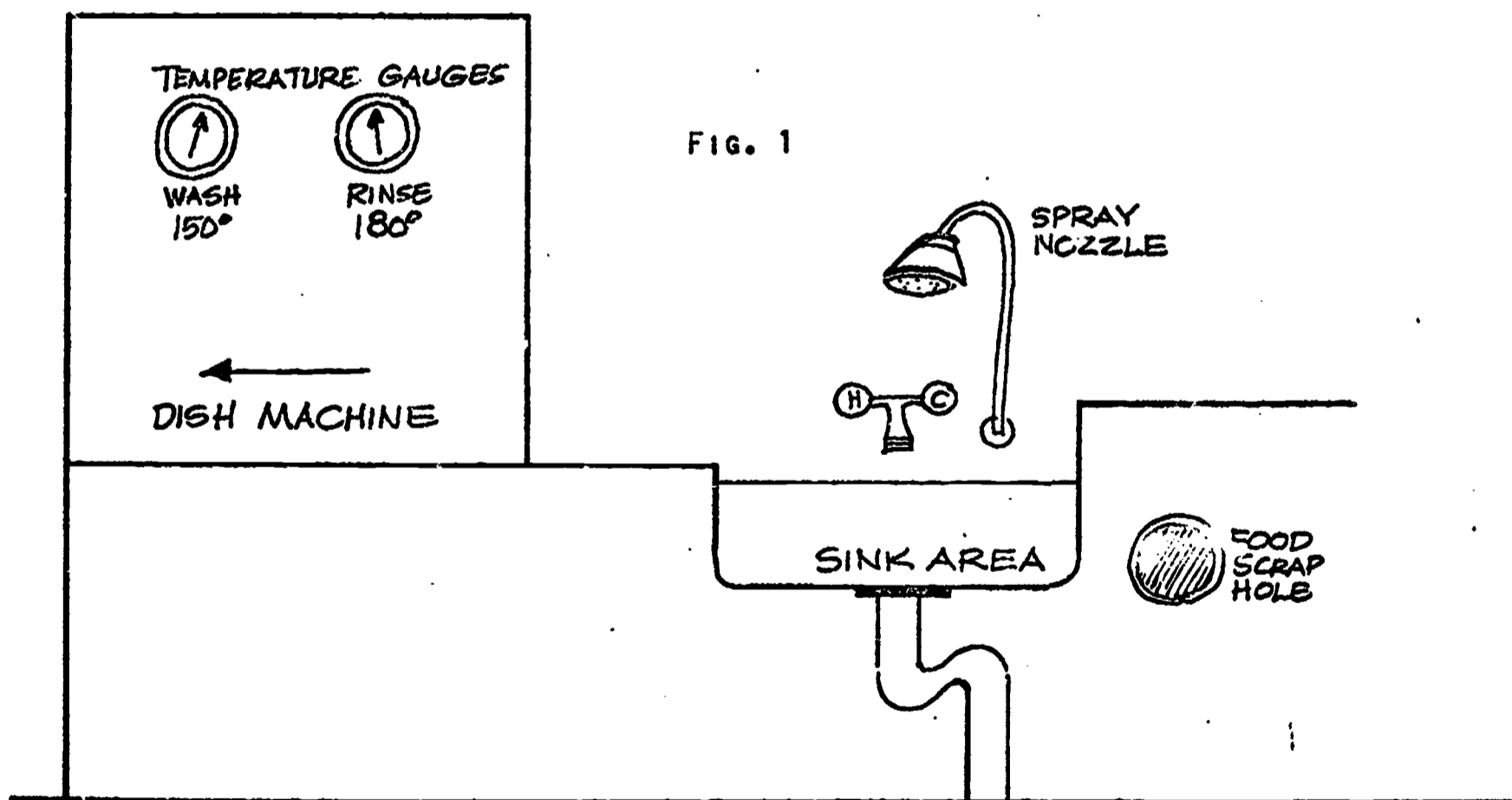
YOUR FIRST EXPERIENCE IN COMMERCIAL FOODS WILL BE:

TO OPERATE A DISH MACHINE. YOU WILL BE ABLE TO PREPARE THE MACHINE AND TO USE IT FOR WASHING SILVERWARE, DISHES, AND GLASSWARE.

INTRODUCTION -- PLEASE READ CAREFULLY:

WORK QUIETLY AND QUICKLY.
BE CAREFUL OF THE BREAKABLE ITEMS.
CHECK ALL DISHES, GLASSWARE, AND SILVERWARE FOR CLEANLINESS AFTER WASHING THEM.

BE SURE THAT THE WATER GAUGE READS 150 DEGREES FOR WASHING AND 180 DEGREES FOR RINSING. FIG. 1



STEPS TO FOLLOW IN USING THE DISH MACHINE:

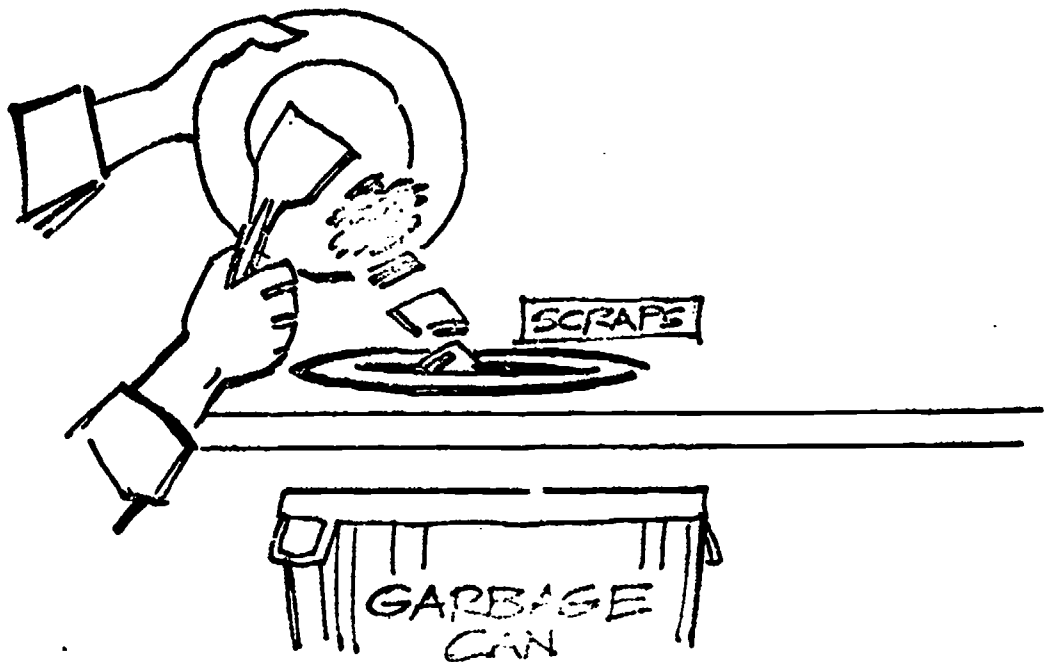
TOOLS AND MATERIALS NEEDED: DISH MACHINE RACKS DISH MACHINE
 SCRAPERS GARBAGE CANS
 HOT WATER DISH MACHINE DETERGENT
 SOILED DISHES

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. OPEN THE DOORS OF THE MACHINE AND LOOK INSIDE-----> INSIDE, ON THE BOTTOM OF THE MACHINE ARE PERFORATED TRAYS (FULL OF HOLES). WHEN THE MACHINE IS FULL, THE WATER WILL JUST COVER THESE TRAYS.
2. CLOSE THE DOORS
3. FILL THE MACHINE WITH WATER BY TURNING THE KNOBS FOUND ABOVE AND TO THE LEFT OF THE SINK
4. CHECK WITH YOUR INSTRUCTOR TO SEE WHETHER DETERGENT SHOULD BE ADDED TO THE MACHINE-----> SOME DISH MACHINES ADD THE DETERGENT AUTOMATICALLY.
5. CHECK THE TEMPERATURE OF THE WATER-----> THE WATER GAUGE SHOULD READ 150 DEGREES FOR WASHING AND 180 DEGREES FOR RINSING.
6. SCRAPE ALL SOLIDS FROM THE DISHES FIG. 2

FIG. 2



WHAT YOU MUST DO

WHAT YOU MUST KNOW

7. PUT ALL DISHES IN THEIR PROPER RACKS. SILVER GOES IN FLAT BOTTOMS, GLASSES IN GLASS RACK, PLATES, SAUCERS, AND FLAT DISHES IN THE END OF THE RACK-- FIG. 3

FOR A DISH MACHINE TO DO ITS BEST WORK, DISHES MUST BE PROPERLY FED INTO THE MACHINE.

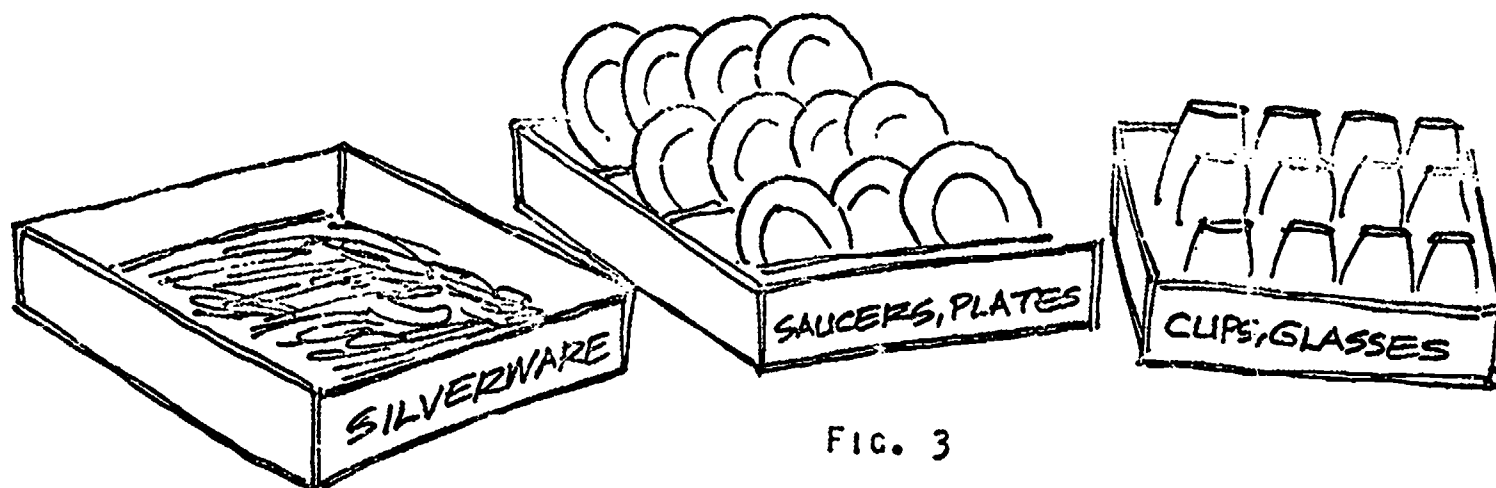


FIG. 3

8. SLIDE THE RACK TO THE RINSING SINK AND SPRAY THE DISHES WITH WATER FROM THE SPRAY NOZZLE-- FIG. 4

KEEP THE DISH WATER CLEAN BY RINSING THE DISHES BEFORE THEY ENTER THE MACHINE.

9. SLIDE THE RACK INTO THE MACHINE
10. CLOSE THE DOORS

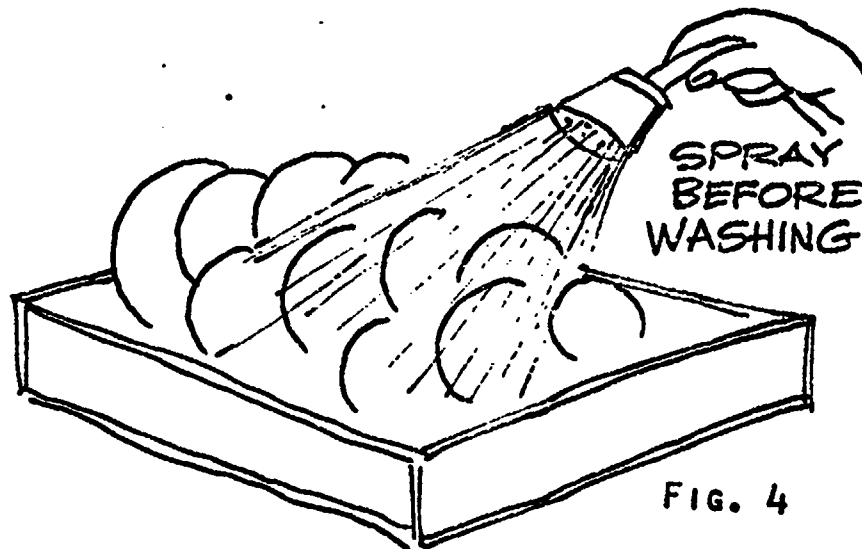


FIG. 4

11. PUSH THE STARTER BUTTON-- THE MACHINE IS AUTOMATIC. WHEN THE LIGHT GOES OUT, THE DISHES HAVE BEEN WASHED AND RINSED.

12. STORE THE DISHES AND THE SILVERWARE IN THE STORAGE AREA DESIGNATED BY YOUR INSTRUCTOR--

YOUR HANDS SHOULD BE CLEAN WHEN HANDLING CLEAN DISHES. HANDLE THE DISHES AND THE SILVERWARE AS LITTLE AS POSSIBLE.

YOUR SECOND EXPERIENCE IN COMMERCIAL FOODS WILL BE:

TO GRILL A HAMBURGER, HEAT THE BUN,
APPLY MAYONNAISE OR MUSTARD, LETTUCE,
TOMATO, ONION AND PICKLE, AND TO ARRANGE
IT ON A PLATE.

STEPS TO FOLLOW IN MAKING A HAMBURGER:

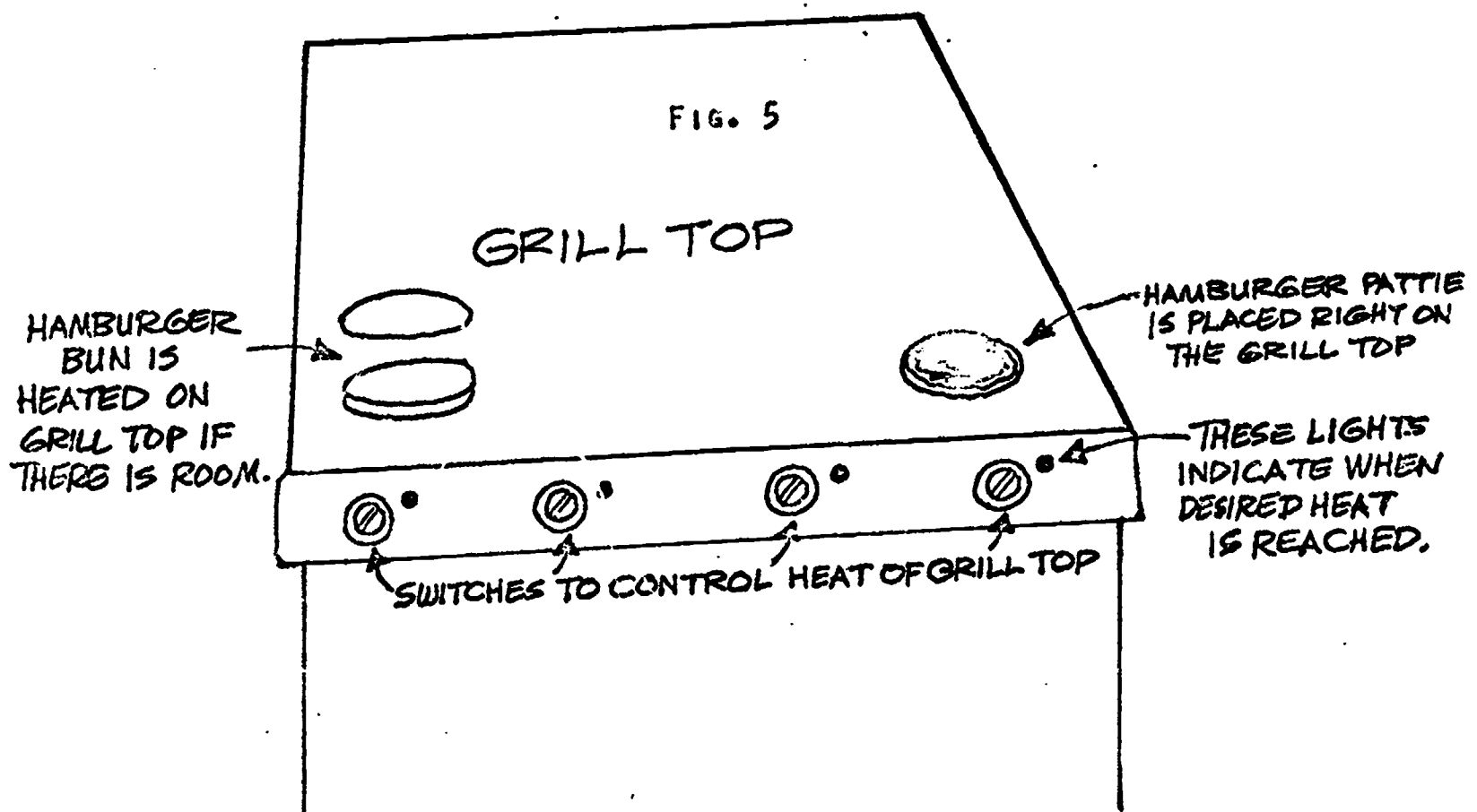
TOOLS AND MATERIALS NEEDED:	GRILL	SPATULA
	HAMBURGER PATTY	LETTUCE
	TOMATO	MUSTARD
	MAYONNAISE	ONION

WHAT YOU MUST DO

1. HAVE ALL MATERIALS THAT ARE NEEDED WITHIN REACH OF THE GRILL
2. SET THE GRILL ON 350°

WHAT YOU MUST REMEMBER TO DO THESE STEPS

THE SWITCH PANEL IS AT THE FRONT OF THE GRILL. THERE ARE FOUR SWITCHES, EACH CONTROLLING $\frac{1}{4}$ OF THE GRILL DIRECTLY ABOVE IT. FIG. 5



WHAT YOU MUST DO

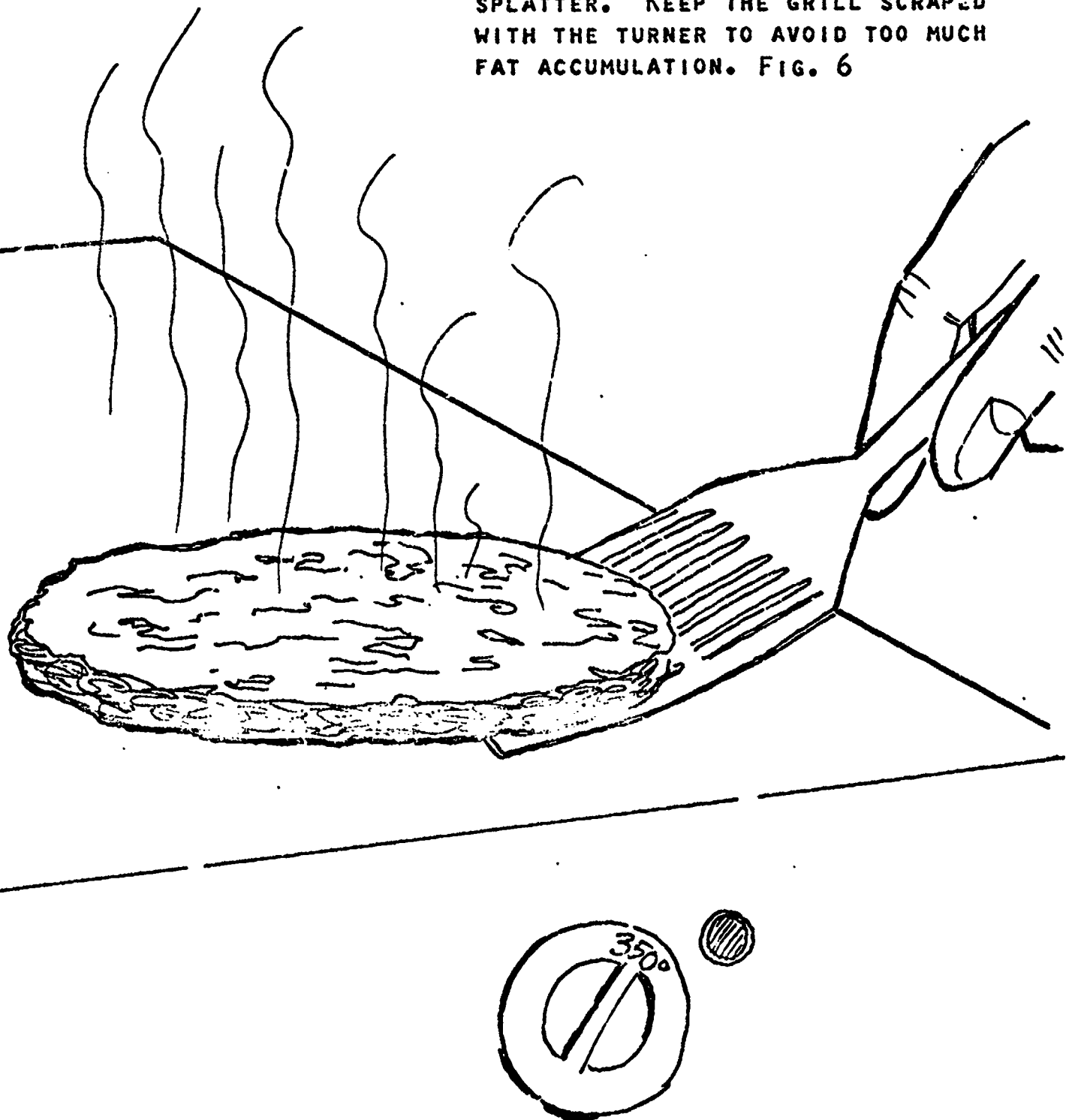
3. REMOVE A FROZEN PATTY FROM FREEZER
4. PLACE THE PATTY ON THE GRILL
5. HEAT THE BUN ----->
6. FRY THE PATTY AS THE ORDER REQUESTS ->

WHAT YOU MUST KNOW

IF THERE IS ENOUGH CLEAN SPACE, HEAT THE BUN DIRECTLY ON THE GRILL. OTHERWISE, PLACE THE BUN IN THE STEAM OVEN (YOUR INSTRUCTOR WILL OPERATE THE OVEN).

WHEN TURNING, IF YOU ARE FRYING SEVERAL HAMBURGERS, TURN EACH ONE ONTO ANOTHER HAMBURGER TO MINIMIZE SPLATTER. KEEP THE GRILL SCRAPED WITH THE TURNER TO AVOID TOO MUCH FAT ACCUMULATION. FIG. 6

FIG. 6



WHAT YOU MUST DO

7. TAKE THE BUN OFF THE GRILL AND SPREAD MAYONNAISE AND/OR MUSTARD ON IT FIG. 7
8. OPEN THE BUN AND PLACE IT ON THE PLATE
9. PLACE THE PATTY ON ONE FACE OF THE BUN

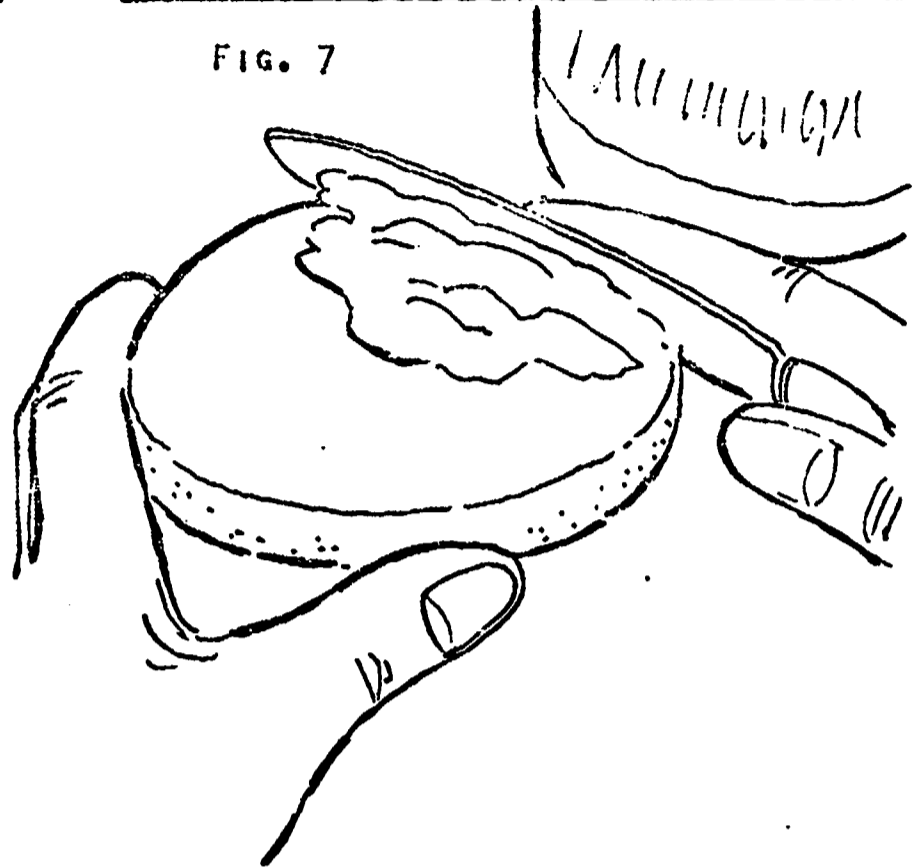
10. PLACE CHOPPED LETTUCE, 1 SLICE OF TOMATO, AND 1 SLICE OF PICKLE ON THE OTHER HALF OF THE BUN----->

11. PLACE A SLICE OF ONION BESIDE THE OPEN HAMBURGER----->

12. KEEP THE PLATE NEAT AND ATTRACTIVE. WIPE GREASY SPOTS AWAY BEFORE SERVING. SERVE THE HAMBURGER HOT FIG. 8

WHAT YOU MUST KNOW

FIG. 7



BE CAREFUL IN PLACING THE LETTUCE ON THE BUN. CHOPPED LETTUCE SHOULD BE ON THE BUN - NOT HANGING OFF. A LEAF OF LETTUCE LOOKS ATTRACTIVE WHEN IT IS OVERHANGING SLIGHTLY.

FRENCH FRIES OR POTATO CHIPS ARE USUALLY SERVED WITH HAMBURGERS.

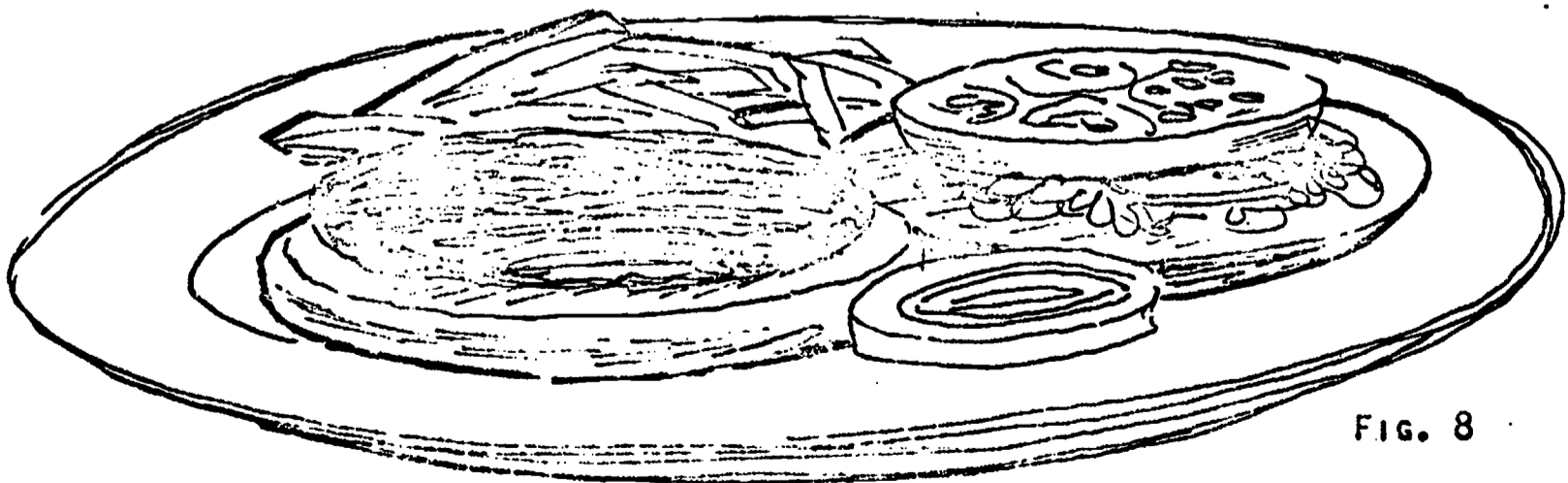
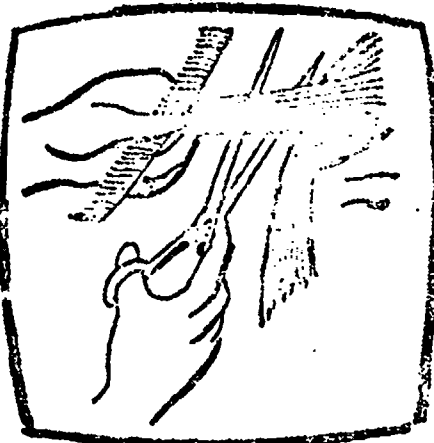
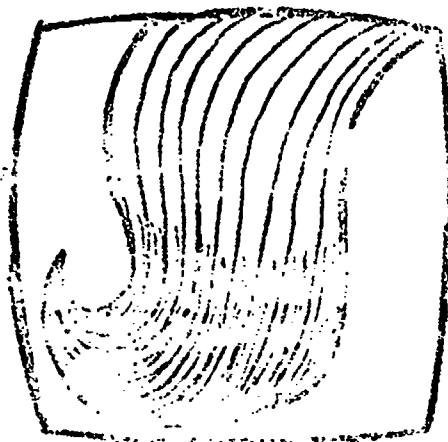
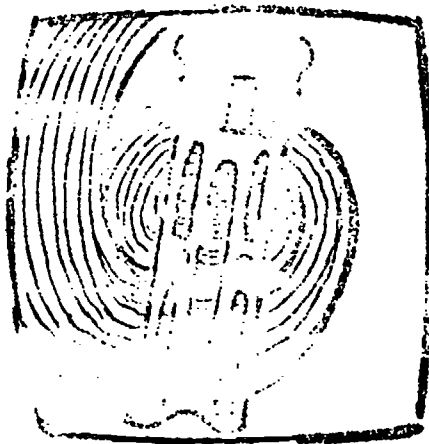


FIG. 8



AN INTRODUCTION TO



COOPERATIVE LEARNING

PART E OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO COSMETOLOGY

BY KATHERN HALE
EDNA KING
WILLA DEAN KIRBY
MARY SIMMERLY

SOME INTERESTING FACTS ABOUT COSMETOLOGY

1. WHAT KIND OF WORK IS DONE?

COSMETOLOGY IS THE ART OF CARING FOR THE HAIR, THE SKIN, AND THE NAILS.

A COSMETOLOGIST MIGHT WORK AS A:

HAIR STYLIST
COLOR TECHNICIAN
WIG SPECIALIST
COSMETIC TECHNICIAN
COSMETIC CHEMIST
SUPPLY DISTRIBUTOR
INSTRUCTOR
SALON MANAGER OR OWNER
MANICURIST

2. WORKING CONDITIONS:

THE WELL-EQUIPPED BEAUTY SALON HAS AREAS FOR SHAMPOOING, HAIR CARE, MANICURING, FACIAL CARE, WIGGERY (SERVICE AND SELLING), AND THE APPLICATION AND SELLING OF COSMETICS. COSMETOLOGISTS USUALLY WORK IN MODERN, AIR-CONDITIONED BEAUTY SALONS. HOWEVER, SOME OF THE SMALLER SHOPS MIGHT HAVE POORER EQUIPMENT.

3. SALARY SCALE:

THE SALARY WHICH THE BEGINNING LICENSED COSMETOLOGIST MAY EXPECT VARIES ACCORDING TO THE LOCATION, THE CAPABILITY OF THE OPERATOR, AND THE

DEMAND OF THE CLIENTELE. USUALLY, THE OPERATOR CAN EXPECT A 60% COMMISSION. THE COMPETENT COSMETOLOGIST CAN EXPECT TO EARN FROM \$4,000 TO \$6,000 PER YEAR. HOWEVER, AS THE OPERATOR ADVANCES IN EXPERIENCE, OPPORTUNITIES FOR EARNINGS WILL INCREASE.

4. TYPE OF CLOTHING WORN:

THE CONVENTIONAL WHITE UNIFORM, PROFESSIONAL SHOES, AND WHITE UNDERGARMENTS ARE ACCEPTABLE FOR GIRLS. YOUNG MEN WEAR WHITE LAB JACKETS, DARK TROUSERS, AND DARK SHOES.

5. PERSONAL QUALITIES NECESSARY:

MENTAL APTITUDE: SOME SENSE OF ARTISTIC PROPORTION IS NECESSARY. A WILLINGNESS TO BE COOPERATIVE AND TO SERVE THE PUBLIC IS ALSO VERY IMPORTANT.

MANIPULATIVE SKILL: FINGER AND MANUAL DEXTERITY AS WELL AS A HIGH DEGREE OF EYE AND HAND COORDINATION ARE NECESSARY.

PERSONALITY CHARACTERISTICS: YOU MUST BE ABLE TO COMMUNICATE WELL WITH OTHERS, BE EMOTIONALLY STABLE, RESPONSIBLE, BE COURTEOUS, AND WELL-GROOMED.

EDUCATION QUALIFICATIONS: AN INDIVIDUAL MUST MEET THE REQUIREMENTS OF THE TENNESSEE STATE BOARD TO BE LICENSED TO PRACTICE COSMETOLOGY IN TENNESSEE. THE BOARD REQUIRES THAT YOU PASS BOTH A WRITTEN AND PRACTICAL EXAMINATION AFTER HAVING COMPLETED 1500 CLOCK HOURS OF TRAINING IN AN ACCREDITED SCHOOL, WHETHER IT IS AN AREA VOCATIONAL TECHNICAL, PRIVATE OR PUBLIC SCHOOL. THE INDIVIDUAL MUST ALSO HAVE A 10TH GRADE EDUCATION. IN ORDER TO COMPLETE THE PROGRAM IN A PUBLIC SCHOOL, THE STUDENT MUST BEGIN IN HIS SOPHOMORE YEAR.

WITH EMPHASIS ON



MANICURING

YOUR FIRST EXPERIENCE IN COSMETOLOGY WILL BE:

TO GIVE A PLAIN MANICURE.

INTRODUCTION -- PLEASE READ CAREFULLY:

THE WORD MANICURING IS DERIVED FROM THE LATIN "MANUS" (HAND) AND "CURA" (CARE), MEANING THE CARE OF HANDS AND NAILS.

THE PROFICIENT MANICURIST MUST POSSESS KNOWLEDGE OF THE ANATOMY OF THE HANDS, THE NAILS, AND THE ARMS. THE MANICURIST MUST ALSO BE FAMILIAR WITH THE COSMETICS AND THE IMPLEMENTS USED. SAFETY RULES TO BE OBSERVED IN MANICURING:

1. KEEP ALL CONTAINERS COVERED AND LABELED.
2. DO NOT FILE TOO DEEPLY INTO NAIL CORNERS.
3. AVOID EXCESSIVE FRICTION IN NAIL BUFFING.
4. AVOID PUSHING CUTICLE BACK TOO FAR.
5. IN CASE OF INJURY APPLY ANTI-SEPTIC.
6. DO NOT WORK ON A NAIL THAT IS DISEASED.

REFERENCES:

MILADY STANDARD TEXTBOOK OF COSMETOLOGY BY CONSTANCE V. KIBBE, PP. 63, 65, 69-75.

THE KEYSTONE COSMETOLOGY GUIDE TO BEAUTY CULTURE BY ANTHONY B. COLLETTI, PP. 165-173.

STEPS TO FOLLOW IN SETTING UP THE MANICURE TABLE:

TOOLS AND MATERIALS NEEDED: POLISH REMOVER, CUTICLE OIL, CUTICLE CREAM, POLISH, COTTON, SOAP, WATER, CLEAN TOWEL, CLEANSING TISSUE, ANTISEPTIC, DISINFECTANT SPATULA, ORANGE WOOD STICK, NAIL FILE; CUTICLE PUSHER, NAIL BRUSH, NIPPERS, SCISSORS, EMERY BOARDS, NAIL BUFFER, MANICURE TABLE, PATRON'S CHAIR, STOOL, SUPPLY TRAY, FINGER BOWL, COTTON CONTAINER.

WHAT YOU MUST DO

1. INVENTORY THE TOOLS AND THE MATERIALS ----->

WHAT YOU MUST KNOW TO DO THESE STEPS

MAKE SURE THAT YOU HAVE ALL OF THE TOOLS AND THE MATERIALS MENTIONED ABOVE.

2. ARRANGE YOUR TOOLS AND MATERIALS ON THE MANICURE TABLE ACCORDING TO THE DIAGRAM. MANICURE TABLE SET-UP:

1. TOWEL WRAPPED PILLOW
2. BUFFER
3. STEEL FILE
4. EMERY BOARD
5. ALCOHOL
6. COTTON CONTAINER
7. FINGER BATH
8. NAIL BRUSH
9. WET SANITIZER CONTAINING MANICURE IMPLEMENTS
10. TRAY WITH NAIL POLISH

FIG. 1

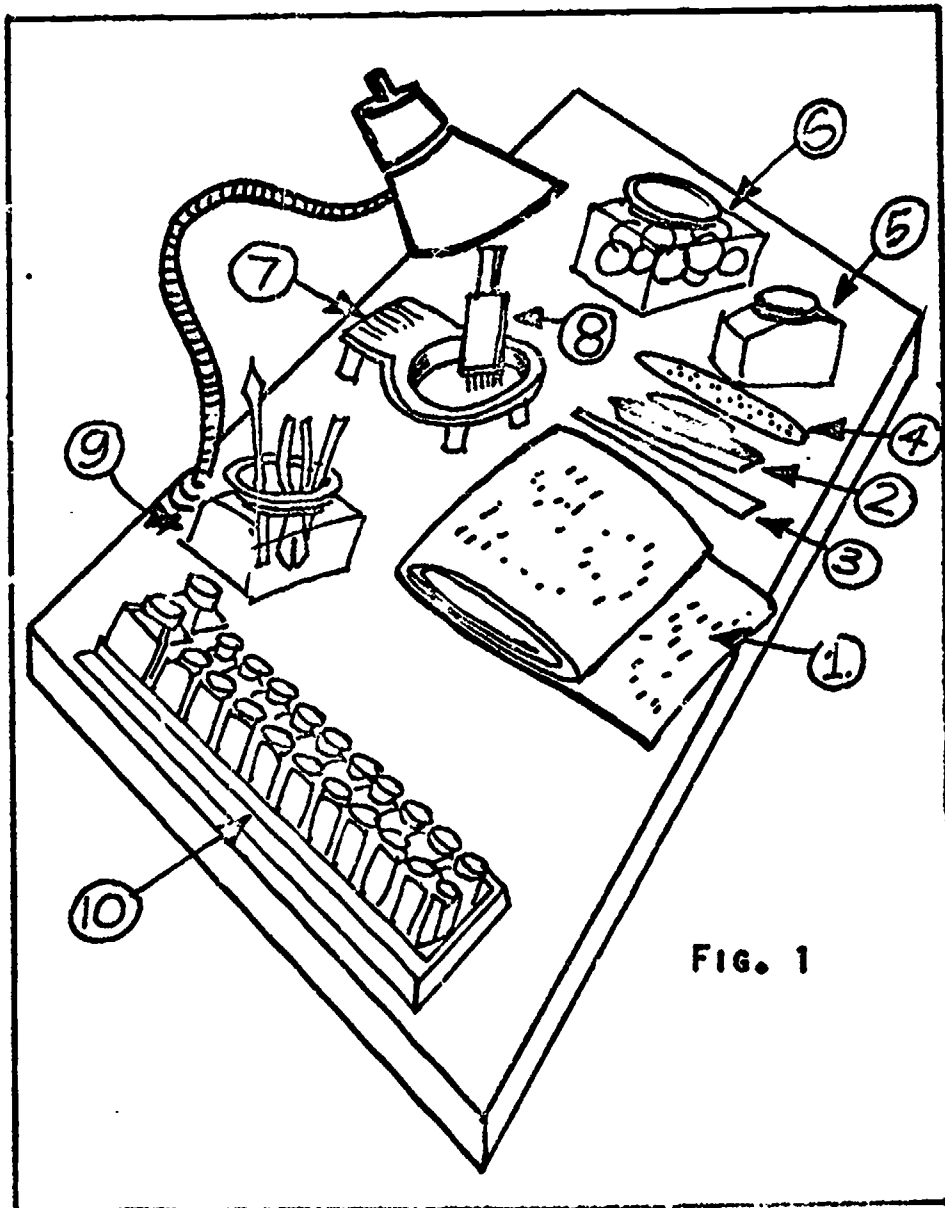


FIG. 1

STEPS TO FOLLOW IN REMOVING THE POLISH:

TOOLS AND MATERIALS NEEDED: TOWEL, POLISH TRAY, COTTON, POLISH REMOVER

WHAT YOU MUST **DO**

1. SATURATE A COTTON PAD WITH POLISH REMOVER ----->

TO PREVENT SPILLING, PLACE THE POLISH REMOVER BOTTLE IN AN AREA AWAY FROM ACTIVITY.

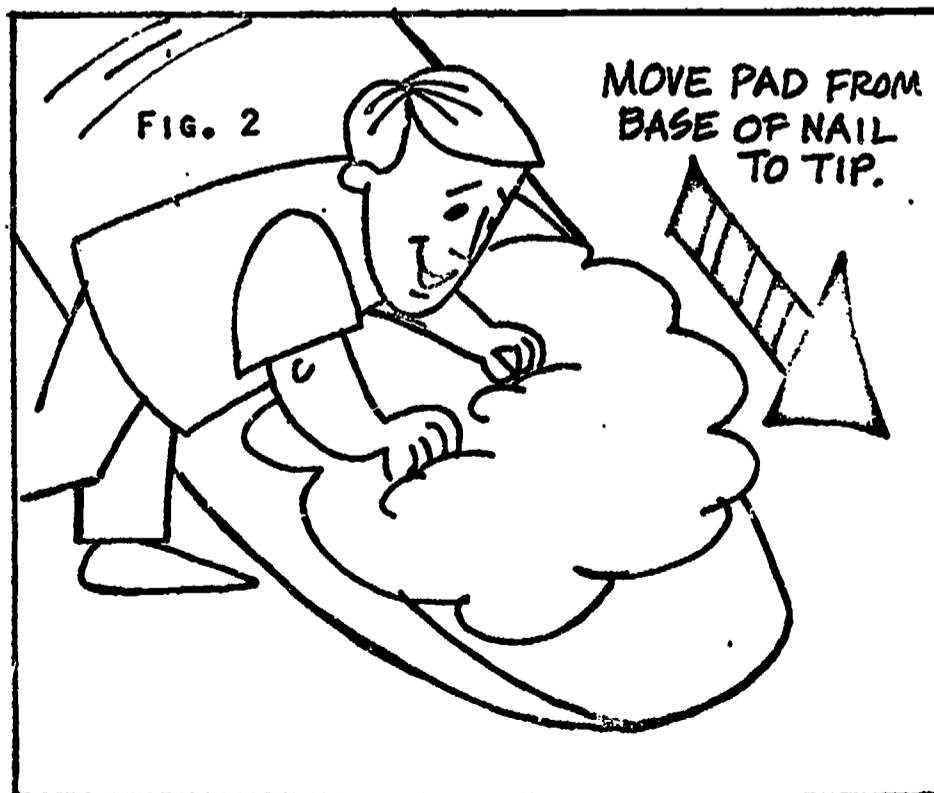
2. BEGIN WITH THE LITTLE FINGER ON THE LEFT HAND

3. PRESS THE COTTON PAD OVER THE NAIL TO SOFTEN THE POLISH ----->

NAIL POLISH CAN BE RETURNED TO THE FLUID STATE BY APPLYING THE PROPER SOLVENT.

4. MOVE THE SATURATED PAD FROM THE BASE OF THE NAIL TO THE TIP FIG. 2

5. PROCEED WITH EACH NAIL ON THE LEFT HAND. REPEAT THESE STEPS ON THE RIGHT HAND



STEPS TO FOLLOW IN SHAPING THE NAILS:

TOOLS AND MATERIALS NEEDED: EMERY BOARD OR METAL FILE, TOWEL, FINGER BOWL,
WATER, SOAP

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. USE THE COARSE SIDE OF THE EMERY BOARD TO SHAPE THE NAILS ----->

FILE THE NAIL FROM THE CORNER TO THE CENTER.

DO NOT FILE TOO DEEPLY INTO THE NAIL CORNERS.

A BACK AND FORTH MOTION TENDS TO SPLIT THE NAIL AND CAUSE A FRICTION BURN ON THE FINGER.

2. FILE THE NAILS OF THE LEFT HAND, BEGINNING WITH THE LITTLE FINGER

3. PROCEED WITH EACH NAIL ON THE LEFT HAND

4. BEGIN WITH THE RIGHT HAND ----->

AFTER COMPLETING 2 NAILS ON THE RIGHT HAND, PLACE THE LEFT HAND IN THE FINGER BOWL (FILLED WITH WARM SOAPY WATER) IN ORDER TO SOFTEN THE CUTICLE. FIG. 3

5. FINISH WITH THE NAILS ON THE RIGHT HAND



STEPS TO FOLLOW IN PREPARING THE CUTICLE:

TOOLS AND MATERIALS NEEDED: FINGER BOWL, WATER, SOAP, CUTICLE SOLVENT, CUTICLE CREAM OR OIL, COTTON, ORANGE WOOD STICK, TOWEL

WHAT YOU MUST DO

1. REMOVE THE LEFT HAND FROM FINGER BATH, DRY IT THOROUGHLY ----->

2. APPLY CUTICLE SOLVENT, BEGINNING ON THE LITTLE FINGER OF THE LEFT HAND. APPLY SOLVENT AROUND THE CUTICLE OF EACH FINGER

3. LOOSEN THE CUTICLE FIG. 4 ----->

4. IMMERSE THE FILED RIGHT HAND IN THE FINGER BOWL

5. WRAP A THIN LAYER OF COTTON AROUND THE SHARP END OF THE ORANGE WOOD STICK AND DIP IT IN SOAPY WATER

6. USING THIS COTTON WRAPPED TIP, CLEAN UNDER THE NAIL FROM THE CENTER TOWARD EACH SIDE -----> USE GENTLE PRESSURE.

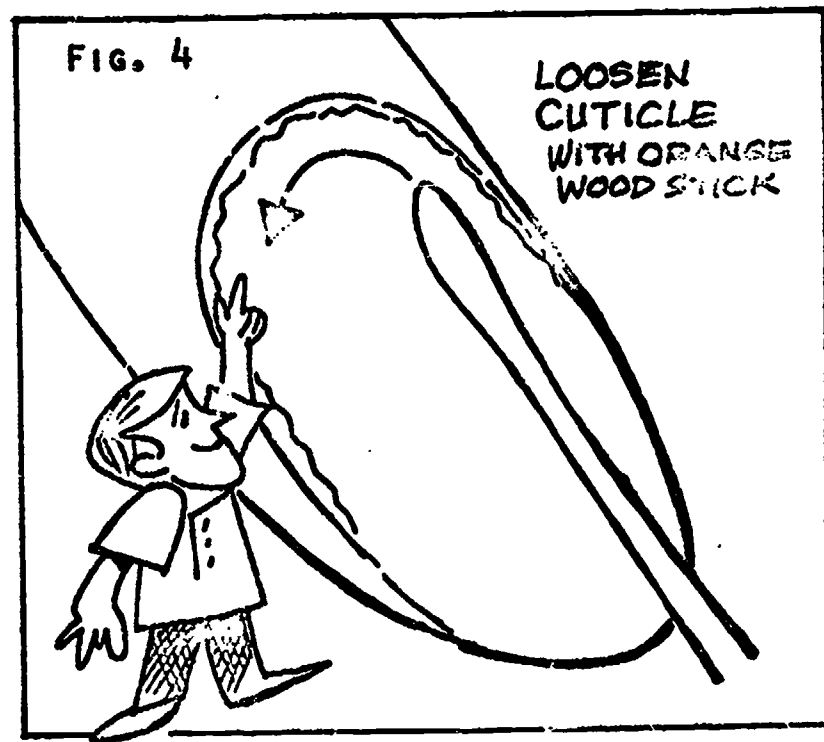
7. APPLY CUTICLE OIL OR CREAM -----> APPLY CREAM AROUND THE SIDES AND THE BASE OF THE NAIL. MASSAGE THE CUTICLE WITH YOUR THUMB IN A CIRCULAR MOVEMENT.

8. REMOVE THE RIGHT HAND FROM THE FINGER BATH. DRY THE HAND THOROUGHLY -----> TREAT THE NAILS OF THE RIGHT HAND, FOLLOWING THE ABOVE STEPS.

WHAT YOU MUST KNOW TO DO THESE STEPS

THE HAND MUST BE THOROUGHLY DRIED.

USE THE SPOON END OF THE ORANGE WOOD STICK AND GENTLY MOVE THE CUTICLE BACK, USING A CIRCULAR MOVEMENT.



STEPS TO FOLLOW IN CLEANING THE NAILS:

TOOLS AND MATERIALS NEEDED: TOWEL, WATER BATH, NAIL BRUSH

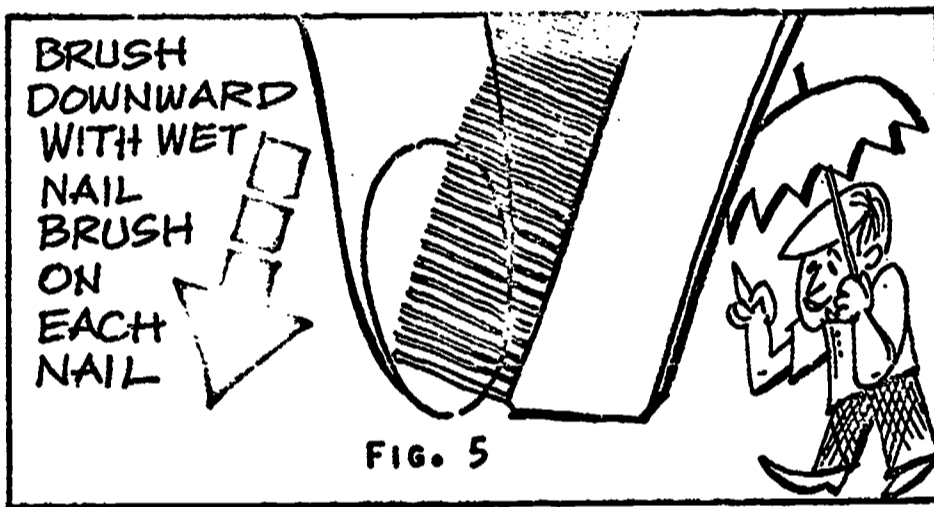
WHAT YOU MUST DO

1. BRUSH THE NAILS IN THE SOAP BATH -FIG. 5 ----->
2. DRY THE HAND THOROUGHLY ----->

WHAT YOU MUST KNOW TO DO THESE STEPS

WITH THE WET NAIL BRUSH, MAKE DOWNWARD STROKES ON EACH NAIL. WASH THE CREAM FROM EACH NAIL.

REPEAT ON BOTH HANDS.



STEPS TO FOLLOW IN BEVELING THE NAILS:

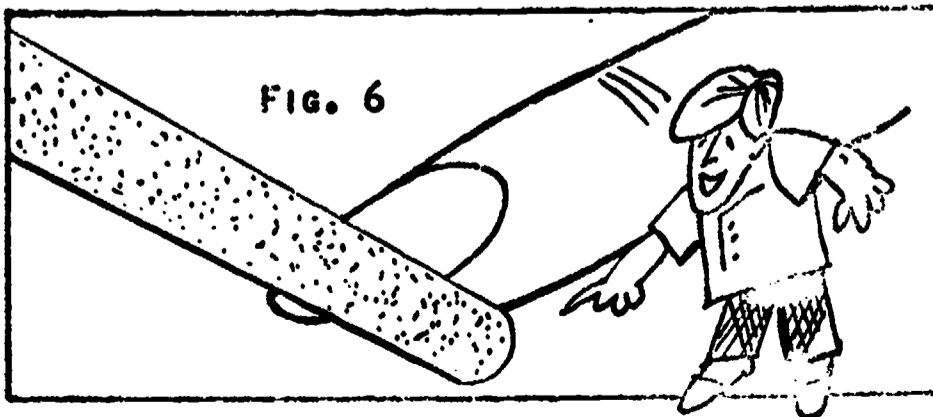
TOOLS AND MATERIALS NEEDED: EMERY BOARD

WHAT YOU MUST DO

1. EXAMINE THE NAILS FOR DEFECTS AND ROUGH EDGES
2. BEVEL THE NAILS -- FIG. 6 ----->

WHAT YOU MUST KNOW

WITH FINE SIDE OF EMERY BOARD, SMOOTH OUT ANY DEFECTS.



STEPS TO FOLLOW IN APPLYING THE POLISH:

TOOLS AND MATERIALS NEEDED: POLISH REMOVER, POLISH, (NAIL BUFFER, DRY POLISH, BUFFING POWDER OR CREAM FOR MEN), ALCOHOL, COTTON, TOWEL

WHAT YOU MUST DO

1. CLEAN THE NAIL WITH POLISH REMOVER ----->

2. FOR MEN ONLY, SHAKE OUT A SMALL AMOUNT OF DRY POLISH ON THE BUFFER ----->

3. APPLY THE BASE COAT ON THE LITTLE FINGER OF THE LEFT HAND, WORKING TOWARD THE THUMB -- FIG. 7 ----->

WHAT YOU MUST KNOW TO DO THESE STEPS

IF THE NAIL IS NOT PROPERLY CLEANED WITH POLISH REMOVER, THE NEW POLISH WILL NOT ADHERE TO THE NAIL.

BUFF THE NAILS IN A DOWNWARD STROKE TO PREVENT FRICTION. TO PREVENT A HEATING OR BURNING SENSATION, LIFT THE BUFFER AFTER EACH STROKE. BUFFING THE NAILS INCREASES THE CIRCULATION OF BLOOD TO THE FINGER TIPS, SMOOTHS THE NAILS, AND GIVES THEM A NATURAL GLOSS OR POLISH.

FOR MEN, UNLESS A CLEAR LAYER OF POLISH IS DESIRED, THE MANICURE IS NOW COMPLETE.

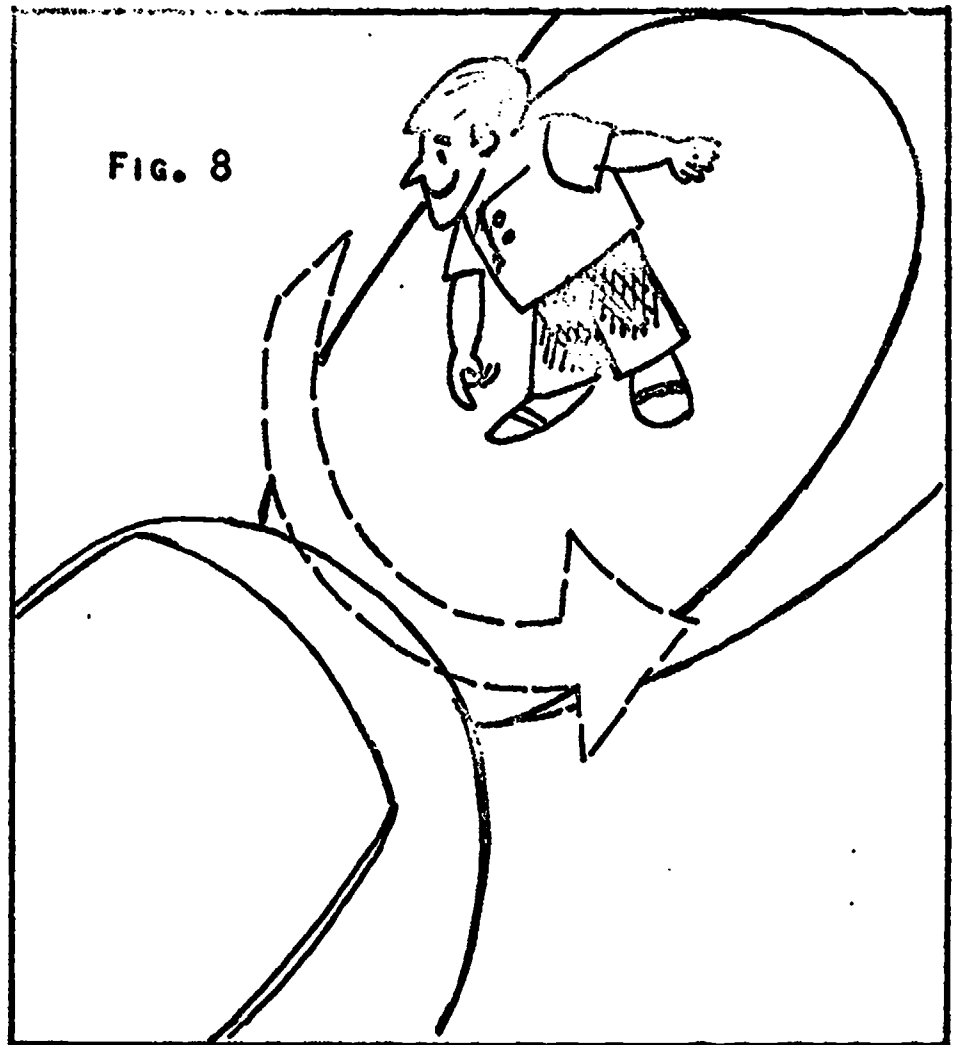
APPLY ONE THIN LAYER OF BASE COAT, USING 3 STROKES; ONE STROKE DOWN EACH SIDE OF THE NAIL, THEN ONE DOWN THE MIDDLE. ALLOW THIS COAT TO DRY THOROUGHLY.



WHAT YOU MUST DO

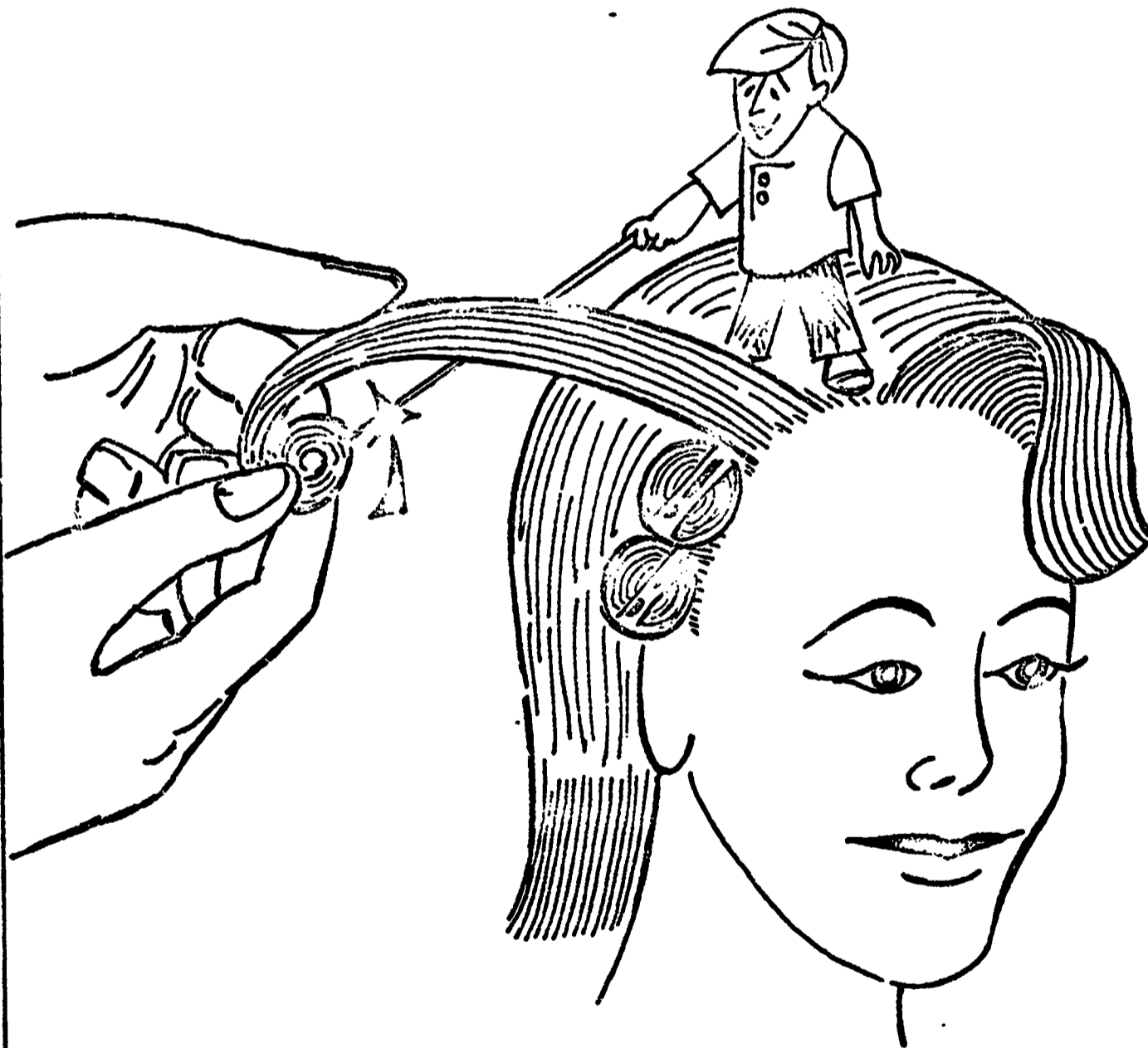
WHAT YOU MUST KNOW

4. APPLY THE LIQUID POLISH -----> APPLY 2 THIN COATS, ALLOWING EACH COAT TO DRY THOROUGHLY. USE ONLY 3 STROKES.
5. ON COLORED POLISH, REMOVE A HAIRLINE TIP ON THE FREE EDGE OF THE NAIL -----> RUB YOUR THUMB GENTLY AROUND THE FREE EDGE OF THE NAIL TO REMOVE A THIN STRIP OF POLISH. FIG. 8



6. APPLY TOP OR SEAL COAT IN ONE THIN LAYER. USE 2 STROKES -----> APPLY A THIN COAT OF SEALER OVER THE ENTIRE NAIL. ALLOW THE NAIL TO DRY THOROUGHLY.
7. CLEAN UP THE AREA -----> CLEAN THE IMPLEMENTS BY APPLYING A 70% ALCOHOL SOLUTION WITH A COTTON PAD. RUB THE ALCOHOL OVER ALL OF THE IMPLEMENTS, THEN PLACE THEM IN A DRY STERILIZER. CLEAN THE TOPS OF THE POLISH BOTTLE WITH POLISH REMOVER. REPLACE USED MATERIALS.

WITH EMPHASIS ON



PINCURLING

TO SHAPE PINCURLS

INTRODUCTION - PLEASE READ CAREFULLY:

CAREFUL PLANNING AND SHAPING OF THE PINCURLS (ALSO CALLED SCULPTURE CURLS), WILL RESULT IN GOOD LINES, WAVES, AND CURLS. THE HAIR MUST BE PROPERLY SHAPED AND WOUND UNIFORMLY IN ORDER TO OBTAIN SPRINGY, LONG-LASTING CURLS.

PINCURLS HAVE 3 PRINCIPLE PARTS: BASE, STEM, AND CIRCLE.

THE BASE IS THE STATIONARY FOUNDATION OF THE CURL ATTACHED TO THE SCALP.

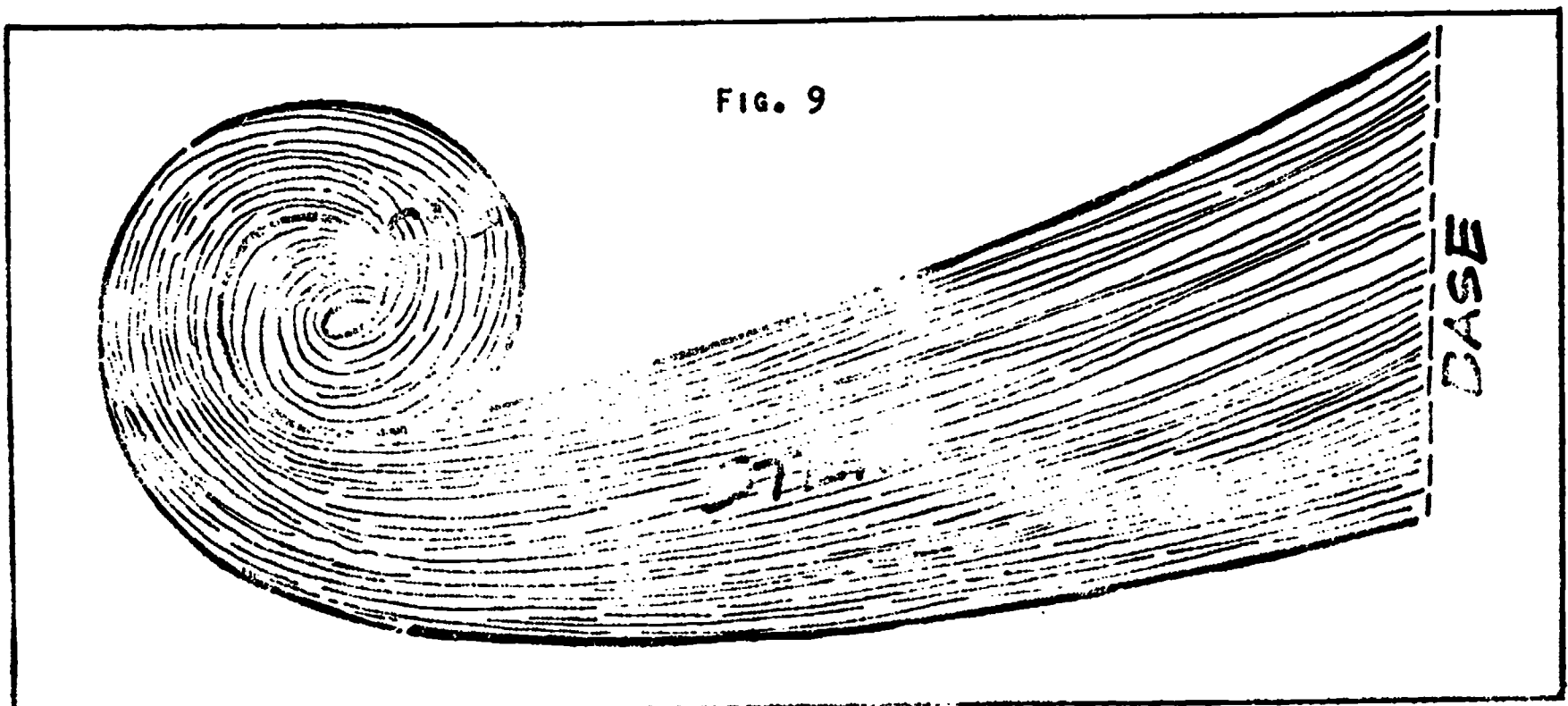
THE STEM IS THAT PORTION OF THE PIN CURL BETWEEN THE BASE AND THE FIRST TURN OF THE CIRCLE.

THE CIRCLE IS THAT PART OF THE PINCURL FORMING A COMPLETE CIRCLE. FIG. 9

REFERENCES:

MILADY STANDARD TEXTBOOK OF COSMETOLOGY BY CONSTANCE V. KIBBE, PP. 113-114.

COSMETOLOGY KEYSTONE GUIDE TO BEAUTY CULTURE BY ANTHONY B. COLLETTI, P. 37.



STEPS TO FOLLOW IN SHAPING THE CURLS:

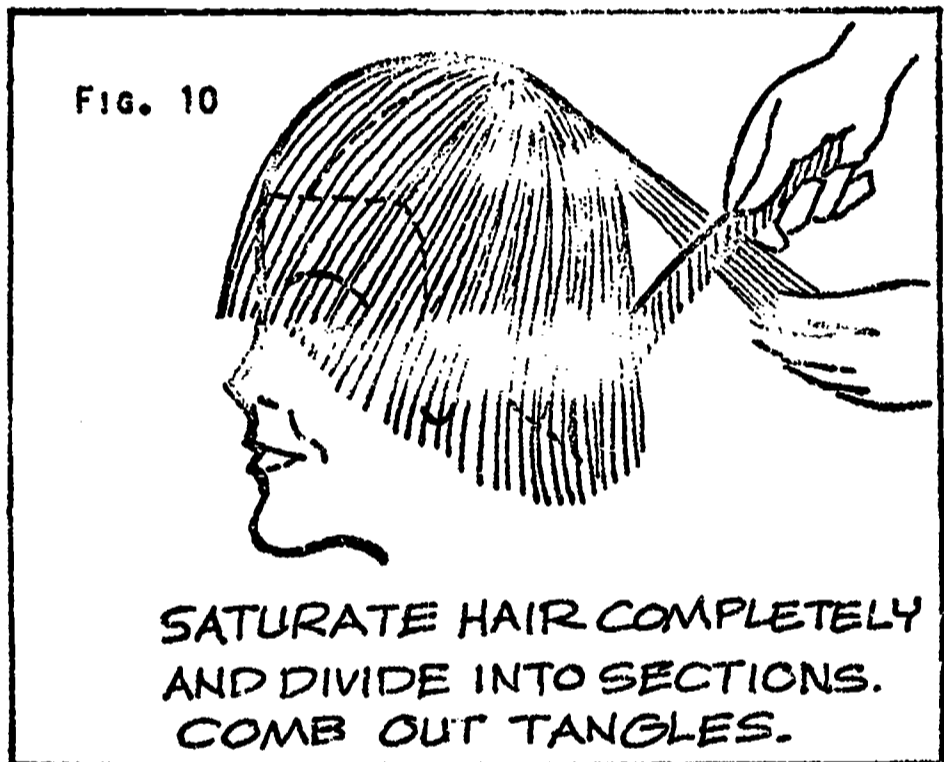
TOOLS AND MATERIALS NEEDED: WATER, SETTING LOTION, COMB, CLIPPES, TOWEL, MANNEQUIN, APPLICATOR BOTTLE

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. USING THE APPLICATOR BOTTLE, APPLY WATER AT THE NAPE SECTIONS
2. CONTINUE BY SECTIONS, UNTIL ALL OF THE HAIR IS COMPLETELY SATURATED
3. USING THE LARGE TEETH OF THE COMB, REMOVE THE TANGLES FROM THE HAIR

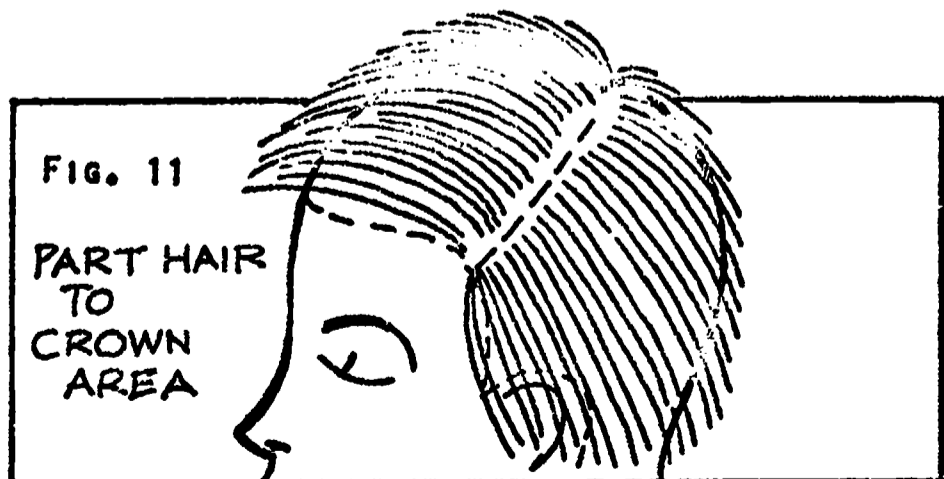
YOUR MANNEQUIN IS MADE OF 100% HUMAN HAIR. THE MANNEQUIN HAIR MAY BE SHAMPOOED, CONDITIONED, SET, DRIED AND COMBED. FIG. 10



4. BEGINNING AT THE OUTSIDE CORNER OF THE EYEBROW, PART THE HAIR TOWARD EACH SIDE OF THE CROWN AREA --FIG. 11

IN STEPS 4, THROUGH 9 THE HAIR IS "SECTIONED AND RIBBONED."

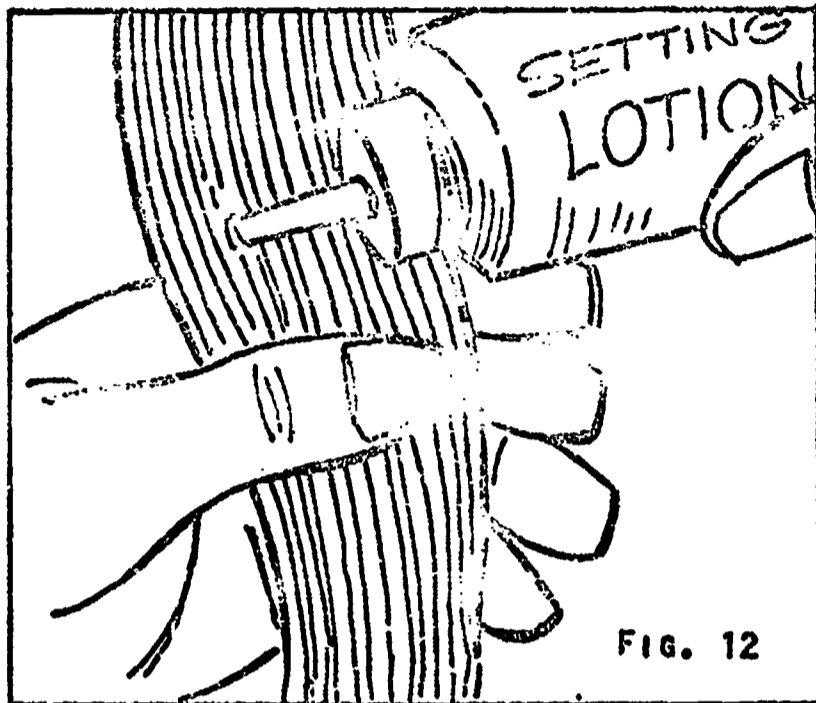
5. FASTEN WITH A CLIPPIE



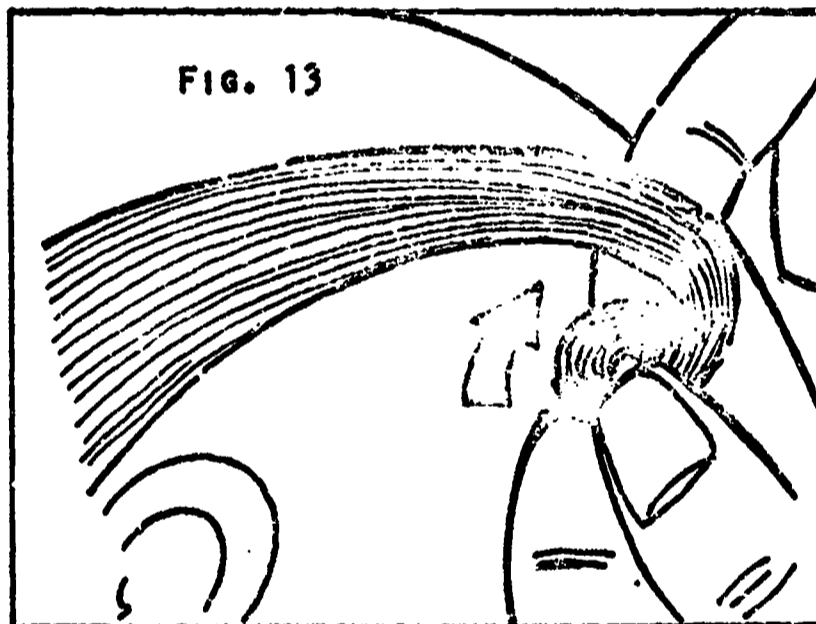
WHAT YOU MUST DO

6. USING THE APPLICATOR BOTTLE, APPLY ENOUGH SETTING LOTION TO SATURATE EACH HAIR STRAND FIG. 12
7. COMB THE LOTION EVENLY THROUGH THE HAIR

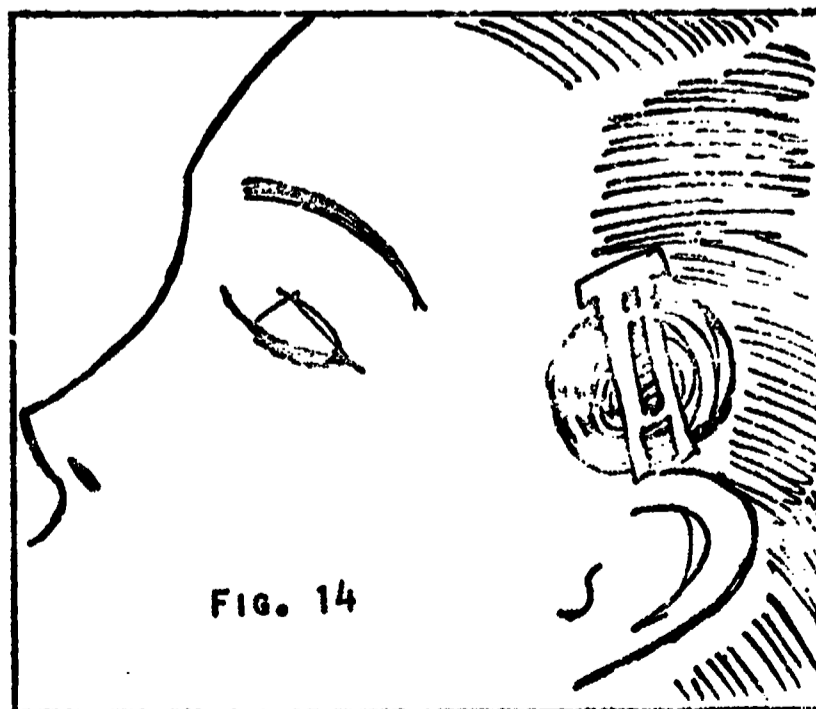
WHAT YOU MUST DO



8. USING THE LARGE TEETH OF THE COMB, SEPARATE OUT A SMALL SECTION OF HAIR
9. COMB THIS SECTION INTO A SMOOTH STRAND
10. WIND THE HAIR AROUND THE TIP OF YOUR FINGER. FIG. 13



11. PLACE THE CURL AGAINST THE SCALP BY LETTING IT SLIDE OVER THE TIP OF YOUR FINGER
12. SECURE WITH A CLIPPIE FIG. 14





AN INTRODUCTION TO



"Get in on ALL the ACTION!"

DISTRIBUTION OF

PART G OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO DISTRIBUTIVE EDUCATION

BY JOANN POTTER
JEAN CHAPPELL

SOME INTERESTING FACTS ABOUT DISTRIBUTIVE EDUCATION

1. WHAT KINDS OF WORK ARE DONE?

DISTRIBUTIVE EDUCATION TRAINS
INDIVIDUALS FOR EMPLOYMENT IN THE
FOLLOWING TYPES OF BUSINESSES:

GENERAL MERCHANDISE STORES

RESTAURANTS

SERVICE STATIONS

AUTOMOBILE DEALERSHIPS

SPECIALTY STORES

GROCERY AND MEAT MARKETS

WAREHOUSE WHOLESALERS

MANUFACTURERS SALES JOBBERS

AGENTS AND BROKERS

INSURANCE

ADVERTISING

HOTEL AND MOTEL

REAL ESTATE

TRANSPORTATION

SPECIALTY SERVICE STORES

BANKING

THESE OCCUPATIONS DEAL WITH
BUYING, SELLING, MERCHANDISING, AD-
VERTISING, DISPLAY, TRANSPORTATION,
PERSONNEL, AND OTHER RETAIL, WHOLE-
SALE, AND SERVICE FUNCTIONS.

2. WORKING CONDITIONS:

THE MAJORITY OF POSITIONS ARE LOCATED IN LARGE CITIES OR SUBURBAN AREAS. A FORTY-HOUR WORK WEEK IS COMMON. PEOPLE WITH SENIORITY IN DISTRIBUTIVE OCCUPATIONS HAVE REASONABLY GOOD JOB SECURITY.

3. SALARY SCALE:

EMPLOYEES OF LARGE FIRMS ENGAGED IN MARKETING AND DISTRIBUTION ARE NOW COVERED BY THE MINIMUM WAGE LAW WHICH IS SET AT \$1.60 AN HOUR. HOWEVER, SMALL RETAIL STORES ARE NOT REQUIRED TO PAY A MINIMUM WAGE. WHOLESALERS ARE REQUIRED TO PAY THEIR EMPLOYEES \$1.30 AN HOUR. THE MAXIMUM EARNINGS IN THIS FIELD DEPEND LARGELY ON THE ABILITIES AND THE ENERGY OF THE WORKER. MANY OF THE TOP PERSONNEL IN MARKETING AND DISTRIBUTION EARN UP TO \$25,000 ANNUALLY.

4. TYPE OF CLOTHING WORN:

ALL DISTRIBUTIVE OCCUPATIONS REQUIRE NEAT, CLEAN CLOTHING. A SUIT OR JUST A SHIRT AND TIE WOULD USUALLY BE APPROPRIATE FOR MEN.

5. PERSONAL QUALITIES NECESSARY:

PERSONALITY CHARACTERISTICS: PEOPLE EMPLOYED IN MARKETING AND DISTRIBUTIVE OCCUPATIONS MUST ENJOY WORKING WITH OTHERS AND SHOULD BE ABLE TO ADJUST TO CHANGING EMPLOYMENT CONDITIONS. LOYALTY TO THE FIRM AND A DESIRE TO SEE IT SUCCEED ARE IMPORTANT QUALITIES.

EDUCATION QUALIFICATIONS: A HIGH SCHOOL EDUCATION IS A REQUIREMENT FOR MOST DISTRIBUTIVE OCCUPATIONS. ADVANCED TRAINING IS NECESSARY FOR MOST PROMOTIONS.

6. OTHER FACTS OF INTEREST:

ONE OUT OF EVERY TWO EMPLOYED AMERICANS WORKS IN MARKETING AND DISTRIBUTIVE OCCUPATIONS. IN THE STATE OF TENNESSEE ALONE OVER 250,000 JOBS ARE EXPECTED TO OPEN EACH YEAR IN THIS FIELD. NO OTHER FIELD OFFERS MORE OPPORTUNITIES TO JOB SEEKERS.

YOUR FIRST EXPERIENCE IN DISTRIBUTIVE EDUCATION WILL BE:

TO MAKE CHANGE, USING THE LEAST NUMBER OF COINS AND BILLS POSSIBLE. TO DO THIS, YOU AND A FELLOW STUDENT WILL ALTERNATELY PLAY THE ROLES OF A SALESPERSON AND A CUSTOMER EXCHANGING IMITATION MONEY FOR PURCHASES.

INTRODUCTION -- PLEASE READ CAREFULLY:

OFTEN A CUSTOMER WILL GIVE THE CASHIER MORE MONEY THAN REQUIRED FOR THE PURCHASE. WHEN THIS HAPPENS, THE CASHIER MUST GIVE THE CORRECT CHANGE. THE ACCEPTED METHOD OF CHANGE-MAKING USED BY SALESPEOPLE IS THAT OF ADDITION OR SIMPLE COUNTING. THE CASHIER SHOULD NEVER ATTEMPT TO SUBTRACT, EITHER MENTALLY OR WITH PAPER AND PENCIL, SINCE SUBTRACTION IS BOTH TIME CONSUMING AND INACCURATE.

TO MAKE CHANGE YOU SHOULD:

1. MENTION THE TOTAL OF THE SALE AND THE AMOUNT RECEIVED FROM THE CUSTOMER.
2. MENTALLY START COUNTING WITH THE AMOUNT OF THE SALE SHOWN ON THE RECEIPT OR SALES SLIP OR ON THE CASH REGISTER INDICATION.
3. STOP COUNTING WHEN YOU REACH THE AMOUNT THAT THE CUSTOMER GAVE YOU.
4. CAREFULLY COUNT THE CHANGE BACK TO THE CUSTOMER BY BEGINNING WITH THE AMOUNT OF THE SALE AND COUNTING UP THE AMOUNT ADDED AS EACH COIN AND BILL IS GIVEN TO THE CUSTOMER, EMPHASIZING THE DOLLAR AND CENTS SIGNS.
5. THANK THE CUSTOMER.

FOR EXAMPLE: A CUSTOMER MAKES A PURCHASE TOTALING \$6.23 AND GIVES THE CASHIER A \$20 BILL AS PAYMENT. INDICATE WHAT CHANGE WOULD BE GIVEN TO THE CUSTOMER, USING THE LEAST NUMBER OF

COINS AND BILLS POSSIBLE. REMEMBER YOU ARE NOT TO USE PAPER AND PENCIL OR TO SUBTRACT.

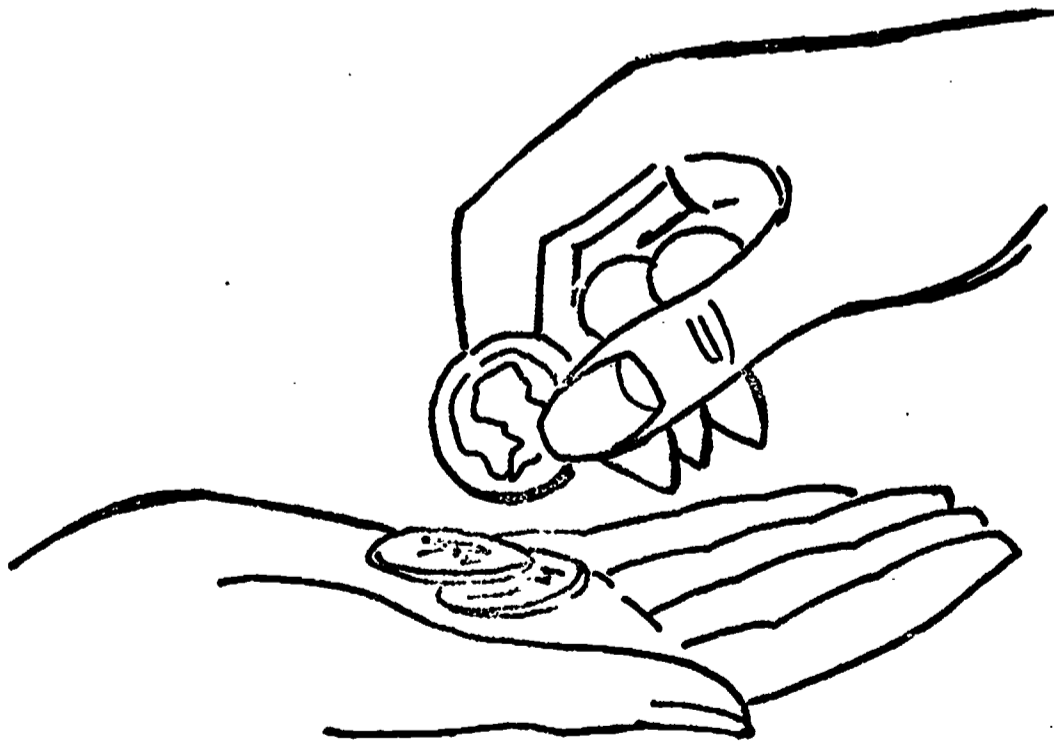
1. ACCEPT THE \$20 BILL FROM THE CUSTOMER, REPEAT THE AMOUNT OF THE SALE AND THE AMOUNT RECEIVED AS "THAT IS 6 DOLLARS AND 23 CENTS OUT OF \$20."

2. MENTALLY COUNT, BEGINNING WITH \$6.23: "2 CENTS IS \$6.25; 25 CENTS IS \$6.50; 50 CENTS IS \$7; THREE \$1 BILLS IS \$10; ONE \$10 BILL IS \$20."

3. SPEAKING LOUDLY ENOUGH FOR THE CUSTOMER TO HEAR, COUNT THE CHANGE BACK TO THE CUSTOMER BY BEGINNING WITH THE AMOUNT OF THE SALE AND COUNTING UP THE AMOUNT ADDED AS EACH COIN AND BILL IS GIVEN TO THE CUSTOMER.

4. EMPHASIZE THE DOLLAR "SIGN" WHEN COUNTING AS "SIX DOLLARS AND 23 CENTS; SIX DOLLARS AND 25 CENTS; SEVEN DOLLARS; EIGHT DOLLARS; NINE DOLLARS; TEN DOLLARS; TWENTY DOLLARS."

5. THANK THE CUSTOMER AND ENCLOSE THE CASH REGISTER RECEIPT OR THE SALES TICKET WITH THE CUSTOMER'S PURCHASE.



REFERENCES:

TIPS ON MAKING CHANGE. THE NATIONAL CASH REGISTER COMPANY.

STEPS TO FOLLOW IN ROLE PLAYING A CASHIER AND A CUSTOMER:

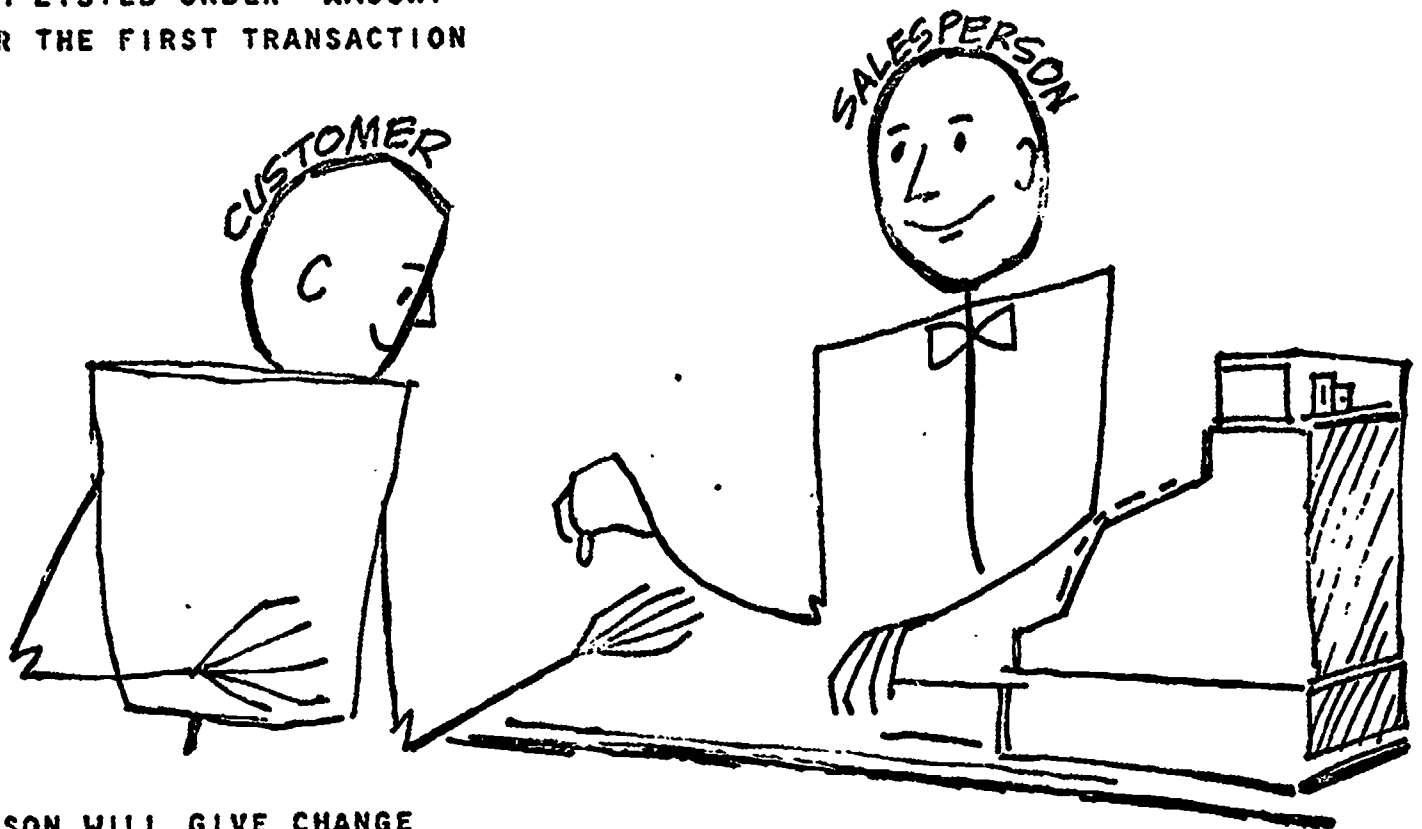
TOOLS AND MATERIALS NEEDED: IMITATION MONEY

WHAT YOU MUST DO

**WHAT YOU MUST KNOW
TO DO THOSE STEPS**

1. YOU SHOULD PAIR OFF AND DECIDE WITH YOUR PARTNER WHICH OF YOU WILL BE THE SALESPERSON FIRST-----
2. THE CUSTOMER WILL GIVE THE SALES-CLERK THE SUM LISTED UNDER "AMOUNT RECEIVED" FOR THE FIRST TRANSACTION

AFTER YOU HAVE FINISHED THE FIRST SET OF PURCHASES, YOU WILL REVERSE THE ROLES.



3. THE SALESPERSON WILL GIVE CHANGE FOR THE DIFFERENCE BETWEEN THE "AMOUNT RECEIVED" AND THE "AMOUNT OF SALE" USING AS FEW COINS AND BILLS AS POSSIBLE-----
4. THE CUSTOMER WILL TELL THE CASHIER WHETHER OR NOT HE HAS GIVEN THE CORRECT CHANGE-----

FOLLOW THE 5 STEPS LISTED IN THE INTRODUCTION FOR MAKING CHANGE.

ONLY THE CUSTOMER SHOULD LOOK AT THE ANSWER SHEET.

THE ANSWER SHEET IS THE LAST PAGE IN THIS EXPERIENCE.

WHAT YOU MUST DO

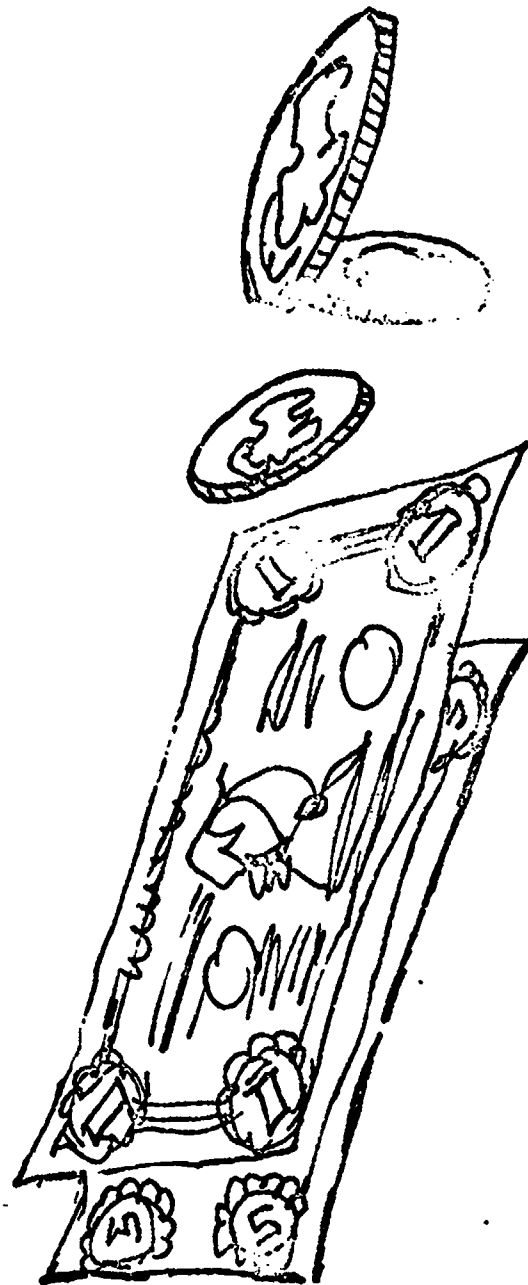
WHAT YOU MUST DO

5. REPEAT STEPS 2-4 FOR EACH OF THE FOLLOWING TRANSACTIONS.

TRANSACTION NUMBER	AMOUNT OF SALE	AMOUNT RECEIVED
1.	\$.17	\$.50
2.	1.29	10.00
3.	.81	1.01
4.	.39	20.00
5.	.26	5.01
6.	7.57	10.00
7.	3.05	5.00
8.	2.76	10.00
9.	1.59	20.00
10.	9.37	50.00
11.	2.09	10.00
12.	7.53	8.00
13.	3.58	10.00

6. REVERSE THE ROLES, EXCHANGE THE ANSWER SHEET AND PLAY OUT THE FOLLOWING PURCHASES:

TRANSACTION NUMBER	AMOUNT OF SALE	AMOUNT RECEIVED
14.	\$.53	\$ 1.00
15.	.61	5.00
16.	.59	1.00
17.	1.33	5.00
18.	1.11	5.00
19.	4.87	20.00
20.	13.18	20.00
21.	.28	10.00
22.	4.26	5.00
23.	15.06	20.00
24.	3.54	20.00
25.	2.98	5.00



----- FOLLOW STEPS 2-4.

ANSWER SHEET
TIPS ON MAKING CHANGE

TRANSACTION NUMBER	1¢	5¢	10¢	25¢	\$1	\$5	\$10	\$20
1	3	1		1				
2	1		2	2	3	1		
3			2					
4	1		1	2	4	1	1	
5				3	4			
6	3	1	1	1	2			
7			2	3	1			
8	4		2		2	1		
9	1	1	1	1	3	1	1	
10	3		1	2				2
11	1	1	1	3	2	1		
12	2		2	1				
13	2	1	1	1	1	1		
14	2		2	1				
15	4		1	1	4			
16	1	1	1	1				
17	2	1	1	2	3			
18	4		1	3	3			
19	3		1			1	1	
20	2	1		3	1	1		
21	2		2	2	4	1		
22	4		2	2				
23	4	1	1	3	4			
24	1		2	1	1			
25	2				2			

**TO CREATE ILLUSTRATIONS OF FORMAL
AND INFORMAL BALANCE.**

INTRODUCTION -- PLEASE READ CAREFULLY:

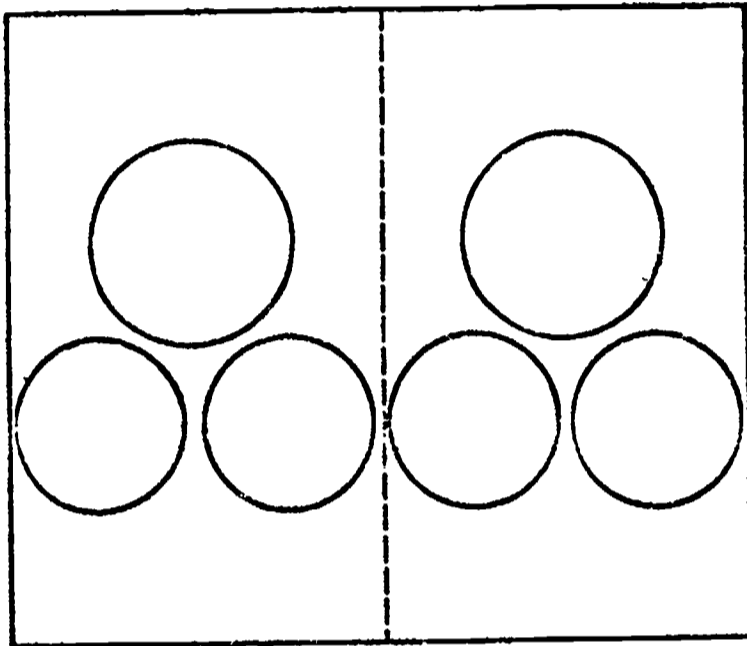
DISPLAY IS ANY FORM OF NONPERSONAL PRESENTATION OF GOODS OR IDEAS TO A GROUP. IT IS USUALLY CATEGORIZED AS A WINDOW DISPLAY OR AS AN INTERIOR DISPLAY. ITS ULTIMATE FUNCTION IS SELLING. DISPLAY IS ONE OF THE PRIME FACTORS IN MODERN MERCHANDISING. IF A DISPLAY SELLS THE MERCHANDISE WHICH IT FEATURES QUICKLY, IT WILL ACCOMPLISH ITS PURPOSE AND WILL BE VALUABLE TO THE MERCHANT. ATTRACTIVE DISPLAYS ALSO BUILD GOOD WILL FOR THE STORE. THE STRENGTH OF DISPLAY IS IN THE CORRECTNESS OF ITS ARRANGEMENT AND IN THE SOUNDNESS OF ITS DESIGN PRINCIPLES.

BALANCE IN DISPLAY IS ACHIEVED BY MAKING EACH SIDE OF THE DISPLAY AREA EQUAL IN TERMS OF SIZE, SHAPE, COLOR, AND OBJECT PLACEMENT.

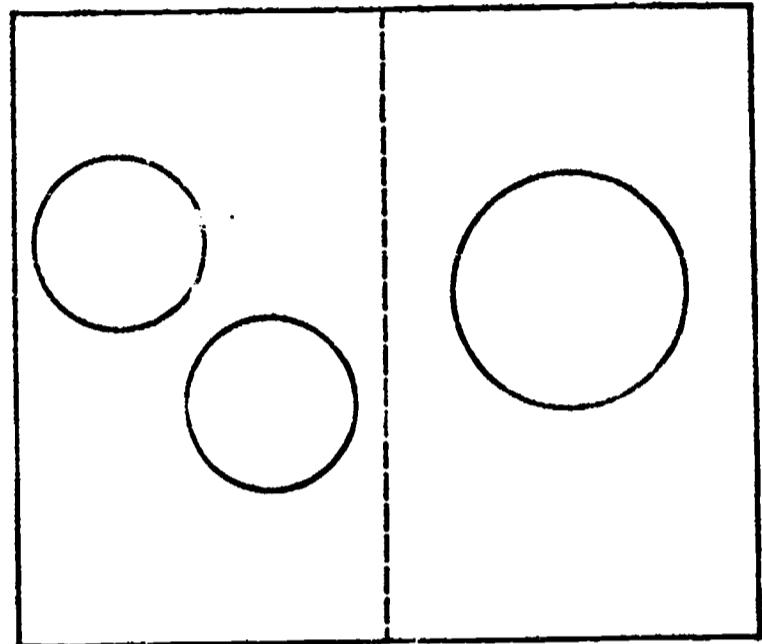
FORMAL OR IDENTICAL BALANCE IS ACHIEVED BY MAKING EACH HALF OF THE DISPLAY IDENTICAL WITH THE OTHER IN ALL RESPECTS.

INFORMAL BALANCE IS ACHIEVED BY OPTICAL EQUALITY; THE COMPONENTS OF EACH HALF OF THE DISPLAY AREA MAY DIFFER IN SIZE, SHAPE, COLOR AND NUMBER, BUT PLACEMENT IS SUCH THAT THE DISPLAY APPEARS TO BE BALANCED. FOR INFORMAL BALANCE, THE HEAVIER ITEMS ARE PLACED NEARER THE CENTER AND LIGHTER OR SMALLER ITEMS ARE PLACED FARTHER FROM THE CENTER.

BELOW ARE EXAMPLES OF FORMAL AND
INFORMAL DISPLAY LAYOUTS. NOTE THAT IN
EACH A DOTTED LINE INDICATES THE CENTER
OF THE AREA.



Formal Balance



Informal Balance

REFERENCES:

ADVERTISING AND DISPLAYING
MERCHANDISE BY SAMSON.
RETAILING PRINCIPLES AND
PRACTICE, 5TH EDITION BY RICHERT,
ET AL.

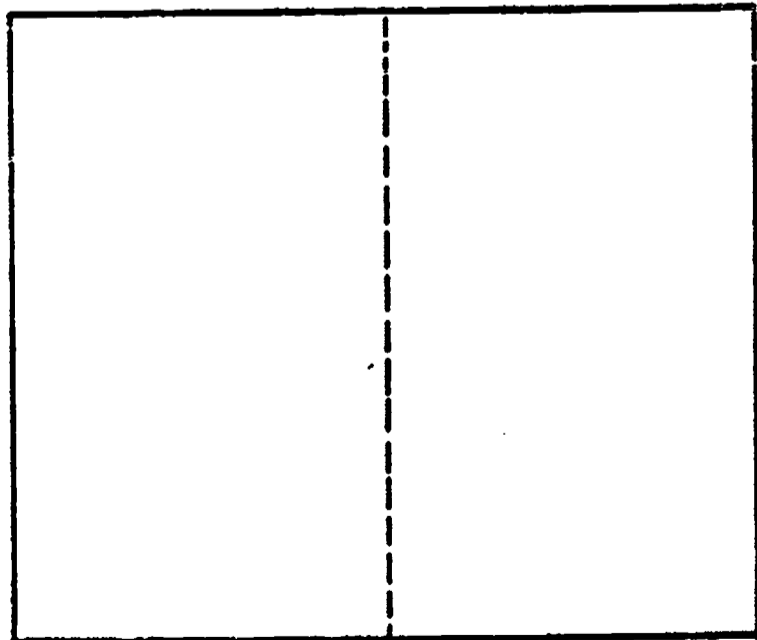
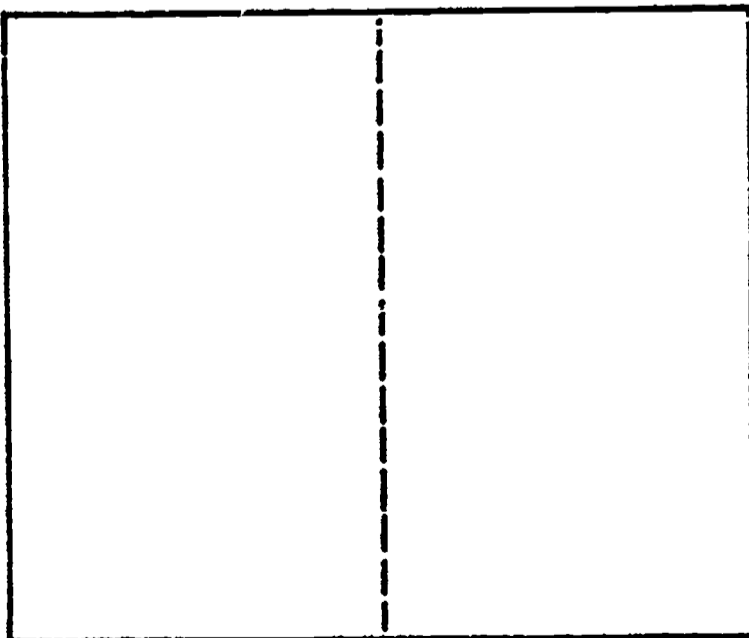
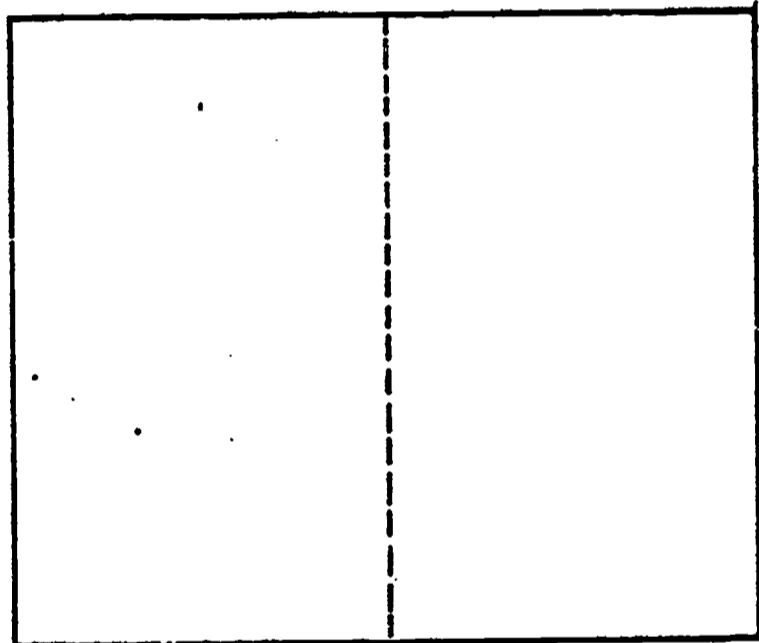
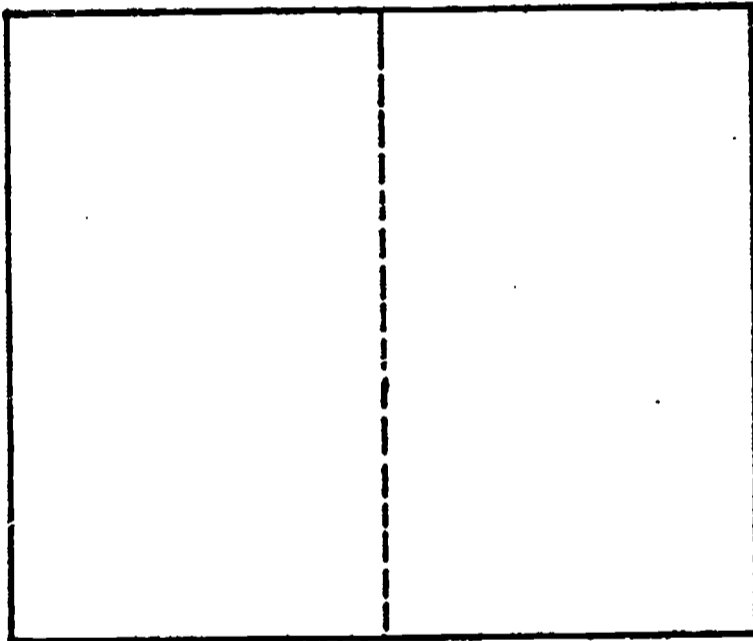
STEPS TO FOLLOW IN CREATING ILLUSTRATIONS OF FORMAL AND INFORMAL BALANCE:

TOOLS AND MATERIALS NEEDED: PENCIL
4 PENNIES
3 NICKELS
5 DIMES
1 QUARTER

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

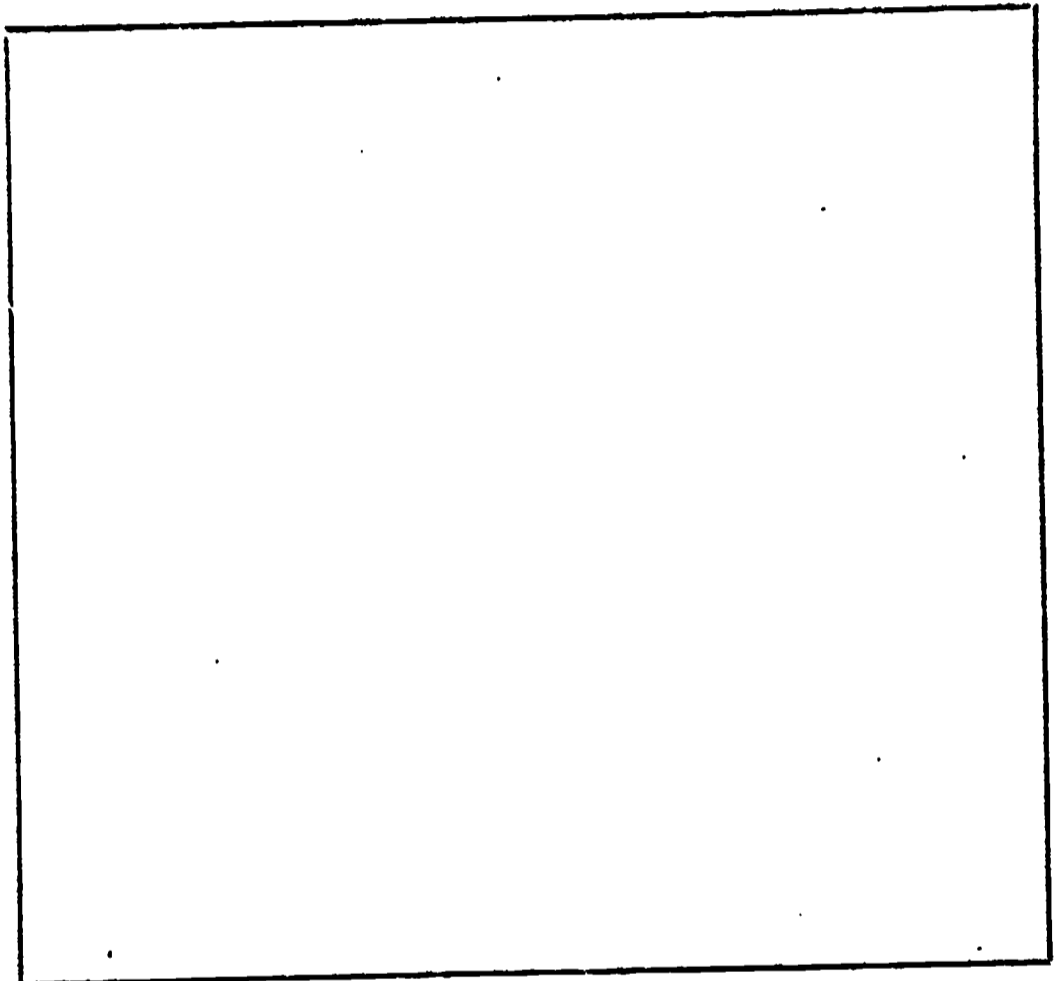
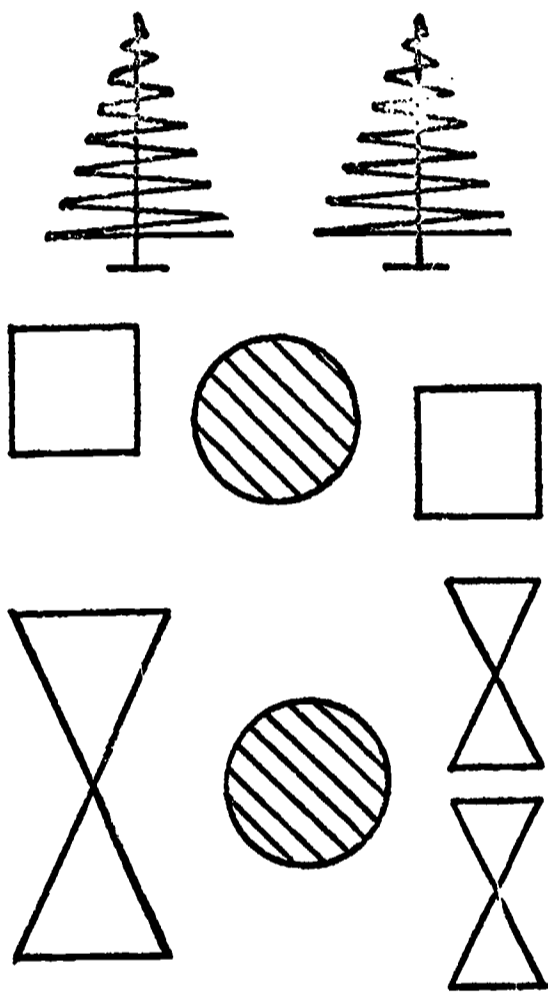
1. IN THE FOLLOWING SPACES CREATE ILLUSTRATIONS OF FORMAL OR INFORMAL BALANCE, USING AS OBJECTS THE NUMBER AND TYPE OF COINS INDICATED BELOW THE SPACE. WHEN YOU HAVE THE PROPER ARRANGEMENT, DRAW AROUND EACH COIN TO LEAVE A SKETCH OF THAT ARRANGEMENT.



WHAT YOU MUST DO

WHAT YOU MUST KNOW

2. USING THE SHAPES BELOW, SKETCH IN THE SPACE PROVIDED A LAYOUT ILLUSTRATING EITHER FORMAL OR INFORMAL BALANCE. USE ALL THE SHAPES SHOWN, AND WRITE BELOW THE SPACE WHETHER YOU ARE USING FORMAL OR INFORMAL BALANCE.



3. AFTER YOU HAVE FINISHED THESE EXERCISES, CHECK WITH YOUR INSTRUCTOR TO SEE HOW WELL YOU DID ON THEM.

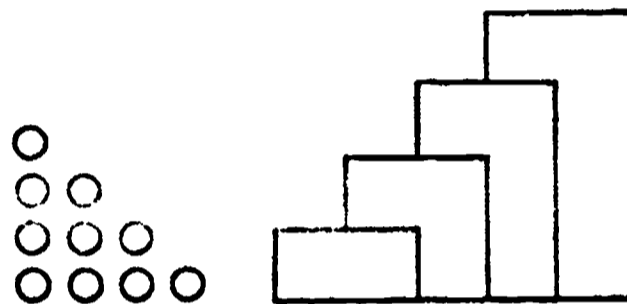
YOUR THIRD EXPERIENCE IN DISTRICTIVE EDUCATION IS:

TO SKETCH DISPLAYS USING THE FOUR BASIC DISPLAY ARRANGEMENTS; THE STAIR-STEP, THE PYRAMID, THE ZIG-ZAG, AND THE REPETITION.

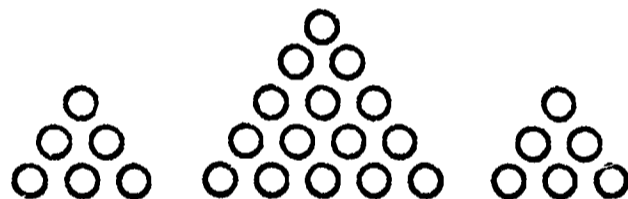
INTRODUCTION -- PLEASE READ CAREFULLY:

FOUR OF THE MOST COMMONLY USED ARRANGEMENTS IN DISPLAY WORK ARE THE STAIR-STEP, THE PYRAMID, THE ZIG-ZAG, AND THE REPETITION.

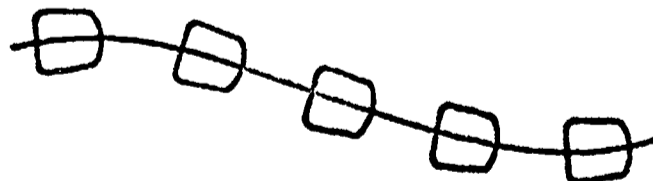
THE STAIR-STEP IS AN ARRANGEMENT OF FIXTURES HOLDING THE MERCHANDISE IN A SERIES OF STEPS GOING UP OR DOWN. IT IS A HARMONIOUS TYPE OF DISPLAY THAT GIVES THE FEELING OF MOTION.



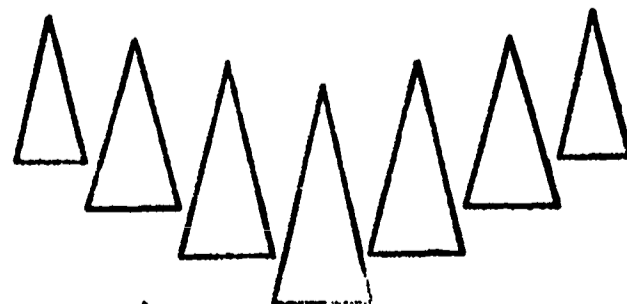
THE PYRAMID ARRANGEMENT IS SHAPED LIKE A TRIANGLE WITH A BROAD BASE THAT GRADUALLY ASCENDS TO A POINT. THIS TYPE IS COMMONLY USED IN SUPERMARKETS.



THE ZIG-ZAG ARRANGEMENT IS SIMILAR TO THE PYRAMID EXCEPT THAT IT IS NOT BUILT DIRECTLY TO THE TOP. IT BEGINS WITH A BROAD BASE, BUT ZIGS AND ZAGS ITS WAY UP. DEPARTMENT STORES OFTEN USE THIS ARRANGEMENT FOR CLOTHING.



REPETITION IS AN ARRANGEMENT THAT USES ITEMS OF THE SAME GENERAL NATURE AND ALIGNS THEM IN EXACTLY THE SAME MANNER, SUCH AS BY HEIGHT, SPACING, OR ANGLE.



STEPS TO FOLLOW IN SKETCHING DISPLAYS USING THE 4 MOST COMMON DISPLAY ARRANGEMENTS:

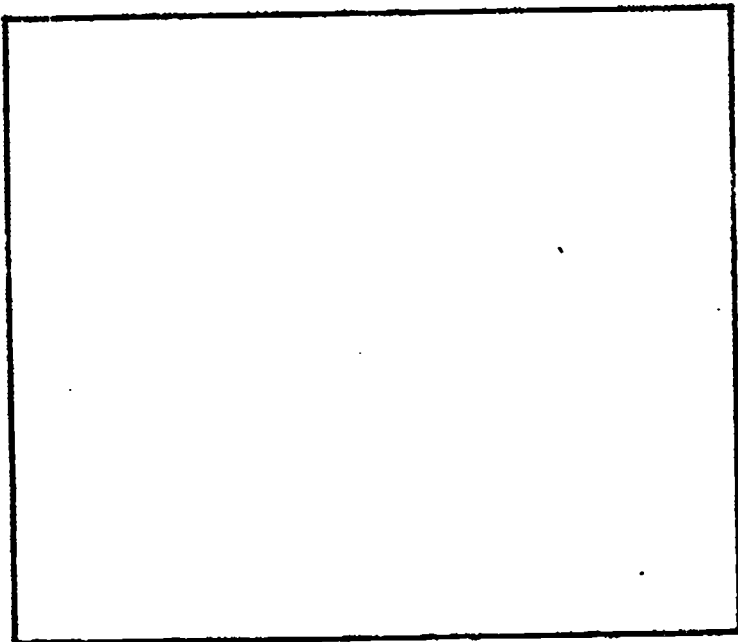
TOOLS AND MATERIALS NEEDED: PENCIL
RULERS

WHAT YOU MUST DO

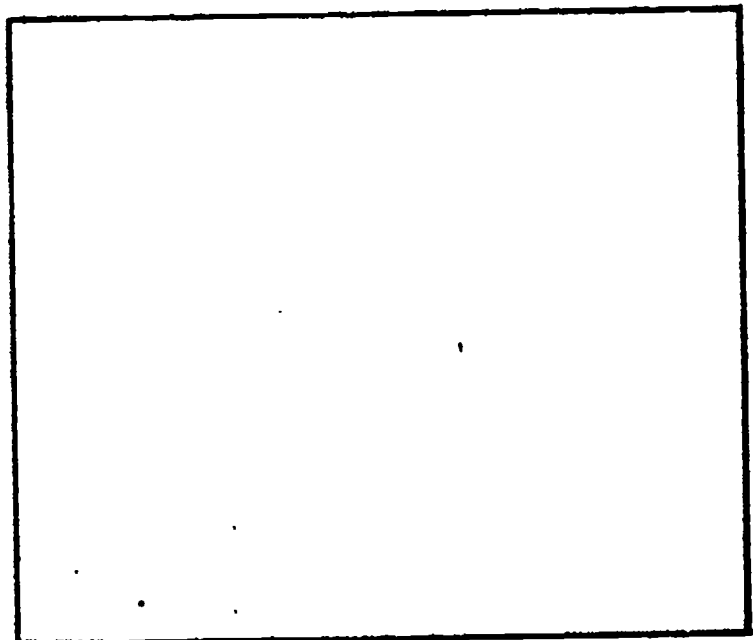
WHAT YOU MUST KNOW
TO DO THESE STEPS

1. IN THE SPACE PROVIDED SKETCH A DISPLAY THAT USES THE ARRANGEMENT INDICATED AT THE BOTTOM-----

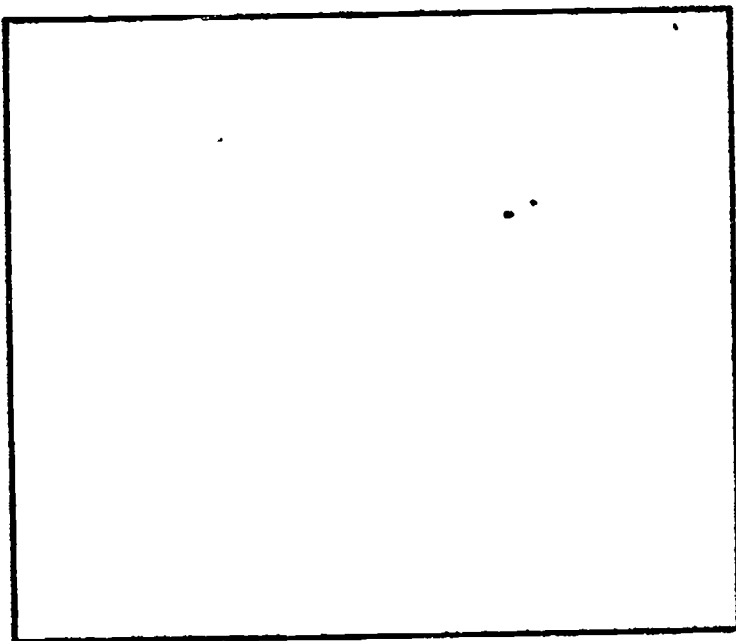
USE MERCHANDISE OBJECTS THAT ARE EASY TO DRAW, SUCH AS CANS, BOXES, OR CARTONS.



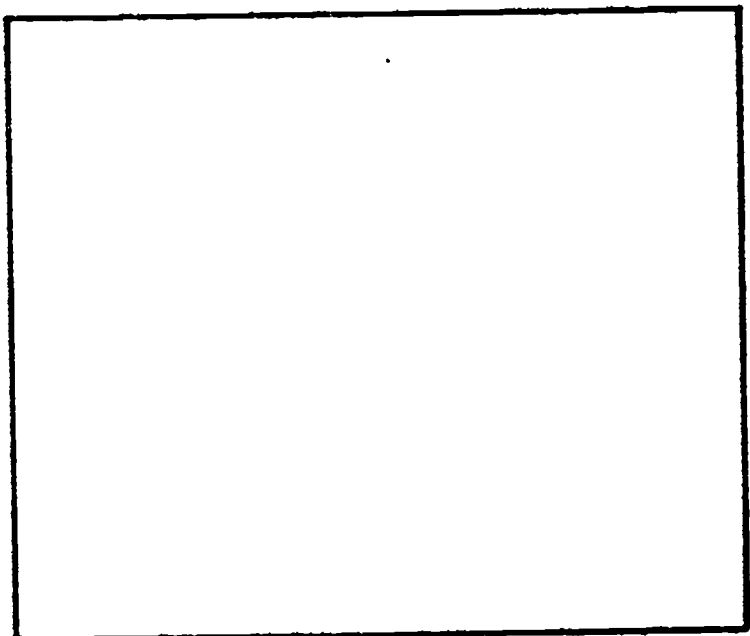
STAIR-STEP



PYRAMID



ZIG-ZAG



REPETITION

2. CHECK WITH YOUR INSTRUCTOR TO SEE HOW YOU DID.

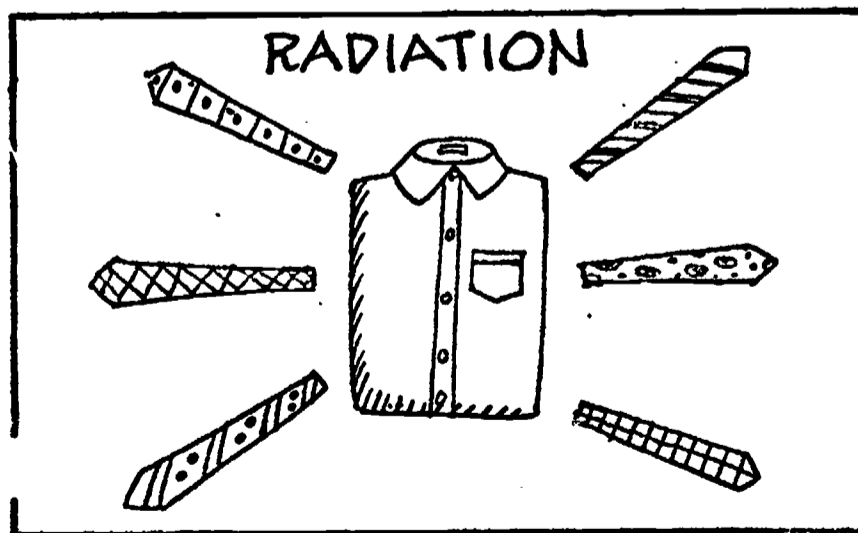
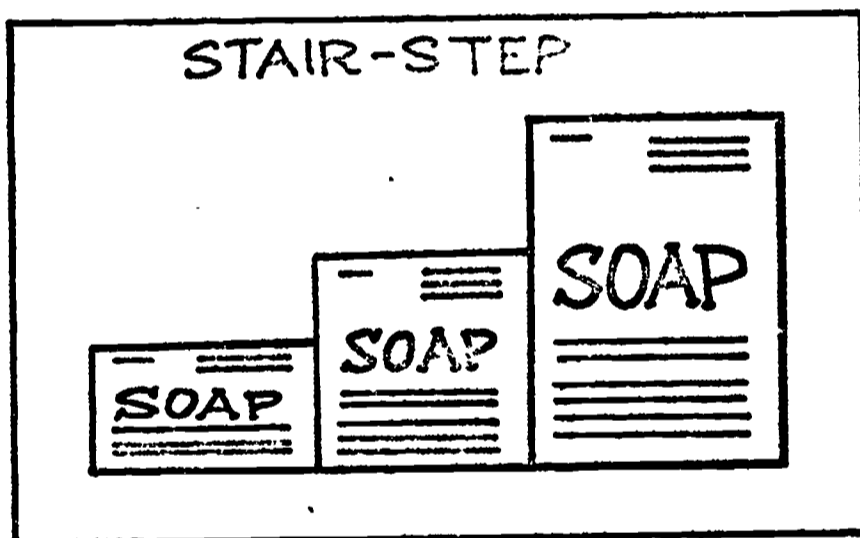
YOUR FOURTH EXPERIENCE IN DISTRIBUTIVE EDUCATION IS:

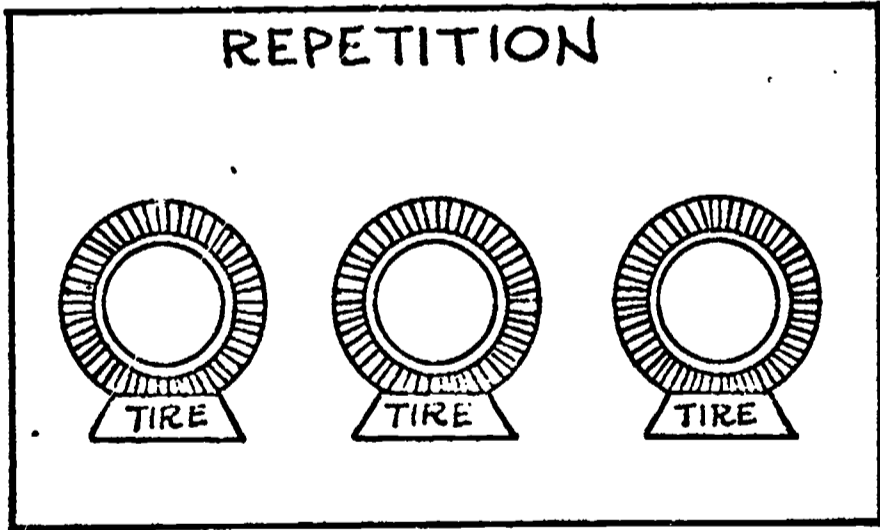
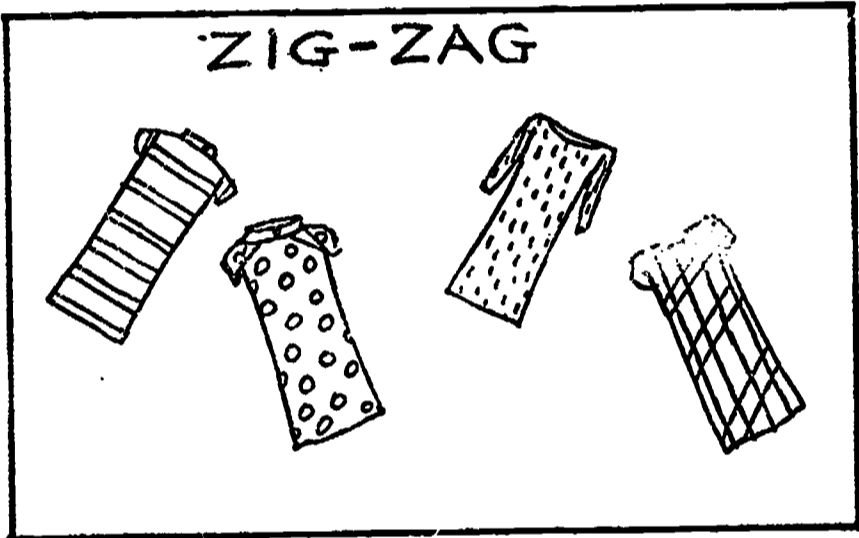
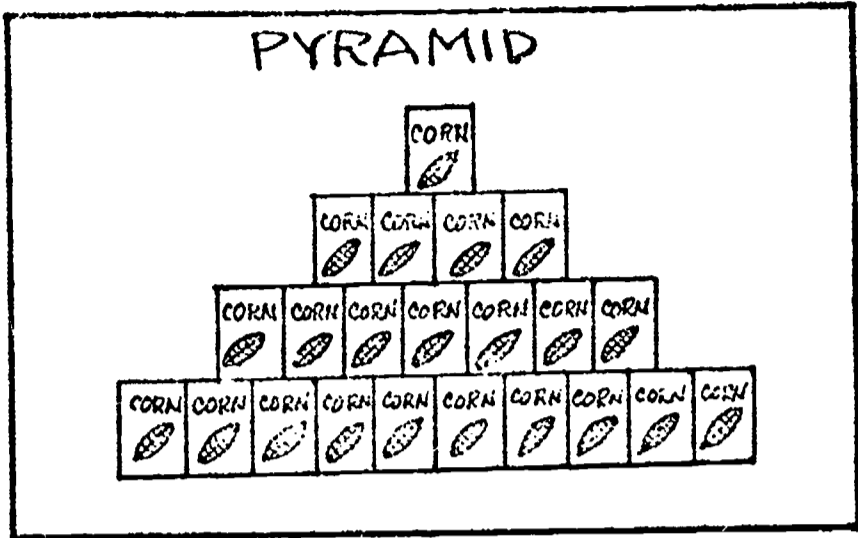
TO CREATE EXAMPLES OF FIVE MERCHANDISE DISPLAY ARRANGEMENTS (STAIR-STEP, PYRAMID, ZIG-ZAG, REPETITION, AND RADIATION) USING PICTURES CUT FROM MAGAZINES, CATALOGUES, AND NEWSPAPERS.

INTRODUCTION -- PLEASE READ CAREFULLY:

IN RADIATION THE ELEMENTS OF DESIGN ARE SPREAD OUT LIKE RAYS FROM A CENTRAL POINT. THIS TYPE OF DESIGN CREATES INTEREST BY HAVING ONE DOMINANT FEATURE FROM WHICH THE OTHER ELEMENTS OF THE DISPLAY RADIATE.

THE OTHER FOUR METHODS OF DISPLAY ARRANGEMENT WERE EXPLAINED IN THE EXPERIENCE ON THE FOUR MOST COMMONLY USED ARRANGEMENTS IN DISPLAY WORK.





STEPS TO FOLLOW IN CREATING EXAMPLES OF MERCHANDISE DISPLAY ARRANGEMENTS:

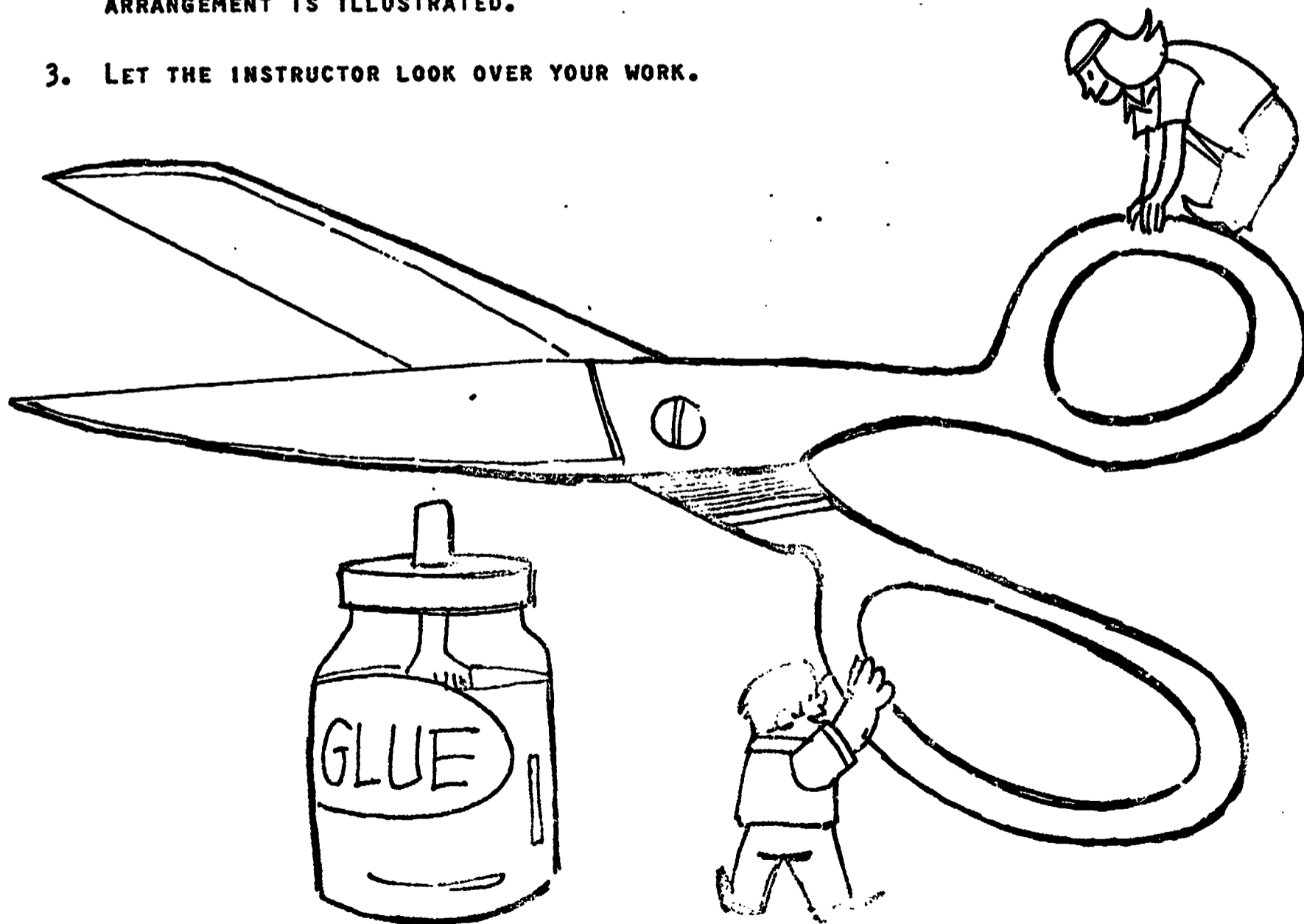
TOOLS AND MATERIALS NEEDED: CATALOGUES
NEWSPAPERS
PAPER

MAGAZINES
GLUE OR SCOTCH TAPE
PENCILS

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. CLIP OUT ANY PICTURES THAT YOU FEEL WOULD BE APPROPRIATE FOR CONSTRUCTING ILLUSTRATIONS OF THE FIVE ARRANGEMENTS FOR GROUPING MERCHANDISE.
2. PASTE THESE CUTOUTS ON FIVE SEPARATE SHEETS OF PAPER TO FORM EXAMPLES OF RADIATION, STAIR-STEP, PYRAMID, ZIG-ZAG, AND REPETITION DISPLAYS. INDICATE AT THE BOTTOM OF THE PAPER WHICH ARRANGEMENT IS ILLUSTRATED.
3. LET THE INSTRUCTOR LOOK OVER YOUR WORK.

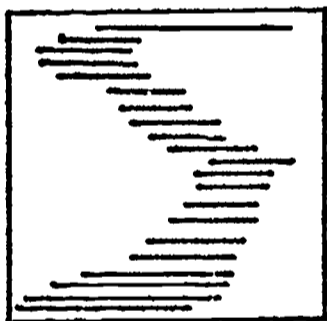


YOUR FIFTH EXPERIENCE IN DISTRIBUTIVE EDUCATION WILL BE:

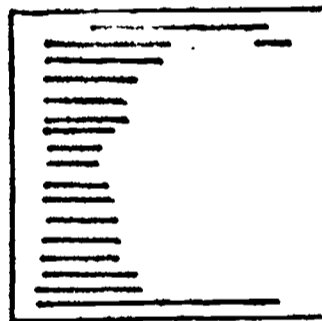
TO FOLLOW THE FLOW OF THE GAZE LINE THROUGH AN ADVERTISEMENT AND TO RECOGNIZE THE SIX MOST COMMONLY USED ADVERTISING LAYOUT DESIGNS.

INTRODUCTION -- PLEASE READ CAREFULLY:

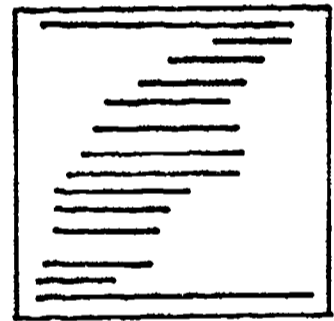
CERTAIN TECHNIQUES ARE USED IN DESIGNING ADVERTISING LAYOUTS TO DIRECT THE EYE SMOOTHLY FROM THE TOP OF THE ADVERTISEMENT THROUGH THE CENTER AND TO THE BOTTOM. WHITE SPACE, LINES, AND THE DIRECTION OF ILLUSTRATIONS AND COPY BLOCKS BUILD A STREAM OF INFORMATION FOR THE READER. BELOW ARE SIX OF THE LAYOUT DESIGNS MOST COMMONLY USED:



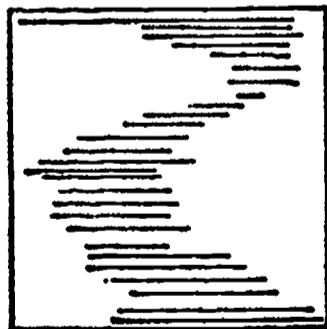
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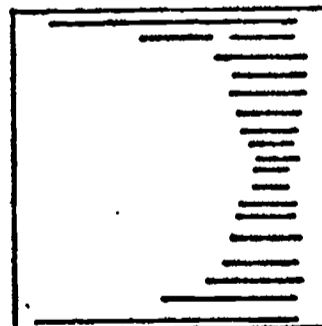
C



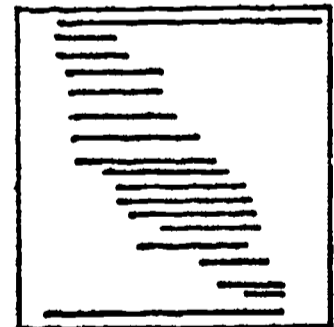
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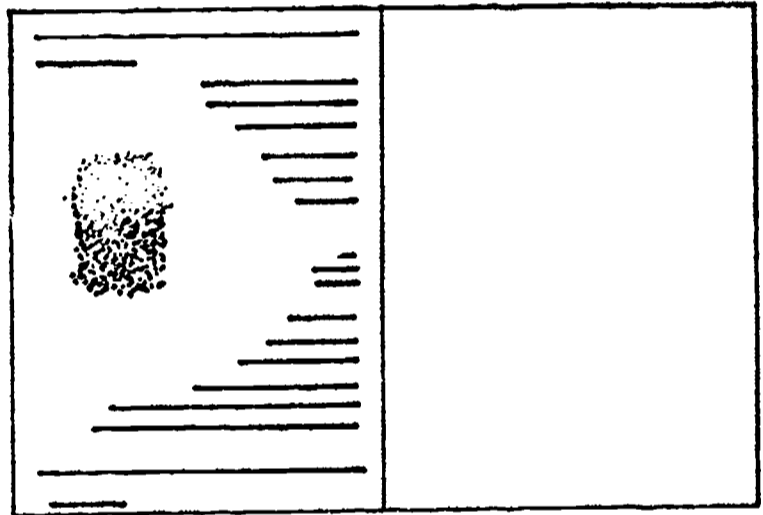
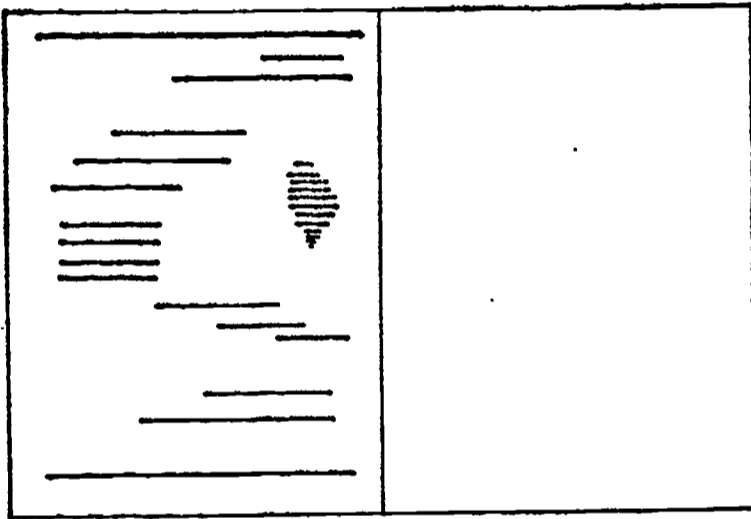
STEPS TO FOLLOW IN WORKING WITH ADVERTISING LAYOUT DESIGNS:

TOOLS AND MATERIALS NEEDED: PENCIL
FELT PEN

WHAT YOU MUST DO

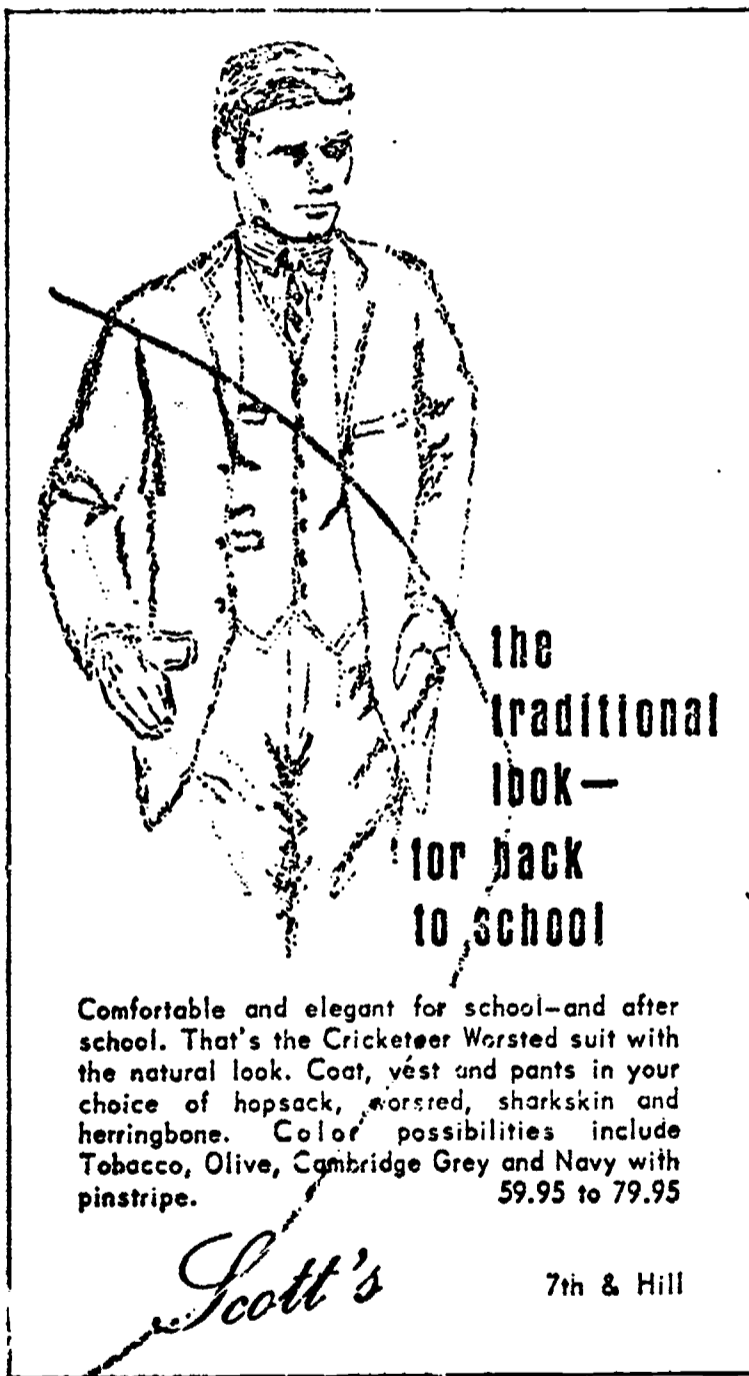
WHAT YOU MUST KNOW
TO DO THESE STEPS

1. IN THE SPACE PROVIDED, DRAW THE REVERSE OF THE BACKWARD-S AND THE BACKWARD-C DESIGNS SHOWN BELOW.



WHAT YOU MUST DO

2. EXAMINE THE FOLLOWING ADVERTISEMENTS. A HEAVY LINE HAS BEEN DRAWN THROUGH EACH ADVERTISEMENT, SHOWING THE FLOW OF THE GAZE LINE.



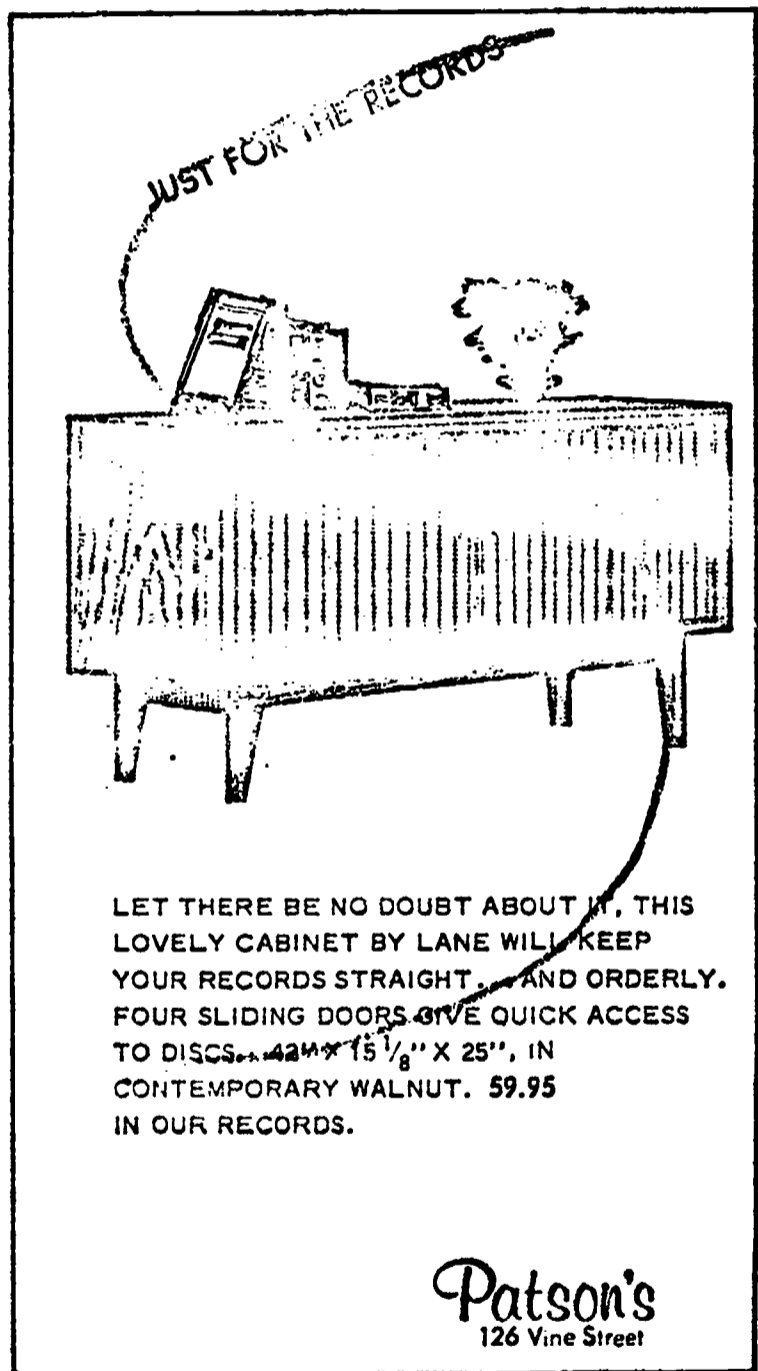
the
traditional
look —
for back
to school

Comfortable and elegant for school—and after school. That's the Cricketer Worsteds suit with the natural look. Coat, vest and pants in your choice of hopsack, worsted, sharkskin and herringbone. Color possibilities include Tobacco, Olive, Cambridge Grey and Navy with pinstripe. 59.95 to 79.95

Scott's 7th & Hill

A BACKWARD-C DESIGN
WAS USED IN THIS AD.

WHAT YOU MUST KNOW



JUST FOR THE RECORDS

LET THERE BE NO DOUBT ABOUT IT, THIS LOVELY CABINET BY LANE WILL KEEP YOUR RECORDS STRAIGHT AND ORDERLY. FOUR SLIDING DOORS GIVE QUICK ACCESS TO DISCS, 42" X 15 1/8" X 25", IN CONTEMPORARY WALNUT. 59.95 IN OUR RECORDS.

Patson's
126 Vine Street

AN S DESIGN
WAS USED IN
THIS AD.

WHAT YOU MUST DO

WHAT YOU MUST KNOW

3. IN THE FOLLOWING ADVERTISEMENTS, DRAW A HEAVY LINE THROUGH EACH AD SHOWING THE FLOW OF THE GAZE LINE AS WAS DONE IN THE PRECEDING EXAMPLES.

Open Monday
night 'til 9

720 WALNUT
EASTGATE

Our swim suits
are making
quite a splash!

Be a beauty on any beach
or pool in these sun-timed swim
suits ... choose from tiny
bikinis to one and two-piece styles
... all basked in the brightest
of colors ... solids and prints.

Sizes for juniors and
misses ... 5 to 13, 8 to 18.

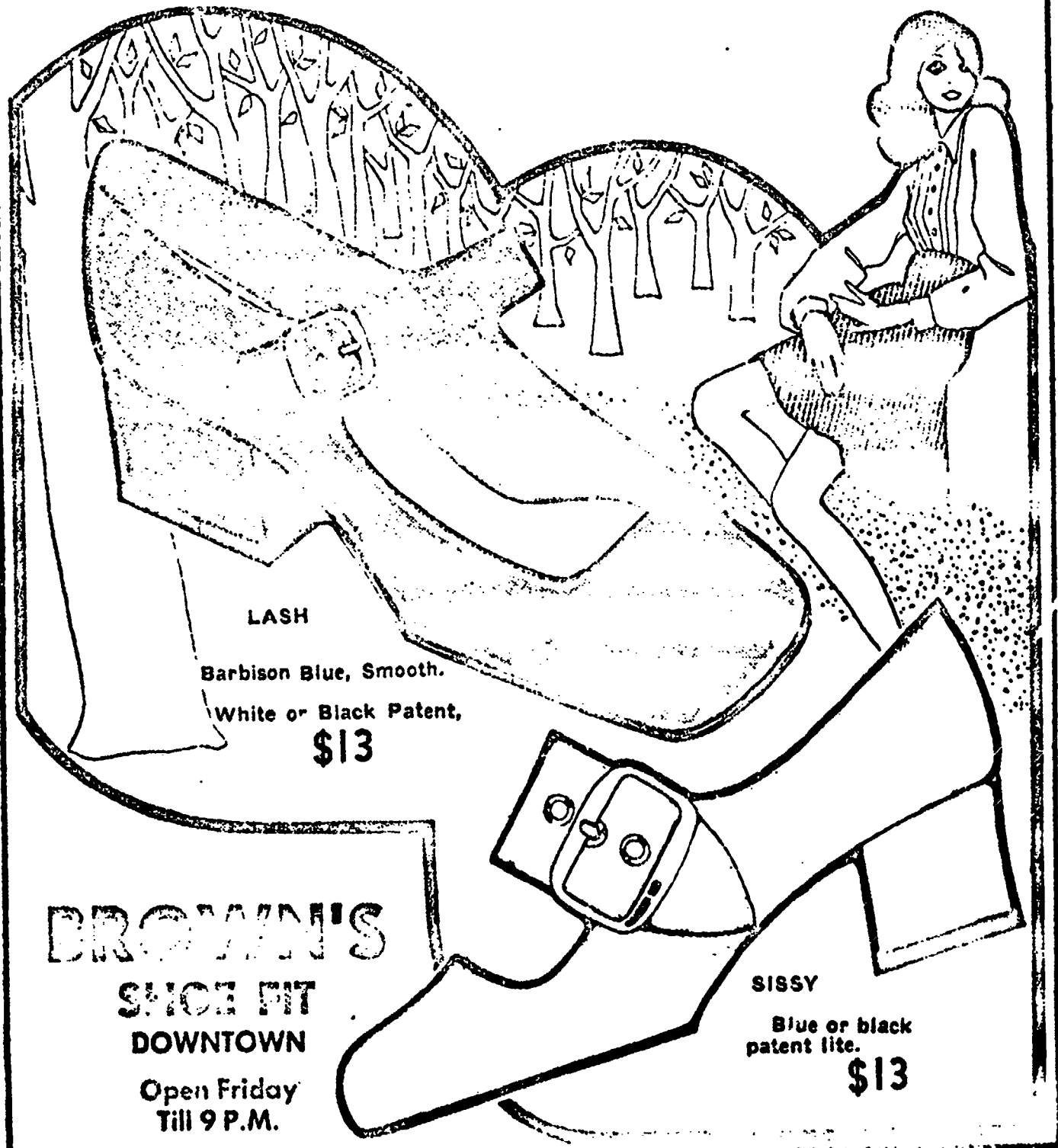
priced from
\$15

105

WHAT YOU MUST DO

WHAT YOU MUST KNOW

What's new for Spring? Swing-around straps on hiked-up flat heels, giving a great slant to all that's good 'n' groovy good!



LASH

Barbison Blue, Smooth.
White or Black Patent,
\$13

BROWN'S

**SHOE FIT
DOWNTOWN**

Open Friday
Till 9 P.M.

SISSY

Blue or black
patent lite.
\$13

WHAT YOU MUST DO

4. DETERMINE WHAT DESIGN WAS USED IN EACH AD.
5. SHOW YOUR WORK TO YOUR INSTRUCTOR.

WHAT YOU MUST KNOW

YOUR SIXTH EXPERIENCE IN DISTRIBUTIVE EDUCATION IS:

TO IDENTIFY THE ELEMENTS OF AN ADVERTISEMENT: THE HEADLINE, THE COPY, THE ILLUSTRATION, THE STORE LOGOTYPE, THE PRICE, AND THE SUBHEADING.

INTRODUCTION -- PLEASE READ CAREFULLY:

RETAIL MERCHANTS ACROSS AMERICA ARE FACED WITH A COMMON CHALLENGE -- THEIR SUCCESS DEPENDS ON PROFITABLE SALES. THERE ARE MANY FACTORS WHICH HAVE AN EFFECT ON WHETHER A STORE WILL SUCCEED OR FAIL. THE RETAILER MUST STOCK AN INVENTORY OF QUALITY MERCHANDISE THAT CUSTOMERS NEED AND WANT. THIS MERCHANDISE MUST BE PRICED AND ATTRACTIVELY DISPLAYED. THEN THE RETAILER MUST DETERMINE THE BEST METHOD OF ATTRACTING CUSTOMERS TO HIS STORE. ADVERTISING IS A MEANS OF ATTRACTING THESE CUSTOMERS. ALTHOUGH RETAILERS HAVE MANY DIFFERENT ADVERTISING MEDIA AT THEIR DISPOSAL, MOST HAVE FOUND THAT THE NEWSPAPER IS THEIR MOST POWERFUL SELLING FORCE. IN RECENT YEARS MOST RETAILERS HAVE SPENT MORE MONEY ON NEWSPAPER ADVERTISING THAN ON ANY OTHER MEDIA.

EACH GOOD ADVERTISEMENT SHOULD HAVE FOUR MAJOR ELEMENTS - HEADLINE, COPY, ILLUSTRATION, AND STORE LOGO-TYPE. THE HEADLINE SHOULD MAKE THE READER STOP AND WANT TO READ MORE. THE COPY IS THE SELLING MESSAGE OF THE ADVERTISEMENT AND SHOULD CAUSE THE CUSTOMERS TO WANT TO OWN THE MERCHANDISE. THE ILLUSTRATION SHOULD ATTRACT ATTENTION, CREATE INTEREST AND PROVIDE PICTORIAL IDENTIFICATION OF THE PRODUCT. THE STORE LOGO-TYPE GIVES THE IDENTIFICATION OF THE STORE.

THE PRICE AND A SUBHEADING MIGHT ALSO BE USED IN AN ADVERTISEMENT. THE PRICE SHOULD BE PROMINENT, BUT NOT SCREAMING OUT OVER THE OTHER ELEMENTS. THE SUBHEADING SHOULD GIVE PERTINENT, SUPPORTING FACTS AT A GLANCE.

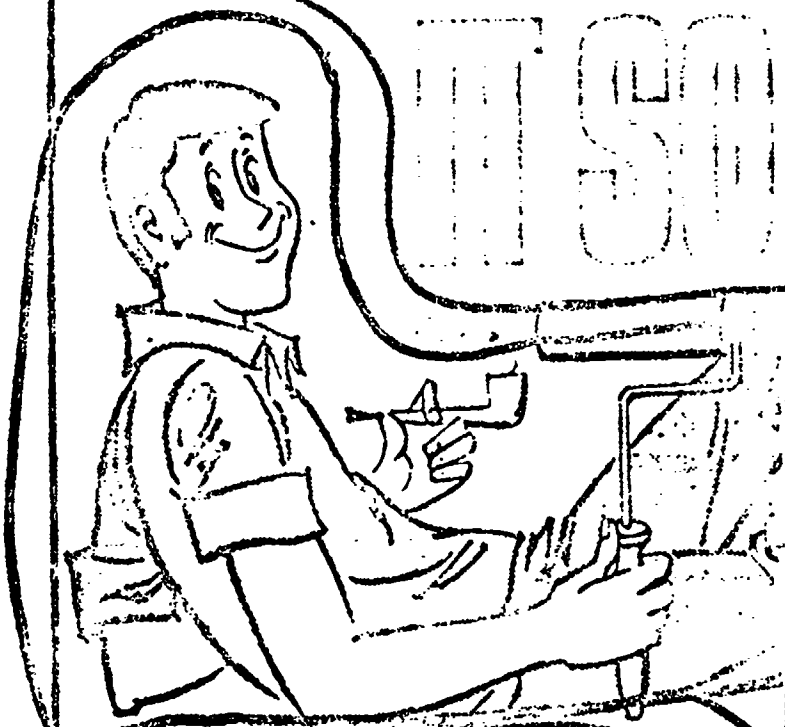
REFERENCES:

ADVERTISING AND DISPLAYING
MERCHANDISE BY SAMSON.

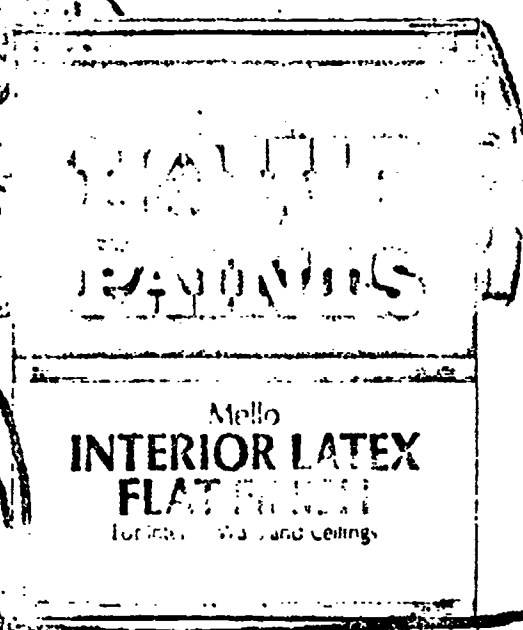
YOU CAN'T BEAT THIS

HEADLINE

IT'S SO EASY!



ILLUSTRATION



EASY DOES IT THIS SPRING!

Time for a change from winter to spring. Time to give your home and yourself a lift! It's so easy to change a room color. Brighten up a living room, dining room, kitchen or bath. We have everything you need to make your painting project easier to do! Easy does it this spring!

Mello
**INTERIOR LATEX
FLAT FINISH**
For Walls, Ceilings

THE EASY-DOES-IT WILL PAINT

COPY

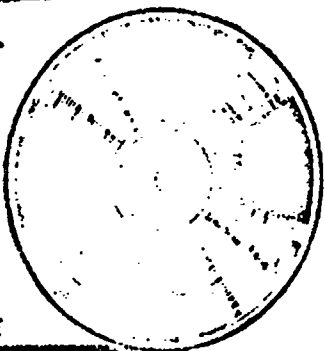
- Easy rolling
- Easy touch-up
- Easy cleanup
- Easy-to-clean finish

SID-HEAD

**EASY-DOES-IT
STEREO
LP ALBUM**

only **\$1.25**

REGULAR \$4.79 VALUE



Ten great entertainers... ten popular songs • Robert Goulet, "These Were the Days" • Percy Faith, "Aquarius" • Patti Page, "Gone With My Mind" • Johnny Mathis, "So Nice" • Jim Nabors, "Wichita Lineman" • Peter Nero, "For Once In My Life" • Jerry Vale, "My Way" • Aretha Franklin, "If I Had A Hammer" • Bobby Vinton, "I'll Be Home For Christmas" • Blood, Sweat and Tears, "Smiling Phases". Get your Easy-Does-It record album today!

\$5.95
GALLON
Reg. \$7.59 Gallon

PRICE

Special Price Goods in May Only

"Free Customer Parking"

T. C. ESSER COMPANY
303 Jefferson St. Dial 234-6669

STORE LOGOTYPE

STEPS TO FOLLOW IN IDENTIFYING THE HEADLINE, THE COPY, THE ILLUSTRATION, THE STORE LOGOTYPE, THE PRICE, AND ANY SUBHEADING:

TOOLS AND MATERIALS NEEDED: PENCIL

WHAT YOU MUST DO

1. FIND THE HEADLINE, THE COPY, THE ILLUSTRATION AND THE LOGOTYPE IN EACH OF THE FOLLOWING ADVERTISEMENTS
2. CIRCLE THE HEADLINE AND MAKE IT "HEADLINE"
3. CIRCLE THE COPY AND MARK IT "COPY"
4. CIRCLE THE ILLUSTRATION AND MARK IT "ILLUSTRATION"
5. CIRCLE THE LOGOTYPE AND MARK IT "LOGOTYPE"
6. CIRCLE ANY SUBHEADING
7. CIRCLE THE PRICE
8. SHOW YOUR WORK TO YOUR INSTRUCTOR

WHAT YOU MUST KNOW TO DO THESE STEPS

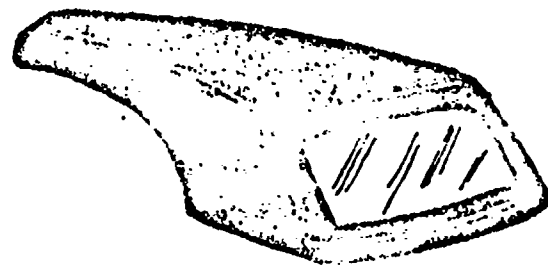
Morton's Auto Upholstering Co.

Seat Covers—Convertible Tops—Floor Mats
DISCOUNT CAR CARE CENTERS

Genuine 100% Permaclear

Plastic Rear Windows

For most any American Convertible



Ask about big Savings
on Convertible Tops

Thursday Only

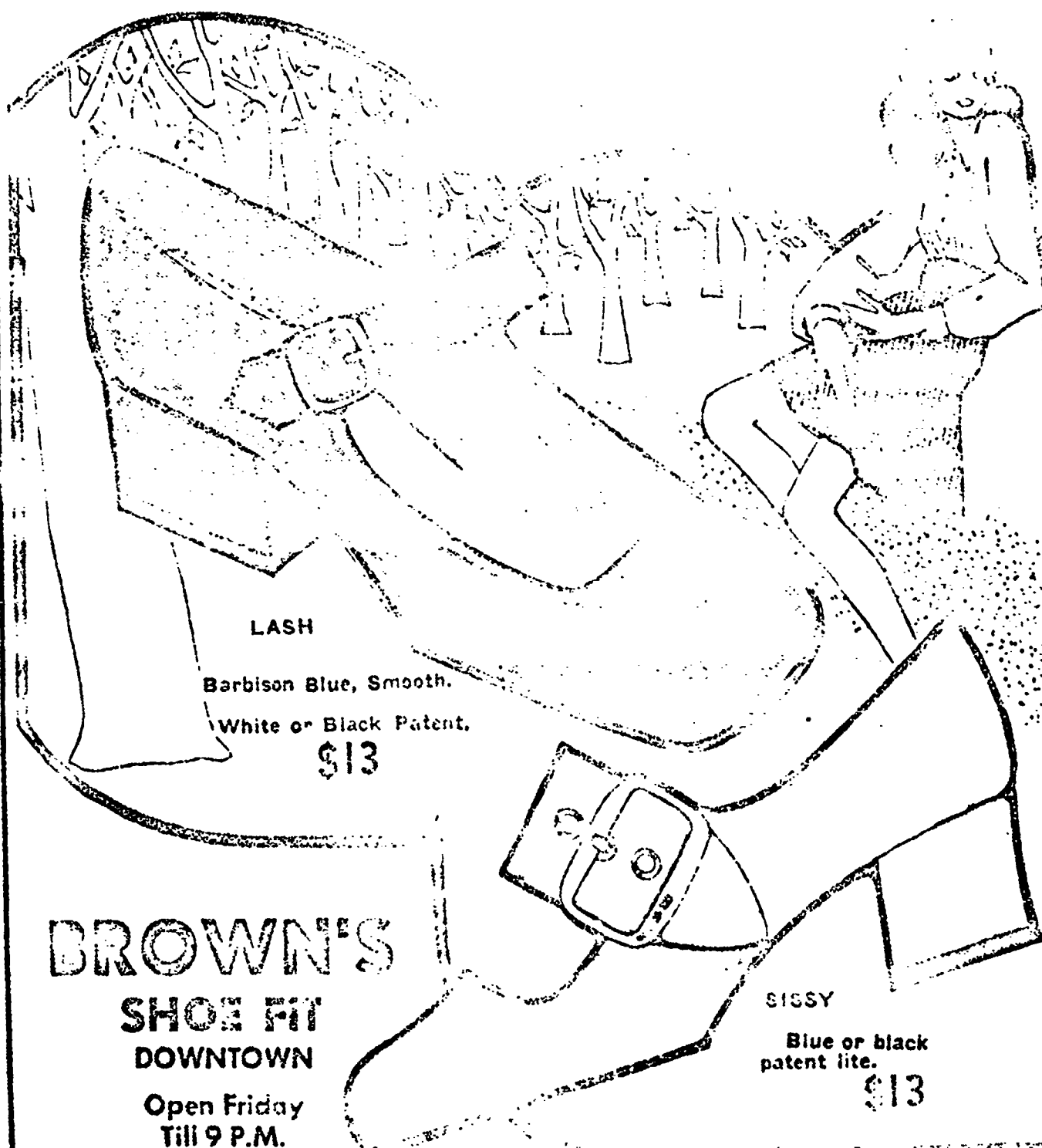
\$18.88

Avoid driving dangers and discomforts. Is your window cracked? Discolored? Distorted?

Replace your window NOW at this sale price and insure your driving safety and comfort!

Installed Free

What's new for Spring? Swing-around straps on hiked-up flat heels, giving a great slant to all that's good 'n' groovy gear!



LASH

Barbison Blue, Smooth.
White or Black Patent.

\$13

BROWN'S

**SHOE FIT
DOWNTOWN**

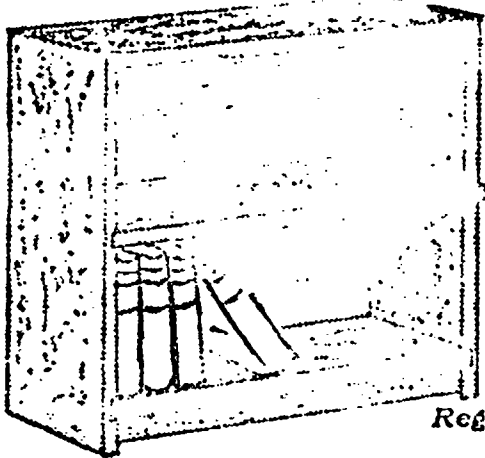
Open Friday
Till 9 P.M.

SISSY

Blue or black
patent lite.

\$13

2-SHELF BOOKCASE



24" WIDE
9 1/2" DEEP
28" HIGH

Regular Price \$9.80

Utility bookcase for all your book needs. Made of knotty pine. Ideal for toys, games and books. Shelves are 12" apart.

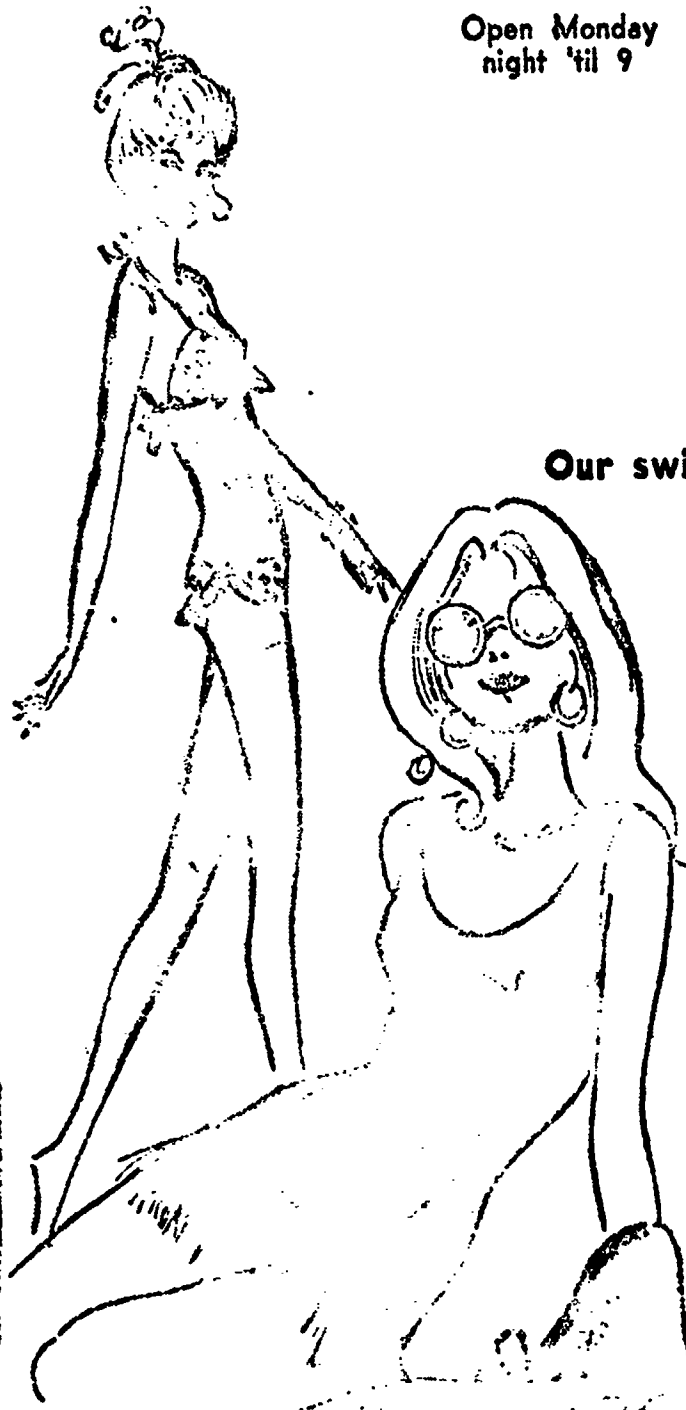
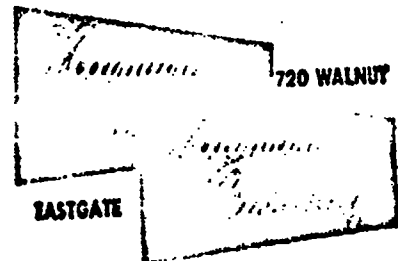
Thursday Only

\$5.99

WANNAS 600 Park St.

Mon., Thurs., Fri., 9-9; Daily, 9-6

Open Monday
night 'til 9



**Our swim suits
are making
quite a splash!**

Be a beauty on any beach
or pool in those sun-timed swim
suits... choose from tiny
bikinis to one and two-piece styles
... all basked in the brightest
of colors... solids and prints.

Sizes for juniors and
misses... 5 to 13, 8 to 18.

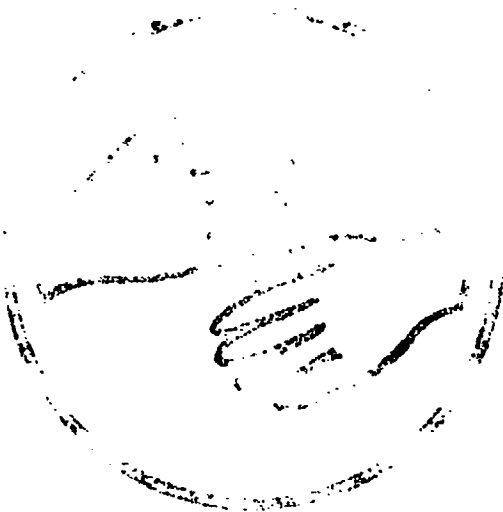
priced from
\$15

YOUR SEVENTH GRADE PROJECT IN BUSINESS EDUCATION IS:

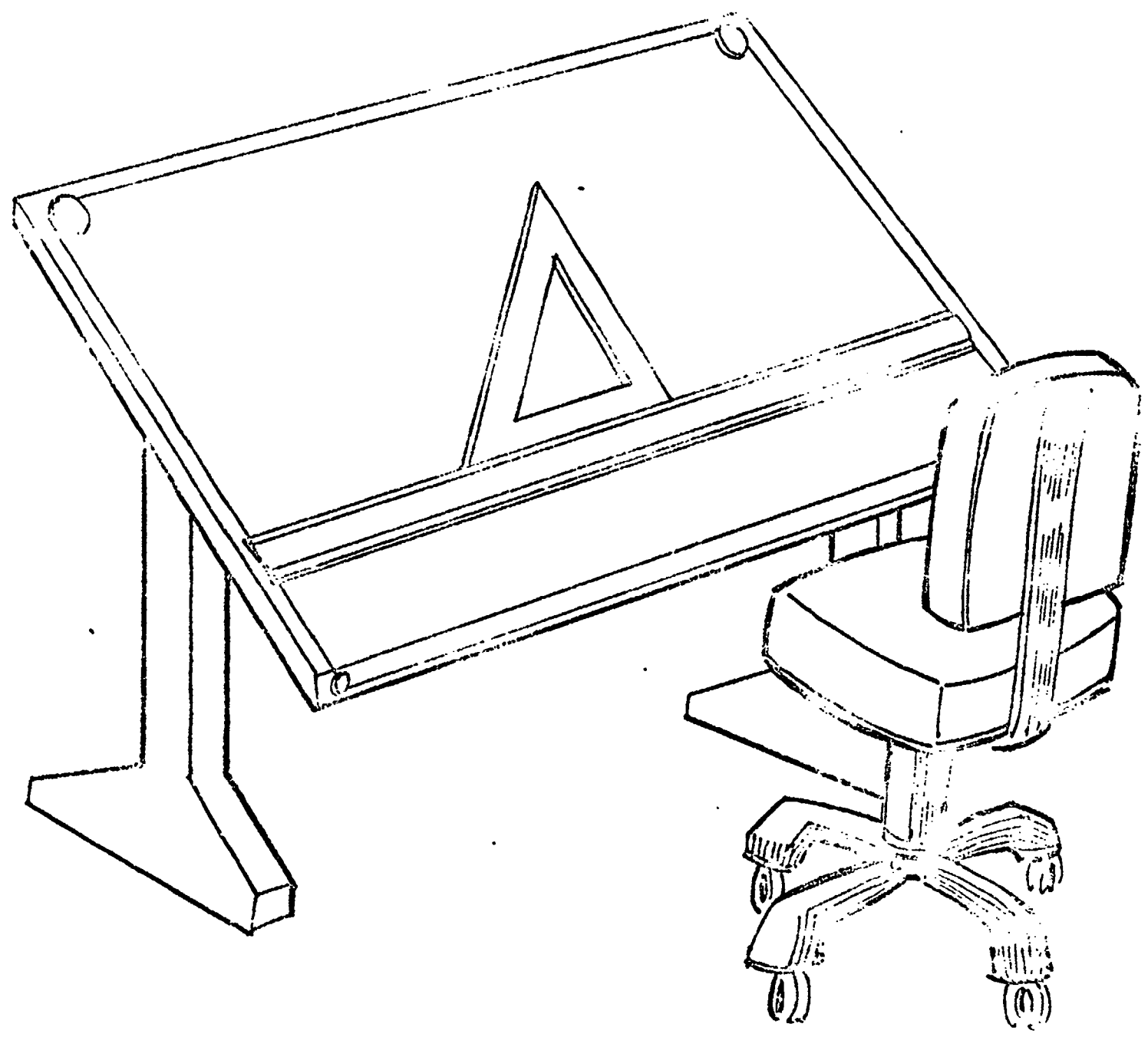
TO CREATE AN ADVERTISEMENT, USING YOUR KNOWLEDGE OF THE ELEMENTS OF ADVERTISING AND THE BASIC LAYOUT DESIGNS.

INTRODUCTION -- PLEASE READ CAREFULLY:

IN EARLIER EXPERIENCES, YOU HAVE LEARNED THE ELEMENTS OF ADVERTISEMENTS (HEADLINE, COPY, ILLUSTRATIONS, STORE LOGOTYPE, PRICE, AND SUBHEADING), AND THE SIX BASIC ADVERTISING LAYOUT DESIGNS. IN THIS PROJECT YOU WILL CREATE AN ADVERTISEMENT INCORPORATING THESE SIX ELEMENTS AND ONE OF THE BASIC LAYOUT DESIGNS.



AN INSTRUMENTAL APPROACH TO



DRAFTING

PART II OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO DRAFTING

BY CHARLES G. PETERS

SOME INTERESTING FACTS ABOUT DRAFTING

1. WHAT KIND OF WORK IS DONE?

THERE ARE MANY SPECIALIZED TYPES OF DRAWING. THOSE MAINLY USED IN THIS LOCALITY ARE:

- ① ARCHITECTURAL -- USED IN THE DESIGN OF BUILDINGS.
- ② MECHANICAL -- USED IN THE DESIGN OF MACHINES.
- ③ MAP -- HIGHWAY DESIGNING, PROPERTY MAPPING, ETC.
- ④ SHEET METAL -- USED IN THE HEATING, VENTILATING, AND AIR-CONDITIONING INDUSTRIES.
- ⑤ STRUCTURAL -- USED IN THE DESIGN OF BRIDGES AND IN THE DESIGN OF BUILDINGS.
- ⑥ ELECTRICAL -- USED IN THE DESIGN OF ELECTRICAL APPLIANCES.
- ⑦ TOOL AND DIE -- USED IN THE DESIGN OF JIGS AND FIXTURES FOR MACHINE SHOP WORK, IN THE DESIGN OF PUNCH AND DIE SETS, AND IN THE DESIGN OF MOLDING DIE SETS.
- ⑧ AERONAUTICAL -- USED IN THE DESIGN OF AIRCRAFT.

A DRAFTSMAN GRAPHICALLY REPRESENTS A PART OR AN OBJECT SO THAT ANOTHER SKILLED DRAFTSMAN IN ANOTHER FIELD CAN BUILD IT OR PRODUCE IT. THIS MIGHT BE BUILDING A PART TO A CAR, SUCH AS THE STEERING WHEEL. THESE PARTS MIGHT BE BUILT OR PRODUCED AT THE SAME PLANT OR COMPANY WHERE THE DRAWING WAS MADE, OR THEY MIGHT BE PRODUCED HUNDREDS OF MILES AWAY.

THE DRAFTSMAN MUST ALSO DIMENSION (DRAW TO SCALE) AND FIGURE THE STRENGTH

OF THE PART. HE MIGHT HAVE TO GO TO THE JOB AND MAKE THE MEASUREMENTS TO BE ABLE TO DO THIS.

2. WORKING CONDITIONS:

THE DRAFTSMAN WHO IS PAID HOURLY USUALLY BEGINS WORK AT 8:00 AND WORKS UNTIL 4:30 OR 5:30, DEPENDING ON HOW MUCH TIME HE SPENDS ON HIS LUNCH HOUR AND HIS BREAKS. THE DRAFTSMAN WHO IS ON A MONTHLY SALARY IS EXPECTED TO WORK FROM 8 TO 12 HOURS A DAY, AND MIGHT WORK ON SATURDAYS OR SUNDAYS WITH NO EXTRA PAY. SINCE HE DOES NOT HAVE TO WORK LONG HOURS EVERY DAY, THIS USUALLY AVERAGES OUT TO ABOUT 48 HOURS A WEEK.

THE DRAFTSMAN MIGHT BE WORKING IN A LARGE OFFICE WITH MANY OTHER DRAFTSMEN OR HE MIGHT BE AT A SMALL PLANT WHERE HE IS THE ONLY DRAFTSMAN. HE MIGHT HAVE THE LATEST EQUIPMENT, OR HE MIGHT HAVE OBSOLETE EQUIPMENT.

3. SALARY SCALE:

THE SALARY SCALE VARIES. IN THIS LOCALITY IT STARTS AT \$80.00 TO \$150.00 A WEEK AND GOES TO \$200.00 TO \$250.00 A WEEK. THERE ARE MANY STEPS OF ADVANCEMENT. FOR INSTANCE, IN MECHANICAL DRAFTING, IT MIGHT BE DRAFTSMAN C, DRAFTSMAN B, DRAFTSMAN A, AND PROJECT ENGINEER. THESE STEPS NOT ONLY VARY FROM ONE TYPE OF DRAFTING TO ANOTHER, BUT CAN VARY FROM COMPANY TO COMPANY WITHIN THE SAME TYPE OF WORK.

4. TYPE OF CLOTHING WORN:

THE TYPE OF WORKING CLOTHES WORN BY A DRAFTSMAN WILL VARY AMONG COMPANIES. A DRESS SHIRT AND TIE IS ALWAYS ACCEPTABLE AND IS EXPECTED BY SOME COMPANIES. PANT SUITS WOULD BE MORE IN ORDER FOR WOMEN.

5. PERSONAL QUALITIES NECESSARY:

PERSONALITY CHARACTERISTICS: THE DRAFTSMAN MUST BE ABLE TO SIT AT A DRAWING BOARD FOR AS LONG AS 8 HOURS. HE SHOULD BE NEAT AND ORDERLY, DEPENDABLE, COOPERATIVE WITH HIS FELLOW WORKMEN, INDUSTRIOUS, WELL GROOMED, AND POSSESS POSITIVE WORK ATTITUDES.

MANIPULATIVE SKILLS: THE DRAFTSMAN SHOULD BE ABLE TO SKETCH OR DRAW WITH SPEED, ACCURACY, AND NEATNESS.

EDUCATIONAL QUALIFICATIONS: MANY OF THE BETTER STUDENTS WILL BE ABLE TO GO DIRECTLY INTO INDUSTRY AFTER THEIR HIGH SCHOOL DRAFTING EXPERIENCE. OTHERS WILL NEED TO ATTEND ONE OR TWO YEARS OF TECHNICAL SCHOOL AFTER HIGH SCHOOL GRADUATION.

6. OTHER FACTS OF INTEREST:

THOSE PERSONS INTERESTED IN DRAFTING OR IN ENGINEERING AS A VOCATION, SHOULD TAKE DRAFTING. THE COLLEGE OF ENGINEERING OFTEN DOES NOT TEACH DRAFTING AND EXPECTS THE HIGH SCHOOL TO TAKE UP THE GAP. THE ENGINEER WHO DOES NOT GET DRAFTING IN HIGH SCHOOL MAY FIND HIMSELF GOING TO THE STATE AREA VOCATIONAL-TECHNICAL SCHOOL FOR THIS COURSE AFTER HE HAS HIS COLLEGE DEGREE.

YOUR FIRST EXPERIMENT IN DRAFTING WILL BE:

TO DEVELOP ENOUGH SKILL IN FREE-HAND SKETCHING THAT YOU WILL BE ABLE TO SKETCH THE TOP, FRONT, AND RIGHT-SIDE VIEWS OF OBJECTS IN MULTIVIEW PROJECTION

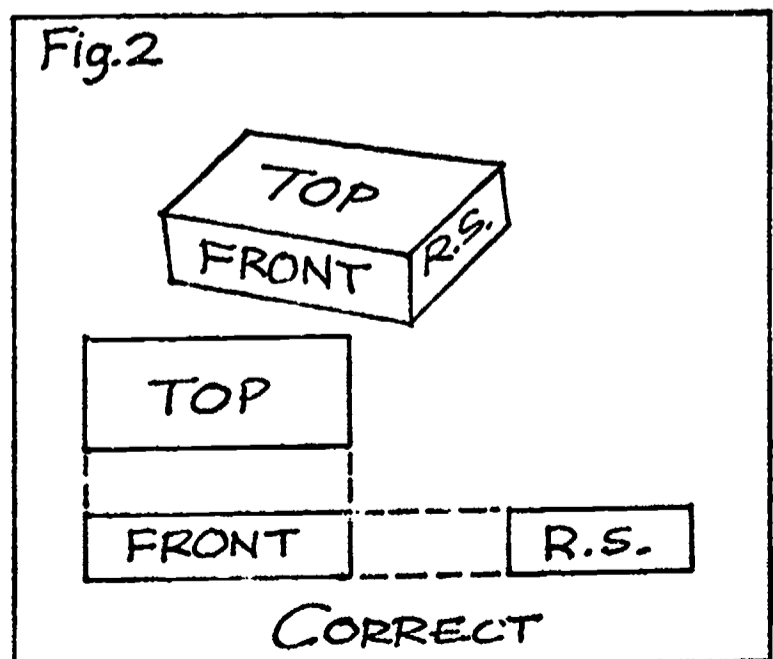
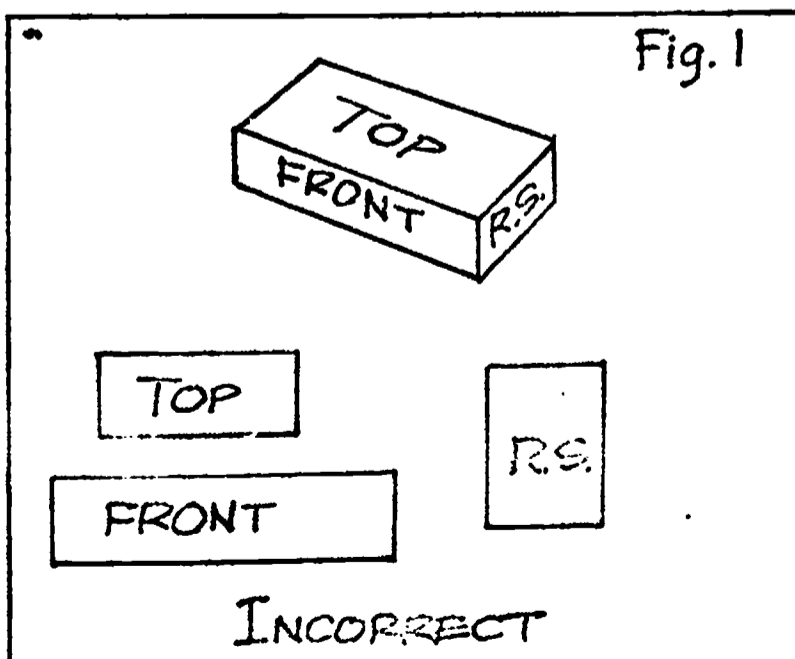
INTRODUCTION -- PLEASE READ CAREFULLY:

SINCE A DRAFTSMAN MUST OFTEN GO OUT INTO THE SHOP OR EVEN SEVERAL MILES FROM THE SHOP TO OBTAIN INFORMATION FOR A DRAWING, THE ABILITY TO DO FREEHAND SKETCHING IS A NECESSARY PART OF THE DRAFTSMAN'S TRADE.

THE ONLY MATERIALS NEEDED FOR SKETCHING ARE PAPER, A SOFT PENCIL, AND AN ERASER.

PROPORTION AND SCALE: SKETCHING IS NOT DONE TO SCALE. ALL VIEWS ARE DRAWN OR SKETCHED PROPORTIONALLY TO EACH OTHER. DO NOT DRAW THE TOP VIEW LONGER IN LENGTH THAN YOU DRAW THE FRONT VIEW OR DO NOT DRAW THE RIGHT-SIDE VIEW TALLER THAN YOU DRAW THE FRONT VIEW. THE MOST IMPORTANT RULE IN SKETCHING IS TO SKETCH ALL VIEWS PROPORTIONALLY.

PROJECTIONS: IN DRAFTING THERE ARE FOUR TYPES OF PROJECTIONS, BUT THIS EXPERIENCE IS ONLY CONCERNED WITH MULTIVIEW PROJECTION. (FIG. 1 & 2)



AN OBJECT HAS SIX POSSIBLE VIEWS. THESE VIEWS MAKE UP WHAT WE SOMETIMES REFER TO AS THE GLASS BOX. THIS IS A TRANSPARENT BOX WITH THE VIEWS OF THE OBJECT PROJECTED TO THE OUTSIDE PLANES. THIS GLASS BOX WILL UNFOLD TO GIVE YOU THE CORRECT POSITION OF THE VIEWS ON YOUR PAPER. (FIG. 3 & 4)

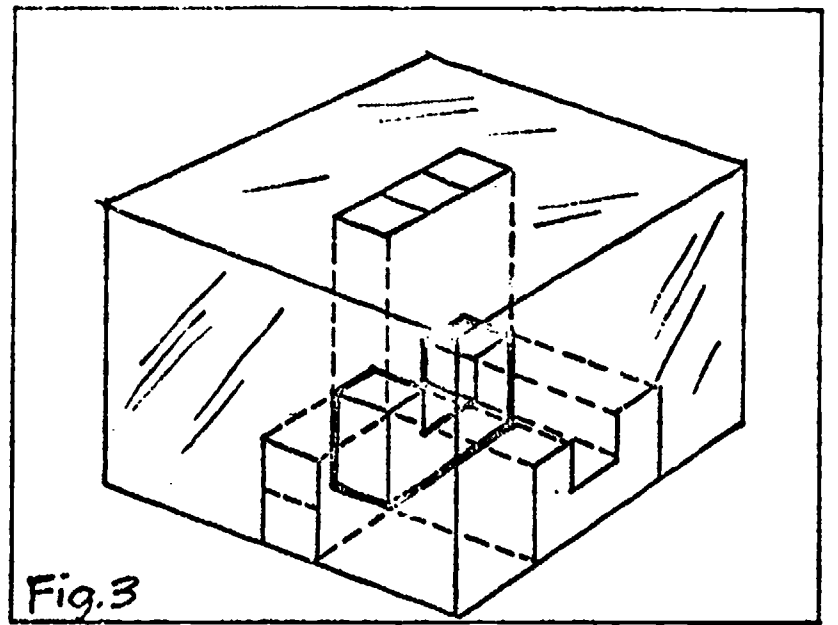
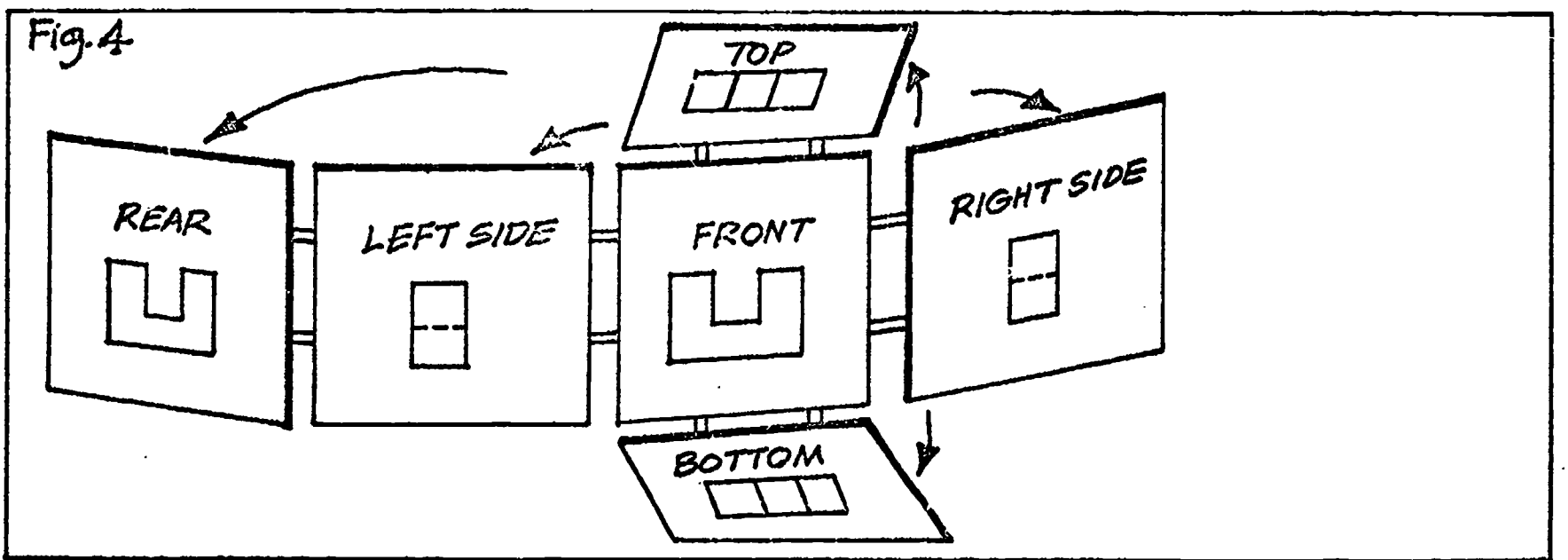
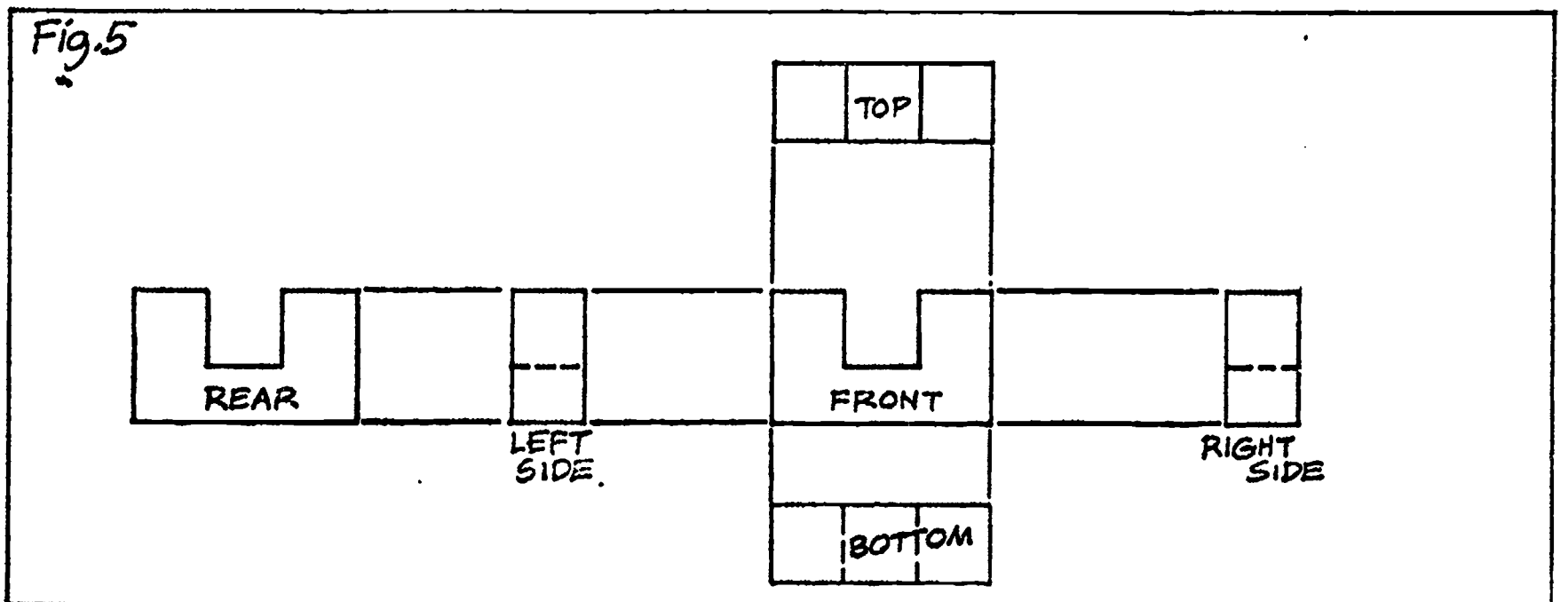


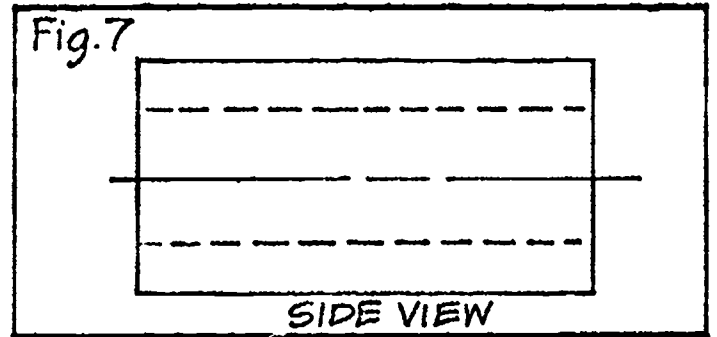
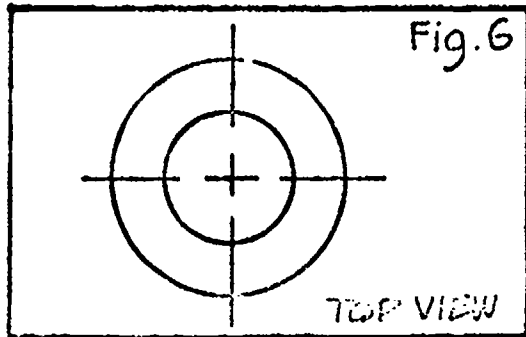
Fig. 3



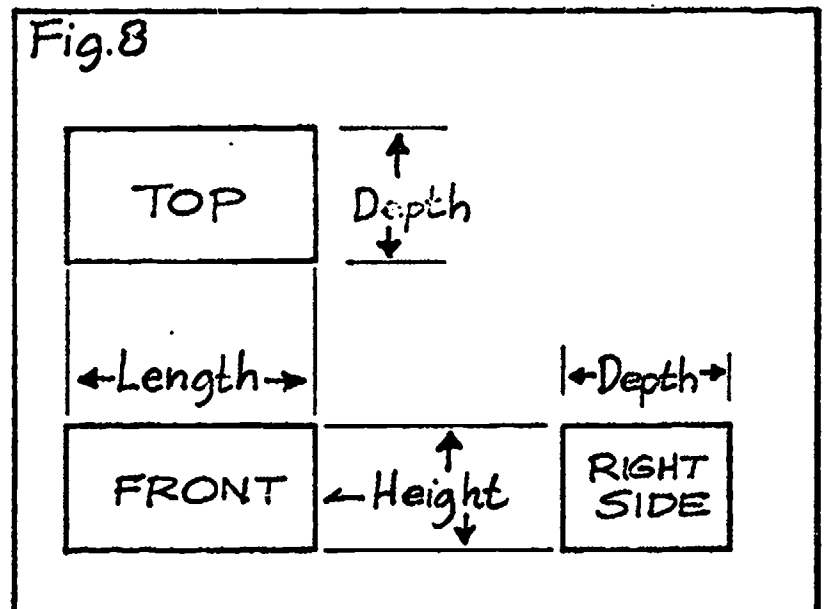
AS STATED, THERE ARE SIX POSSIBLE VIEWS OF AN OBJECT, BUT THESE SIX VIEWS ARE NOT ALWAYS NECESSARY TO COMPLETELY DESCRIBE AN OBJECT. MOST OBJECTS WILL ONLY NEED TOP, FRONT, AND RIGHT-SIDE VIEWS. (FIG. 5)



CYLINDRICAL OBJECTS WILL USUALLY ONLY NEED TWO VIEWS. (FIG. 6 & 7)

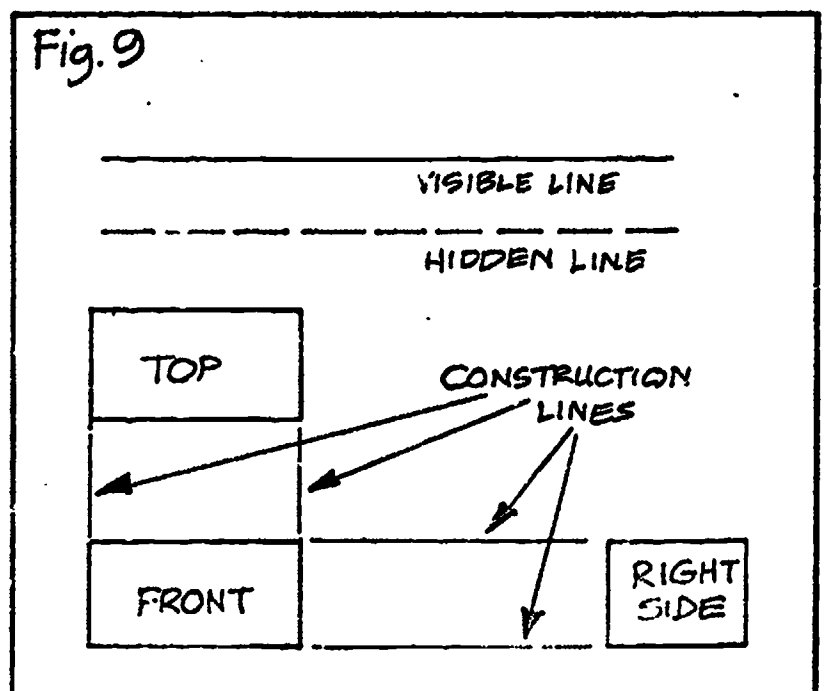


NO ONE VIEW OF AN OBJECT CAN SHOW MORE THAN TWO DIMENSIONS. A FRONT VIEW SHOWS LENGTH AND HEIGHT, A TOP VIEW SHOWS DEPTH AND LENGTH, AND A RIGHT-SIDE VIEW SHOWS HEIGHT AND DEPTH. (FIG. 8)



LINES: LINES HAVE DIFFERENT MEANINGS. A SOLID LINE MEANS THAT THE SURFACE OF THE OBJECT IS VISIBLE TO THE EYE, AND THUS IS KNOWN AS A VISIBLE LINE. A BROKEN LINE MEANS THAT THE SURFACE IS HIDDEN TO THE EYE AND THUS IS KNOWN AS A HIDDEN LINE. (FIG. 9)

ALL LINES EXCEPT CONSTRUCTION LINES SHOULD BE DARK. (FIG. 9) HORIZONTAL LINES, WHICH ARE THOSE GOING ACROSS THE PAPER, ARE DRAWN FROM LEFT TO RIGHT. VERTICAL LINES, WHICH ARE THOSE GOING FROM THE TOP TO THE BOTTOM OF THE PAPER, ARE DRAWN FROM TOP TO BOTTOM. INCLINED LINES, WHICH ARE STRAIGHT LINES GOING IN ANY DIRECTION OTHER THAN VERTICAL OR HORIZONTAL, ARE DRAWN HORIZONTALLY OR VERTICALLY, WITH RESPECT TO THE DRAFTSMAN, BY TURNING THE PAPER.



STEPS TO FOLLOW IN SKETCHING THE TOP, FRONT, AND RIGHT-SIDE VIEWS OF OBJECTS IN MULTIVIEW PROJECTION:

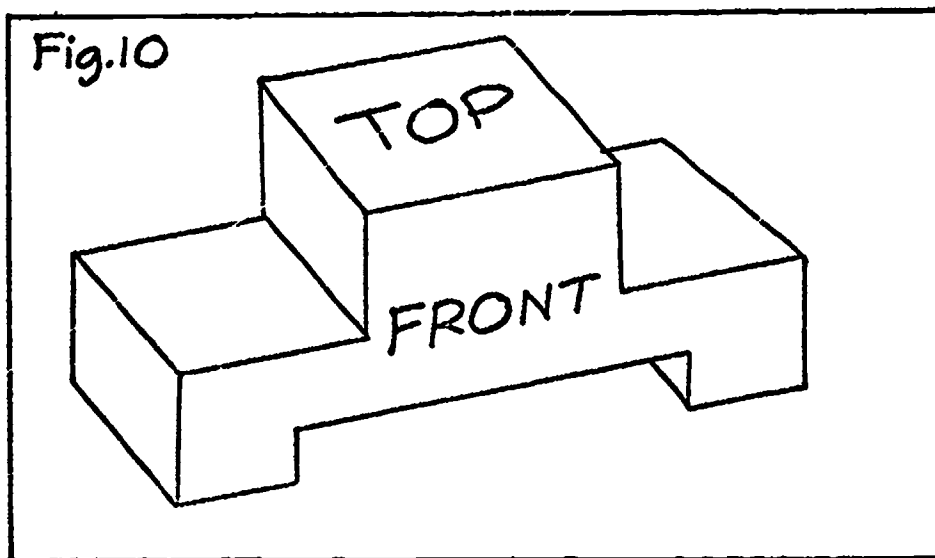
TOOLS AND MATERIALS NEEDED: PENCIL, PAPER AND ERASER

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

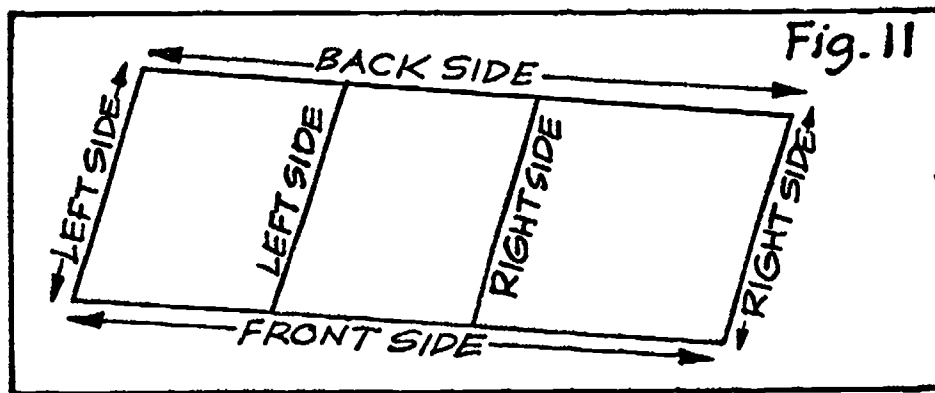
1. POSITION BLOCK ----->

PLACE BLOCK SO THAT YOU ARE LOOKING DOWN ON TOP OF IT. BLOCKS WILL BE LABELED TOP, FRONT, AND RIGHT-SIDE. (FIG. 10)



2. DRAW THE BACK SURFACE ----->

LINE EYESIGHT UP PARALLEL TO BACK SIDE AND PERPENDICULAR TO TOP SURFACE. BACK SIDE IS A FLAT SURFACE AND ONE STRAIGHT LINE WILL REPRESENT IT.



3. DRAW FRONT SURFACE ----->

REALIGN EYESIGHT PARALLEL TO FRONT SURFACE. LIKE THE BACK SURFACE, THIS ALSO IS A STRAIGHT LINE.

4. DRAW 4 REMAINING SURFACES IN TOP VIEW ----->

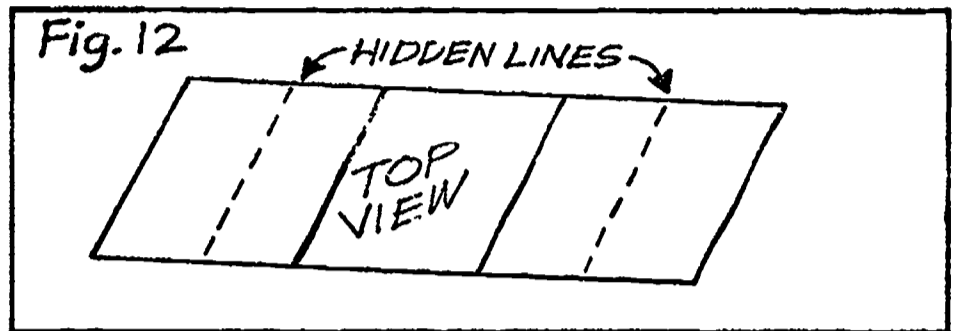
THESE SURFACES CAN ALSO BE REPRESENTED BY STRAIGHT LINES. THIS COMPLETES THE TOP VIEW. (FIG. 11)

WHAT YOU MUST DO

5. DRAW HIDDEN LINES ----->

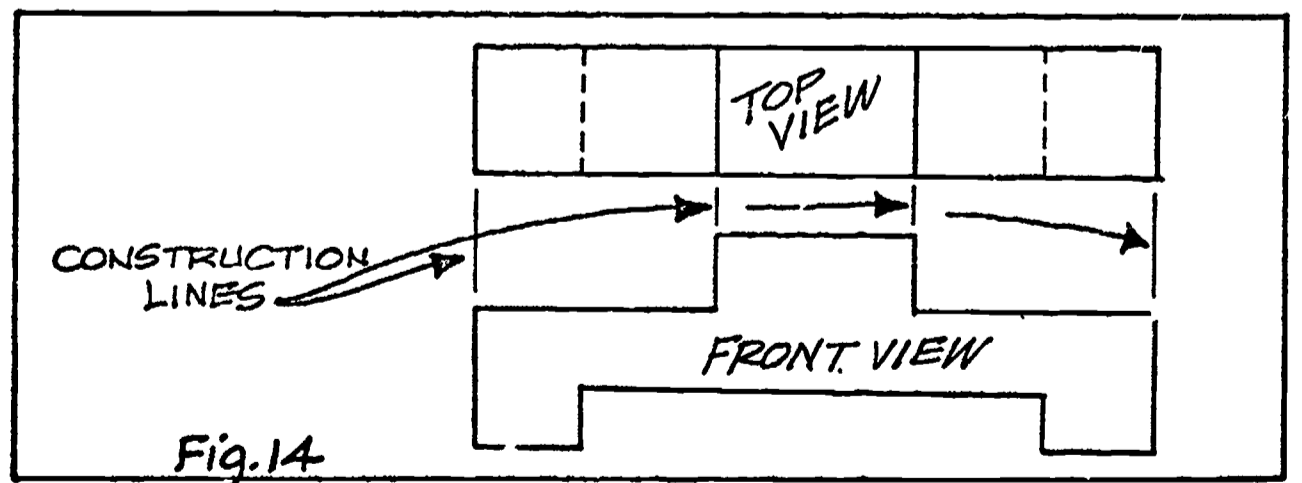
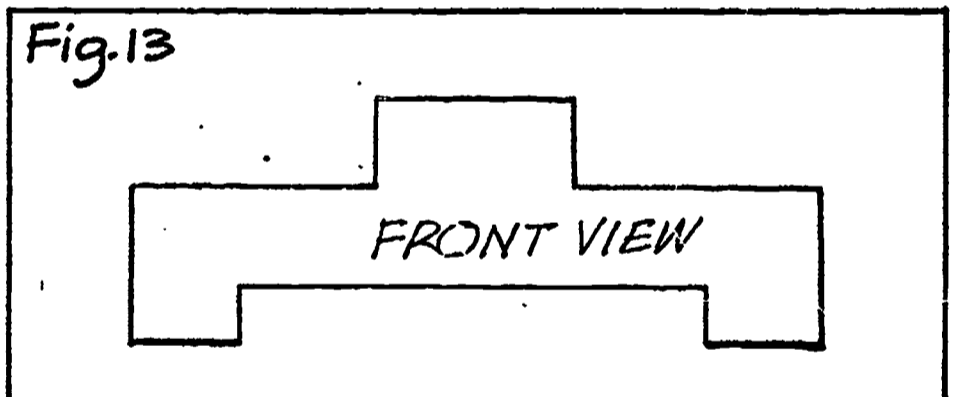
WHAT YOU MUST KNOW

THE HIDDEN LINES REPRESENT THE CUT-OUT ON THE BOTTOM OF THE BLOCK. (FIG. 12)



6. DRAW FRONT VIEW, PLACING IT ON YOUR PAPER DIRECTLY BELOW THE TOP VIEW ----->

AS WITH THE TOP VIEW, THE FRONT VIEW IS DRAWN BY ALIGNING YOUR EYE-SIGHT ALONG EACH OF THE 12 SURFACES IN THIS VIEW. NOTE THAT THERE ARE NO HIDDEN LINES IN THE FRONT VIEW. (FIG. 13)



7. CONNECT THE SURFACES OF THE TOP AND FRONT VIEWS WITH CONSTRUCTION LINES ----->

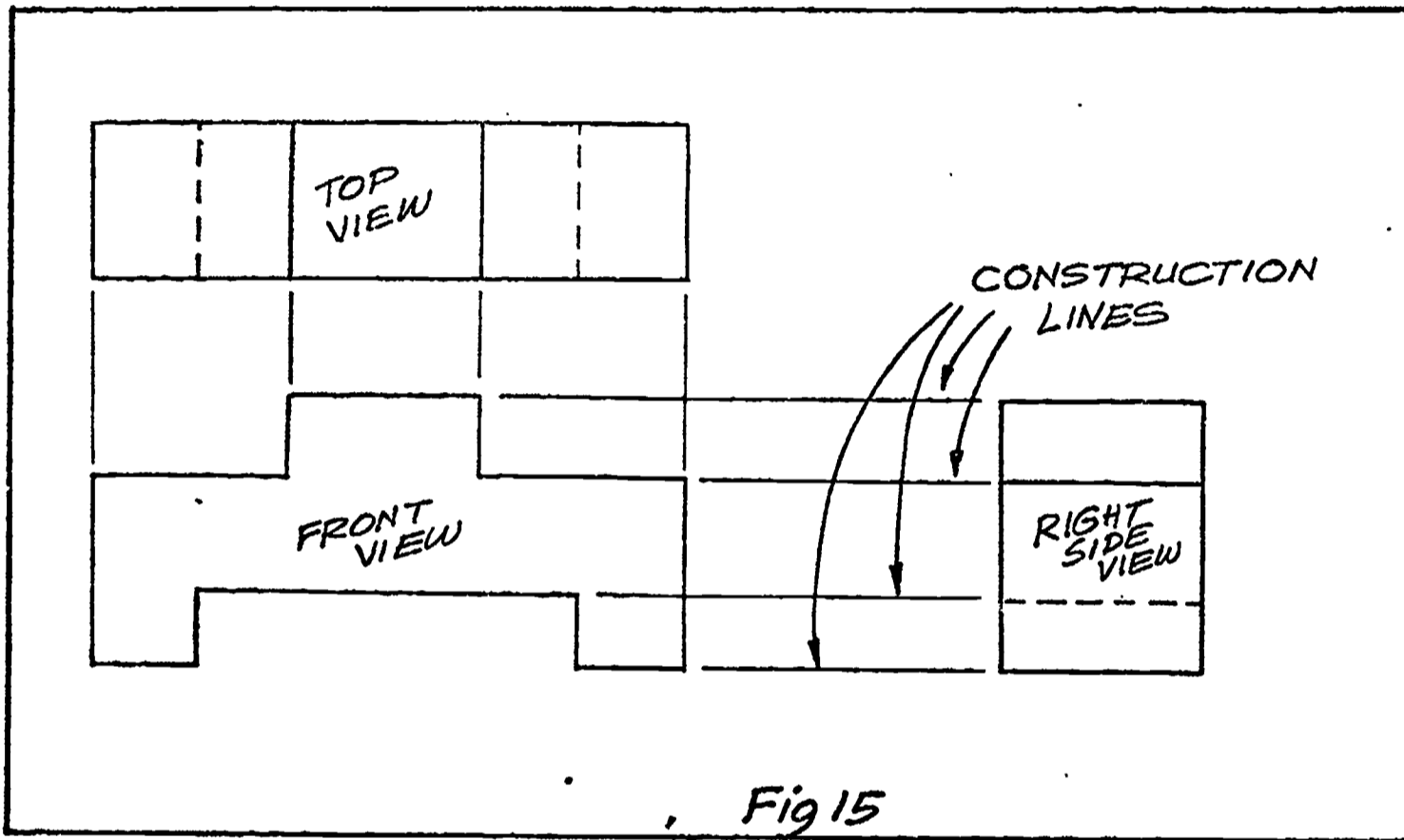
CONSTRUCTION LINES ARE NOT AS DARK AS OTHER LINES. (FIG. 14)

WHAT YOU MUST DO

WHAT YOU MUST KNOW

8. DRAW RIGHT-SIDE VIEW PLACING IT ON YOUR PAPER TO THE RIGHT OF THE FRONT VIEW ----->

USE THE SAME METHOD FOR THE 5 VISIBLE SURFACES AND THE 1 HIDDEN SURFACE THAT WAS USED IN THE TOP AND FRONT VIEWS. (FIG. 15)



9. CONNECT SURFACES OF THE FRONT AND RIGHT-SIDE VIEWS WITH CONSTRUCTION LINES ----->

IN THE COMPLETED MULTIVIEW PROJECTION, THE TOP, FRONT, AND RIGHT-SIDE VIEWS SHOULD APPEAR IN THE POSITIONS SHOWN IN THE ABOVE ILLUSTRATION. (FIG. 15)

YOUR SECOND EXPERIENCE IN DRAFTING WILL BE:

TO RECOGNIZE AND BECOME FAMILIAR
WITH THE FOLLOWING TOOLS AND MATERIALS:

1. DRAWING BOARD
2. SET OF INSTRUMENTS
3. T-SQUARE
4. 45° TRIANGLE
5. 30° x 60° TRIANGLE
6. AMES LETTERING GUIDE
7. ARCHITECTS SCALE
8. ENGINEERS SCALE
9. IRREGULAR SCALE
10. PROTRACTOR
11. DRAWING PENCILS OR MECHANICAL PENCILS
12. PENCIL POINTER
13. PENCIL ERASER
14. ERASING SHIELD
15. CLEANING ERASER (ART GUM)
16. DRAWING PAPER
17. DRAFTING TAPE
18. DUSTING BRUSH
19. INKING INSTRUMENTS
20. PEN STAFF
21. PEN POINTS
22. DRAWING INK
23. DUST CLOTH
24. TRACING PAPER
25. TRACING CLOTH
26. GLASS CLOTH
27. DRAWING FILM

INTRODUCTION -- PLEASE READ CAREFULLY:

DRAWING MEDIA: THE FIVE TYPES OF DRAWING MEDIA ARE DRAWING PAPER, TRACING PAPER, TRACING CLOTH, GLASS CLOTH, AND DRAWING FILM.

- TRACING PAPER IS A THIN TRANSPARENT PAPER WHICH IS EITHER LEFT IN ITS NATURAL STATE OR TREATED WITH SOME TRANSPARENTIZING AGENT. THE TREATED PAPERS ARE CALLED VELLUMS WHILE THE UNTREATED TYPES ARE CALLED NATURAL PAPERS. OF THESE FIVE MEDIA, TRACING PAPER IS THE MOST COMMONLY USED.
- TRACING CLOTH IS A TRANSPARENTIZED FABRIC AND IS USED WHEN THE ORIGINAL TRACING HAS TO BE PRESERVED FOR A LONG PERIOD OF TIME.
- GLASS CLOTH IS A TRANSPARENT MATERIAL WHICH HAS BEEN IMPREGNATED AND PROCESSED TO PROVIDE AN EXCELLENT DRAWING SURFACE. BECAUSE OF ITS HIGH DIMENSIONAL STABILITY, IT IS USED EXTENSIVELY IN INDUSTRY FOR TOOL DRAWINGS OF JIGS, FIXTURES, DIES AND FOR MAPS AND SHOP LAYOUTS.
- DRAFTING FILMS ARE EXTREMELY TRANSPARENT AND CAN WITHSTAND USAGE THAT WOULD NORMALLY DESTROY OTHER DRAFTING MEDIUMS. NON-GRAPHITE PENCILS CAN BE USED ON IT.
- DRAWING PAPER IS OPAQUE. OF THESE FIVE TYPES OF DRAWING MEDIA, IT IS THE ONLY ONE WHICH CANNOT BE USED FOR BLUEPRINTS.

PENCIL LEADS: PENCIL LEADS COME IN THE FOLLOWING GRADES:

- HARD - 9H, 8H, 7H, 6H, 5H, 4H
 - MEDIUM - 3H, 2H, H, F, HB, B
 - SOFT - 2B, 3B, 4B, 5B, 6B, 7B
- 6H, 5H, 4H IN THE HARD GROUP AND ALL OF THE MEDIUM GROUP ARE THE LEADS NORMALLY USED BY ARCHITECTURAL AND MECHANICAL DRAFTSMEN. THE SOFT LEADS HAVE A TENDENCY TO SMEAR. THE HARD LEADS WILL HOLD A POINT LONGER, BUT SOMETIMES ARE NOT DARK ENOUGH. THE LEAD THAT YOU USE DEPENDS UPON THE HUMIDITY, THE PRESSURE THAT YOU APPLY, THE MANUFACTURER OF THE LEAD, AND THE QUALITY OF THE PAPER.

CARE OF THE DRAWING: IT IS EASY TO SMEAR THE DRAWING OR TEAR THE PAPER BY PUSHING A TRIANGLE, A PARALLEL BAR, A SCALE, A BOOK, OR YOUR HANDS OVER THE DRAWING. IT SHOULD BE NOTED THAT THIS DRAWING WILL BE PLACED IN A PERMANENT FILE FOR USE OVER AND OVER AGAIN. IT SHOULD BE HANDLED WITH CARE. HERE ARE SOME RULES TO FOLLOW:

NEVER RUB YOUR HAND OVER THE DRAWING. USE A BRUSH OR A CLOTH. YOUR HANDS GET SWEATY AND WILL SMEAR THE DRAWING.

NEVER PUSH YOUR HAND, TRIANGLE, PARALLEL BAR, SCALE, OR BOOK OVER THE DRAWING. ALWAYS PICK UP THE ITEM BEFORE YOU MOVE IT.

WHEN ERASING ALWAYS USE AN ERASING SHIELD. THIS KEEPS YOUR HANDS OFF THE DRAWING.

WHEN SHARPENING THE PENCIL POINT, ALWAYS CLEAN THE POINT ON A CLOTH OR A PAPER TOWEL BEFORE USING IT AGAIN.

BEFORE QUITTING WORK FOR THE DAY, ALWAYS MAKE SURE THAT THE DRAWING IS COVERED UP OR TAKEN OFF THE BOARD AND PUT AWAY IN ITS PROPER PLACE.

MAKE SURE THAT THE EQUIPMENT IS ALWAYS CLEAN. WASH IT WITH SOAP AND WATER AND DRY IT WITH A PAPER TOWEL.

DO NOT DROP YOUR TOOLS OR EQUIPMENT ON THE FLOOR.

DO NOT APPLY TOO MUCH PRESSURE ON THE PENCIL. TOO MUCH PRESSURE CAN CUT THROUGH THE PAPER SO DEEPLY THAT IT CANNOT BE ERASED. REVISIONS ARE NEEDED FROM TIME TO TIME ON A DRAWING. THEREFORE, A GREAT DEAL OF CARE SHOULD BE GIVEN TO THE CORRECT AMOUNT OF PRESSURE. WHEN YOU ARE CUTTING TOO DEEP, YOU MAY NEED TO LET UP ON THE PRESSURE AND/OR GO TO A SOFTER LEAD.

LINE WIDTH: LINES SHOULD BE DRAWN A SPECIFIC WIDTH. THE APPROXIMATE WIDTHS FOR DIFFERENT LINES ARE SHOWN BELOW:

- A. VISIBLE LINES SHOULD BE APPROXIMATELY .020 WIDE (USE A 2H PENCIL).**
- B. HIDDEN LINES SHOULD BE APPROXIMATELY .015 WIDE (USE A 4H PENCIL).**
- C. CENTER LINES SHOULD BE APPROXIMATELY .010 WIDE (USE A 6H PENCIL).**
- D. PHANTOM LINES SHOULD BE APPROXIMATELY .010 WIDE (USE A 6H PENCIL).**
- E. DIMENSION LINES AND EXTENSION LINES SHOULD BE APPROXIMATELY .010 WIDE (USE A 6H PENCIL).**
- F. SECTION LINES SHOULD BE APPROXIMATELY .010 WIDE (USE A 6H PENCIL).**

ONE THING TO REMEMBER IS THAT ALL LINES EXCEPT CONSTRUCTION LINES ARE DARK, BUT THAT THEY VARY IN WIDTH ACCORDING TO THE TYPE OF LINE BEING DRAWN.

TOOLS: THE T-SQUARE OR THE PARALLEL RULING STRAIGHTEDGE IS AN INSTRUMENT USED TO DRAW HORIZONTAL LINES OR TO GUIDE THE TRIANGLE IN DRAWING VERTICAL OR INCLINED LINES.

THE TRIANGLE IS AN INSTRUMENT USED FOR DRAWING VERTICAL OR INCLINED LINES.

THE SCALE IS AN INSTRUMENT USED FOR MAKING MEASUREMENTS. THESE MEASUREMENTS WILL EITHER BE FULL SIZE, REDUCED SIZE OR ENLARGED SIZE. THERE ARE SCALES AVAILABLE TO FIT EACH NEED. IN THIS EXPERIENCE, YOU ONLY HAVE THE ARCHITECT'S SCALE TO WORK WITH.

THE ARCHITECT'S SCALE HAS A WIDE RANGE OF SCALE REDUCTIONS. THE BASIC MEASURING SCALES ON THIS INSTRUMENT ARE: $1/8$, $3/32$, $3/16$, $1/4$, $3/8$, $1/2$, $3/4$, 1, $1\frac{1}{2}$, 3 AND FULL SIZE.

THE DECIMAL SCALES ARE MADE WITH SCALES DIVIDED INTO 10, 20, 30, 40, 50, AND 60 PARTS PER INCH. THIS MEANS THAT AN EDGE MARKED 20 HAS HAD EVERY INCH SUBDIVIDED INTO 20 PARTS.

THE SET OF DRAWING INSTRUMENTS INCLUDES A SMALL COMPASS, A LARGE COMPASS, DIVIDERS, BOW DIVIDERS, AND A RULING PEN.

THE COMPASS IS USED FOR DRAWING CURVED LINES OR CIRCLES.

THE DIVIDERS ARE USED FOR SETTING OFF DISTANCES OR TRANSFERRING MEASUREMENTS.

THE RULING PEN IS USED FOR INKING. YOU SHOULD DEVELOP ACCURACY, NEATNESS, SPEED, AND LEGIBILITY WITH THESE INSTRUMENTS.

REFERENCES:

**TECHNICAL DRAWING BY GIESECKE,
MITCHELL, SPENCER AND HILL - CHAPTER 2.
ENGINEERING DRAWING BY GRANT -
CHAPTER A.**

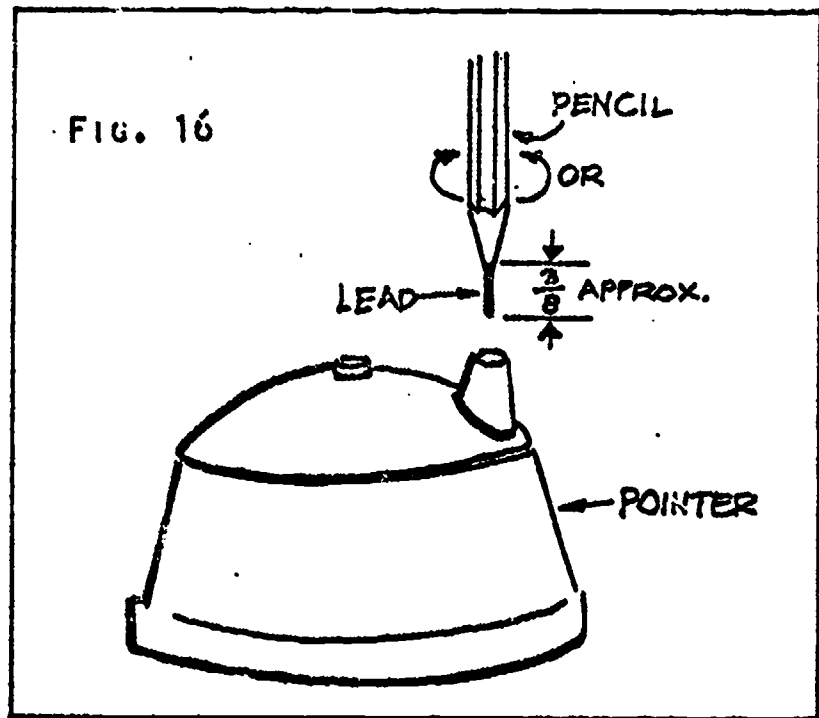
STEPS TO FOLLOW IN PLACING A CONICAL POINT ON A PENCIL LEAD:

TOOLS AND MATERIALS NEEDED: PENCIL POINTER
PENCIL (WOOD PENCIL OR MECHANICAL PENCIL)

WHAT YOU MUST DO

1. IF YOU ARE USING A MECHANICAL PENCIL PLACE THE LEAD IN THE PENCIL LEAVING ABOUT $\frac{3}{8}$ " EXPOSED. IF YOU ARE USING A WOOD PENCIL SHARPEN THE PENCIL LEAVING ABOUT $\frac{3}{8}$ " OF LEAD EXPOSED
2. PLACE THE PENCIL IN THE POINTER AND ROTATE IT UNTIL A POINT HAS BEEN PLACED ON THE LEAD FIG. 16

WHAT YOU MUST KNOW TO DO THESE STEPS



3. CLEAN THE POINT ON A PAPER TOWEL OR A CLOTH-----> THE POINT SHOULD BE CLEANED TO HELP YOU KEEP YOUR DRAWING CLEAN.
4. HOLD THE PENCIL VERTICALLY. WITH A FEW ROTARY MOTIONS ON THE PAPER, WEAR THE POINT DOWN SLIGHTLY TO THE DESIRED SHAPE-----> THIS STEP IS IMPORTANT TO HELP YOU GET THE DESIRED WIDTH OF LINE. YOUR INSTRUCTOR OR A STUDENT ASSISTANT WILL AID YOU IN GETTING A POINT APPROPRIATE TO YOUR WORK.

STEPS TO FOLLOW IN TAPING YOUR PAPER TO THE DRAWING BOARD:

TOOLS AND MATERIALS NEEDED: DRAWING BOARD
PARALLEL RULING STRAIGHTEDGE
DRAFTING TAPE
SHEET OF PAPER

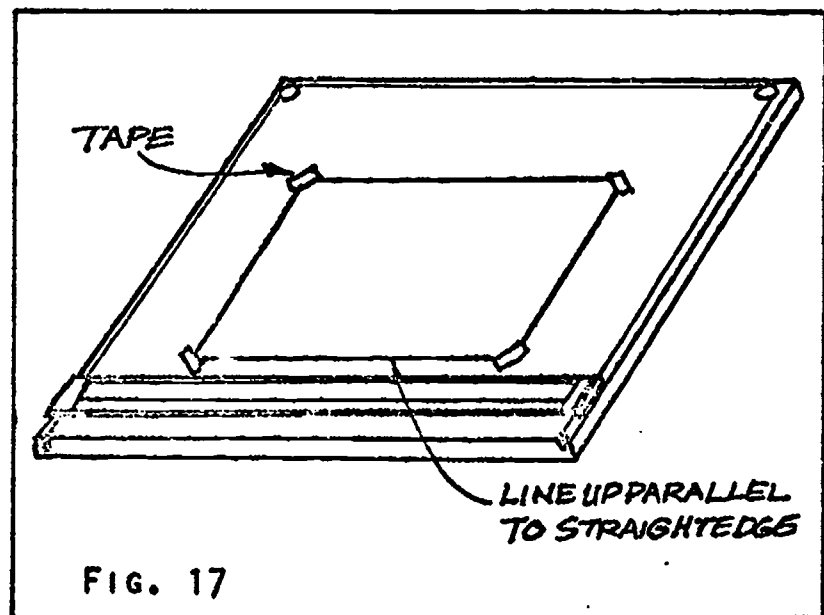
WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. WASH YOUR HANDS BEFORE TOUCHING THE PAPER
2. LINE UP THE BOTTOM OF THE PAPER WITH A T-SQUARE, A PARALLEL RULING STRAIGHTEDGE OR A DRAFTING MACHINE----->

THE BOTTOM OF THE PAPER SHOULD BE PARALLEL TO THE BOTTOM OF THE DRAWING BOARD.

3. TAPE ALL FOUR CORNERS FIG. 17



STEPS TO FOLLOW IN DRAWING VERTICAL LINES:

TOOLS AND MATERIALS NEEDED: DRAWING BOARD
30° X 60° TRIANGLE OR 45° TRIANGLE
PARALLEL RULING STRAIGHTEDGE
PENCIL
8½ X 11 SHEET OF PAPER
ERASER

WHAT YOU MUST DO

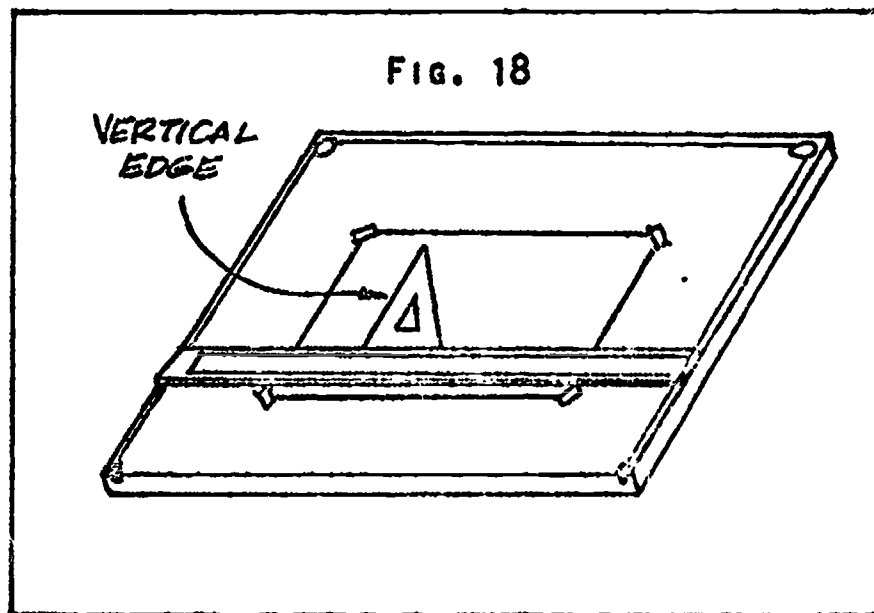
WHAT YOU MUST KNOW
TO DO THESE STEPS

1. FOR RIGHT-HANDED INDIVIDUALS PLACE THE VERTICAL EDGE OF THE TRIANGLE TO THE LEFT SIDE OF THE BOARD----->

THIS HELPS TO KEEP THE DRAWING NEATER SINCE YOUR HAND MOVES OVER THE TRIANGLE INSTEAD OF OVER THE PAPER AS YOU DRAW THE LINE. FIG. 18

2. WITH THE PENCIL TILTED AT ABOUT 60° MOVE IT FROM THE BOTTOM OF PAPER TO THE TOP. ROTATE THE PENCIL AS YOU MOVE IT----->

IN FREEHAND SKETCHING YOU WERE TAUGHT TO MOVE YOUR PENCIL FROM THE TOP OF THE PAGE TO BOTTOM, BUT IN DRAWING WITH INSTRUMENTS IT IS THE OPPOSITE. ROTATING THE PENCIL HELPS TO KEEP A POINT ON THE LEAD.



STEPS TO FOLLOW IN DRAWING HORIZONTAL LINES:

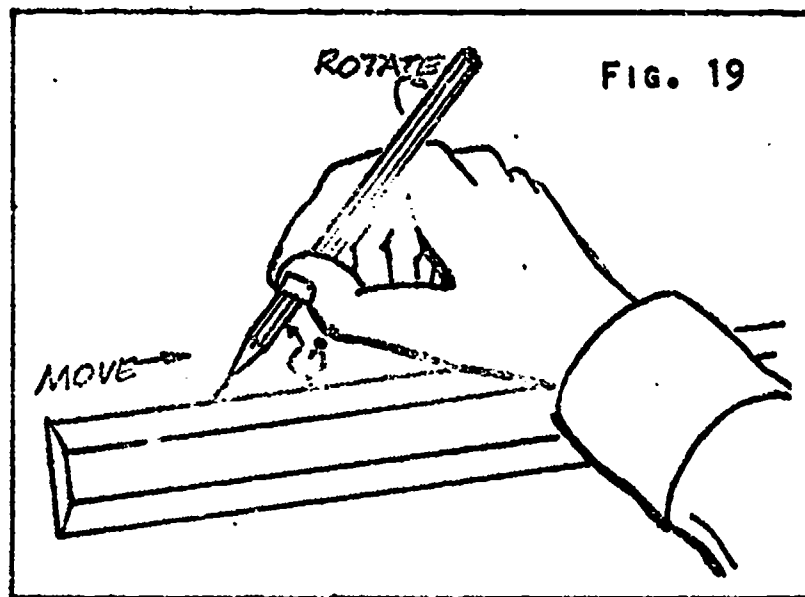
TOOLS AND MATERIALS NEEDED: DRAWING BOARD
PARALLEL RULING STRAIGHTEDGE
PENCIL
8½ X 11 SHEET OF PAPER
ERASER

WHAT YOU MUST DO

1. PLACE A PARALLEL RULING STRAIGHTEDGE AT THE PLACE ON THE PAPER WHERE YOU WANT TO DRAW HORIZONTAL LINE
2. MOVE A PENCIL TILTED AT ABOUT 60° FROM LEFT TO RIGHT WITH THE PARALLEL RULING STRAIGHTEDGE AS A GUIDE, ROTATING THE PENCIL AS YOU MOVE

FIG. 19

WHAT YOU MUST KNOW TO DO THESE STEPS



STEPS TO FOLLOW IN READING A FULL SIZE SCALE:

TOOLS AND MATERIALS NEEDED: ARCHITECT'S SCALE
PENCIL

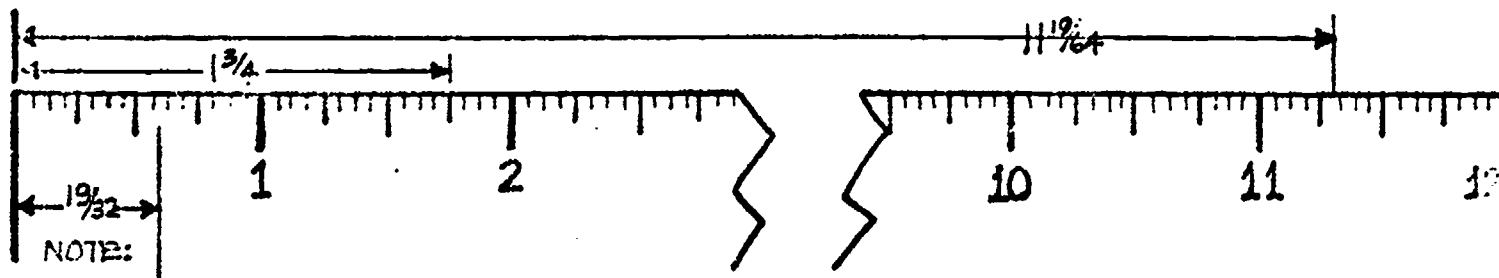
1. LOOK AT THE FOLLOWING ILLUSTRATIONS.

NOTE: 19/32 COMES HALFWAY BETWEEN 9/16 AND 5/8--FIG. 20

A FULL-DIVIDED ARCHITECT'S SCALE HAS 16 EQUAL PARTS PER INCH MARKED ON THE SCALE. FOR MORE PRECISE MEASUREMENT EACH OF THE 16 PARTS CAN BE MENTALLY DIVIDED INTO 4 MORE EQUAL PARTS. THIS GIVES YOU 64 DIVISIONS PER INCH.

THE STEEL SCALE USED BY MACHINISTS HAS 64 DIVISIONS PER INCH MARKED. HOWEVER, THE ARCHITECT'S SCALE HAS ONLY 16 DIVISIONS PER INCH MARKED ON THE SCALE.

FIG. 20



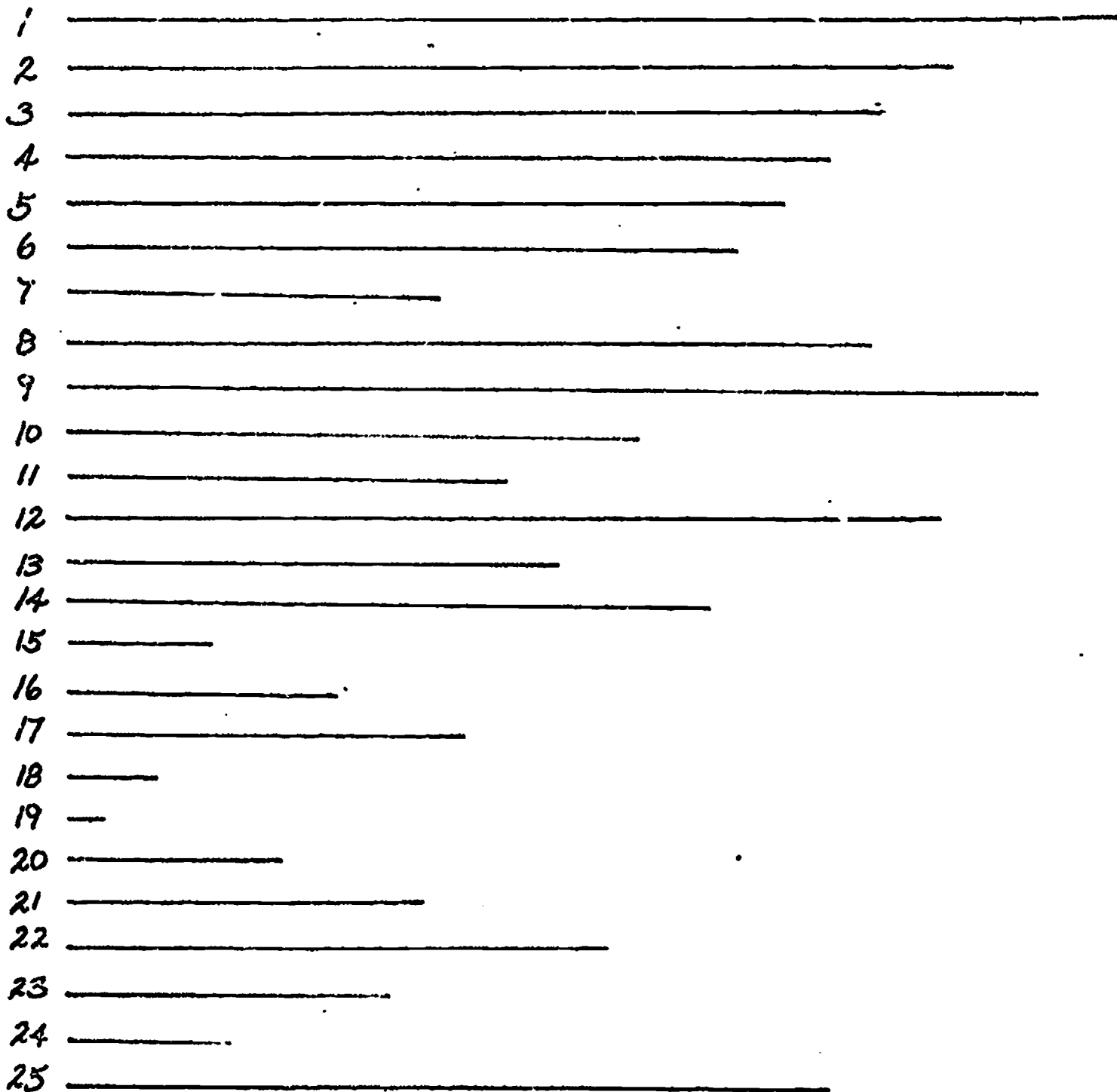
WHAT YOU MUST DO

2. PLACE YOUR ARCHITECT'S SCALE ON EACH OF THE FOLLOWING LINES

3. MEASURE AND RECORD THE LENGTH OF EACH LINE---FIG. 21

BE SURE TO READ THE SCALE WITH AN ACCURACY TO THE NEAREST $1/64$. TO OBTAIN THIS ACCURACY WITH THE ARCHITECT'S SCALE, YOU MUST PARTIALLY DIVIDE THE SMALLEST MARKED DIVISION ON THE SCALE INTO 4 SMALLER SECTIONS.

FIG. 21



4. CHECK WITH YOUR INSTRUCTOR TO SEE HOW WELL YOU DID

YOUR THIRD EXPERIENCE IN DRAFTING WILL BE:

TO DRAW THE BORDER LINES AND THE
TITLE BLOCK ON AN A-SIZE SHEET (8½ X
11) OF PAPER.

STEPS TO FOLLOW IN DRAWING THE BORDER LINES AND THE TITLE BLOCK ON AN A-SIZE SHEET
OF PAPER:

- TOOLS AND MATERIALS NEEDED: 8½ X 11 SHEET OF PAPER
DRAFTING TAPE
ARCHITECT'S SCALE
PENCIL
30° X 60° TRIANGLE OR 45° X 90° TRIANGLE
DRAWING BOARD WITH PARALLEL RULING STRAIGHTEDGE
T-SQUARE OR DRAFTING MACHINE
DUSTING BRUSH
ERASING SHIELD
ERASER

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

- MEASURE ¼ INCH FROM THE TOP OF THE PAPER AND MAKE A SMALL POINT WITH THE PENCIL. ----- REFER TO EARLIER EXPERIENCES FOR INFORMATION ON SHARPENING YOUR PENCIL, TAPING DOWN THE PAPER, DRAWING LINES, AND READING SCALE.
- MEASURE 8 INCHES DOWN FROM THE FIRST POINT AND MAKE ANOTHER POINT. ----- AS YOU ARE DRAWING, COMPARE YOUR WORK WITH FIG. 22

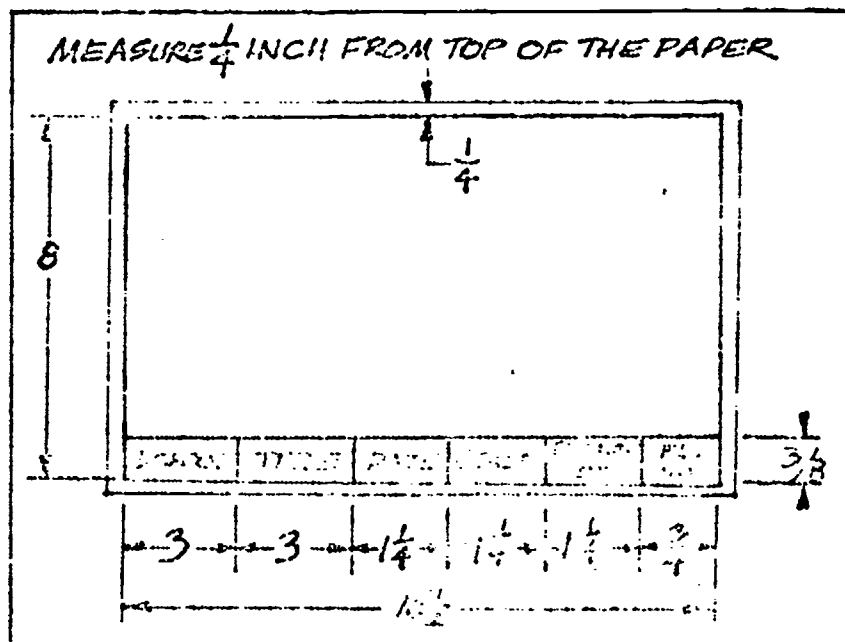


FIG. 22

WHAT YOU MUST DO

3. DRAW LIGHT HORIZONTAL LINES ACROSS THE PAPER AT THESE POINTS
 4. MEASURE OVER $\frac{1}{4}$ INCH FROM THE LEFT SIDE OF THE PAPER AND MAKE A SMALL POINT
 5. MEASURE OVER $10\frac{1}{2}$ INCHES FROM THE POINT MARKED IN STEP 4 AND MAKE ANOTHER POINT
 6. DRAW LIGHT VERTICAL LINES THROUGH THE POINTS MARKED IN STEPS 4 AND 5 CONNECTING THE HORIZONTAL LINES DRAWN IN STEP 3
 7. MEASURE UP $\frac{3}{8}$ INCH FROM THE BOTTOM HORIZONTAL LINE AND MAKE ANOTHER POINT
 8. DRAW A LIGHT HORIZONTAL LINE ACROSS THE PAGE THROUGH THE POINT MADE IN STEP 7. THIS SHOULD CONNECT THE VERTICAL LINES TO FORM THE TITLE BLOCK
 9. MEASURE 3 INCHES OVER FROM THE LEFT-SIDE VERTICAL LINE AND MAKE A POINT IN THE TITLE BLOCK
 10. MEASURE 3 INCHES OVER FROM THE POINT MADE IN STEP 9 AND MAKE ANOTHER POINT
 11. MEASURE $1\frac{1}{4}$ INCHES OVER FROM THE POINT MADE IN STEP 10 AND MAKE ANOTHER POINT
 12. MEASURE $1\frac{1}{4}$ INCHES OVER FROM THE POINT MADE IN STEP 11 AND MAKE ANOTHER POINT
 13. MEASURE $1\frac{1}{4}$ INCHES OVER FROM THE POINT MADE IN STEP 12 AND MAKE ANOTHER POINT
 14. DRAW DARK VERTICAL LINES THROUGH THE POINTS MADE IN STEPS 9, 10, 11, 12, AND 13 CONNECTING THE LOWER TWO HORIZONTAL LINES
 15. USING THE STRAIGHTEDGE, DARKEN IN ALL LIGHT LINES
-

WHAT YOU MUST KNOW

YOUR FOURTH EXPERIENCE

THIS WILL BE:

TO MEASURE A BLOCK AND DRAW
THE TOP, FRONT, AND RIGHT-SIDE VIEWS
WITH THE SAME MEASUREMENTS AS THE
BLOCK ITSELF.

INTRODUCTION -- PLEASE READ CAREFULLY:

REFER TO EARLIER EXPERIENCES FOR
INFORMATION ON SHARPENING YOUR PENCIL,
TAPING DOWN THE PAPER, DRAWING LINES,
AND READING SCALE.

STEPS TO FOLLOW IN MEASURING THE BLOCK AND DRAWING THE TOP, THE FRONT, AND THE RIGHT-SIDE VIEWS WITH THE SAME MEASUREMENTS AS THE BLOCK ITSELF:

TOOLS AND MATERIALS NEEDED: $8\frac{1}{2}$ x 11 SHEET OF PAPER
DRAFTING TAPE
SCRATCH PAPER
ARCHITECT'S SCALE
PENCIL
 30° x 60° OR 45° x 90° TRIANGLE
DRAWING BOARD WITH PARALLEL RULING STRAIGHTEDGE
T-SQUARE OR DRAFTING MACHINE
DUSTING BRUSH
ERASING SHIELD
ERASER

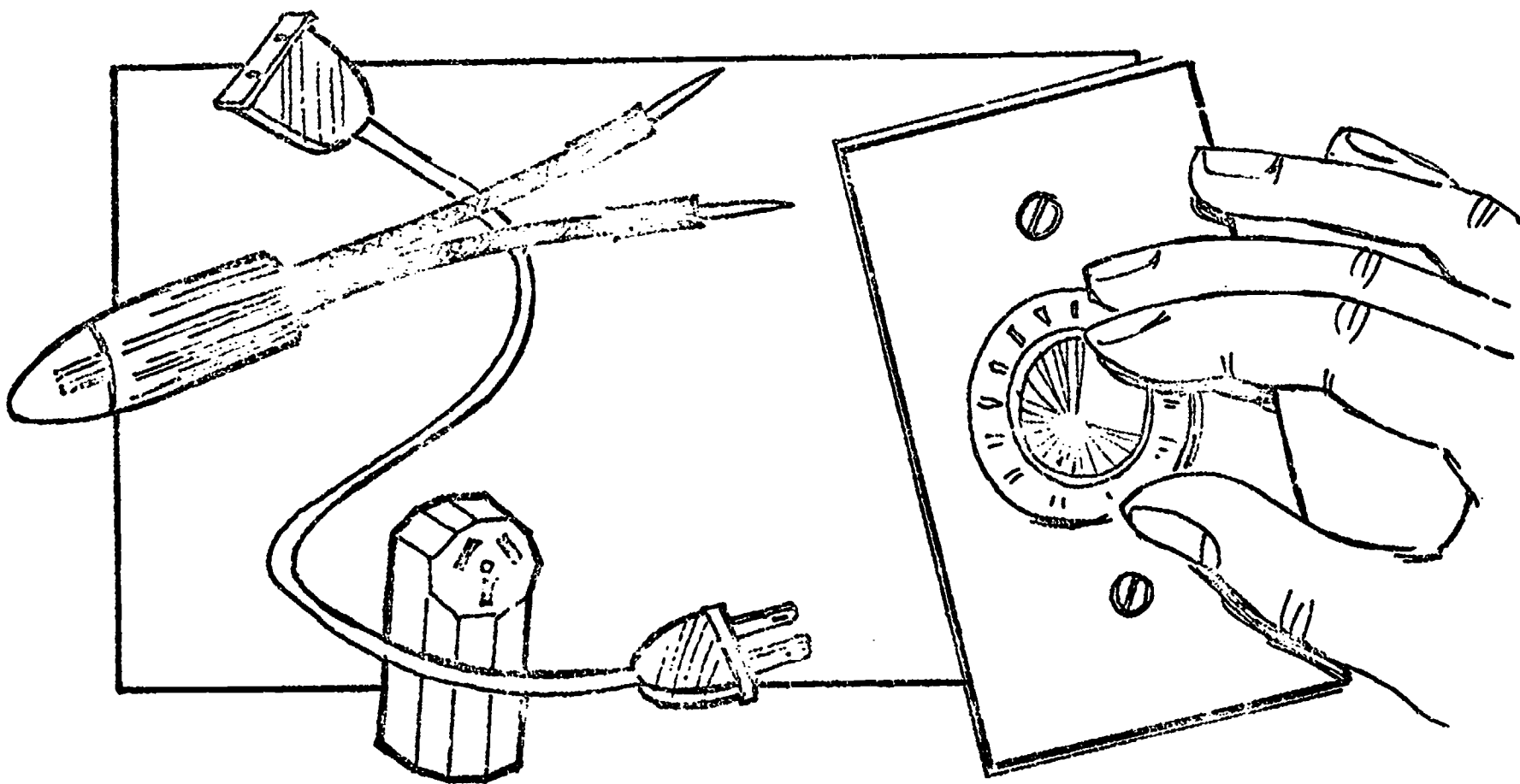
WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. DRAW THE BORDER LINES AND THE TITLE BLOCK-----> REFER TO THE EXPERIENCE ON DRAWING THE BORDER LINES AND THE TITLE BLOCK.
2. MEASURE AND RECORD THE DIMENSIONS OF THE BLOCK ON SCRATCH PAPER
3. DRAW THE TOP, THE FRONT, AND THE RIGHT-SIDE VIEWS TO THE DIMENSIONS RECORDED IN STEP 2-----> REFER TO THE EXPERIENCE ON SKETCHING THE TOP, THE FRONT, AND THE RIGHT-SIDE VIEWS OF AN OBJECT.



AN INTRODUCTION TO



ELECTRICITY • ELECTRONICS

PART I OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO

ELECTRICITY-ELECTRONICS

BY CURTIS LAMARR

SOME INTERESTING FACTS ABOUT ELECTRICITY-ELECTRONICS

1. WHAT KIND OF WORK IS DONE?

ELECTRICITY - ELECTRICAL CONSTRUCTION, ELECTRICAL MAINTENANCE, ELECTRICAL CONTRACTING.

ELECTRONICS - ELECTRONICS REPAIR, ELECTRONICS TESTING, ELECTRONICS CONSTRUCTION, TELEVISION SALES AND SERVICE, TECHNICAL SALES, BROADCASTING, INSTRUMENTATION, AND COMPUTER MAINTENANCE.

2. WORKING CONDITIONS:

ELECTRICITY - AN ELECTRICIAN MIGHT WORK IN A WELL-EQUIPPED, AIR-CONDITIONED SHOP, IN A BUILDING UNDER CONSTRUCTION, OR OUTSIDE.

ELECTRONICS - MOST ELECTRONIC EQUIPMENT IS HOUSED IN CLEAN, WELL-KEPT BUILDINGS. THEREFORE, WORKING CONDITIONS ARE USUALLY EXCELLENT. THE JOB MIGHT INVOLVE ANYTHING FROM SELLING THE EQUIPMENT TO OPERATING OR SERVICING THE EQUIPMENT. WORKERS IN BOTH OF THESE FIELDS MAY BE REQUIRED TO GO ON SERVICE CALLS.

3. SALARY SCALE:

THE SALARY MIGHT VARY FROM \$6,000 TO \$10,000 PER YEAR, DEPENDING ON EXPERIENCE AND TRAINING. IN GENERAL, ELECTRICITY AND ELECTRONICS ARE HIGHLY PAID FIELDS OF WORK.

4. TYPE OF CLOTHING WORN:

THE CLOTHING WILL VARY WITH THE JOB. NEAT WORK CLOTHES ARE USUALLY ADEQUATE.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: SINCE ELECTRICIANS AND ESPECIALLY ELECTRONIC TECHNICIANS MUST OFTEN WORK WITH SMALL WIRES, TUBES, AND OTHER DELICATE OBJECTS, GOOD MANUAL DEXTERITY (USE OF THE HANDS) IS IMPORTANT.

PERSONALITY CHARACTERISTICS: A WORKER IN THESE AREAS SHOULD BE ABLE TO WORK WELL WITH OTHERS, TO COMPLETE AN ASSIGNED TASK, AND TO ENJOY WORKING WITH MECHANICAL EQUIPMENT.

EDUCATIONAL QUALIFICATIONS: A HIGH SCHOOL EDUCATION IS ESSENTIAL FOR PRACTICALLY ANY JOB IN ONE OF THESE AREAS. ONE COULD PROBABLY BECOME AN ELECTRICIAN OR AN ELECTRONIC MECHANIC WITH ONLY HIGH SCHOOL VOCATIONAL PREPARATION, BUT TO DO MORE TECHNICAL WORK MORE TRAINING IS NECESSARY.

YOUR FIRST EXPERIENCE IN ELECTRICITY WILL BE:

TO WIRE A THREE-WAY SWITCH.

INTRODUCTION --- PLEASE READ CAREFULLY:

A THREE-WAY SWITCH IS USED WHEN IT IS NECESSARY TO TURN A LIGHT ON OR OFF FROM TWO DIFFERENT LOCATIONS. FOR EXAMPLE, SOMEONE MIGHT WISH TO CONTROL A LIGHT FROM BOTH ENDS OF A HALL OR FROM BOTH THE BOTTOM AND THE TOP LANDINGS OF A STAIRWAY. A THREE-WAY SWITCH HAS A SINGLE TERMINAL AT THE OPPOSITE ENDS. THE SINGLE TERMINAL IS CONNECTED WITHIN THE SWITCH SO THAT IT MAKES CONTACT WITH ONE OF TWO OTHER TERMINALS AT ALL TIMES, WHETHER THE SWITCH LEVER IS IN THE UPPER OR IN THE LOWER POSITION.

DO NOT PLUG YOUR WIRING IN OR CONNECT IT TO THE "SOURCE" UNTIL THE INSTRUCTOR INSPECTS YOUR WORK.

BE SURE THAT THERE ARE NO EXPOSED WIRES AND THAT ALL CONNECTIONS ARE PROPERLY CONNECTED AND TIGHT.

FOLLOW THE CORRECT COLOR CODE THROUGHOUT YOUR WIRING.

LOOK OVER THE DIAGRAM BEFORE YOU BEGIN WORK AND REFER TO IT DURING YOUR WORK.

REFERENCES:

ALL ABOUT HOUSE WIRING BY MIX AND PRITCHARD.

SIMPLIFIED ELECTRIC WIRING HANDBOOK (SEARS, ROEBUCK AND COMPANY).

ELECTRICITY AND ELECTRONICS, BASIC BY STEINBERG.

STEPS TO FOLLOW IN CONNECTING A 3-WAY SWITCH:

TOOLS AND MATERIALS NEEDED: KEYLESS RECEPTACLE
TWO 10 AMPERE FUSE PLUGS
TWO THREE-WAY SWITCHES
12-3 CONNECTING WIRE
TWO SWITCH COVERS
ONE CEILING OUTLET
TWO SWITCH BOXES
SIX WIRE NUTS
ONE A.C. PLUG
6 FEET OF A.C. LINE CORD #18
WIRE
LONG NOSE PLIERS
ELECTRICIAN'S PLIERS
WIRE STRIPPER
ONE LARGE SCREWDRIVER
ONE SMALL SCREWDRIVER
ONE MOUNTING BOARD (6 FT.
HIGH, 36 INCHES WIDE,
WITH AN 18 INCH PIECE
OF $\frac{1}{2}$ INCH PLYWOOD TO
COVER THE MOUNTING
BOARD)

WHAT YOU MUST DO

1. REMOVE THE INSULATION FROM BOTH ENDS OF ALL WIRES BY CUTTING IT AT A SLANT--AS IN SHARPENING A PENCIL. EXPOSE $\frac{1}{2}$ INCH OF COPPER CONDUCTOR FIG. 1

WHAT YOU MUST KNOW TO DO THESE STEPS

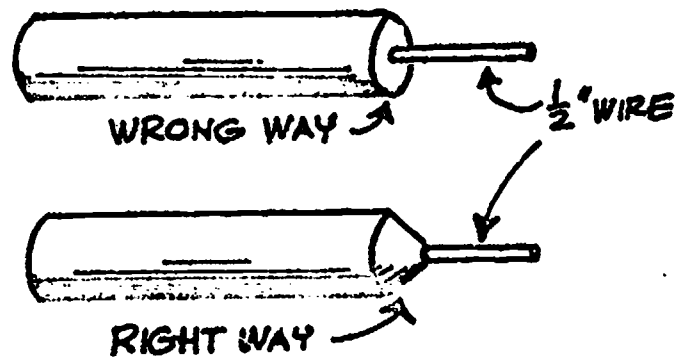


FIG. 1

2. CONNECT THE WHITE WIRE OF THE A.C. LINE CORD TO ONE TERMINAL OF THE LAMP SOCKET----->

USE WIRE NUTS (SOLDERLESS CONNECTORS) TO CONNECT THE WIRES. FIG. 2

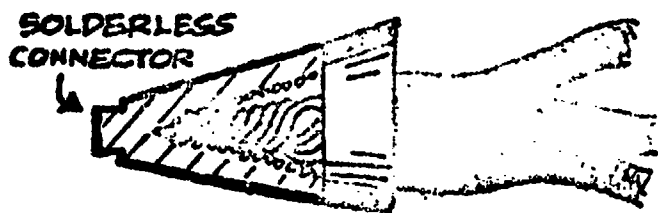


FIG. 2

WHAT YOU MUST DO

WHAT YOU MUST KNOW

3. CONNECT THE OTHER TERMINAL OF THE LAMP SOCKET TO THE SINGLE TERMINAL OF ONE OF THE SWITCHES USING BLACK COLOR CODED WIRE-----

WHEN CONNECTING THE WIRE AT THE SCREW TERMINALS BEND THE END OF THE WIRE INTO A LOOP TO FIT AROUND THE SCREW. BE SURE TO ATTACH THE LOOP IN THE DIRECTION IN WHICH THE SCREW TURNS WHEN TIGHTENED.

FIG. 3

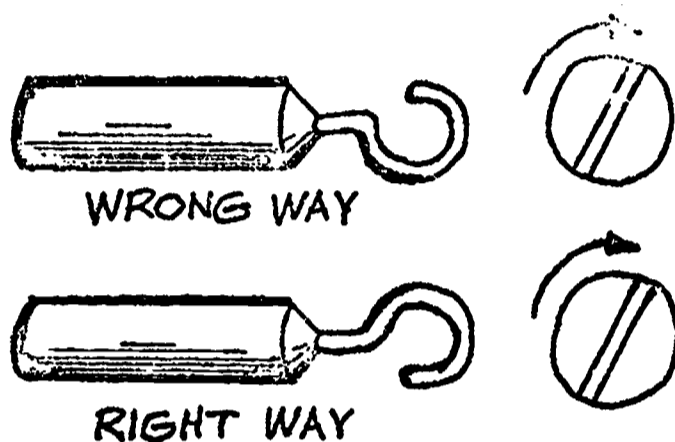
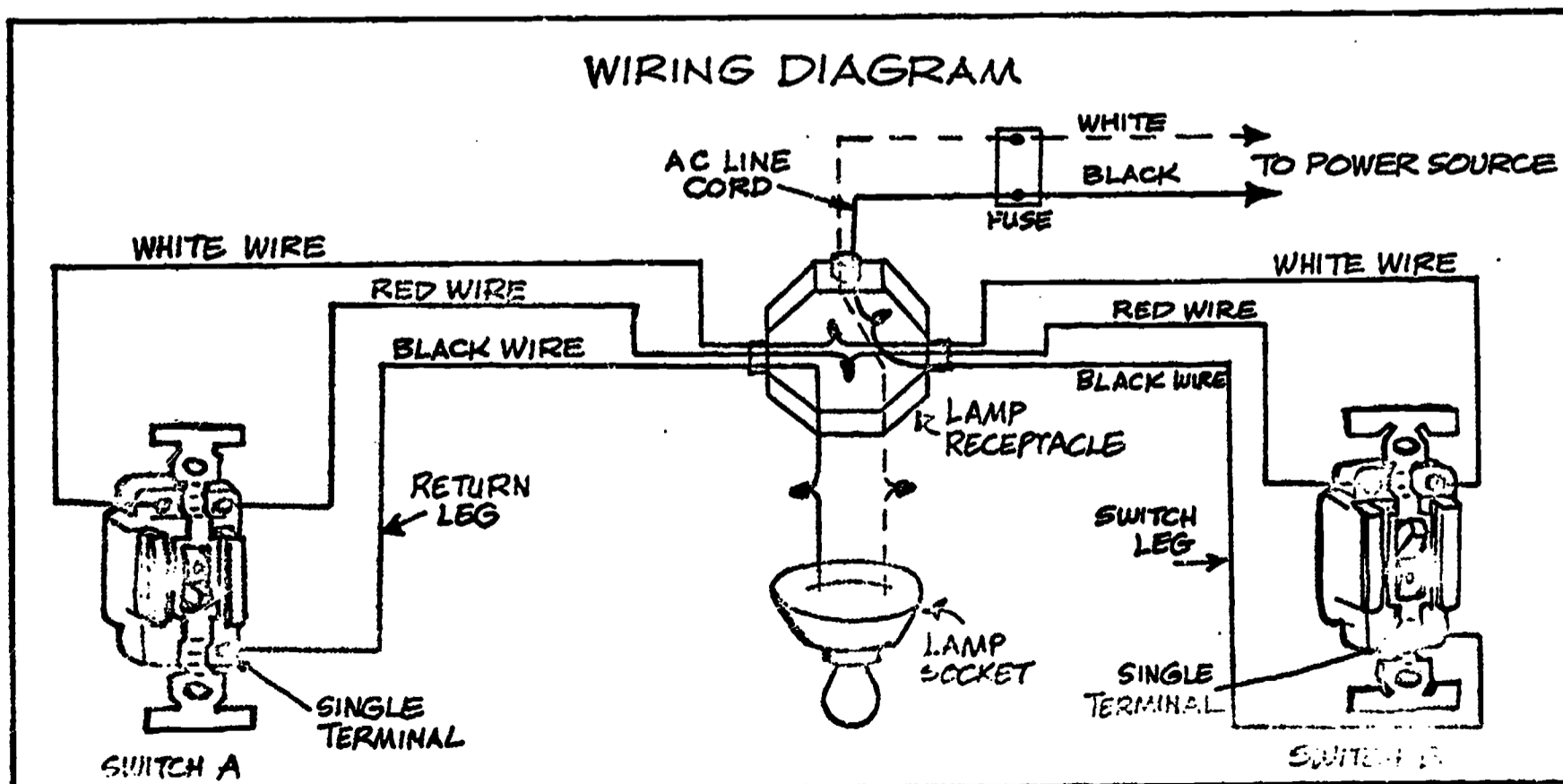


FIG. 3

FIG. 4



WHAT YOU MUST DO

4. CONNECT A WIRE (EITHER RED OR WHITE) TO ONE OF THE OTHER SWITCH TERMINALS (NOT THE SINGLE TERMINAL) AND PLACE THE OTHER END OF THE WIRE INTO THE LAMP RECEPTACLE
5. REPEAT STEP 4 WITH THE SAME COLOR CODED WIRE USING THE OTHER SWITCH
6. CONNECT TOGETHER THE WIRES USED IN STEPS 4 AND 5
7. REPEAT STEPS 4, 5, AND 6 WITH THE OTHER COLOR CODED WIRE
8. CONNECT A BLACK WIRE FROM THE REMAINING SINGLE TERMINAL OF THE THREE-WAY SWITCH TO THE LAMP RECEPTACLE
9. CONNECT THE WIRE IN STEP 8 TO THE BLACK WIRE IN THE A.C. CORD
10. CONNECT THE FREE ENDS OF THE A.C. LINE CORD TO THE TERMINALS OF THE FUSE SOCKET
11. CONNECT THE OTHER TERMINALS OF THE FUSE SOCKET TO ANOTHER SECTION OF A.C. LINE CORD
12. CONNECT THE A.C. PLUG TO THE FREE END OF THE LINE CORD
13. CHECK YOUR WORK----->

WHAT YOU MUST KNOW

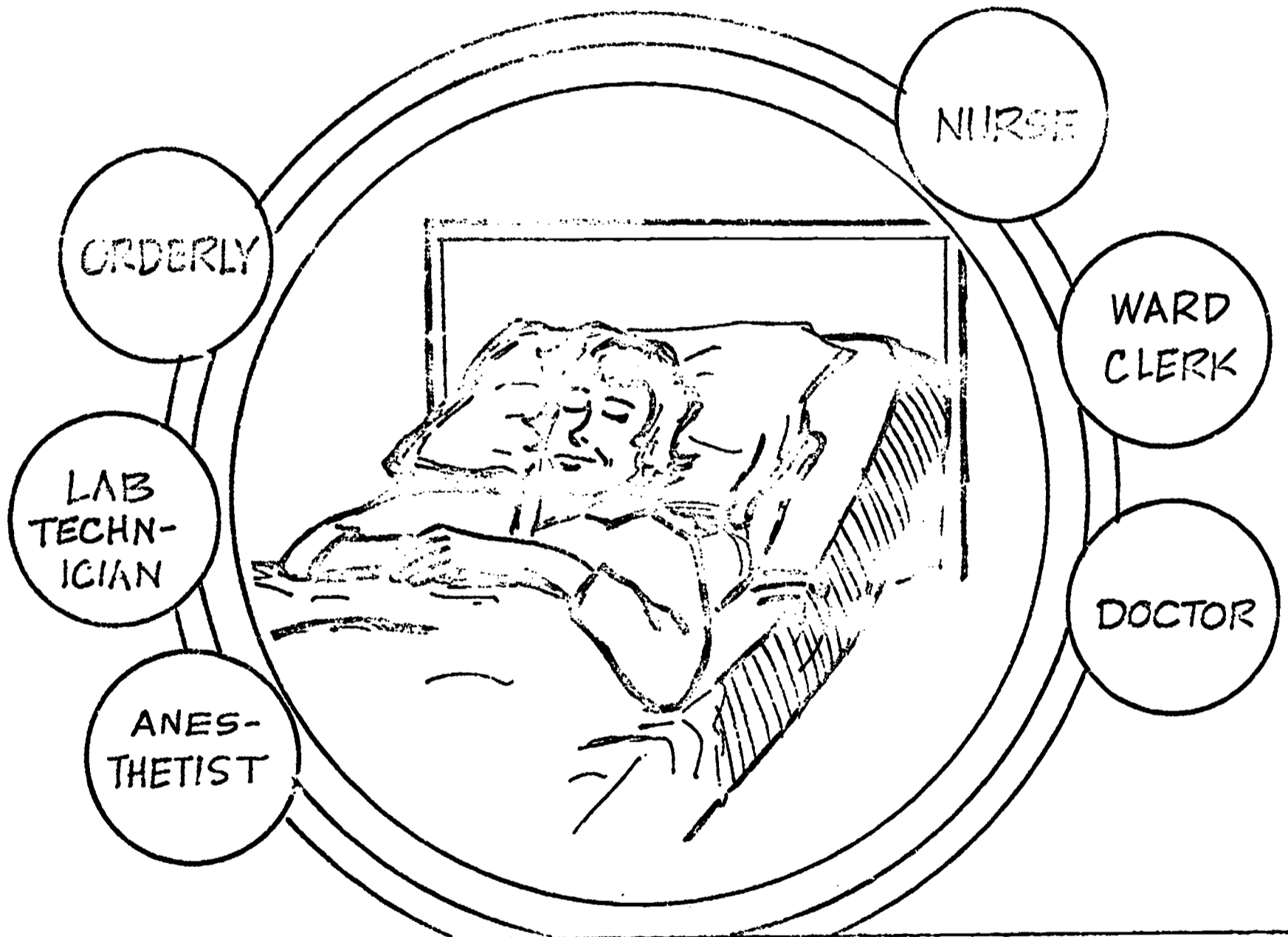
STEPS 4-13
SEE FIG. 4

ALL CONNECTIONS SHOULD BE TIGHT AND SHOULD MAKE GOOD CONTACT. ALL SCREWS SHOULD BE TIGHT. THERE SHOULD BE NO EXPOSED WIRES. THE CORRECT COLOR CODE MUST BE FOLLOWED THROUGHOUT THE WIRING. COMPARE YOUR WIRING TO THE DIAGRAM. DO NOT PLUG YOUR WIRING IN UNTIL IT HAS BEEN INSPECTED BY YOUR INSTRUCTOR.

14. PLACE THE COVERS ON THE SWITCH BOXES



AN INTRODUCTION TO



HEALTH OCCUPATIONS

PART J OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO

HEALTH OCCUPATIONS

PART I BY CAROLYN MAJOR
THERESA SHARP

SOME INTERESTING FACTS ABOUT HEALTH OCCUPATIONS

1. WHAT KIND OF WORK IS DONE?

SOME GENERAL AREAS OF HEALTH WORK ARE: MEDICAL SPECIALIZATION (VARIOUS KINDS OF DOCTORS), RESEARCH (CANCER, BIRTH DEFECTS, DRUG DISCOVERY), TEACHING (NURSING, LABORATORY, IN-SERVICE EDUCATION IN HOSPITALS), X-RAY (RADIOLOGISTS, TECHNICIANS), NURSING (REGISTERED NURSES, LICENSED PRACTICAL NURSES). WORK IS ALSO AVAILABLE FOR LABORATORY SPECIALISTS, AND TECHNICIANS, OCCUPATIONAL, PHYSICAL, AND RECREATIONAL THERAPISTS AND AIDES, NURSING ASSISTANTS, CUSTODIANS, CLERKS, FOOD SPECIALISTS, FOOD WORKERS AND ENGINEERS.

DURING THE HEALTH OCCUPATIONS COURSE THE SKILLS LEARNED AND PRACTICED IN THE LABORATORY ARE THOSE REQUIRED OF A NURSING ASSISTANT. HOWEVER, THE KNOWLEDGE AND THE EXPERIENCE GAINED FROM THESE WILL BE HELPFUL IN ANY HEALTH FIELD JOB OR IN ANY TRAINING WHICH THE STUDENT MIGHT EVENTUALLY ENTER.

2. WORKING CONDITIONS:

WORKING CONDITIONS ARE USUALLY VERY PLEASANT. MOST HOSPITALS AND HEALTH CARE INSTITUTIONS IN USE TODAY ARE EITHER NEW OR HAVE BEEN MODERNIZED TO MEET SANITATION AND SAFETY STANDARDS. HENCE, THESE USUALLY HAVE CENTRALIZED VENTILATION AND TEMPERATURE CONTROL.

3. SALARY SCALE:

IN THIS COMMUNITY YOU CAN EXPECT TO START AS A NURSING ASSISTANT AT THE MINIMUM WAGE OF \$1.60 PER HOUR (PERHAPS HIGHER IN SOME INSTANCES). JOBS OF ADVANCED TRAINING PRODUCE HIGHER SALARIES. GENERALLY, WAGES ARE VERY GOOD.

4. TYPE OF CLOTHING WORN:

CLOTHING WILL BE SUITABLE FOR THE JOB TO BE PERFORMED. UNIFORMS ARE NOT NECESSARY FOR HEALTH WORKERS ON CAMP STAFFS OR PEDIATRIC AIDES. HOWEVER, SOME TYPE OF UNIFORM IS USUALLY REQUIRED. THE UNIFORM REGULATIONS ARE SPECIFIED BY THE DEPARTMENT TO WHICH THE WORKER IS ASSIGNED.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: IT IS HELPFUL TO BE ABLE TO USE EITHER HAND EQUALLY WELL.

PERSONALITY CHARACTERISTICS: A GENUINE INTEREST AND CONCERN FOR THE PATIENT IS ESSENTIAL. YOU MUST ALSO BE ABLE TO FOLLOW DIRECTIONS AND GET ALONG WELL WITH OTHERS. PERSONAL PREJUDICES SHOULD NEVER BE ALLOWED TO INTERFERE WITH THE PATIENT'S CARE.

EDUCATIONAL QUALIFICATIONS: MOST INSTITUTIONS REQUIRE A HIGH SCHOOL DIPLOMA FOR WORK IN THE HEALTH FIELD. THIRTEEN MONTHS OF CLASSROOM WORK AND HOSPITAL EXPERIENCE ARE REQUIRED TO BECOME A LICENSED PRACTICAL NURSE. TO BECOME A REGISTERED NURSE YOU CAN ATTEND EITHER A 2 YEAR ASSOCIATE DEGREE PROGRAM, A 3 YEAR DIPLOMA SCHOOL OR A 4 YEAR COLLEGE PROGRAM.

6. OTHER FACTS OF INTEREST:

IN 1960 THE HEALTH SERVICES INDUSTRY RANKED THIRD BEHIND AGRICULTURE AND CONSTRUCTION IN TERMS OF THE NUMBER OF EMPLOYEES IN THE U.S. SOON IT MAY WELL SURPASS BOTH TO BECOME THE NATION'S TOP EMPLOYMENT FIELD.

ONE OF THE GREATEST ASSETS OF OUR NATION IS THE HEALTH OF ITS PEOPLE. IF YOU SHOULD BECOME INTERESTED IN WORKING IN SOME CAPACITY IN THE HEALTH FIELD, THINK OF THE CONTRIBUTIONS WHICH YOU MIGHT BE ABLE TO MAKE TO THE HEALTH OF THE PEOPLE OF THIS NATION. OPPORTUNITIES AND REWARDS ABOUND IN THE HEALTH OCCUPATIONS.

YOUR FIRST EXPERIENCE IN HEALTH OCCUPATIONS WILL BE:

TO TEST A SAMPLE OF YOUR URINE
FOR SUGAR USING THE CLINITEST METHOD.

INTRODUCTION - PLEASE READ CAREFULLY:

THIS TEST IS A VERY IMPORTANT AID
TO THE DOCTOR AND TO THE PATIENT IN THE
DIAGNOSIS AND CONTROL OF A DISEASE
KNOWN AS "DIABETES."

ALTHOUGH THIS IS ONLY A LABORATORY
LEARNING EXPERIENCE YOU ARE DIRECTED TO
CARRY OUT THIS PROCEDURE IN A VERY
RESPONSIBLE MANNER. YOU ARE CAUTIONED
TO HANDLE THE SPECIMEN CAREFULLY.

REFERENCES:

EACH HOSPITAL HAS ITS OWN PROCEDURE
MANUAL.

CLINITEST INSTRUCTION SHEET.

STEPS TO FOLLOW IN TESTING URINE FOR SUGAR (CLINITEST METHOD):

TOOLS AND MATERIALS NEEDED: URINE
WATER
PAPER CUP
CLINITEST KIT

WHAT YOU MUST DO

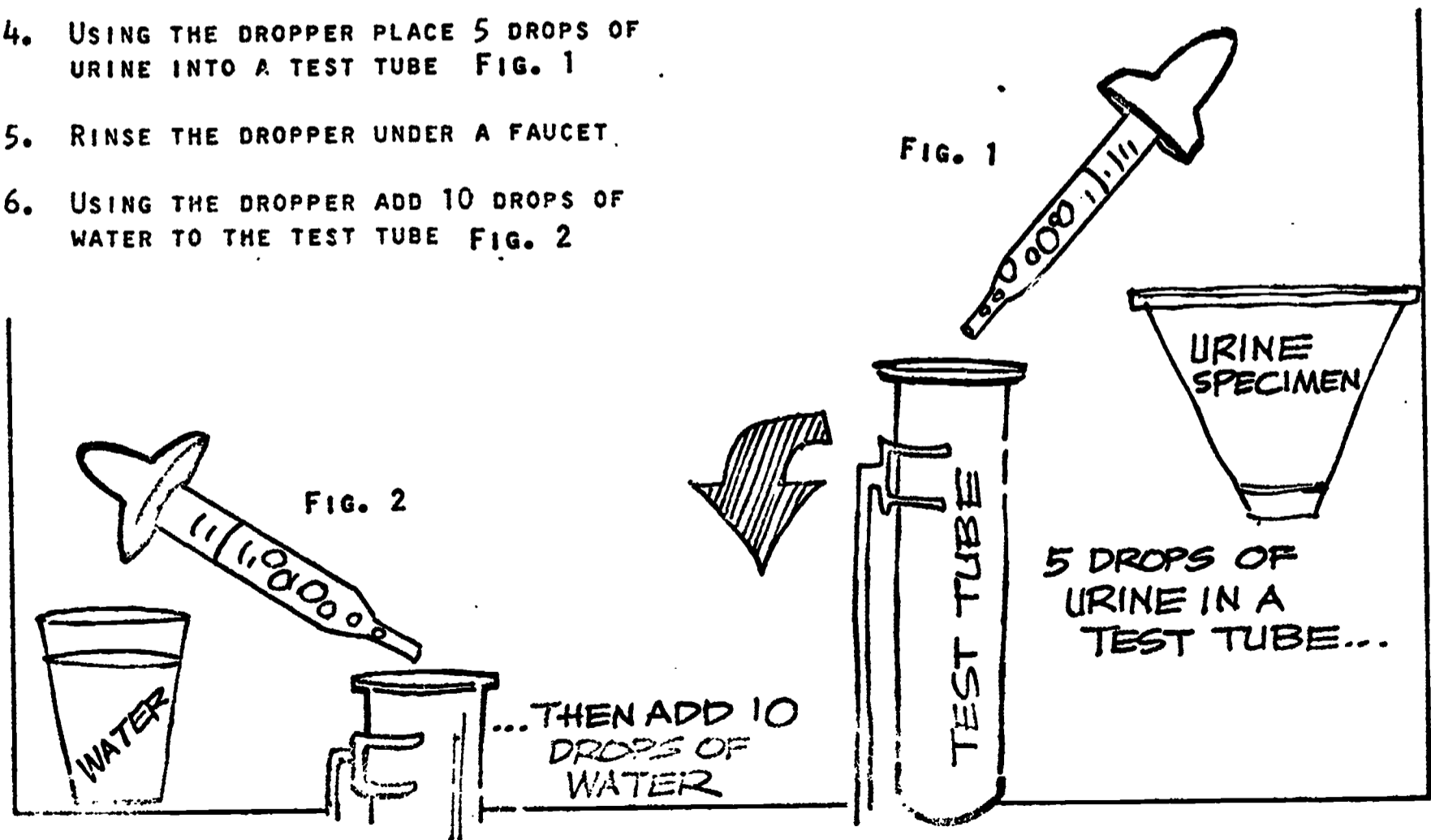
WHAT YOU MUST KNOW TO DO THESE STEPS

1. TAKE A PAPER CUP AND GO TO THE NEAREST STUDENT RESTROOM IN THE BUILDING. BRING BACK TO THE UTILITY ROOM A SMALL AMOUNT OF YOUR URINE IN A CUP

A SMALL AMOUNT OF URINE WILL BE ADEQUATE (ONLY 5 DROPS ARE REQUIRED FOR THE TEST). CAREFUL HANDLING OF THE SPECIMEN IS IMPORTANT TO PREVENT THE SPREAD OF GERMS THAT MIGHT CAUSE DISEASE.

2. OPEN THE CLINITEST KIT
3. UNFOLD THE COLOR CHART SO THAT IT IS EASILY VISIBLE
4. USING THE DROPPER PLACE 5 DROPS OF URINE INTO A TEST TUBE FIG. 1
5. RINSE THE DROPPER UNDER A FAUCET.
6. USING THE DROPPER ADD 10 DROPS OF WATER TO THE TEST TUBE FIG. 2

RESULTS OF THE TEST WILL BE DETERMINED BY A COMPARISON WITH THIS CHART.



WHAT YOU MUST DO

7. REMOVE ONE CLINITEST TABLET FROM THE BOTTLE OF CLINITEST TABLETS AND DROP THE ONE TABLET INTO THE TEST TUBE FIG. 3

8. WHEN THE REACTION SLOWS OR STOPS, GENTLY SHAKE THE TEST TUBE

9. COMPARE THE COLOR OF THE CONTENTS OF THE TEST TUBE TO THE CLINITEST COLOR CHART

10. NOW THAT THE PROCEDURE IS ENDED, POUR THE CONTENTS OF THE TEST TUBE AND THE REMAINDER OF THE URINE SPECIMEN DOWN A DRAIN - FIG. 4

11. STUFF A PAPER TOWEL INTO THE CUP AND DISCARD THE CUP IN A TRASH CAN

12. THOROUGHLY RINSE THE TEST TUBE AND THE MEDICINE DROPPER UNDER COOL RUNNING WATER

13. PLACE THE TEST TUBE ON A PAPER TOWEL BY THE SINK TO DRAIN DRY

14. WIPE AWAY ANY WATER SPOTS

15. FOLD THE COLOR CHART AND REPLACE IT WITH THE BOTTLE IN THE CLINITEST KIT CONTAINER AND LEAVE THE KIT ON THE COUNTER

WHAT YOU MUST KNOW

WHEN THE TABLET IS DROPPED IN, A BUBBLING REACTION BEGINS. DO NOT SHAKE FOR AT LEAST 15 SECONDS AFTER THE REACTION BEGINS.

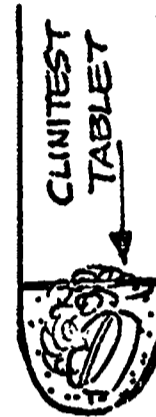


FIG. 3

IN THE HOSPITAL OR DOCTOR'S OFFICE YOU WOULD IMMEDIATELY REPORT THE COLOR RESULTS (NEGATIVE - 1+, 2+, 3+, 4+) TO THE PERSON WHO INSTRUCTED YOU TO DO THE TEST.

POUR DIRECTLY INTO THE DRAIN OPENING SO AS NOT TO SPLASH URINE ALL OVER THE SINK AND THE COUNTER. RUN THE WATER A FEW SECONDS TO SEND ALL THE URINE DOWN THE DRAIN.

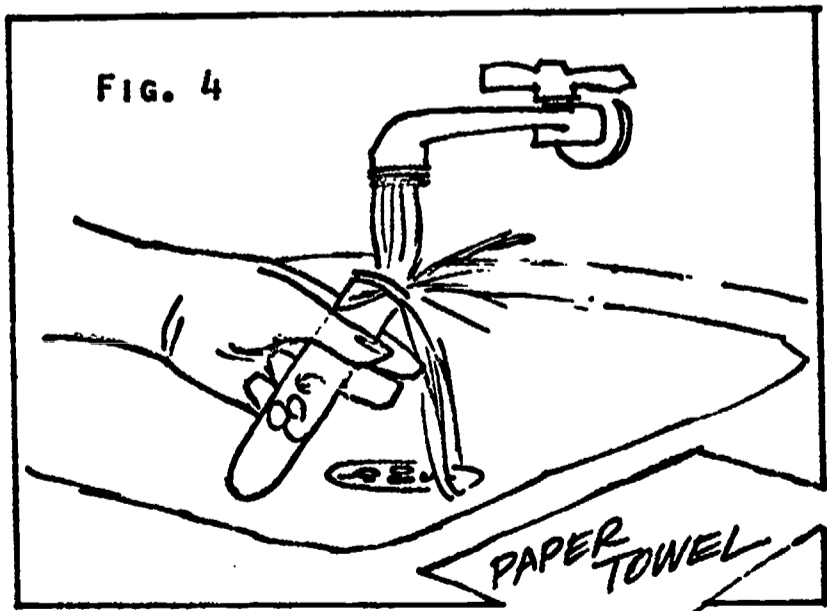


FIG. 4

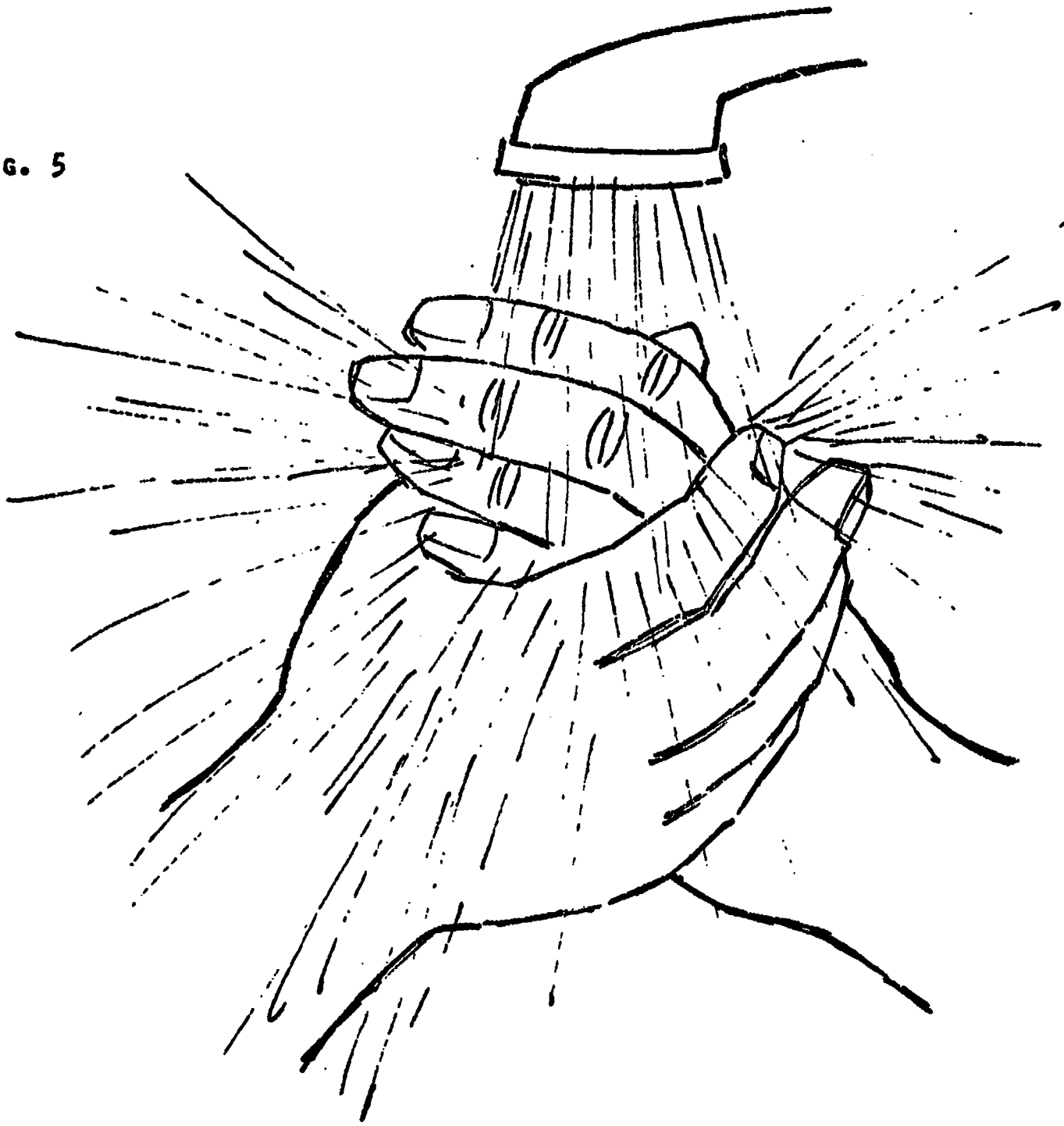
DO NOT ABUSE OR MISPLACE THE COLOR CHART. REFERRING TO A CHART IS MUCH MORE ACCURATE THAN GUESSING OR RELYING ON MEMORY.

16. WHEN YOU ARE COMPLETELY FINISHED,
WASH YOUR HANDS THOROUGHLY WITH
SOAP AND WATER - FIG. 5

HEPATITIS CAN BE CONTRACTED FROM
HUMAN WASTE AND UNCLEANLINESS.

17. VERBALLY REPORT YOUR RESULTS TO THE
HEALTH OCCUPATIONS TEACHER

FIG. 5



YOUR SECOND EXPERIENCE IN HEALTH OCCUPATIONS IS:

TO INSERT A RECTAL TUBE INTO A
MANIKIN:

INTRODUCTION - PLEASE READ CAREFULLY:

THIS PROCEDURE IS EMPLOYED TO RELIEVE ABDOMINAL DISTENTION (FILLING OF THE ABDOMINAL CAVITY WITH GAS OR FLUID SO THAT THE ABDOMEN BECOMES GREATLY ENLARGED). OFTEN AFTER A PATIENT HAS HAD SURGERY OR HAS BEEN INACTIVE FOR SOME TIME, "GAS" (FLATUS) FORMS IN THE LARGE INTESTINES. THIS CAUSES DISTENTION OF THE ABDOMEN AND DISCOMFORT TO THE PATIENT. INSERTION OF A HOLLOW TUBE INTO THE RECTUM ALLOWS THE FLATUS TO ESCAPE, RELIEVING THE ABDOMINAL PAIN. THIS PROCEDURE IS NOT USED WITHOUT THE ORDER OF A PHYSICIAN.

REFERENCES:

EACH HOSPITAL HAS ITS OWN WRITTEN INSTRUCTIONS FOR NURSING ASSISTANTS.

STEPS TO FOLLOW IN THE INSERTION OF A RECTAL TUBE:

TOOLS AND MATERIALS NEEDED: RECTAL TUBE
SPECIMEN CONTAINER WITH LID
TAPE
TOILET TISSUE
MANIKIN (ADULT DOLL)
BATH BLANKET

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. PROVIDE PRIVACY FOR THE PATIENT -----> IF THE PATIENT IS IN A PRIVATE ROOM, CLOSE THE DOOR. IF HE IS IN A SEMI-PRIVATE ROOM, PULL THE CURTAINS OR PUT A PORTABLE SCREEN AROUND HIM.
2. PLACE THE MANIKIN ON ITS BACK ON THE STRETCHER -----> COVER THE MANIKIN WITH THE BATH BLANKET.
3. INSERT THE LARGE END OF THE RECTAL TUBE THROUGH THE HOLE IN THE CENTER OF THE LID OF THE SPECIMEN CONTAINER
4. TAPE THE TUBE TO THE LID SO THAT IT WILL NOT SLIP OUT
5. INSERT THE FREE END OF THE RECTAL TUBE 3-6 INCHES INTO THE RECTAL OPENING OF THE MANIKIN -----> NEVER TRY TO FORCE THE TUBE INTO THE OPENING. IF YOU SHOULD ENCOUNTER RESISTANCE, REPORT THIS TO THE NURSE. IN ACTUAL PRACTICE, A SMALL AMOUNT OF LUBRICANT IS PLACED ON THE END OF THE TUBE SO THAT THERE WILL BE LESS DISCOMFORT FOR THE PATIENT. HOWEVER, LUBRICANT IS NOT USED WHEN WORKING WITH THE MANIKIN.
6. LEAVE THE TUBE IN PLACE FOR THE DESIRED LENGTH OF TIME -----> THE RECTAL TUBE SHOULD NOT BE LEFT IN THE PATIENT FOR MORE THAN 15-20 MINUTES AT ONE TIME. THE SPECIMEN CUP WILL REST ON THE STRETCHER BETWEEN THE LEGS.
7. REMOVE EACH PIECE OF EQUIPMENT; WASH IT WITH SOAP POWDER AND WATER; RINSE IT WELL, AND RETURN IT TO THE STORAGE AREA WHERE YOU OBTAINED IT -----> AN IMPORTANT PART OF ANY JOB IS KEEPING YOUR EQUIPMENT IN WORKING ORDER AND IN THE PROPER STORAGE PLACE.

YOUR THIRD EXPERIENCE IN HEALTH OCCUPATIONS WILL BE:

TO FILL AND APPLY A HOT WATER BOTTLE TO THE ABDOMEN OF A MANIKIN.

INTRODUCTION - PLEASE READ CAREFULLY:

HOT WATER BOTTLES MAY BE USED TO APPLY CONTINUOUS HEAT TO AN AREA. THE TEMPERATURE OF THE WATER MUST BE CHECKED CAREFULLY TO PREVENT BURNING THE PATIENT. YOU SHOULD NEVER APPLY A HOT WATER BOTTLE WITHOUT THE DIRECT ORDER OF A NURSE.

THIS EXPERIENCE SHOULD BE APPROACHED SERIOUSLY. IT IS IMPORTANT TO REMEMBER THE FOLLOWING POINTS:

OLDER PATIENTS ARE EASILY BURNED - THEIR SKIN IS VERY DELICATE.

INFANTS ARE EASILY BURNED - THEIR YOUNG SKIN IS VERY TENDER. THEY CANNOT TELL YOU THAT THEY ARE BEING BURNED.

NEVER PUT THE HOT WATER BOTTLE ON TOP OF THE PAINFUL SPOT - THE WEIGHT WILL INCREASE THE PAIN.

IF THE PATIENT IS UNCONSCIOUS, ALWAYS PROTECT HIM FROM A BURN BY PUTTING A BLANKET OR A DRY TOWEL BETWEEN HIS SKIN AND THE HOT WATER BOTTLE.

YOU SHOULD BE SENSITIVE TO THE COMFORT OF THE PATIENT. THE FIRST STEP OF CARRYING OUT ANY PROCEDURE IS TO GREET THE PATIENT BY NAME, AND THEN TO EXPLAIN WHAT YOU ARE GOING TO DO.

ALL PROCEDURES SHOULD BE COMPLETED WITH A MINIMUM OF MESS AND DISORDER. YOU ARE EXPECTED TO CLEAN, DRY AND REPLACE EQUIPMENT WHERE YOU OBTAINED IT, JUST AS YOU WOULD IN THE PATIENT CARE ENVIRONMENT. TO PREVENT POSSIBLE ACCIDENTS, COUNTERS AND THE FLOOR MUST BE LEFT FREE OF WATER SPOTS.

REFERENCES:

STUDENT MANUAL, BEING A NURSING AIDE, HOSPITAL RESEARCH AND EDUCATIONAL TRUST (SEE CHAPTER CONTAINING PROCEDURE FOR APPLICATION OF HOT WATER BOTTLE).

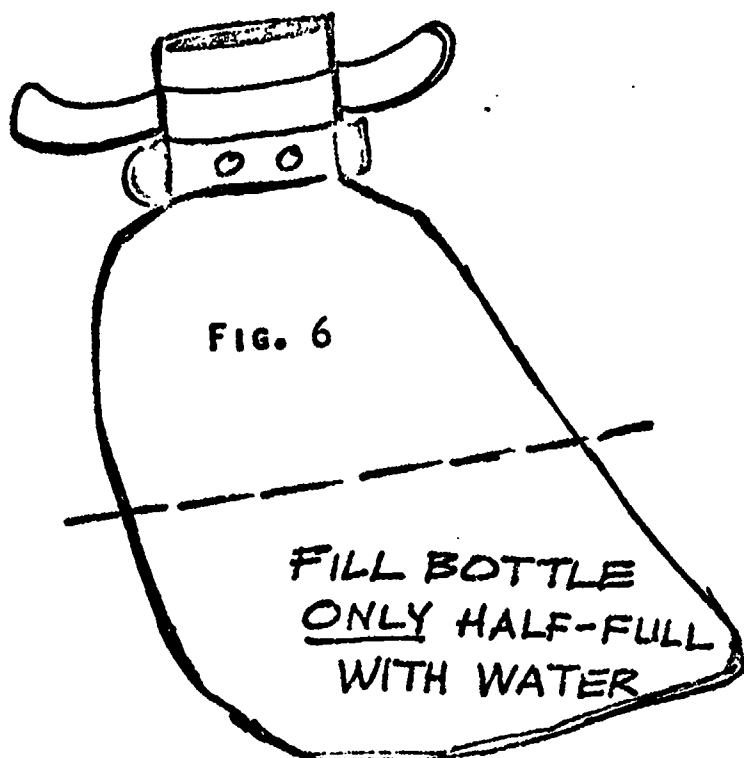
STEPS TO FOLLOW IN FILLING AND APPLYING A HOT WATER BOTTLE:

TOOLS AND MATERIALS NEEDED: ADULT DOLL (MANIKIN) BOTTLE COVER (PILLOW CASE)
STRETCHER BATH THERMOMETER
HOT WATER (110°-120°) WATER CONTAINER
HOT WATER BOTTLE

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. ASSEMBLE THE EQUIPMENT -----> WATER CONTAINER, HOT WATER, HOT WATER BOTTLE, AND HOT WATER BOTTLE COVER (PILLOW CASE WILL BE USED)
2. PUT THE WATER IN THE CONTAINER
3. CHECK THE TEMPERATURE OF THE WATER WITH A BATH THERMOMETER -----> THE TEMPERATURE SHOULD BE 110°-120° F. IF IT IS TOO WARM OR TOO COOL, ADD MORE HOT OR COLD WATER UNTIL THE EXACT TEMPERATURE IS OBTAINED.
4. FILL THE HOT WATER BOTTLE HALF FULL WITH WATER --FIG. 6 -----> IF THE BOTTLE IS FILLED MORE THAN HALF FULL IT WILL CAUSE DISCOMFORT TO THE PATIENT.
5. PLACE THE BOTTLE ON A FLAT SURFACE AND HOLD THE NECK OF THE BOTTLE UPRIGHT
6. EXPEL THE AIR FROM THE BOTTLE -----> FLATTEN THE BOTTLE OR PRESS ON IT UNTIL THE WATER REACHES THE NECK OF THE BOTTLE AND FORCES THE AIR OUT. AIR IN THE BOTTLE CAUSES DISCOMFORT TO THE PATIENT. DO NOT LET AIR ENTER THE BOTTLE AFTER IT HAS BEEN EXPELLED.



WHAT YOU MUST DO

7. FASTEN THE TOP OF THE BOTTLE SECURELY -- FIG. 7

GRASP THE BOTTLE WITH THE PLATE AWAY FROM YOU AND FOLD 1 ON 2 SNUGLY. THEN FOLD 3 ON 4 SNUGLY. FOLD THE FLAPS AROUND THE TOP OF THE BOTTLE (HOLDING FIRMLY) AND BUTTON THE FLAPS.

8. WIPE THE BOTTLE DRY

9. AFTER THE BOTTLE HAS BEEN DRIED, INSPECT IT FOR SIGNS OF WATER LEAKS

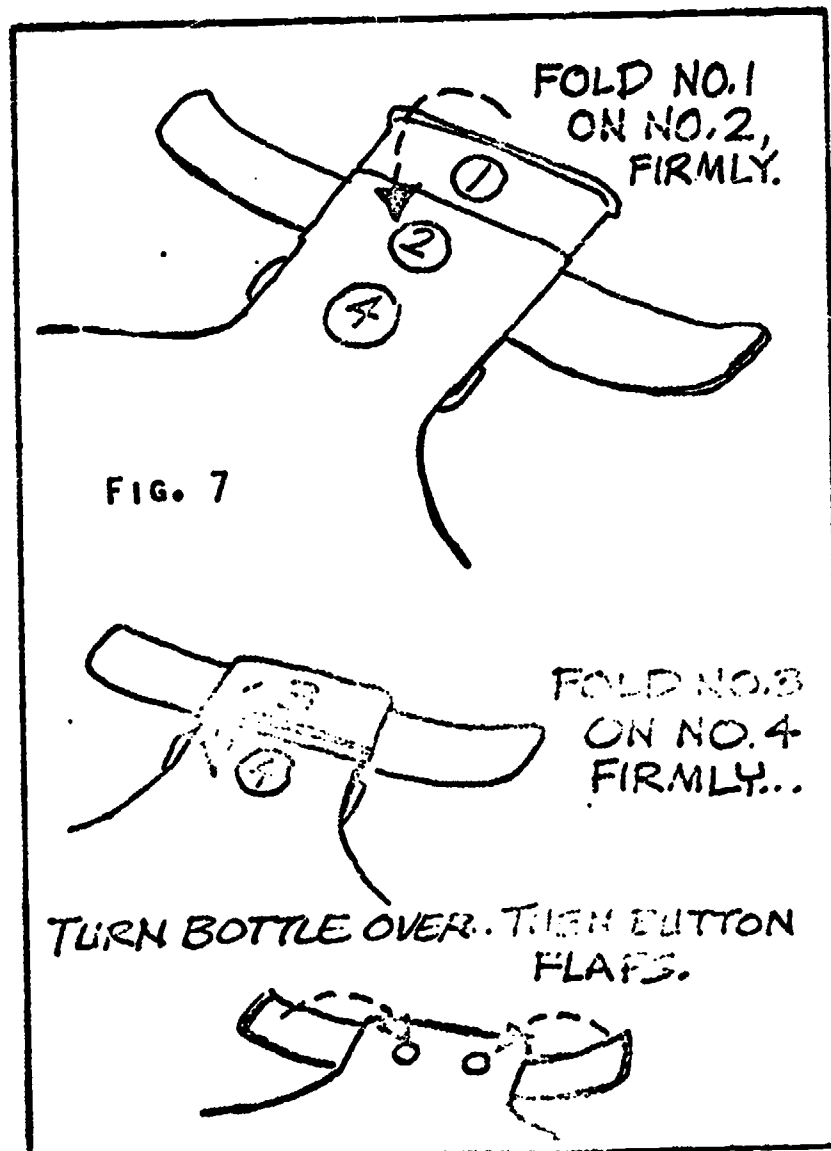
10. PLACE THE BOTTLE IN A COVER

PLACE THE TOP OF THE HOT WATER BOTTLE IN THE PILLOW CASE FIRST. FOLD THE PILLOW CASE AROUND THE HOT WATER BOTTLE NEATLY SO THAT THE ENDS DO NOT DANGLE.

11. APPLY THE HOT WATER BOTTLE TO THE ABDOMEN

DO NOT LEAVE IT IN PLACE LONGER THAN THE TIME SPECIFIED BY THE NURSE OR PHYSICIAN.

12. CHECK AT INTERVALS TO MAKE SURE THAT YOUR PATIENT IS NOT RECEIVING A BURN, THAT THE BOTTLE IS IN ITS PROPER PLACE, AND THAT THE WATER HAS NOT BECOME COLD.



YOUR NEXT EXPERIENCE IN HEALTH OCCUPATIONS WILL BE:

TO GIVE AND TO REMOVE A BEDPAN
IN A MANNER THAT WOULD CAUSE THE LEAST
EMBARRASSMENT AND DISCOMFORT TO THE
PATIENT.

INTRODUCTION - PLEASE READ CAREFULLY:

THIS EXPERIENCE SHOULD BE APPROACHED SERIOUSLY. THE PATIENT HAS 2 TOILET NEEDS: THE NEED TO EXCRETE FECES (DEFECATE) FROM THE RECTUM AND THE NEED TO EXCRETE (VOID) URINE FROM THE BLADDER. UNTIL THE TIME AT WHICH HE WAS ADMITTED TO THE HOSPITAL, THE PATIENT WAS ACCUSTOMED TO CARING FOR HIS OWN PERSONAL NEEDS. NOW HE MUST ASK YOU FOR HELP. THIS IS OFTEN DISTRESSING. HE FEELS EMBARRASSED AND ASHAMED ASKING YOU FOR THE BEDPAN AND EVEN WORSE ABOUT YOUR HAVING TO EMPTY AND CLEAN THE PAN. THINK OF YOURSELF IN THE PATIENT'S SITUATION. YOU WOULD WANT PRIVACY AND AN ATTITUDE ON THE PART OF THE HEALTH WORKER WHICH WOULD CAUSE YOU AS LITTLE EMBARRASSMENT AS POSSIBLE. YOU WOULD HOPE THAT THE HEALTH WORKER WOULD BE ABLE TO PERFORM THIS SKILL EASILY, WITHOUT CAUSING FURTHER EMBARRASSMENT AND DISCOMFORT.

ELIMINATION OF WASTES FROM THE BODY IS ESSENTIAL TO LIFE. ALTHOUGH ASSISTANCE AT THESE TIMES IS NOT ALWAYS A PLEASANT TASK, IT IS NOT SO UNPLEASANT IF WE REMEMBER THAT WE ARE HELPING THE PATIENT MAINTAIN LIFE BY HELPING HIM GET RID OF HIS WASTE.

MUCH OF THE FOOD WHICH YOU EAT IS ABSORBED INTO YOUR BODY. IT SERVES DIFFERENT FUNCTIONS ACCORDING TO THE TYPES OF NUTRIENTS WHICH IT CONTAINS. SOME PARTS OF THE FOOD ARE NOT USED BY THE BODY AND BECOME WASTE MATTER. THEY ARE ELIMINATED FROM THE BODY AS URINE THROUGH THE KIDNEYS AND AS FECES THROUGH THE LARGE INTESTINES.

NORMAL URINE IS A CLEAR YELLOWISH (LIGHT AMBER) FLUID WITH AN AMMONIA-LIKE ODOR.

NORMAL FECES ARE A BROWNISH COLOR OF SOFT SOLID CONSISTENCY.

REFERENCES:

STUDENT MANUAL, NURSING AIDE HOSPITAL RESEARCH AND EDUCATIONAL TRUST (SEE CHAPTER ON PERSONAL CARE OF THE PATIENT)

STEPS TO FOLLOW IN GIVING A BEDPAN:

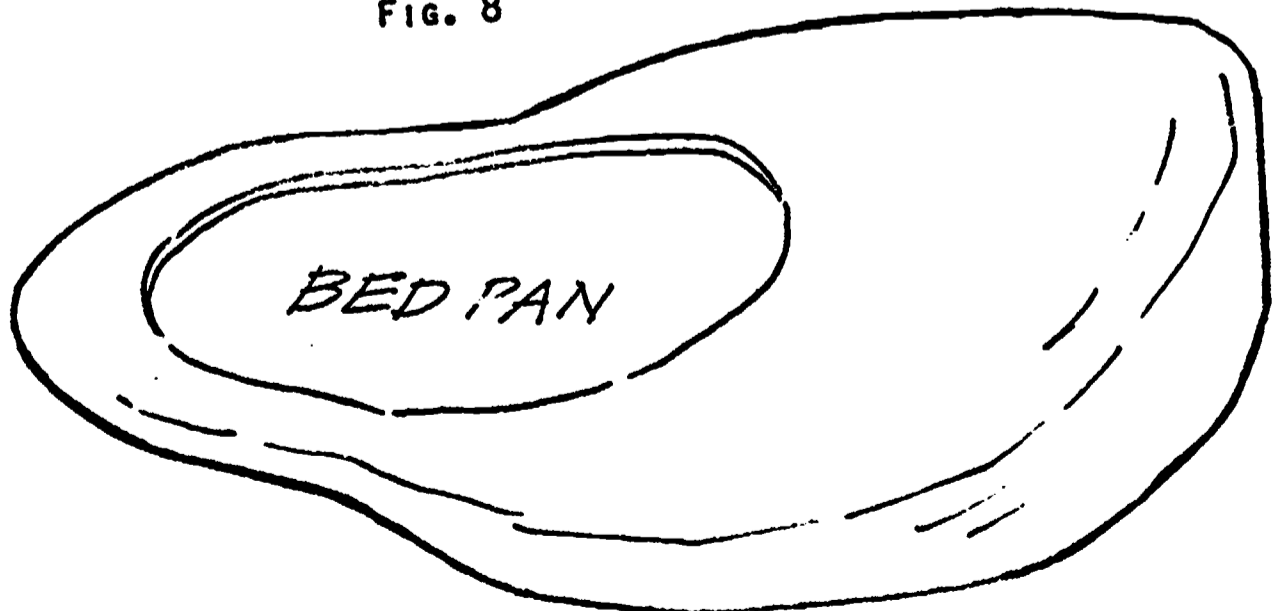
TOOLS AND MATERIALS NEEDED: ADULT DOLL (MANIKIN) SOAP
STRETCHER WASH CLOTH
SCREEN BEDPAN
TOILET PAPER WASH BASIN
NEWSPAPER (TO BE USED AS TOWEL
BEDPAN COVER)

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. PROVIDE PRIVACY FOR THE PATIENT -----> IN A SEMI-PRIVATE ROOM PULL THE CURTAIN OR PLACE A PORTABLE SCREEN AROUND THE PATIENT'S BED.
IN A PRIVATE ROOM CLOSE THE DOOR.
IN OUR CLASSROOM-LAB WE WILL CONSIDER THAT YOU ARE IN A PRIVATE ROOM.
2. REMOVE THE BEDPAN FROM THE PATIENT'S BEDSIDE TABLE OR FROM THE BATHROOM
3. PLACE THE BEDPAN ON THE SIDE OF THE BED OR THE CHAIR -----> DO NOT PLACE THE BEDPAN ON THE BEDSIDE TABLE.
4. TURN BACK THE UPPER BEDDING. LEAVE A SHEET COVERING THE LOWER PORTION OF THE PATIENT'S BODY
5. WARM THE BEDPAN BY RUNNING WARM WATER ON THE INSIDE -----> SINCE MOST BEDPANS ARE METAL THEY ARE COLD TO TOUCH. THE DESIRE TO VOID CAN BE LOST DUE TO THE TOUCH OF A COLD BEDPAN.

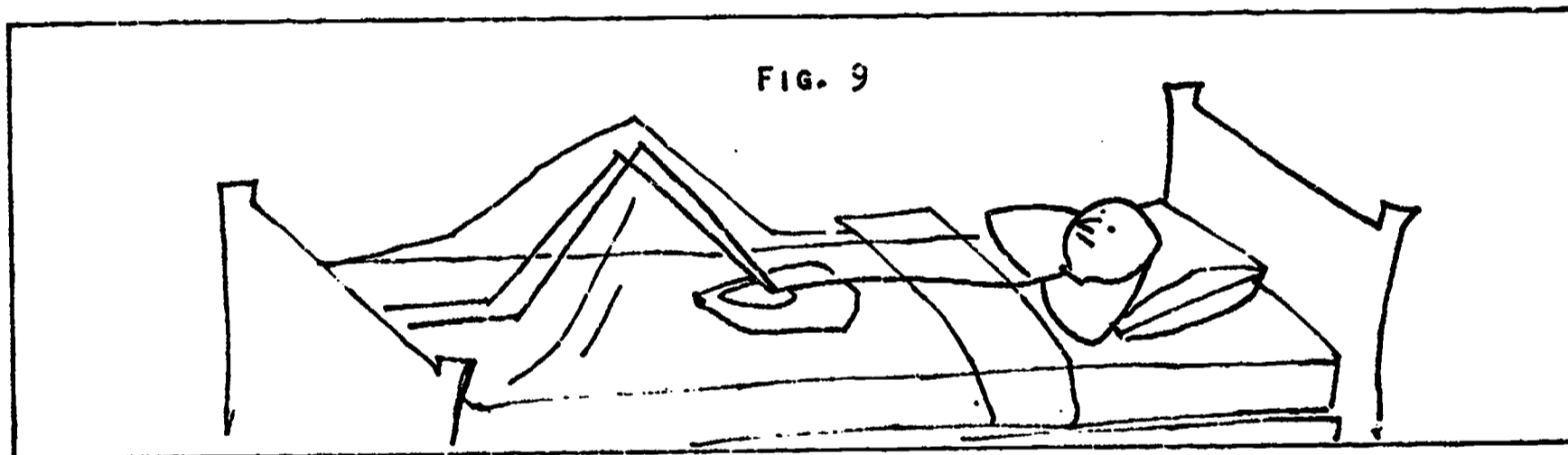
FIG. 8



WHAT YOU MUST DO

WHAT YOU MUST KNOW

6. INSTRUCT THE PATIENT TO FLEX (BEND) HIS KNEES -----> THE PATIENT PLACES THE BOTTOM OF HIS FEET ON THE BED WITH HIS KNEES BENT.
7. RAISE THE PATIENT'S GOWN TO HIS WAIST OR LOWER HIS PAJAMAS TO HIS KNEES
8. PLACE ONE HAND UNDER THE PATIENT'S HIPS
9. ASSIST THE PATIENT IN RAISING HIS BUTTOCKS (BOTTOM) OFF THE BED -----> LIFT THE PATIENT WITH YOUR HAND UNDER HIS HIPS.
10. SLIDE THE PAN UNDER THE PATIENT'S BUTTOCKS --FIG. 9 -----> THE FLATTENED RIM OF THE PAN SHOULD BE BELOW THE HIP BONE.



11. MAKE THE PATIENT COMFORTABLE -----> IF THE PATIENT IS NOT COMFORTABLE LYING FLAT, ADDITIONAL PILLOWS MAY BE PLACED UNDER HIS HEAD.
12. RECHECK THE PAN -----> IT MAY BECOME DISPLACED WHEN THE HEAD IS ELEVATED.
13. PLACE THE SIGNAL CORD AND THE TOILET TISSUE WITHIN REACH OF THE PATIENT -----> DO NOT LEAVE A PATIENT HELPLESS - PROVIDE MEASURES FOR HIM TO OBTAIN HELP. ENOUGH TOILET PAPER SHOULD BE PROVIDED TO MEET THE PATIENT'S NEEDS.
14. INSTRUCT THE PATIENT TO USE THE CALL LIGHT FOR ASSISTANCE
15. LEAVE THE PATIENT'S ROOM -----> PATIENTS WHO ARE VERY ILL SHOULD NOT BE LEFT. PATIENTS WHO CAN BE LEFT NEED PRIVACY.

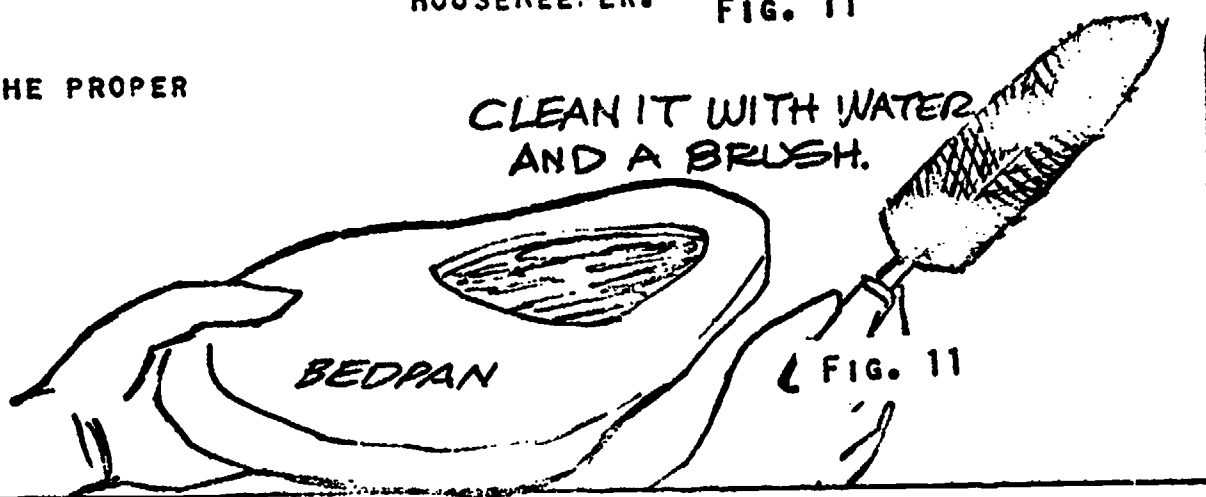
STEPS TO FOLLOW IN REMOVING A BEDPAN:

TOOLS AND MATERIALS NEEDED: ADULT DOLL (MANIKIN) SOAP
STRETCHER TOWEL
SCREEN WASH CLOTH
TOILET PAPER BEDPAN
NEWSPAPER (TO BE USED AS BEDPAN COVER) WASH BASIN

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. SUPPORT THE PATIENT AS BEFORE -----> LIFT THE PATIENT BY PLACING ONE HAND UNDER HIS HIPS.
2. WITH THE OTHER HAND, SLIP THE BEDPAN OUT AND COVER IT WITH A NEWSPAPER FIG. 10
3. CARRY THE COVERED BEDPAN TO THE PATIENT'S BATHROOM OR SERVICE ROOM
4. ALLOW PATIENT TO RINSE OR WASH HANDS -----> BE AS CONSIDERATE OF THE PATIENT AS YOU WOULD BE OF YOURSELF. PROVIDE A WASH CLOTH, A BASIN WITH WARM WATER, SOAP, AND A TOWEL FOR THE PATIENT TO USE TO RINSE OR TO WASH HIS HANDS.
5. OBSERVE THE CONTENT OF BEDPAN FOR COLOR, AMOUNT AND CONSISTENCY
6. REPORT YOUR OBSERVATIONS TO THE NURSE IN CHARGE
7. RINSE THE BEDPAN WITH WATER -----> IF YOU ARE UNABLE TO CLEAN IT WITH PLAIN WATER, OBTAIN A BRUSH FROM THE HOUSEKEEPER. FIG. 11
8. RETURN THE BEDPAN TO THE PROPER STORAGE PLACE



MANAGEMENT EXPERIENCES IN HEALTH OCCUPATIONS IS:

PART II BY PROJECT STAFF

TO MAKE UP AN UNOCCUPIED HOSPITAL BED.

INTRODUCTION -- PLEASE READ CAREFULLY:

THE PROCEDURE FOR BEDMAKING VARIES FROM ONE HOSPITAL TO ANOTHER. SOME HOSPITALS PROVIDE ONLY ONE PILLOW WHILE OTHERS PROVIDE TWO. SPECIAL SHEETS CALLED "DRAW SHEETS" ARE USED IN SOME PLACES BUT NOT IN OTHERS. LIKEWISE, MATTRESS PADS ARE OFTEN USED. SHEETS ARE SOMETIMES TUCKED WITH "SQUARE" CORNERS AND SOMETIMES WITH "MITERED" CORNERS. SOME HOSPITALS EVEN PROVIDE CONTOUR FITTED BOTTOM SHEETS. YET DESPITE THESE MINOR VARIATIONS, THE BASIC TECHNIQUE FOR BEDMAKING REMAINS UNCHANGED.

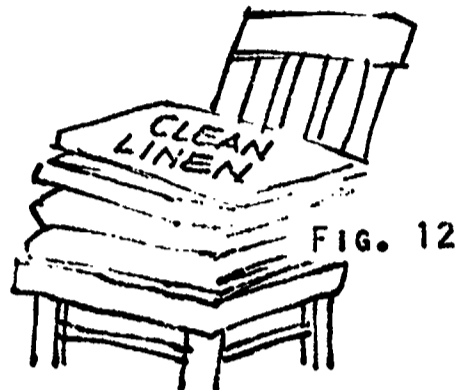
STEPS TO FOLLOW IN MAKING UP AN UNOCCUPIED BED:

TOOLS AND MATERIALS NEEDED: TWO LARGE SHEETS
BEDSPREAD
PILLOW CASE

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. PLACE THE CLEAN LINEN ON A CHAIR
NEAR THE BED FIG. 12



2. PLACE THE LOWER SHEET FULL LENGTH
ALONG THE EDGE OF THE BED AND UNFOLD
IT AWAY FROM YOU----->

DO NOT SHAKE OR FLIP THE SHEET TO UNFOLD
IT QUICKLY - THIS RAISES DUST AND LINT.

3. CHECK TO SEE THAT:

- A. THE SHEET IS RIGHT SIDE UP (THE
HEMS OR SEWED EDGES ARE ON THE
SIDE NEXT TO THE MATTRESS)
B. THE CREASE IS IN THE CENTER
C. THE SMALL HEM IS AT THE BOTTOM
D. THE SMALL HEM IS EVEN WITH THE
EDGE OF THE MATTRESS----->

IN THE HOSPITAL AN EFFICIENT NURSE WOULD
COMPLETE AS MANY OF THE FOLLOWING STEPS
AS POSSIBLE ON ONE SIDE OF THE BED BEFORE
MAKING THE OTHER SIDE. HOWEVER, TO
SIMPLIFY THIS EXPERIENCE, COMPLETE EACH
STEP ON BOTH SIDES OF THE BED BEFORE
MOVING TO THE OTHER SIDE.

4. TUCK ABOUT 8" OF MATERIAL UNDER THE
HEAD OF THE MATTRESS----->

THERE WILL NOT BE ENOUGH MATERIAL AT
THE FOOT OF THE BED TO TUCK THE SHEET
IN THERE.

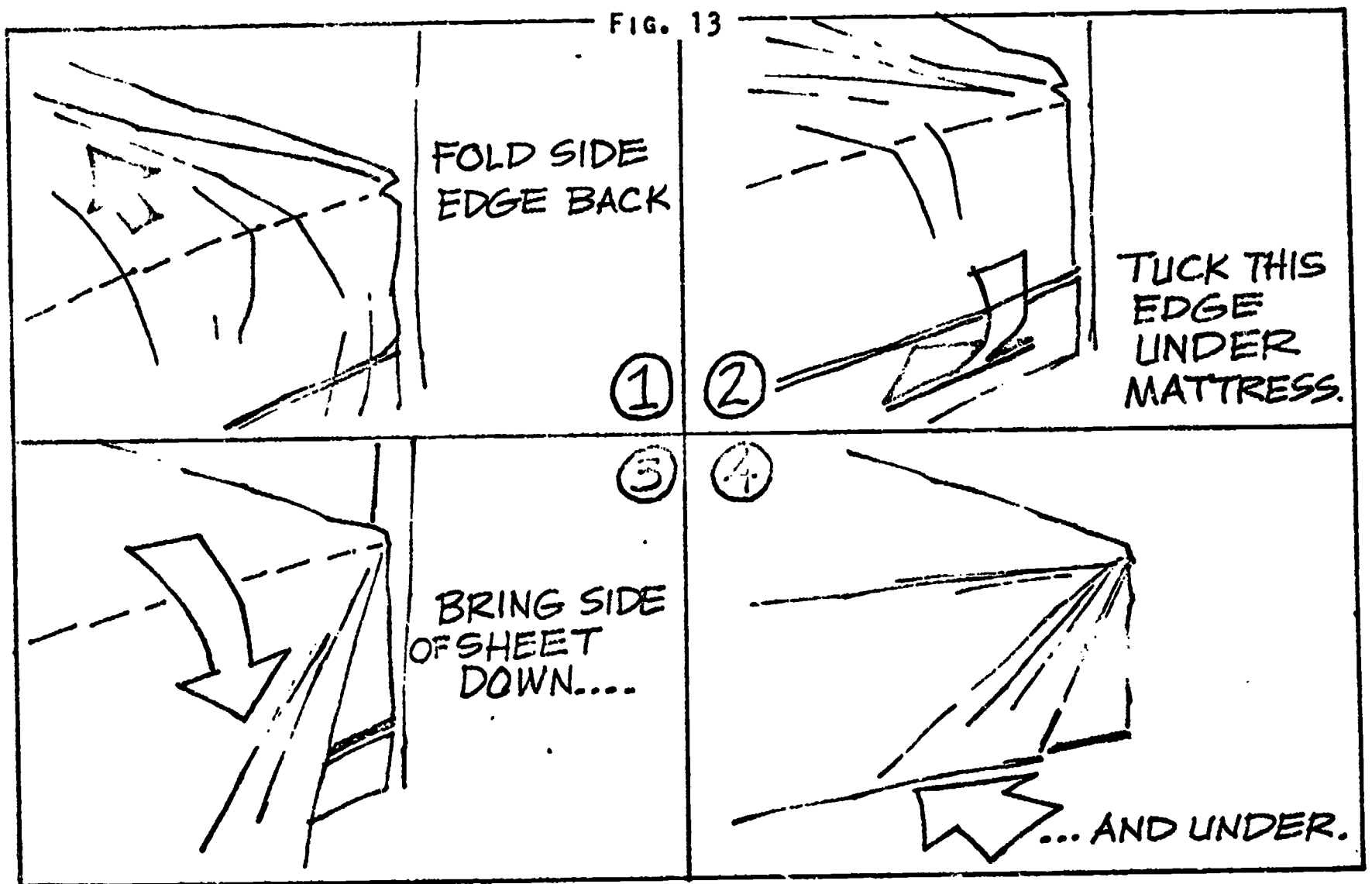


WHAT YOU MUST DO

WHAT YOU MUST KNOW

5. MITER THE TOP CORNERS-- FIG. 13 ----->

- TO MITER THE CORNERS YOU SHOULD:
- FOLD THE SIDE EDGE OF THE SHEET BACK ON THE BED
 - TUCK IN THE HANGING EDGE
 - HOLD THE SHEET AGAINST THE SIDE OF THE MATTRESS
 - BRING THE FREE EDGE BACK OVER THE SIDE OF THE MATTRESS
 - TUCK THE SIDE EDGE UNDER THE MATTRESS



6. TUCK IN THE SIDES

7. SPREAD THE TOP SHEET WITH THE DEEP HEM AT THE TOP AND WITH THE SHEET WRONG SIDE UP (THE HEMS OR SEWED EDGES ARE NOT ON THE SIDE NEXT TO THE MATTRESS)----->

WHEN YOU FOLD BACK THE TOP SHEET TO FORM A CUFF THE "RIGHT SIDE" OF THE SHEET WILL THEN BE ON TOP.

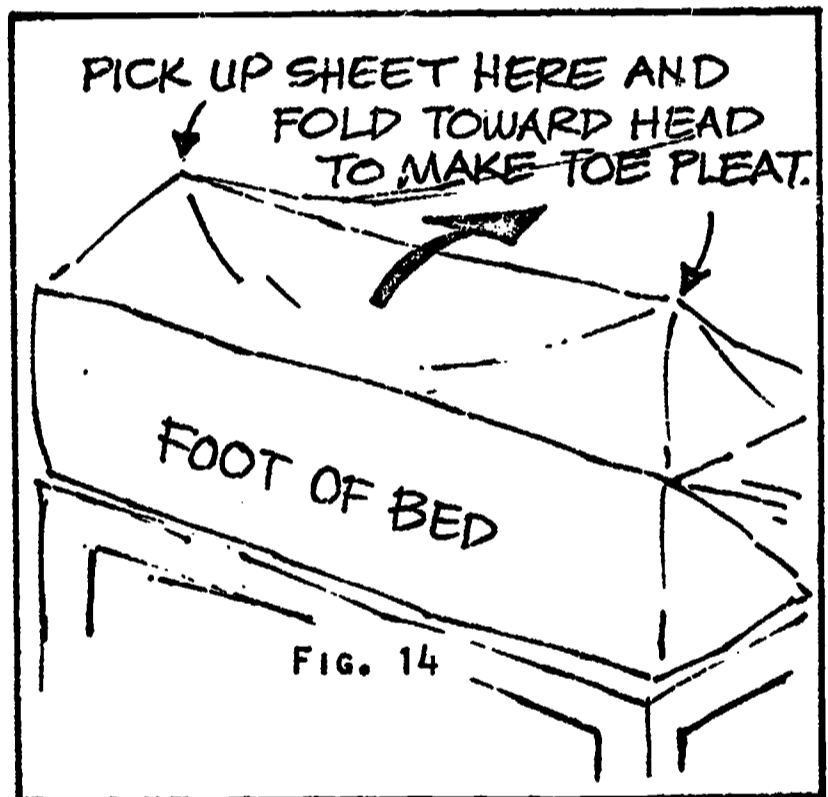
WHAT YOU MUST DO

8. TUCK IN THE BOTTOM
9. MITER THE 2 CORNERS AT THE FOOT OF THE BED----->
10. PICK UP 4"-6" OF MATERIAL ACROSS THE FOOT OF THE BED AND FOLD IT BACK TO MAKE A FINISHED PLEAT THAT IS ABOUT 2"-3" WIDE--- FIG. 14 ----->
11. FOLD BACK THE TOP SHEET TO FORM A CUFF
12. PLACE THE SPREAD ON THE BED
13. TUCK IT IN AT THE FOOT OF THE BED
14. MITER THE 2 BOTTOM CORNERS
15. PULL THE SPREAD UP OVER ALL OF THE BEDDING NOW ON THE BED----->
16. REST THE PILLOW ON THE FRESHLY MADE BED AND PUT ON THE PILLOW CASE FIG. 15
17. IF THE CASE IS TOO LARGE TUCK THE OPEN END OF THE PILLOW CASE UNDER THE PILLOW

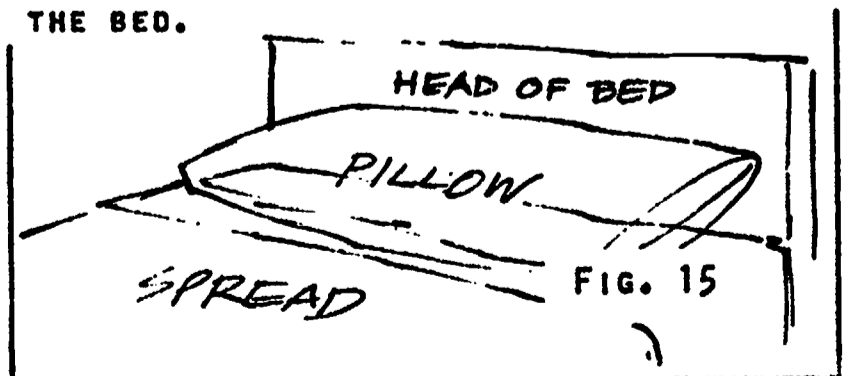
WHAT YOU MUST KNOW

SEE STEP 5.

THIS IS A TOE PLEAT. IT RELIEVES THE PRESSURE OF THE BEDDING OVER THE PATIENT'S TOES AND FEET.



THE PILLOW WILL GO ON TOP OF THE SPREAD. IF A PATIENT IS WAITING TO OCCUPY THE BED, INSTEAD OF FOLLOWING STEP 15, MAKE BOTH THE SPREAD AND THE TOP SHEET INTO A FOLD ABOUT 2 FEET WIDE AT THE FOOT OF THE BED.



YOUR NEXT EXPERIENCE IN HEALTH OCCUPATIONS IS:

TO MAKE UP AN OCCUPIED BED.

INTRODUCTION -- PLEASE READ CAREFULLY:

BE CAREFUL NOT TO DISTURB THE PATIENT ANY MORE THAN IS NECESSARY. YOUR FIRST THOUGHT SHOULD ALWAYS BE OF THE PATIENT'S COMFORT. YOU SHOULD ALSO BE FAMILIAR ENOUGH WITH HIS CONDITION TO MAKE ANY NECESSARY CHANGES IN YOUR BEDMAKING ROUTINE. FOR EXAMPLE, SOME PATIENTS MIGHT REQUIRE A PILLOW UNDER THEIR HEADS AT ALL TIMES, OR MIGHT HAVE TO KEEP SOME PORTION OF THEIR BODY IMMOBILE AT ALL TIMES.

STEPS TO FOLLOW IN MAKING AN OCCUPIED BED:

TOOLS AND MATERIALS NEEDED: TWO LARGE SHEETS
SPREAD
PILLOW CASE
BATH BLANKET

WHAT YOU MUST DO

1. PLACE THE CLEAN LINEN ON A CHAIR NEAR THE BED
2. SLIDE YOUR ARM UNDER THE PATIENT'S ARM SO THAT YOUR HAND IS BENEATH THE PATIENT'S SHOULDER FIG. 16

3. LIFT THE PATIENT'S BACK BY RAISING YOUR OWN ARM AND UPPER BODY

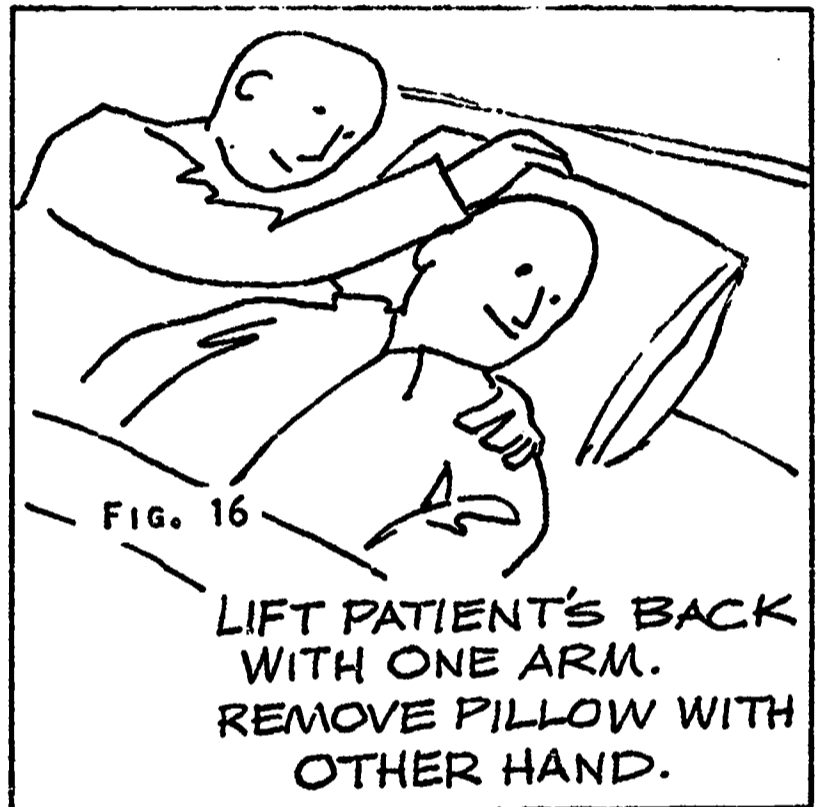
4. WITH YOUR FREE HAND, REMOVE THE PILLOW

5. LOOSEN ALL COVERS

6. COVER THE PATIENT WITH A BATH BLANKET

7. DIRECT THE PATIENT TO THE SIDE OF THE BED OPPOSITE FROM WHERE YOU ARE WORKING----->

WHAT YOU MUST KNOW TO DO THESE STEPS

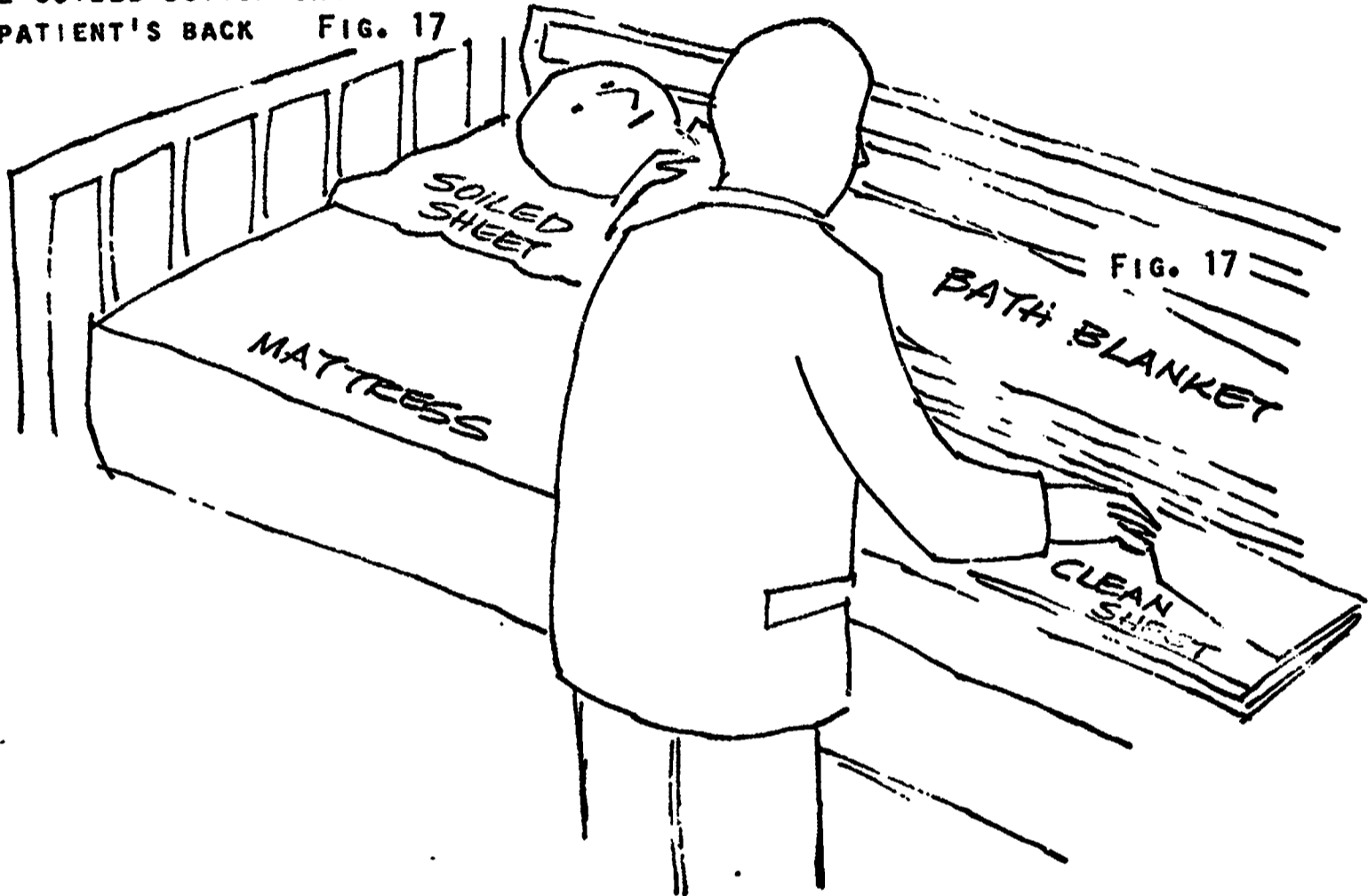


PROTECT HIM FROM FALLING BY USING THE SIDE RAILS.

WHAT YOU MUST DO

WHAT YOU MUST KNOW

8. REMOVE THE TOP SHEET
9. FOLD THE SOILED BOTTOM SHEET CLOSE TO THE PATIENT'S BACK FIG. 17



10. PLACE A CLEAN SHEET ON THE MATTRESS-->

THE SHEET SHOULD BE RIGHT SIDE UP, SHOULD HAVE THE CREASED HEM IN THE CENTER, AND SHOULD HAVE THE SHORT HEM AT THE BOTTOM.

11. TUCK IT AT THE HEAD

12. MITER THE CORNERS----->

REFER TO THE EXPERIENCE ON MAKING THE UNOCCUPIED BED.

13. TUCK IN SIDE

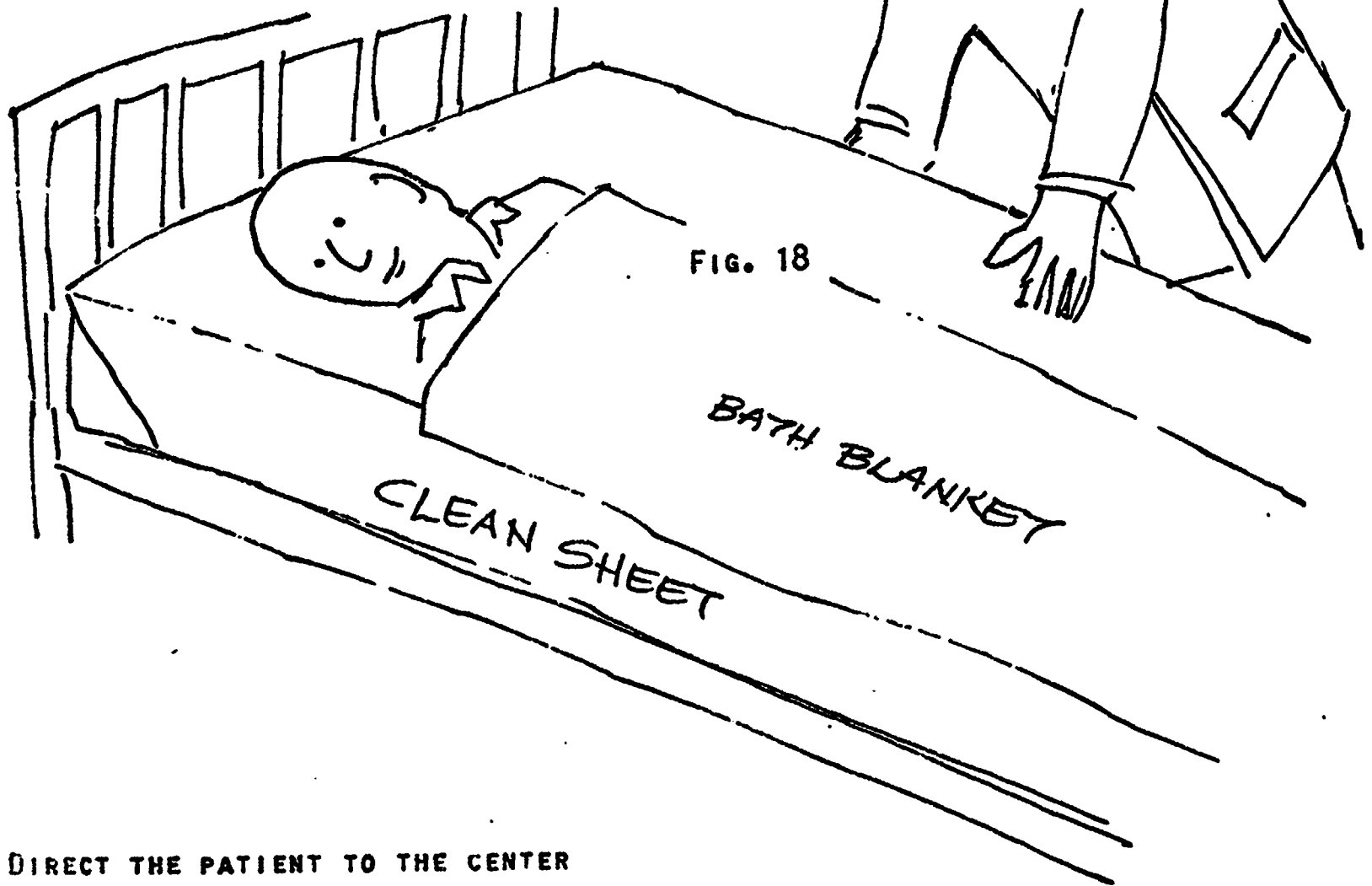
14. DIRECT THE PATIENT TO THE CLEAN SIDE OF THE BED----->

PROTECT HIM FROM FALLING BY USING THE SIDE RAILS.

15. MOVE TO THE OTHER SIDE OF THE BED

WHAT YOU MUST DO

16. REMOVE THE SOILED BOTTOM SHEET
17. PULL THE CLEAN BOTTOM SHEET OVER TO COVER THE EXPOSED MATTRESS
18. TUCK IT AT THE HEAD
19. MITER THE CORNER
20. PULL THE SHEET TIGHT AND TUCK IN THE SIDE FIG. 18



21. DIRECT THE PATIENT TO THE CENTER OF THE BED
22. PLACE THE TOP SHEET OVER THE PATIENT AND REMOVE THE BATH BLANKET----->
23. TUCK IN THE FOOT OF THE BED AND MITER THE 2 CORNERS AT THE FOOT

WHAT YOU MUST KNOW

MOVE PATIENT TO OTHER SIDE OF BED AND PULL CLEAN SHEET TIGHT AND TUCK IN.

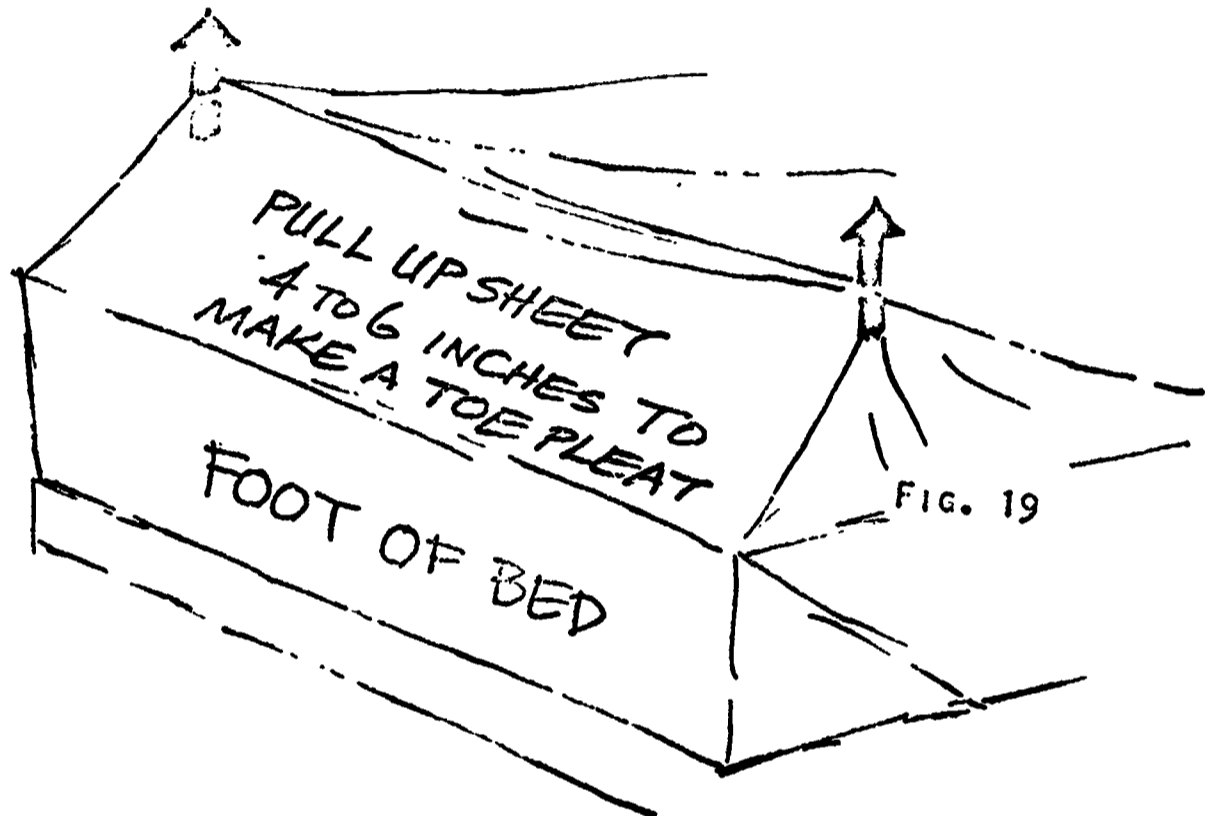
THE TOP SHEET SHOULD BE WRONG SIDE UP AND SHOULD HAVE THE SHORT HEM AT THE BOTTOM.

WHAT YOU MUST DO

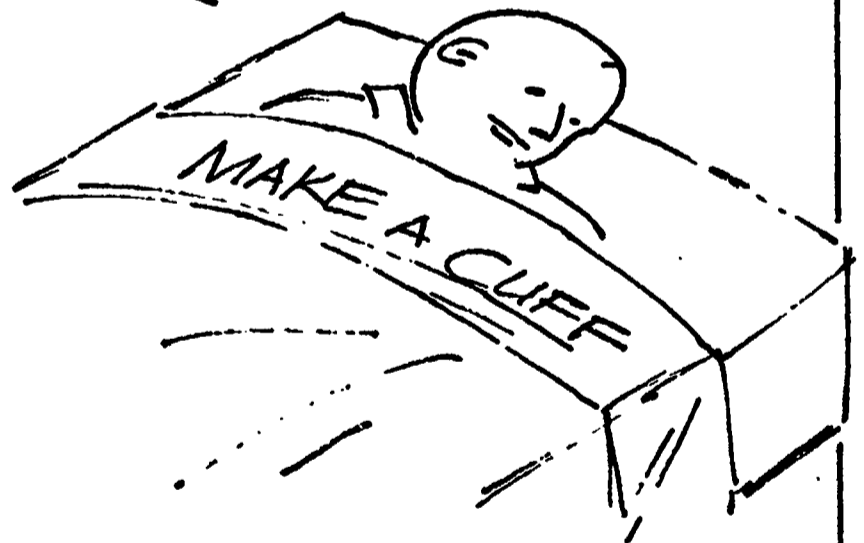
WHAT YOU MUST KNOW

24. RELIEVE THE PRESSURE OF THE BEDDING OVER THE TOES BY MAKING A TOE PLEAT IN THE TOP SHEET--FIG. 19 ----->

REFER TO THE EXPERIENCE ON MAKING AN UNOCCUPIED BED.

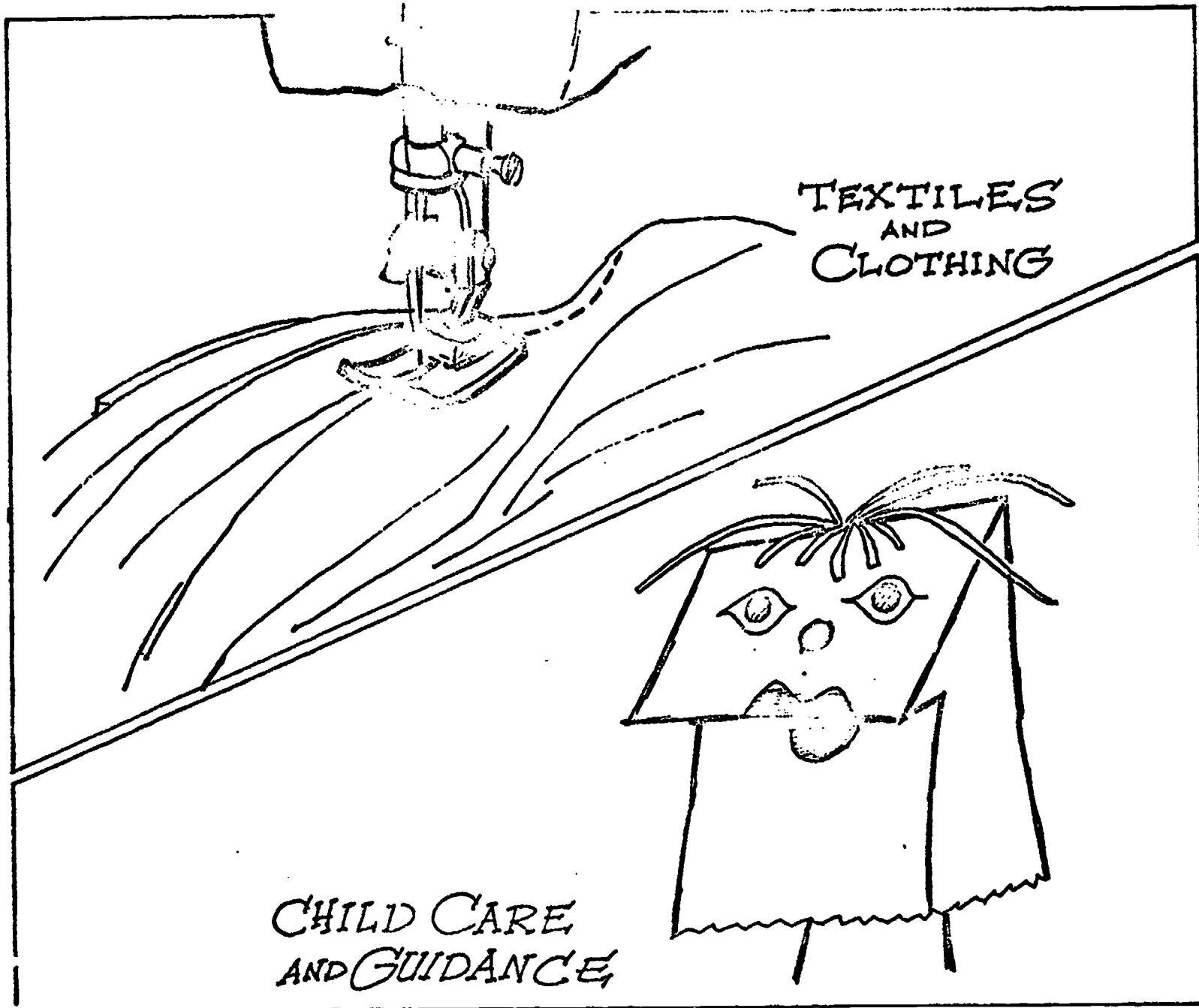


25. PLACE THE SPREAD ON THE BED
26. TUCK IN THE FOOT OF THE BED AND MITER THE CORNERS AT THE FOOT
27. FOLD THE TOP EDGE OF THE SHEET OVER THE TOP EDGE OF THE SPREAD TO MAKE A CUFF
28. PUT THE PILLOWCASE ON THE PILLOW
29. SLIDE YOUR ARM UNDER THE PATIENT'S ARM SO THAT YOUR HAND IS BENEATH THE PATIENT'S SHOULDER
30. LIFT THE PATIENT'S BACK BY RAISING YOUR OWN ARM AND UPPER BODY
31. WITH YOUR FREE HAND, REPLACE THE PILLOW





AN INTRODUCTION TO



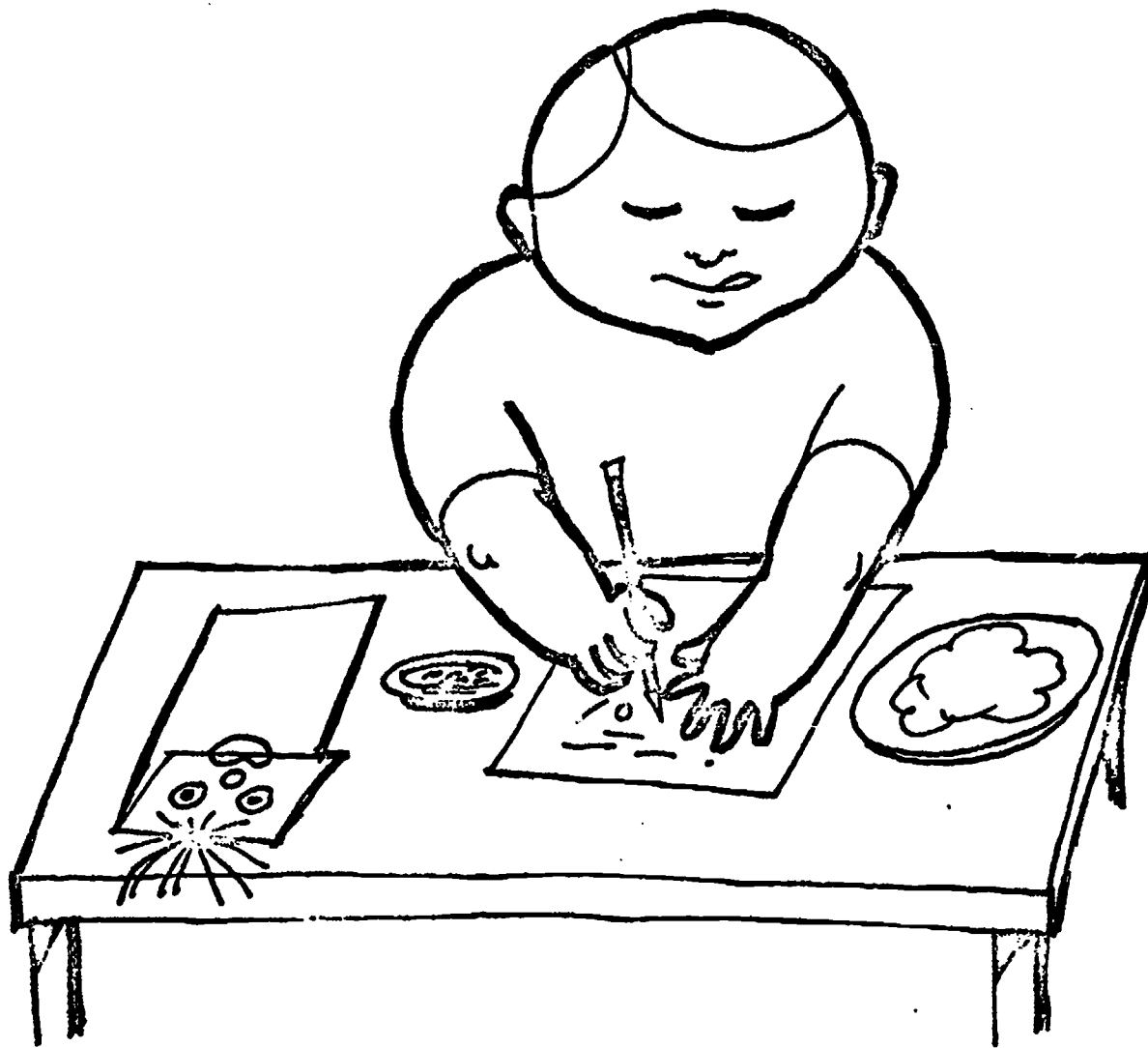
TEXTILES
AND
CLOTHING

CHILD CARE
AND GUIDANCE

OCCUPATIONAL HOME ECONOMICS

PART K OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

WITH EMPHASIS ON



CHILD CARE
AND GUIDANCE

AN INTRODUCTION TO

CHILD CARE AND GUIDANCE

BY PATRICIA R. HART
CAROL MCHENRY

SOME INTERESTING FACTS ABOUT CHILD CARE & GUIDANCE

1. WHAT KIND OF WORK IS DONE?

OPPORTUNITIES ARE AVAILABLE AS:
DAY CARE CENTER ASSISTANTS
PRIVATE OR COMMUNITY NURSERY SCHOOL

AIDES

PUBLIC HOUSING PROJECT NURSERY

SCHOOL AIDES

DEPARTMENT STORE NURSERY WORKERS
AIRPORT OR BOWLING LANES NURSERY

AIDES

AIDES TO PRIVATE KINDERGARTEN

TEACHERS

BABY SITTERS
RECREATION CENTER AIDES
ASSISTANTS IN CHILDREN'S HOMES,
CLINICS, OR PEDIATRIC WARDS IN HOSPITALS
SALES CLERKS FOR CHILDREN'S TOYS,
BOOKS AND CLOTHING
NURSEMAIDS FOR PRIVATE FAMILIES.

2. WORKING CONDITIONS:

WORKING CONDITIONS FOR THE ABOVE
EMPLOYMENT OPPORTUNITIES MAY VARY
GREATLY. MANY OF THESE JOBS REQUIRE
OUTDOOR WORK IN GOOD WEATHER. HOURS
WILL ALSO VARY ACCORDING TO THE JOB.
IN GENERAL, A JOB ACCEPTED WITH A
LICENSED CENTER SHOULD BE A VERY CLEAN,
PLEASANT ONE WITH A MODERATE AMOUNT OF
NOISE.

3. SALARY SCALE:

BABY SITTERS MAY BEGIN AT 50¢ AN HOUR. A DAY CARE CENTER DIRECTOR MAY EARN AN AVERAGE SALARY OF \$550 A MONTH. NATURALLY, A COLLEGE DEGREE INCREASES THE SALARY.

4. TYPE OF CLOTHING WORN:

CLEAN, CASUAL CLOTHING AND LOW HEELED SHOES SHOULD BE WORN. A FEW JOBS SUCH AS IN AN AIRPORT OR HOSPITAL MAY REQUIRE UNIFORMS.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: IT IS HELPFUL IF YOU ARE ABLE TO PLAY A MUSICAL INSTRUMENT OR TO READ MUSIC.

PERSONALITY CHARACTERISTICS: YOU SHOULD BE CHEERFUL, PATIENT, ENERGETIC, COOPERATIVE, ALERT, ABLE TO TAKE CONSTRUCTIVE CRITICISM, AND ABLE TO SPEAK CLEARLY. A LOVE FOR CHILDREN IS ESSENTIAL. YOU WILL FIND THAT CREATIVITY AND THE ABILITY TO COMMUNICATE WITH OTHERS ARE ADVANTAGEOUS.

EDUCATIONAL QUALIFICATIONS: A HIGH SCHOOL DIPLOMA IS NECESSARY AND ONE YEAR OF OCCUPATIONAL CHILD CARE IS HELPFUL. IF A DIRECTORSHIP IS DESIRED, A COLLEGE DEGREE MUST BE OBTAINED WITH A MAJOR IN CHILD DEVELOPMENT.

REFERENCES

"CHILD CARE" TAKEN FROM TRAINING PROGRAM FOR TEACHERS AND LEADERS OF GAINFUL EMPLOYMENT TRAINING PROGRAMS IN HOME ECONOMICS, OKLAHOMA STATE UNIVERSITY. REPRODUCED BY STATE OF TENN., DEPT. OF EDUCATION DIVISION OF VOCATIONAL EDUCATION, 205 CORDELL HULL BLDG., NASHVILLE, TENN. 37219.

"HELPING PARENTS TEACH YOUNG CHILDREN" FEDERAL EXTENSION SERVICE, U.S. DEPT OF AGRICULTURE.

"PARENT INVOLVEMENT" PROJECT HEAD START, OFFICE OF CHILD DEVELOPMENT, U.S. DEPT. OF NEW, WASHINGTON, D.C. 20201.

A NURSERY SCHOOL HANDBOOK BY WOOD AND GREEN.

YOUR FIRST EXPERIENCES IN CHILD CRAFT (PART 1):

TO MAKE A PAPER BAG PUPPET

INTRODUCTION -- PLEASE READ CAREFULLY:

CREATIVITY IS A SIGN OF HIGH INTELLIGENCE. ART IS ONE OF THE MEANS THROUGH WHICH CHILDREN CAN LEARN TO BE CREATIVE. BY PARTICIPATING IN AN ART ACTIVITY, A CHILD MAY GAIN STRENGTH IN ORIGINALITY OF IDEAS, INDEPENDENCE, CONFIDENCE IN HIS OWN ABILITY, FREEDOM TO EXPRESS HIS OWN IDEAS AND FEELINGS, ACCEPTANCE OF HIMSELF AS A UNIQUE AND VALUABLE PERSON, AND CLARIFICATION OF IDEAS AND CONCEPTS.

A TRAINED OR WELL-QUALIFIED TEACHER OF CHILDREN MUST LEARN TO BE ADAPTABLE AND CREATIVE. SOMETIMES EXPENSIVE PLAY EQUIPMENT IS NOT AVAILABLE. THEREFORE, THE TEACHER MUST LEARN TO USE NO-COST OR LOW-COST ITEMS WHICH ARE READILY AVAILABLE. NOT ONLY ARE THESE ITEMS A HELP TO ANY SCHOOL BUDGET, BUT THEY STIMULATE CREATIVITY IN THE FIRST SCHOOL EXPERIENCES. THROUGH CREATIVE PLAY, CHILDREN ARE GIVEN AN OPPORTUNITY TO WORK AND SOLVE PROBLEMS FOR THEMSELVES.

GENERAL RULES:

1. BE CONSERVATIVE WITH THE MATERIALS. USE ONLY THE AMOUNT THAT YOU NEED.
2. FOLLOW INSTRUCTIONS CAREFULLY.
3. STUDY THE DIAGRAMS BEFORE BEGINNING THE PROJECT.
4. BE NEAT.
5. LEAVE THE AREA AS CLEAN AS YOU FOUND IT.

STEPS TO FOLLOW IN MAKING A PAPER BAG PUPPET:

TOOLS AND MATERIALS NEEDED: SMALL PAPER BAGS COLOR CRAYONS
CONSTRUCTION PAPER PASTE
STRING OR YARN SCISSORS

WHAT YOU MUST DO

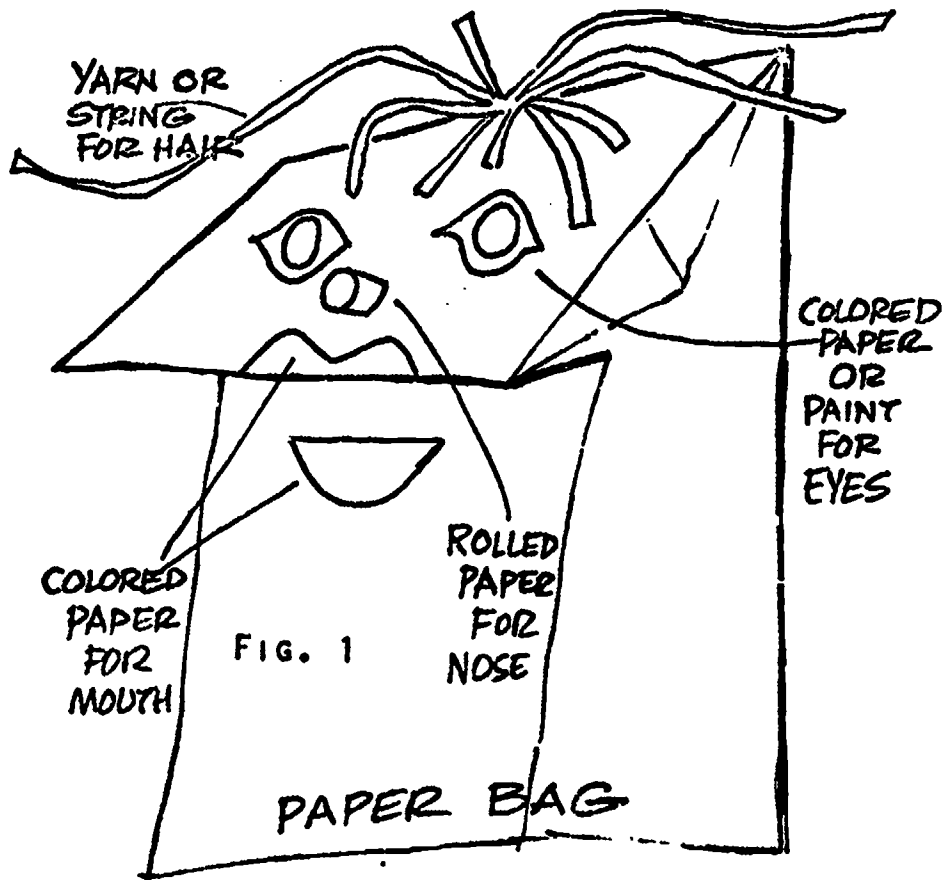
WHAT YOU MUST KNOW
TO DO THESE STEPS

1. PASTE BITS OF COLORED PAPER AS EYES, MOUTH, ETC. -----> PLACE MOUTH AT FLAP AS SHOWN ON DIAGRAM.

2. PASTE STRING OR YARN AT EDGE OF BAG FOR HAIR -----> THIS COULD BE CUT SHORT, PUT IN PONY TAILS OR PLAITED.

3. DRAW CLOTHING ON LOWER PART OF THE BAG FIG. 1

4. INSERT HAND AS IN DIAGRAM TO MAKE MOUTH OF BAG PUPPET TALK FIG. 2



YOU CAN FIND DIFFERENCES IN ONLY ONE MILLION!

TO MAKE A COLLAGE

INTRODUCTION -- PLEASE READ CAREFULLY:

A COLLAGE IS A FORM OF ART CREATED BY PASTING PAPER OR OTHER MATERIALS ON A PIECE OF HEAVY PAPER TO FORM ANY KIND OF PICTURE OR DESIGN. YOU MAY PASTE ON ANY COMBINATION OF MATERIALS TO MAKE ANY DESIGN YOU WISH.

STEPS TO FOLLOW IN MAKING A COLLAGE:

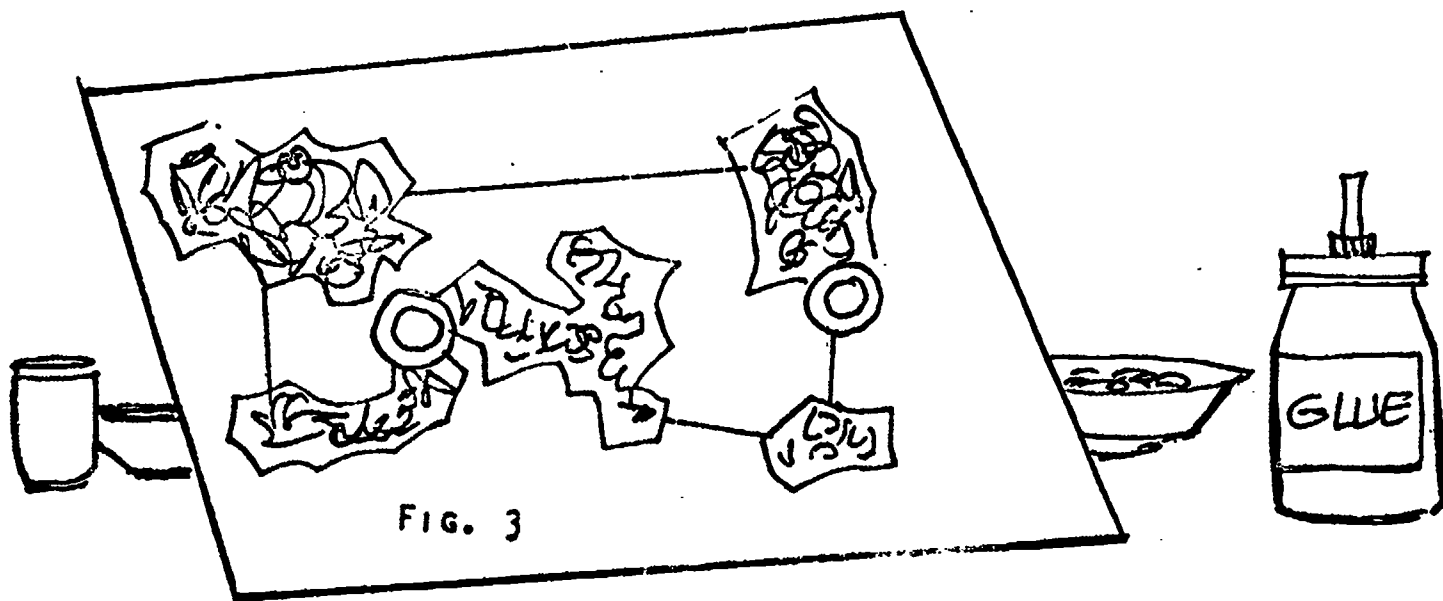
TOOLS AND MATERIALS NEEDED:	CRUSHED EGG SHELL	RICE
	MACARONI (SHELL, STARS, WAGON WHEELS, BOWTIES, ALPHABETS, ETC.)	DRIED BEANS
	HEAVY CONSTRUCTION PAPER	GLUE
		FOOD COLORING

WHAT YOU MUST DO

1. MAKE A PICTURE OR DESIGN BY PASTING VARIOUS FOOD PRODUCTS ON HEAVY CONSTRUCTION PAPER-- FIG. 3

WHAT YOU MUST KNOW TO DO THESE STEPS

THE DRIED PRODUCTS MAY BE PAINTED OR DYED IN FOOD COLORING BEFORE BEING LIGHTLY GLUED. REMEMBER -- BE CREATIVE AND ORIGINAL. THE PRE-SCHOOLERS WILL BE.



YOUR THIRD EXPERIMENT IN CHILDREN'S UNCLE TOM'S

TO MAKE PLAY DOUGH

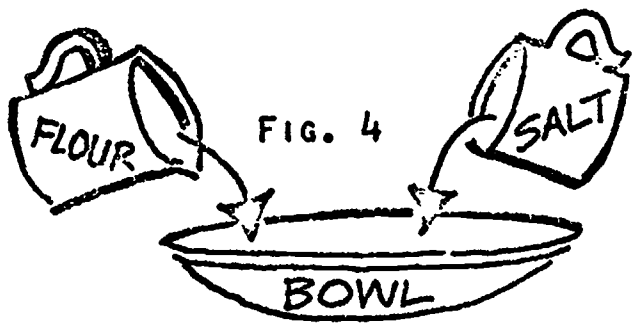
STEPS TO FOLLOW IN MAKING PLAY DOUGH:

- | | | |
|-----------------------------|---------------------|------------------|
| TOOLS AND MATERIALS NEEDED: | 1 CUP FLOUR | MIXING BOWL |
| | ½ CUP SALT | SPOON |
| | 6 TABLESPOONS WATER | MEASURING SPOONS |
| | MEASURING CUPS | SPATULA |
| | FOOD COLORING | |

WHAT YOU MUST DO

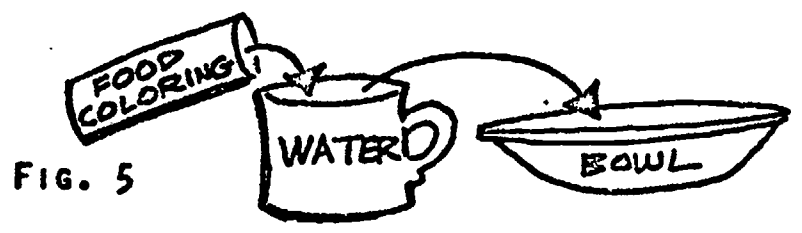
WHAT YOU MUST KNOW TO DO THESE STEPS

- MEASURE 1 CUP FLOUR, ½ CUP SALT, AND MIX IN A BOWL-- FIG. 4



USE A DRY MEASURING CUP FOR THE FLOUR AND SALT. USE MEASURING SPOONS FOR THE WATER. LEVEL EACH MEASUREMENT WITH A SPATULA. USE ONLY THE AMOUNTS SUGGESTED FOR A PERFECT PRODUCT. MEASURE WATER INTO A LIQUID MEASURING CUP.

- ADD A FEW DROPS OF FOOD COLORING TO 6 TABLESPOONS OF WATER IN A LIQUID MEASURING CUP. USE ONLY ENOUGH COLORING TO GIVE THE WATER A DEEP, RICH COLOR-- FIG. 5



TOO MUCH FOOD COLORING CAN MAKE THE DOUGH TOO STICKY BECAUSE IT ALTERS THE PROPORTIONS OF THE INGREDIENTS.

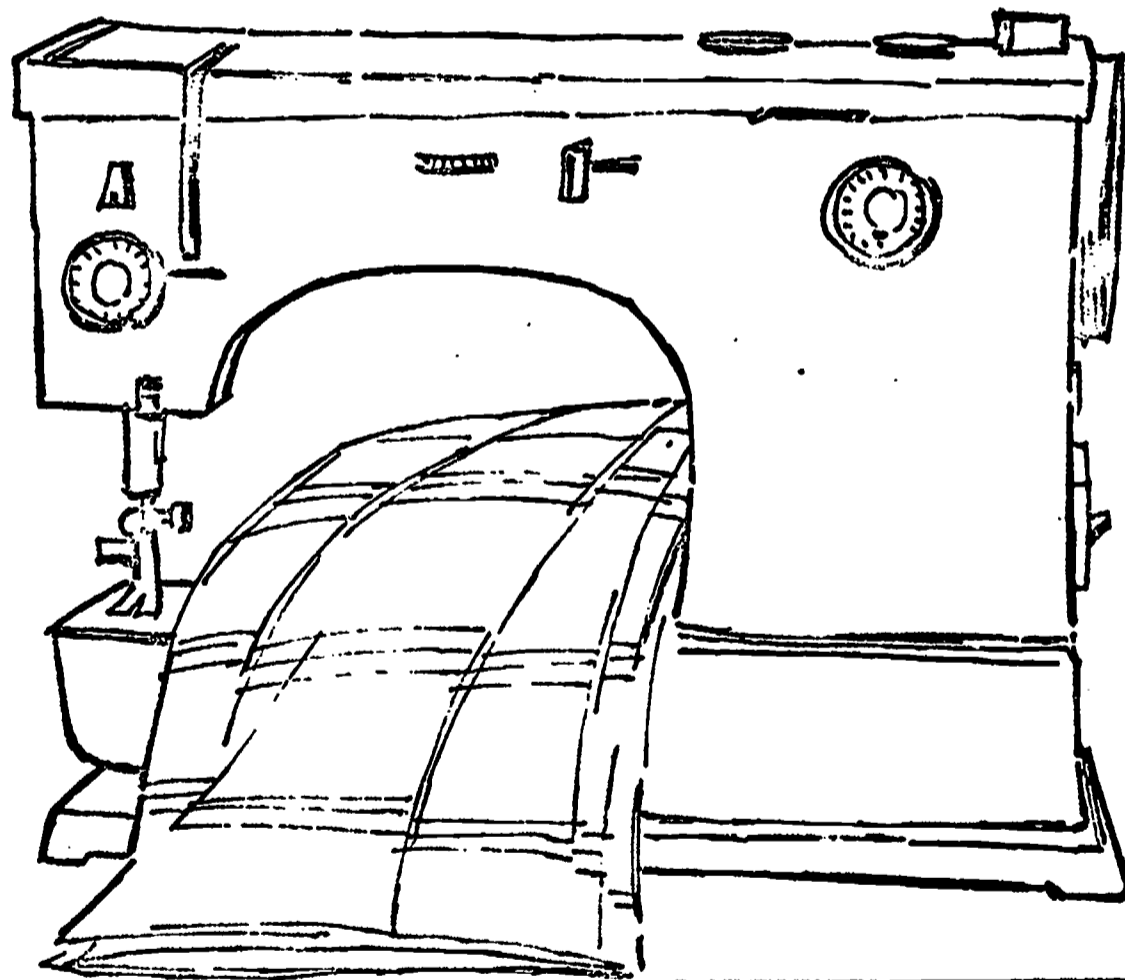
- ADD THE COLORED WATER GRADUALLY TO THE SALT AND FLOUR MIXTURE. STIR CONSTANTLY UNTIL THE MIXTURE IS FIRM AND DOES NOT STICK ON THE HANDS-- FIG. 6

FIG. 6



DO NOT ADD ALL THE WATER AT ONCE. ADD ONLY ENOUGH WATER TO MAKE DOUGH DESIRED CONSISTENCY. ALL OF THE WATER MAY NOT BE NEEDED, DEPENDING ON THE TYPE OF FLOUR.

WITH EMPHASIS ON



TEXTILES

AND CLOTHING

SOME INTERESTING FACTS ABOUT TEXTILES & CLOTHING

1. WHAT KIND OF WORK IS DONE?

THERE ARE OPPORTUNITIES FOR TEACHING IN HIGH SCHOOLS, COLLEGES, ADULT AND EVENING CLASSES, FOR WORKING IN MERCHANDISING, PLANNING, PROMOTION, JOURNALISM, MODELING, AND IN BUYING. YOU MIGHT ALSO WORK AS A HOME DEMONSTRATION AGENT, A CLOTHING SPECIALIST, A TEXTILE DESIGNER OR RESEARCHER, A DRESS MAKER, AN ALTERATIONS WORKER, A FASHION DESIGNER, AN ILLUSTRATOR, A DISPLAY MANAGER, OR A FACTORY SEAMSTRESS.

2. WORKING CONDITIONS:

WORKING CONDITIONS VARY, BUT MOST WOULD BE PLEASANT. WORKING WITH OTHER PEOPLE WOULD BE COMMON.

3. SALARY SCALE:

SALARIES ARE VARIED FROM \$50.00 A WEEK UP TO \$1,000 A WEEK OR MORE.

4. TYPE OF CLOTHING WORN:

STREET DRESS WOULD BE WORN IN MOST JOBS, BUT LAB COATS OR SPECIAL CLOTHING MIGHT BE NECESSARY FOR WORKING IN TEXTILE TESTING, RESEARCH, OR FACTORIES.

5. PERSONAL QUALITIES NECESSARY:

APTITUDE: ORIGINALITY, CREATIVITY, AND A TOLERANCE FOR REPETITIOUS WORK ARE HELPFUL.

MANIPULATIVE SKILLS: FINGER DEXTERITY WOULD BE NECESSARY FOR ANY JOB REQUIRING SEWING, CUTTING, OR RESEARCH. A FLAIR FOR FASHION AND DRAWING ABILITY ARE REQUIRED FOR DESIGNING.

PERSONALITY CHARACTERISTICS: YOU SHOULD BE DEPENDABLE, COOPERATIVE, PLEASANT TO WORK WITH, VERSATILE, AND ABLE TO FOLLOW DIRECTIONS.

EDUCATIONAL QUALIFICATIONS: A HIGH SCHOOL DIPLOMA IS REQUIRED FOR ALL THE ABOVE POSITIONS. A YEAR OF OCCUPATIONAL TEXTILES AND CLOTHING IS HELPFUL. A COLLEGE DEGREE IS REQUIRED FOR TEACHING OR FOR BECOMING A HOME DEMONSTRATION AGENT.

6. OTHER FACTS OF INTEREST:

THIS IS AN EXCITING CAREER WITH A WIDE VARIETY OF JOB OPPORTUNITIES. ADVANCEMENT IS RAPID AND SALARIES ARE GENERALLY BETTER THAN IN OTHER SO CALLED "WOMEN'S" OCCUPATIONS.

YOUR FIRST EXPERIENCE IN TEXTILES & CLOTHING WILL BE:

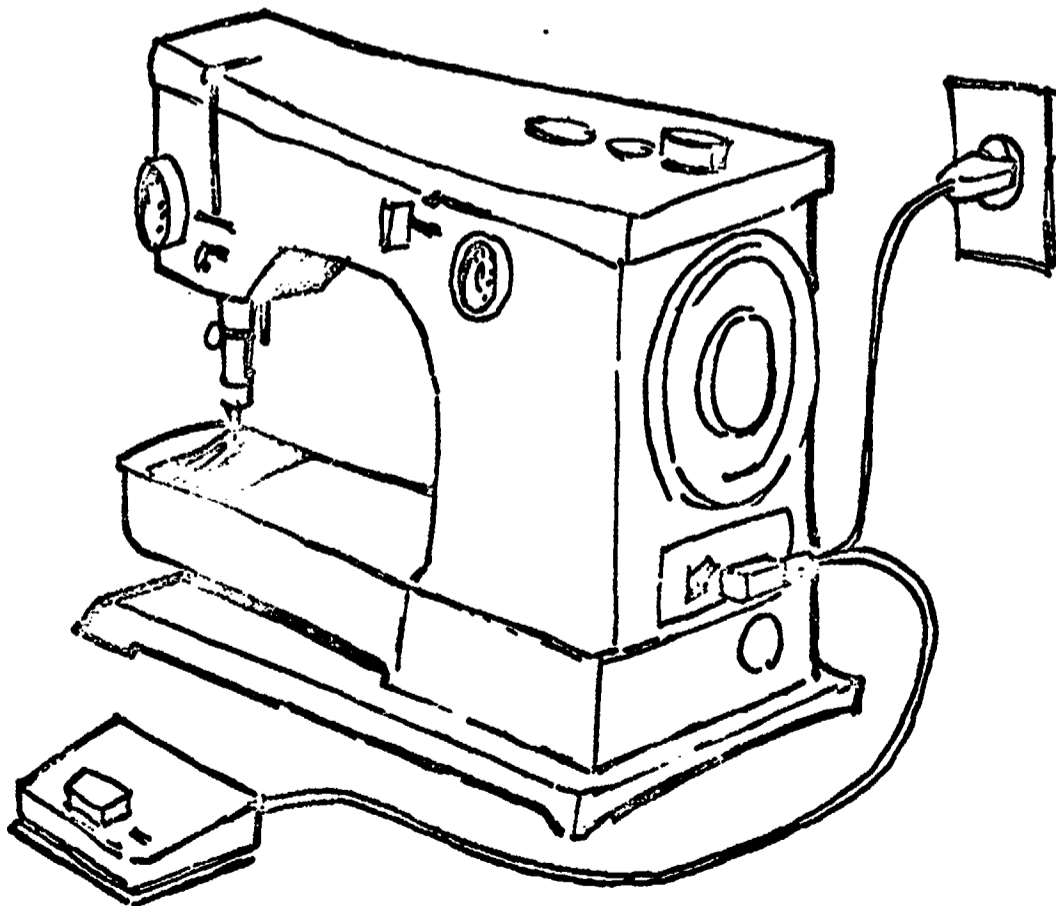
TO WIND A SEWING MACHINE BOBBIN
AND TO THREAD A SEWING MACHINE.

INTRODUCTION -- PLEASE READ CAREFULLY:

THE SEWING MACHINE IS ONE OF THE MAJOR PIECES OF LARGE EQUIPMENT WHICH IS USED IN OCCUPATIONAL TEXTILES AND CLOTHING. SINCE IT IS EXPENSIVE AND IS EASILY DAMAGED, CHECK WITH YOUR STUDENT SUPERVISOR IF YOU ARE NOT SURE OF YOUR ASSIGNMENTS. ALSO, BE CAREFUL NOT TO CATCH YOUR FINGER UNDER THE NEEDLE.

REFERENCES:

ELNA SEWING MACHINE MANUAL



STEPS TO FOLLOW IN WINDING A BOBBIN:

TOOLS AND MATERIALS NEEDED: THREAD, BOBBIN, SEWING MACHINE

WHAT YOU MUST DO

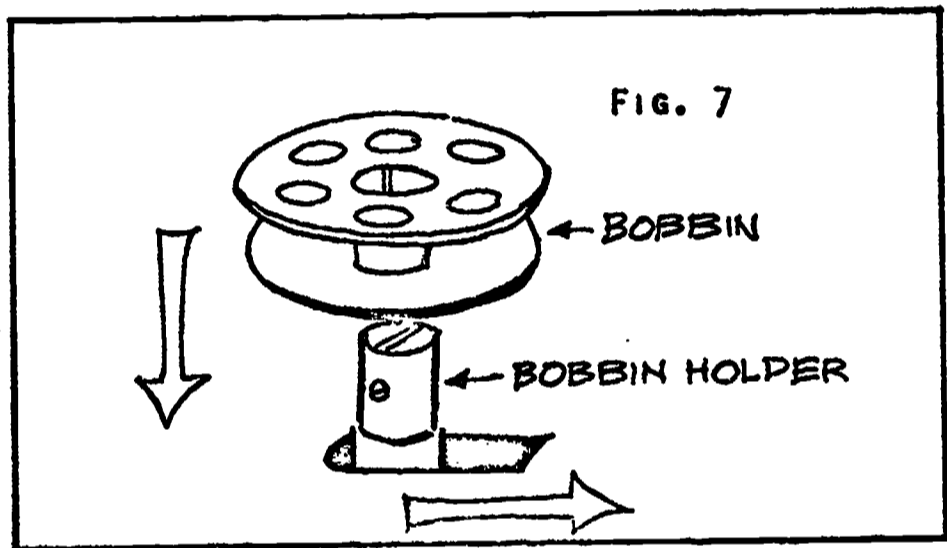
WHAT YOU MUST KNOW
TO DO THESE STEPS

1. TURN THE LIGHT ON ----->

BE SURE THAT THE MACHINE IS PLUGGED IN.

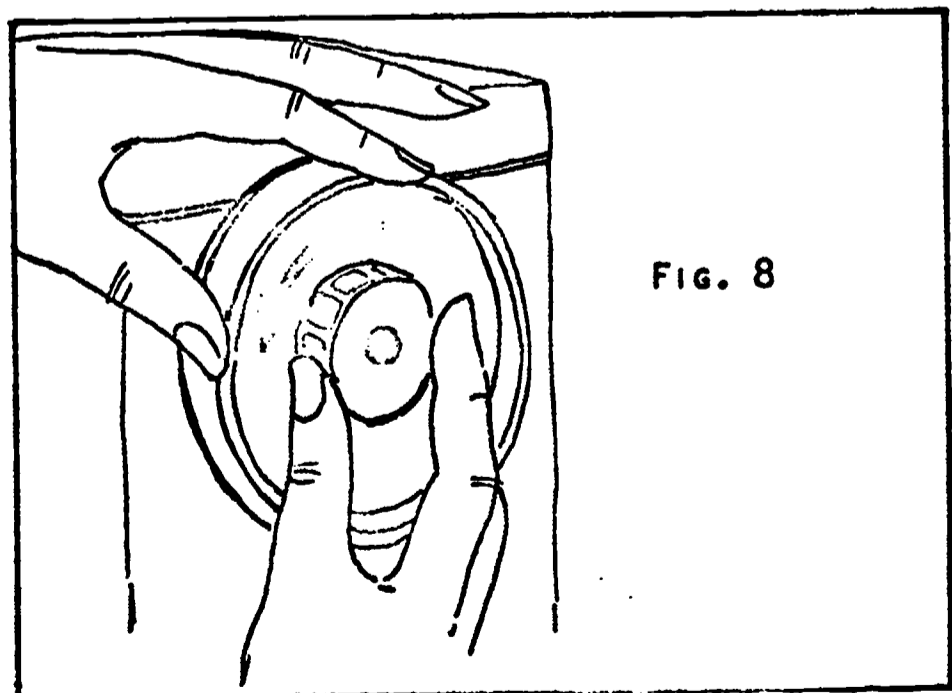
2. PLACE THE BOBBIN ON THE BOBBIN HOLDER AND PUSH TO THE RIGHT ----->

FIG. 7



3. LOOSEN THE BALANCE WHEEL - FIG. 8-->

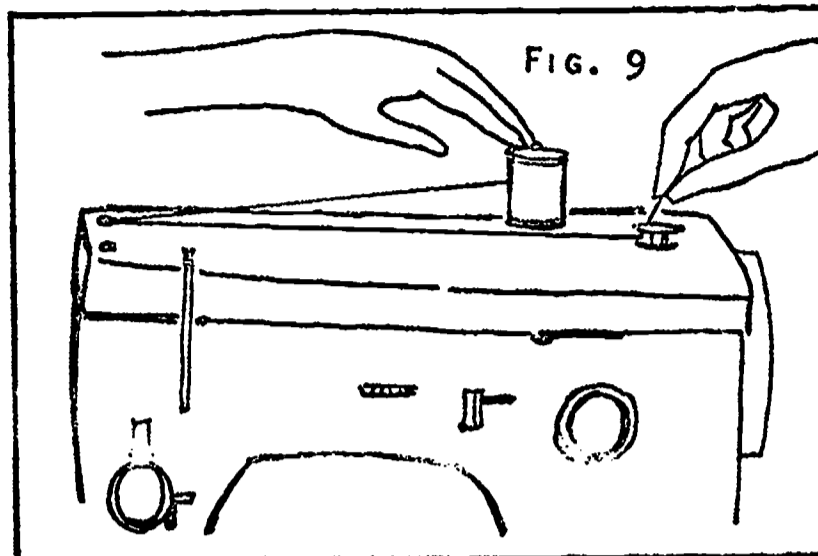
THE CENTER OF THE BALANCE WHEEL ON THE RIGHT OF THE MACHINE HEAD WILL LOOSEN IF YOU GRIP IT TIGHTLY AND TURN IT TOWARD YOU.



WHAT YOU MUST DO

4. PLACE THE THREAD ON THE THREAD HOLDER
5. THREAD THE MACHINE FROM THE THREAD HOLDER TO THE THREAD GUIDE ON THE LEFT END OF THE MACHINE HEAD
6. PLACE THE END OF THE THREAD THROUGH THE BOBBIN FIG. 9

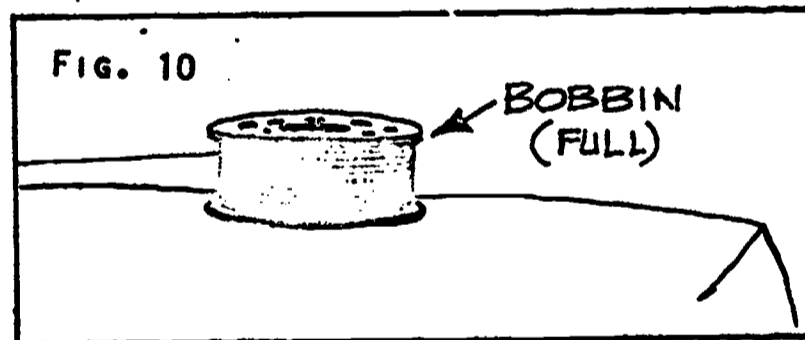
WHAT YOU MUST KNOW



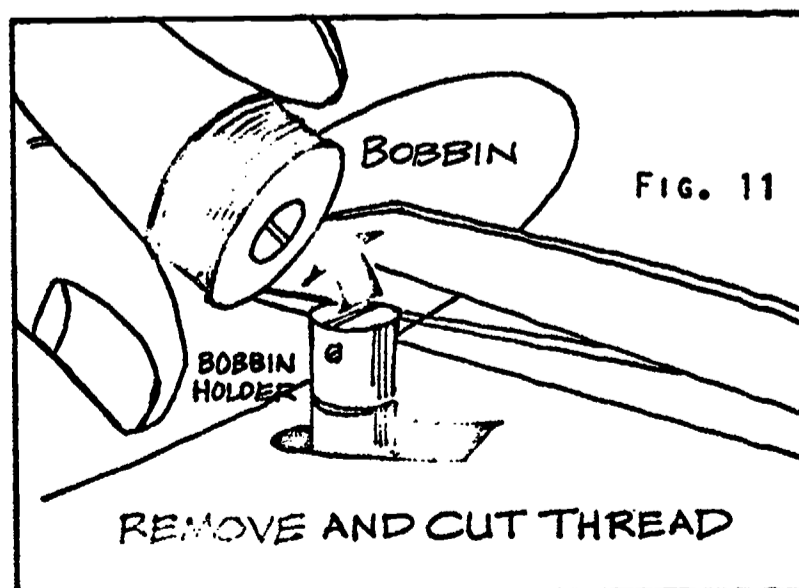
7. HOLD THE THREAD WITH YOUR LEFT HAND AND START THE MACHINE BY SLOWLY PRESSING THE FOOT PEDAL ----->

BE CAREFUL NOT TO MAKE THE MACHINE RUN TOO FAST.

8. CONTINUE WINDING UNTIL THE BOBBIN IS VISIBLY FULL FIG. 10



9. CUT OR BREAK THE THREAD AND REMOVE THE BOBBIN FROM THE BOBBIN HOLDER FIG. 11



10. TIGHTEN THE BALANCE WHEEL BY TURNING IT AWAY FROM YOU

STEPS TO FOLLOW IN THREADING A SEWING MACHINE:

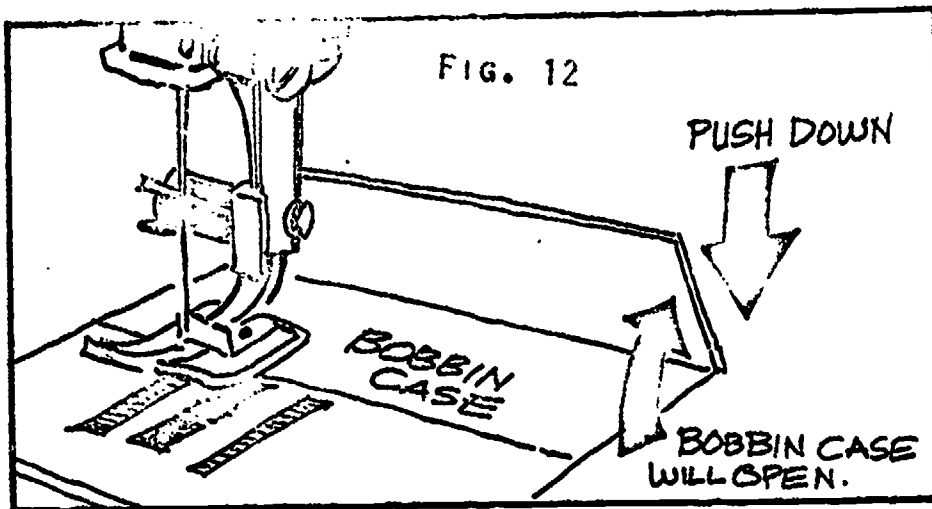
TOOLS AND MATERIALS NEEDED: THREAD, SEWING MACHINE, BOBBIN, MATERIAL

WHAT YOU MUST DO

1. PLACE THE BOBBIN WITH THE THREAD ALREADY ON IT IN THE BOBBIN CASE

FIG. 12

PRESS DOWN ON THE BACK OF THE THROAT PLATE AND YOU WILL SEE THE BOBBIN CASE.



2. GUIDE THE THREAD FROM LEFT TO RIGHT AS YOU PUT THE BOBBIN IN ITS CASE

FIG. 13

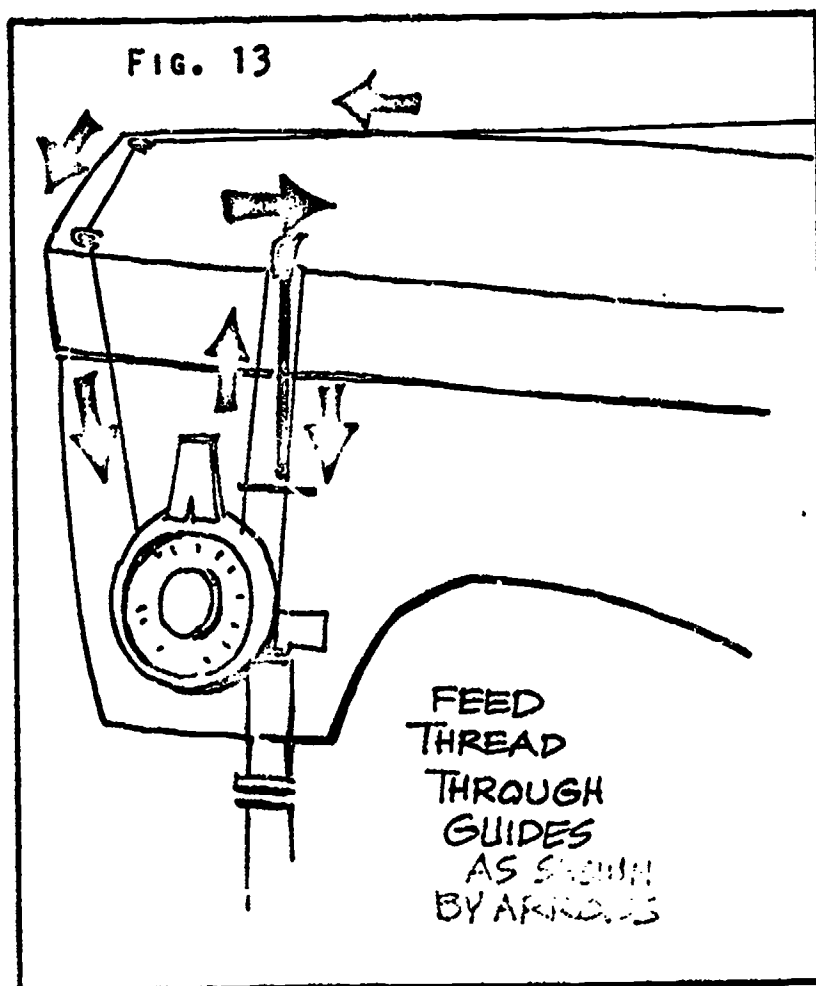
IF NECESSARY ASK A STUDENT OR THE TEACHER FOR ASSISTANCE.

3. CLOSE THE THROAT PLATE

4. PUT THE THREAD ON THE THREAD HOLDER

5. LEAD THE THREAD THROUGH THE TWO THREAD GUIDES DOWN THROUGH THE OPEN TENSION -- THEN FROM LEFT TO RIGHT THROUGH THE THREAD TAKE-UP

6. LEAD THE THREAD THROUGH THE 2 OTHER THREAD GUIDES



WHAT YOU MUST DO

7. PUT THREAD THROUGH THE NEEDLE FROM FRONT TO BACK FIG. 14
8. PULL THE BOBBIN THREAD AND THE TOP THREAD TO THE RIGHT OF THE NEEDLE
9. PUT THE MATERIAL UNDER THE PRESSER FOOT

10. LOWER THE PRESSER FOOT WITH THE PRESSER FOOT RELEASE - FIG. 15 -->

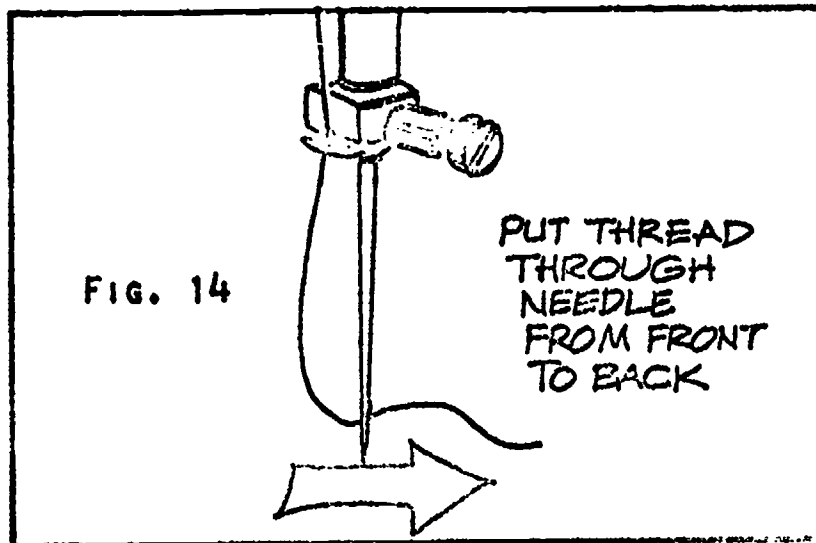
11. PRESS ON THE FOOT PEDAL AND STITCH SLOWLY ----->

12. RAISE THE PRESSER FOOT AND ADJUST THE BALANCE WHEEL SO THAT THE NEEDLE WILL BE IN AN UP POSITION FIG. 16

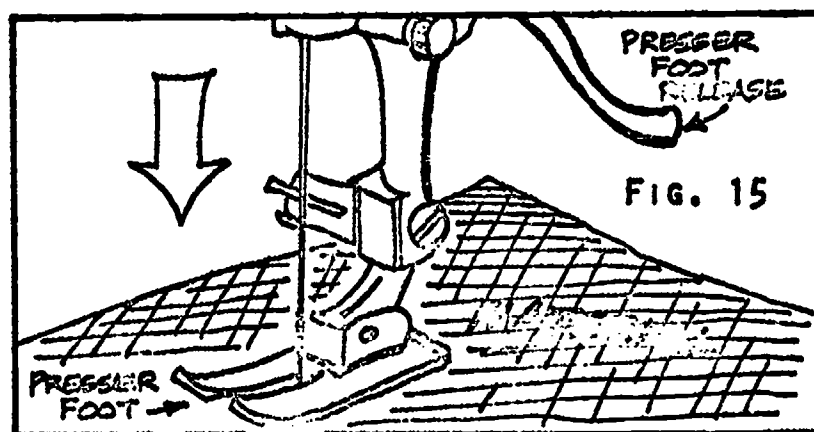
13. GRASP THE MATERIAL AND DRAW IT 3 INCHES TOWARD YOU

14. CUT OR BREAK THE THREAD NEAR THE MATERIAL

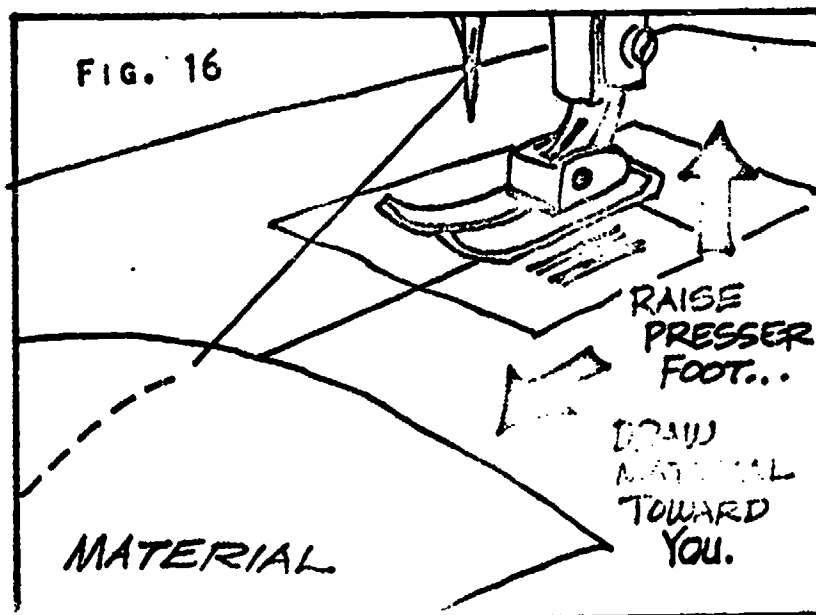
WHAT YOU MUST KNOW



LET THE MACHINE PULL THE MATERIAL AS YOU STITCH - DO NOT PUSH THE MATERIAL.



AT THE END OF THE MATERIAL STOP STITCHING.



YOUR SECOND EXPERIENCE IN TEXTILES & CLOTHING WILL BE:

TO SEW STRAIGHT LINES, TO TURN
CORNERS, TO SEW CIRCLES, AND TO CREATE
AN ORIGINAL DESIGN.

STEPS TO FOLLOW IN STITCHING A STRAIGHT LINE ON A PIECE OF PAPER:

TOOLS AND MATERIALS NEEDED: 10 SHEETS OF PATTERNED PAPER, SEWING MACHINE,
THREAD

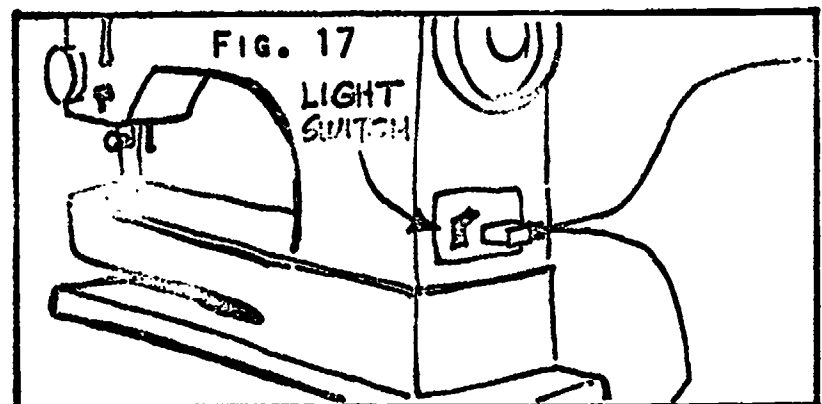
WHAT YOU MUST DO

1. CHECK THE FOOT PEDAL TO BE SURE THAT IT IS IN THE NEGATIVE (-) RATHER THAN THE POSITIVE (+) POSITION -----▶

WHAT YOU MUST KNOW TO DO THESE STEPS

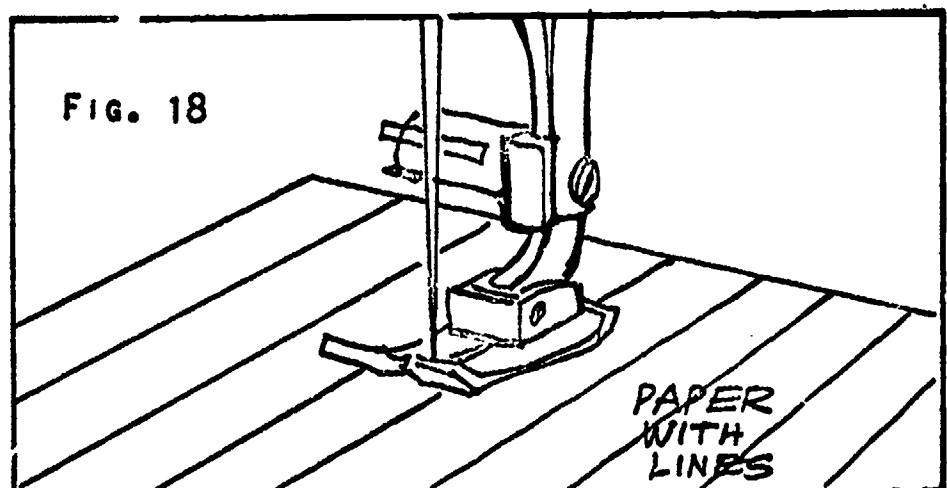
IF BUTTON INDICATES POSITIVE, SLIDE THE PEDAL TO THE NEGATIVE POSITION.

2. TURN THE LIGHT SWITCH TO THE "ON" POSITION. IT CAN BE FOUND AT THE FAR RIGHT OF THE MACHINE HEAD FIG. 17▶



3. PUT ONE SHEET OF NOTEBOOK PAPER UNDER THE PRESSER FOOT. FIG. 18

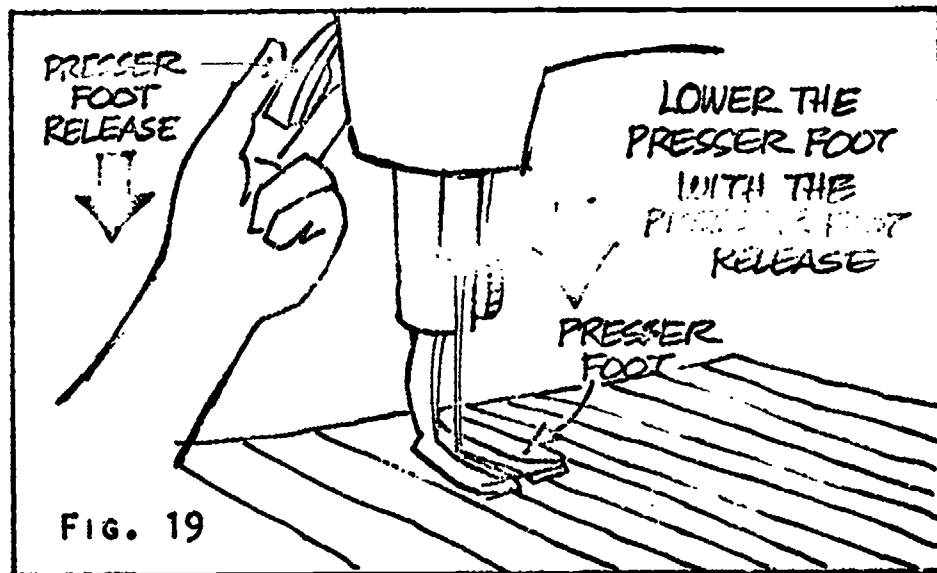
PLACE THE PAPER SO THAT THE NEEDLE IS ABOVE THE BLUE LINE ON THE PAPER.



4. LOWER THE PRESSER FOOT WITH THE PRESSER FOOT RELEASE.

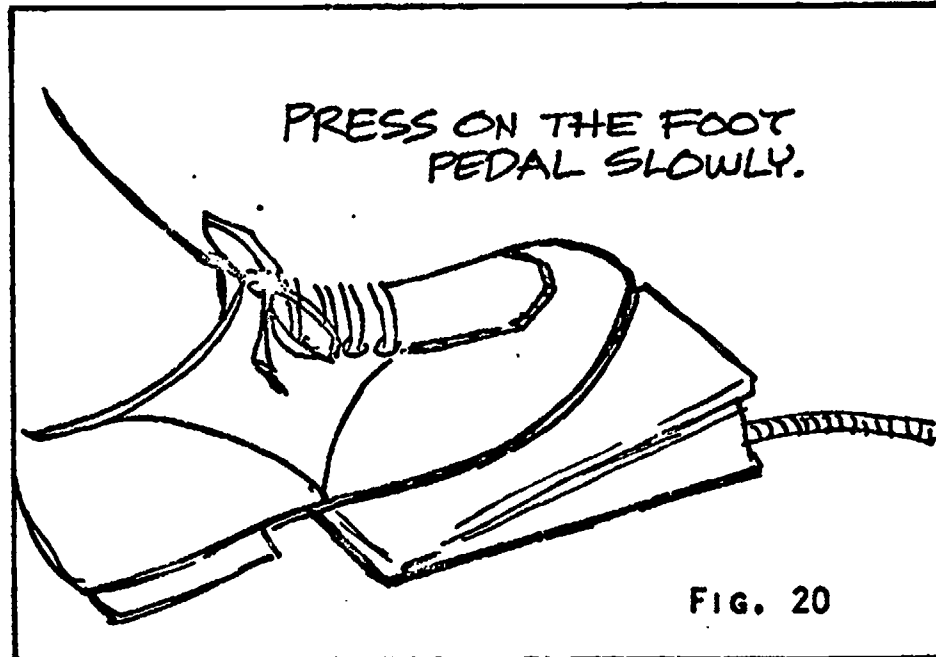
--- FIG. 19 ----->

NEVER FORCE THE MACHINE IF IT WILL NOT SEW. REMOVE YOUR FOOT FROM THE PEDAL.



5. PRESS ON THE FOOT PEDAL SLOWLY AND BEGIN STITCHING. FOLLOW THE LINES ON THE PAPER -- FIG. 20 ----->

LET THE MACHINE PULL THE PAPER. YOU PROBABLY WILL NOT STITCH STRAIGHT THE FIRST TIME.



6. AFTER COMPLETING ONE LINE BEGIN STITCHING THE SECOND AND CONTINUE UNTIL EACH LINE HAS BEEN COMPLETELY STITCHED ----->

TRY TO IMPROVE YOUR SKILL IN EACH LINE.

7. PRACTICE WITH A SECOND SHEET OF PAPER

STEPS TO FOLLOW IN STITCHING A MAZE:

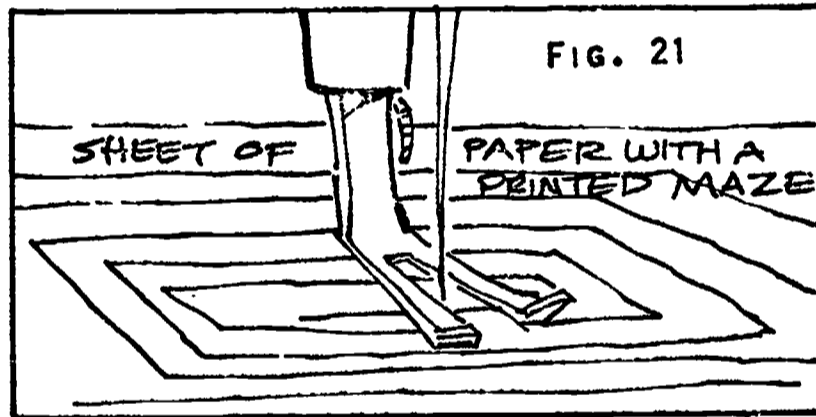
TOOLS AND MATERIALS NEEDED: 2 SHEETS OF PATTERNED PAPER, SEWING MACHINE

WHAT YOU MUST DO

1. CHECK FOOT PEDAL TO BE SURE IT IS ON (-) RATHER THAN (+)
2. TURN THE LIGHT SWITCH ON
3. PUT ONE SHEET OF PATTERNED PAPER UNDER THE PRESSER FOOT, LINING UP MACHINE NEEDLE ABOVE CENTER OF MAZE --- FIG. 21 ----->

WHAT YOU MUST KNOW TO DO THESE STEPS

BE CAREFUL NOT TO CATCH YOUR FINGER IN THE NEEDLE.



4. LOWER PRESSER FOOT WITH PRESSER FOOT RELEASE ----->
5. PRESS ON FOOT PEDAL SLOWLY AND BEGIN STITCHING -----
6. FOLLOW MAZE FROM CENTER UNTIL THE END OF THE MAZE, TURNING CORNERS CAREFULLY ----->

LET THE MACHINE PULL THE PAPER AS YOU STITCH. DO NOT PUSH THE PAPER.

TO TURN A CORNER:

- A. STOP
- B. REMOVE YOUR FOOT FROM THE FOOT PEDAL
- C. RAISE THE PRESSER FOOT, LEAVING THE NEEDLE IN THE PAPER
- D. TURN THE PAPER

7. BEGIN STITCHING AGAIN

STEPS TO FOLLOW IN STITCHING IN SPIRALS AND CREATING AN ORIGINAL DESIGN:

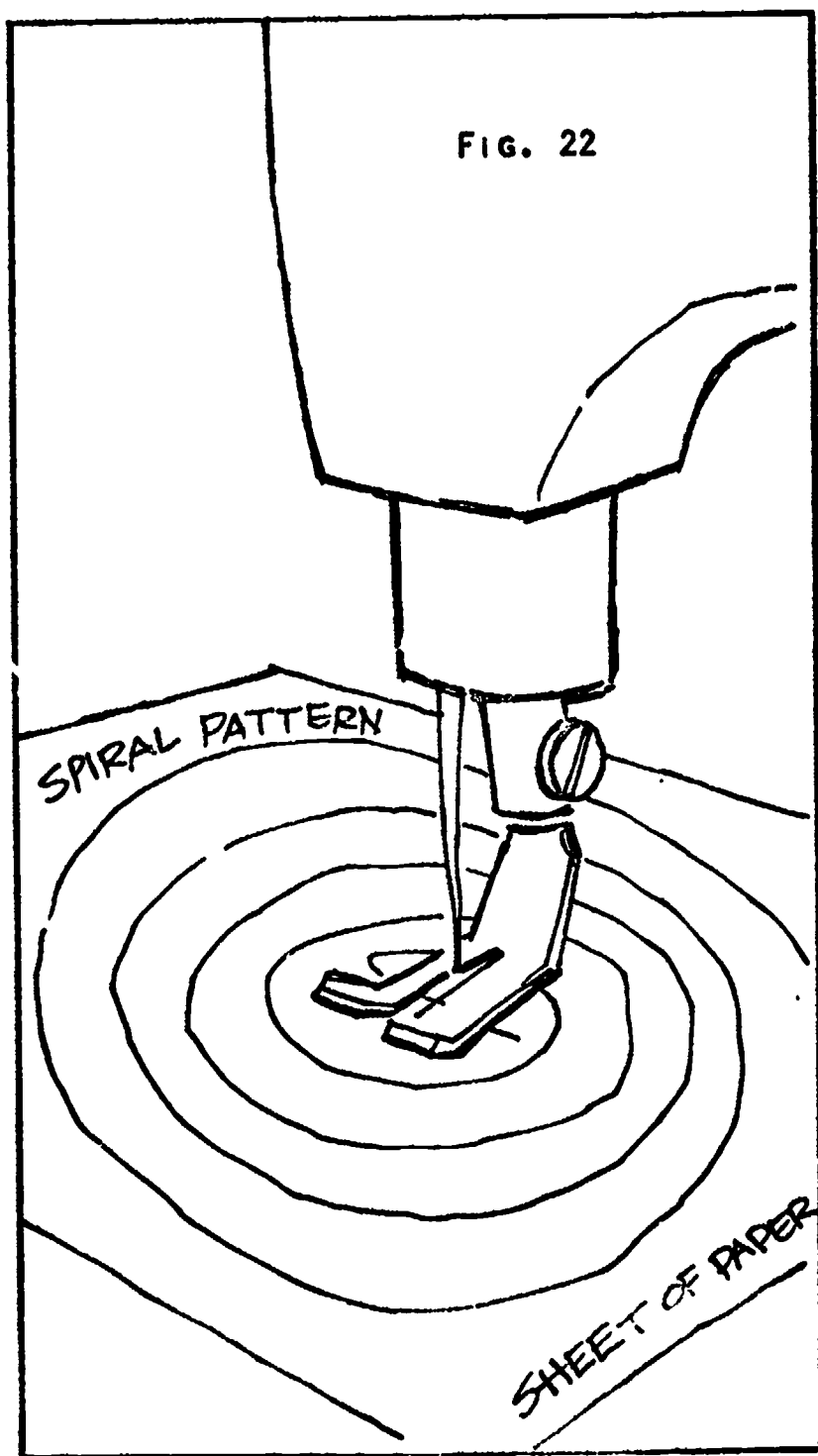
TOOLS AND MATERIALS NEEDED: 1 SHEET OF PATTERNED PAPER
1 SEWING MACHINE
1 SHEET OF LINELESS PAPER

WHAT YOU MUST DO

1. CHECK FOOT PEDAL TO BE SURE IT IS ON (-)----->
2. TURN THE LIGHT SWITCH ON
3. PUT A SHEET OF PATTERNED PAPER UNDER THE PRESSER FOOT
4. LINE UP THE MACHINE NEEDLE ABOVE THE CENTER OF THE SPIRAL FIG. 22
5. LOWER THE PRESSER FOOT WITH THE PRESSER FOOT RELEASE
6. PRESS ON THE FOOT PEDAL SLOWLY AND BEGIN STITCHING FROM THE CENTER OF THE SPIRAL. STITCH IN A CONTINUOUS SPIRAL UNTIL YOU REACH THE EDGE OF THE PAPER.
7. REPEAT THE PROCEDURE, CREATING AN ORIGINAL DESIGN USING STRAIGHT LINES, CURVES, CIRCLES, AND SQUARES

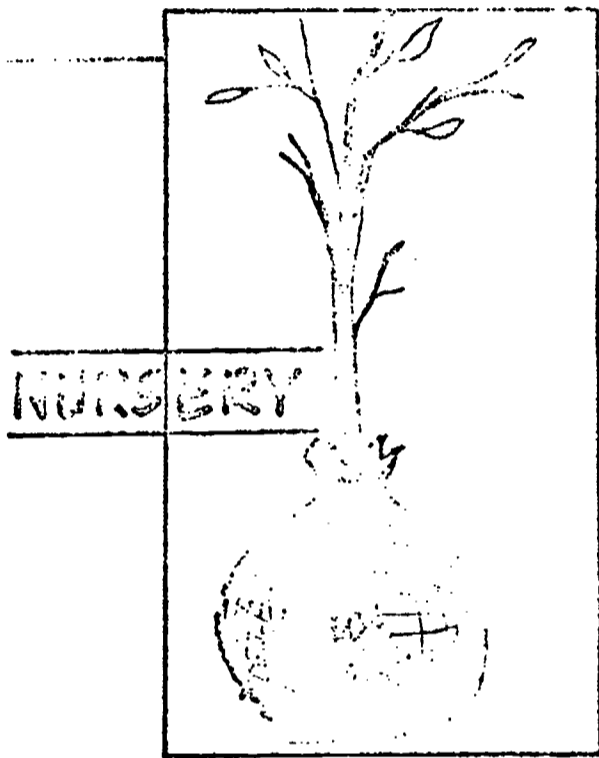
WHAT YOU MUST KNOW TO DO THESE STEPS

REFER TO THE INSTRUCTIONS FOR SEWING A STRAIGHT LINE AND FOR STITCHING A MAZE.

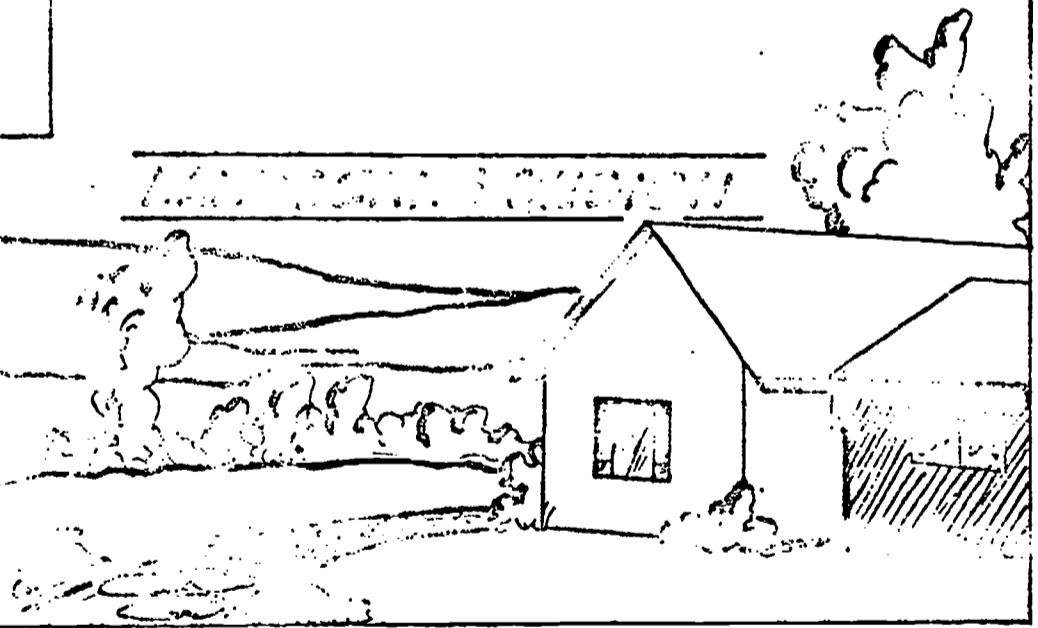
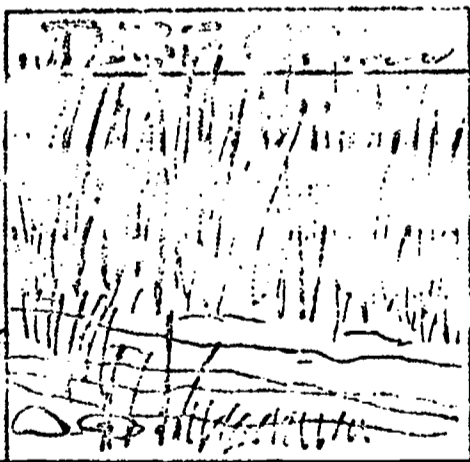
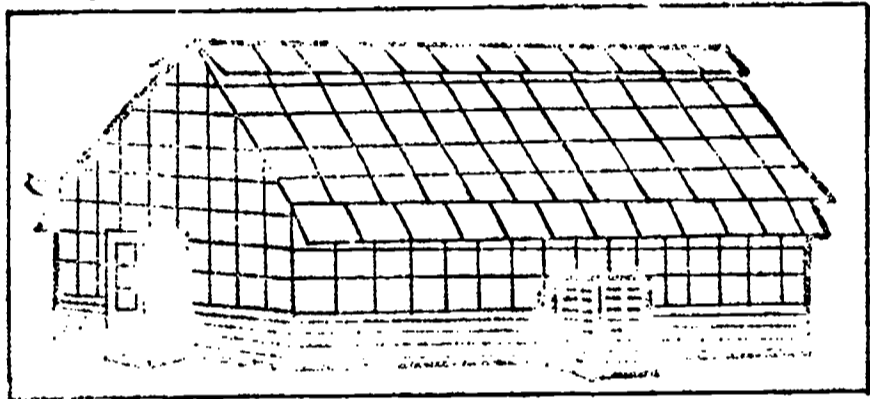




AN INTRODUCTION TO



GREENHOUSE



WORT CULTURE

PART I OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO

ORNAMENTAL
HORTICULTURE

BY H. E. GIBSON
RAY THOMPSON

SOME INTERESTING FACTS ABOUT ORNAMENTAL HORTICULTURE.

1. WHAT KIND OF WORK IS DONE?

YOU WOULD BE INVOLVED MAINLY IN LANDSCAPE GARDENING, PLANT IDENTIFICATION, PLANT PROPOGATION (REPRODUCTION), AND THE MAINTENANCE OF TREES, SHRUBS, FLOWERS, AND TURF.

WORK IS AVAILABLE IN GARDEN CENTERS, IN FLORIST SHOPS, IN NURSERIES, AND IN LANDSCAPING CENTERS.

2. WORKING CONDITIONS:

BOTH INDOOR AND OUTDOOR WORK IS AVAILABLE THROUGHOUT THE YEAR. WORK IS DONE UNDER SUPERVISION AND ON AN INDIVIDUAL BASIS.

3. SALARY SCALE:

BEGINNERS START AT THE MINIMUM WAGE AND ADVANCE ACCORDING TO THEIR ABILITY AND THE OPPORTUNITIES AVAILABLE.

4. TYPE CLOTHES WORN:

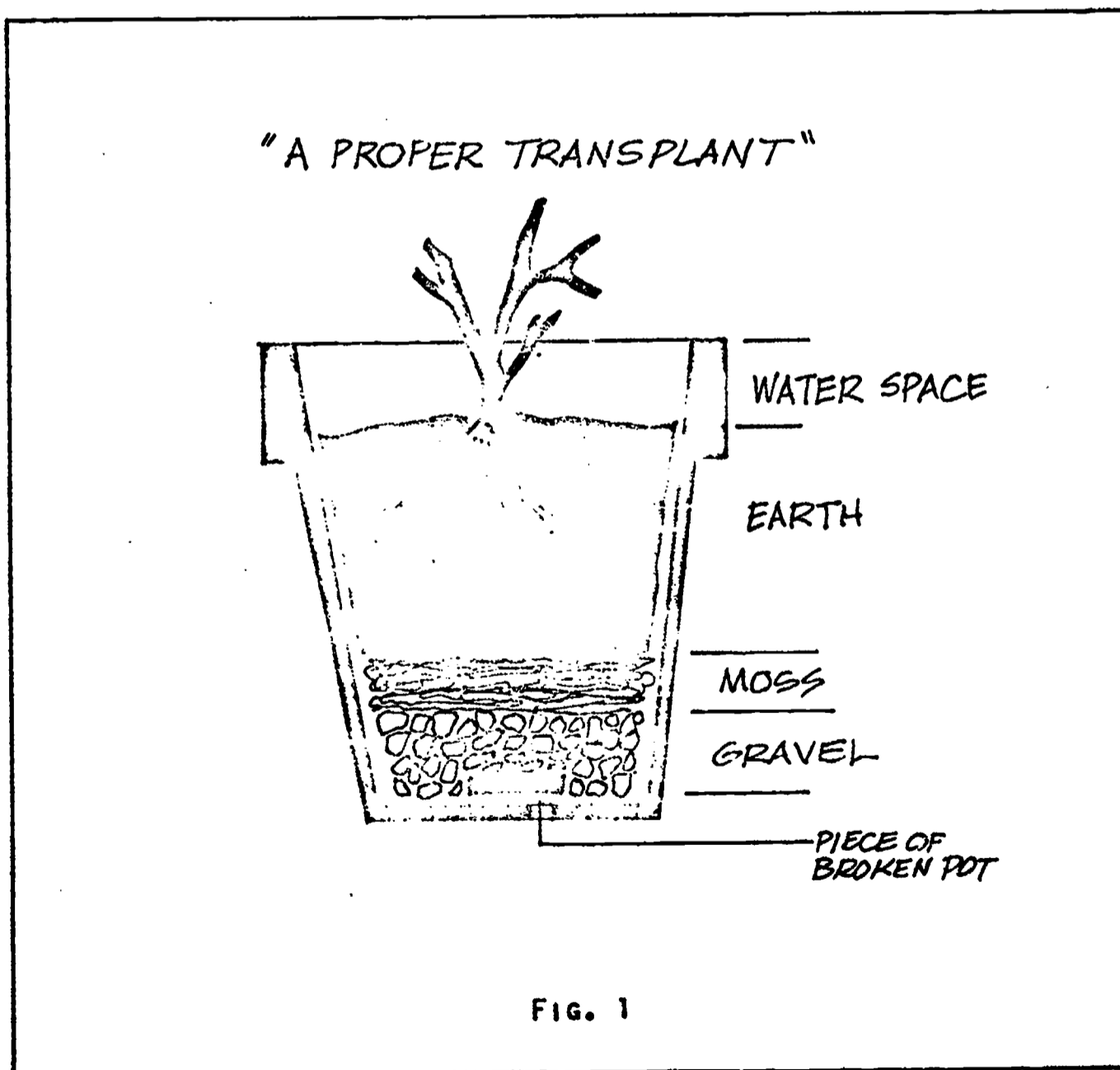
WORK CLOTHES ARE USUALLY WORN. SOME LANDSCAPING AND GARDENING FIRMS REQUIRE THAT YOU WEAR A UNIFORM.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS: YOU SHOULD BE CAPABLE OF WORKING WITH YOUR HANDS AND OF OPERATING SMALL EQUIPMENT.

PERSONALITY CHARACTERISTICS: YOU MUST BE FRIENDLY AND ABLE TO DEAL WELL WITH PEOPLE.

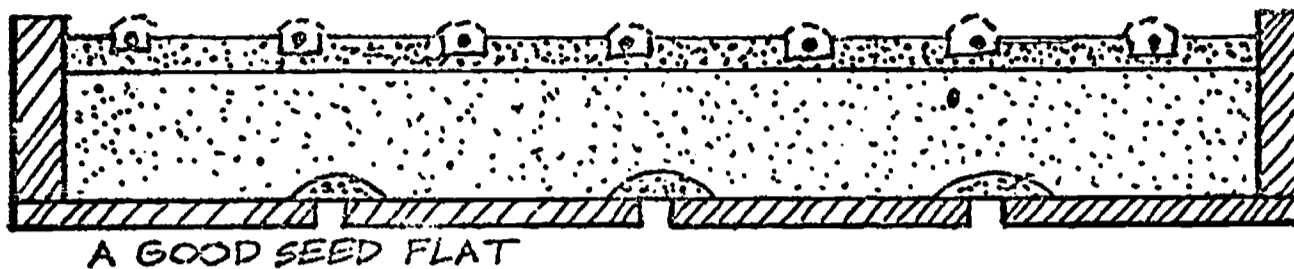
EDUCATIONAL QUALIFICATIONS: A HIGH SCHOOL EDUCATION WITH VOCATIONAL TRAINING IN HORTICULTURE IS DESIRABLE. MORE TRAINING WOULD BE NECESSARY FOR WORKING IN AREAS OF SPECIALIZATION SUCH AS THE RAISING OF ORCHIDS, RESEARCH INTO PLANT DISEASES, OR THE DEVELOPMENT OF MORE PRODUCTIVE TYPES OF PLANTS. FIG. 1



YOUR FIRST EXPERIENCE IN CON. HORTICULTURE WILL BE:

TO TRANSPLANT TWO DOZEN SEEDLINGS
• FROM SEED FLATS TO POTS.

FIG. 2



STEPS TO FOLLOW IN TRANSPLANTING THE SEEDLINGS:

TOOLS AND MATERIALS NEEDED:

SOIL MEDIA	PLANT MARKERS
POTS	PUTTY KNIFE OR SPOON
PLANTS	WATERING CAN
WATER	

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. MIX THE SOIL MEDIA THOROUGHLY----->

USE A MIXTURE OF 2 PARTS TOP SOIL,
1 PART SAND, 1 PART PEAT.

2. SELECT THE SEEDLINGS FROM THE SEED
FLAT----->

SELECT ONLY THOSE THAT HAVE DEVELOPED
TWO TRUE LEAVES.

3. REMOVE THE SEEDLINGS FROM THE SEED
FLAT----->

USE A PUTTY KNIFE, FLAT BOARD, OR SPOON
TO REMOVE THE SEEDLINGS FROM THE FLAT SO
THAT THE ROOTS WILL NOT BE DISTURBED.

REMOVE ONLY A FEW SEEDLINGS AT ONE TIME.

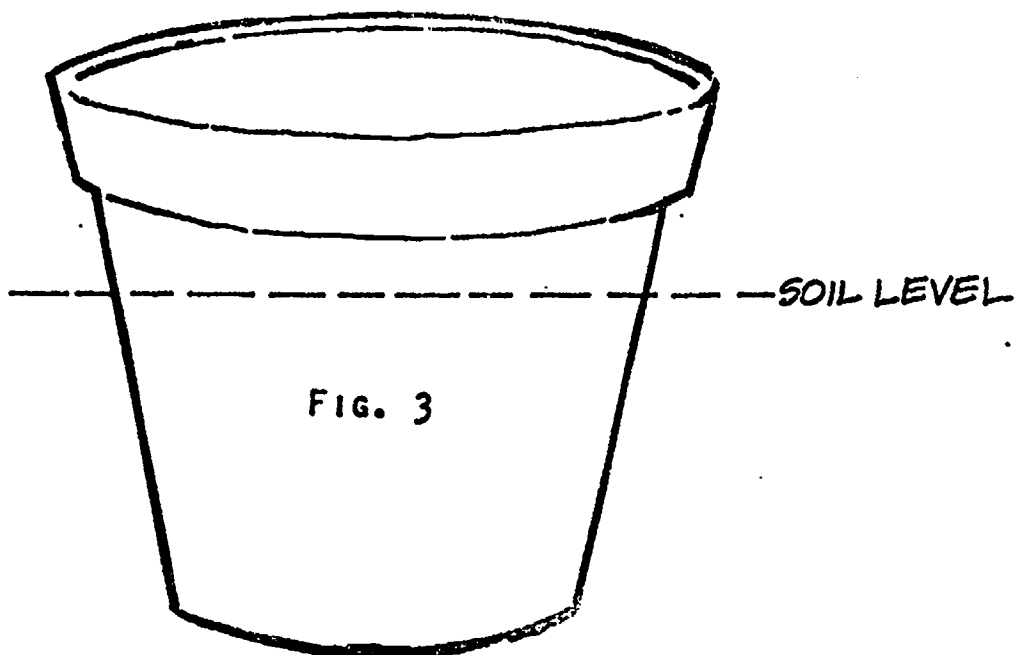
USE CARE---NEVER JUST "PULL" THEM OUT.

WHAT YOU MUST DO

WHAT YOU MUST KNOW

4. FILL THE POTS 2/3 FULL WITH THE SOIL MEDIA- FIG. 3 ----->

USE THE SOIL MIXTURE FROM STEP 1.

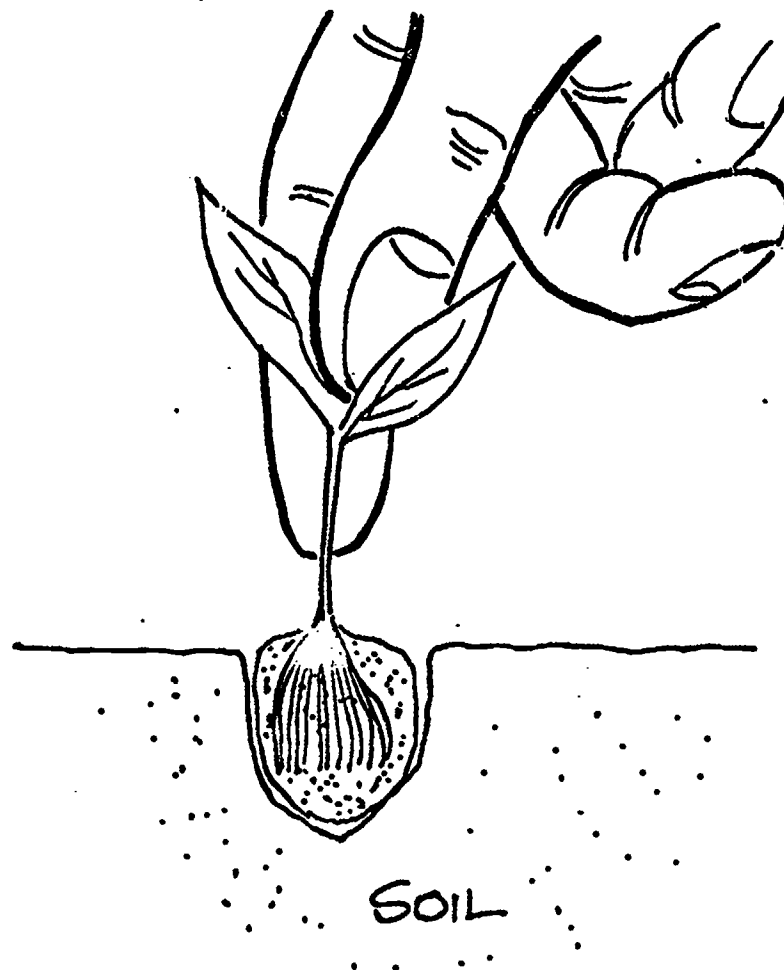


5. MAKE THE HOLE FOR EACH SEEDLING WITH YOUR FINGER----->

THE HOLE IN THE SOIL MEDIA SHOULD BE THE SAME DEPTH THAT THE SEEDLING WAS GROWING IN THE SEED FLAT.

6. PICK EACH SEEDLING UP GENTLY BY ITS LEAVES

7. HOLD THE SEEDLING VERY CAREFULLY IN ONE HAND AND WITH THE OTHER HAND GENTLY GUIDE THE ROOTS INTO THE HOLE



8. ADD SOIL AROUND THE SEEDLING

9. FIRM THE SOIL DOWN

WHAT YOU MUST DO

10. WATER THE SEEDLING—FIG. 4 ----->

WHAT YOU MUST KNOW

AS SOON AS THE PLANT IS TRANSPLANTED,
WATER IT WITH A SPRINKLER.

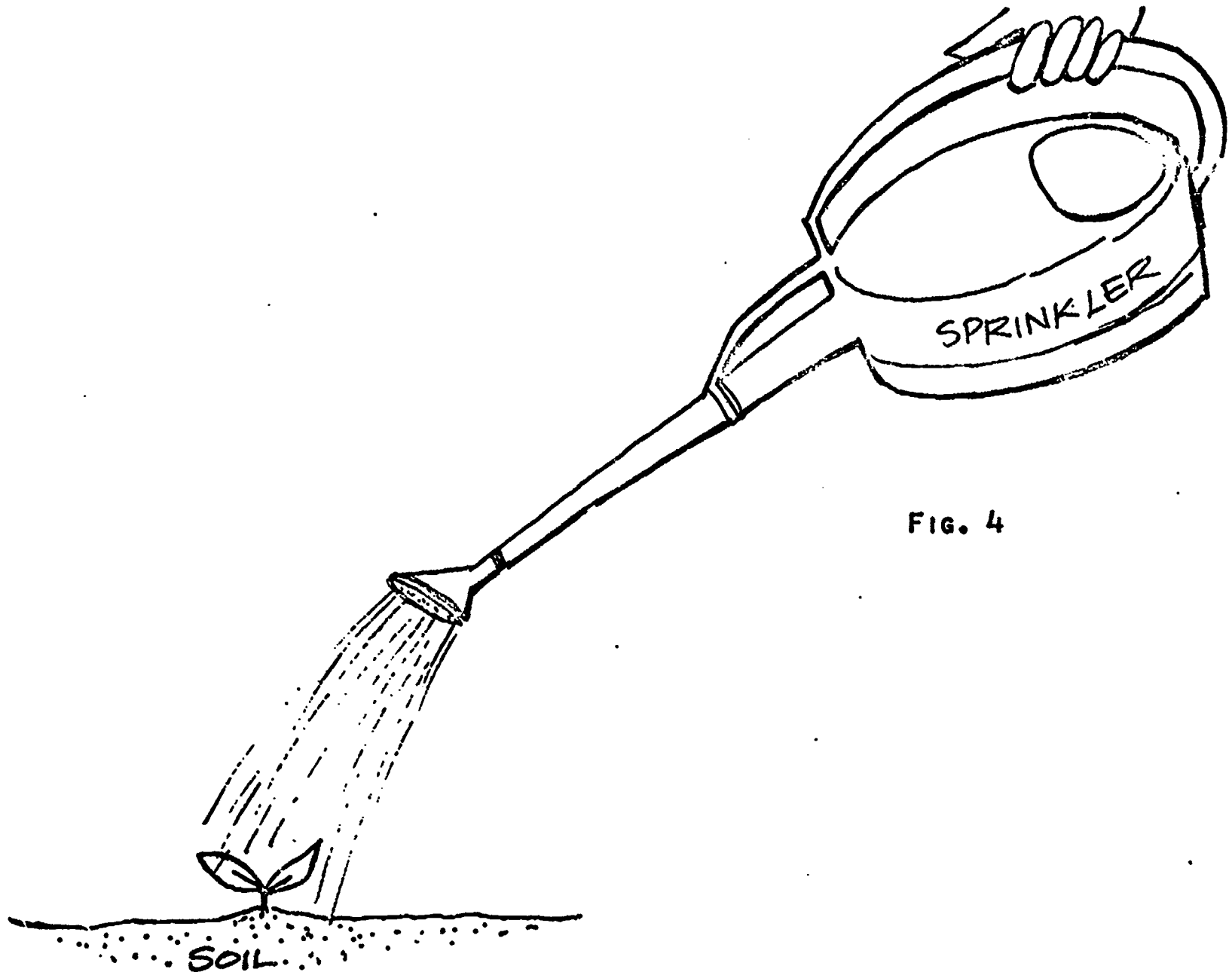


FIG. 4

11. REPEAT THESE STEPS UNTIL YOU HAVE
TRANSPLANTED TWO DOZEN (24) SEEDLINGS

YOUR SECOND EXPERIMENT IN GEN. HORTICULTURE WILL BE:

TO REPRODUCE OR PROPOGATE SIX PLANTS
BY CUTTINGS FROM THE TERMINAL GROWTH OF
THE PARENT PLANTS.

STEPS TO FOLLOW IN PROPOGATION BY CUTTINGS:

TOOLS AND MATERIALS NEEDED: KNIFE
POTS
MATERIALS FOR CUTTINGS
ROOTING HORMONE
SOIL MEDIA

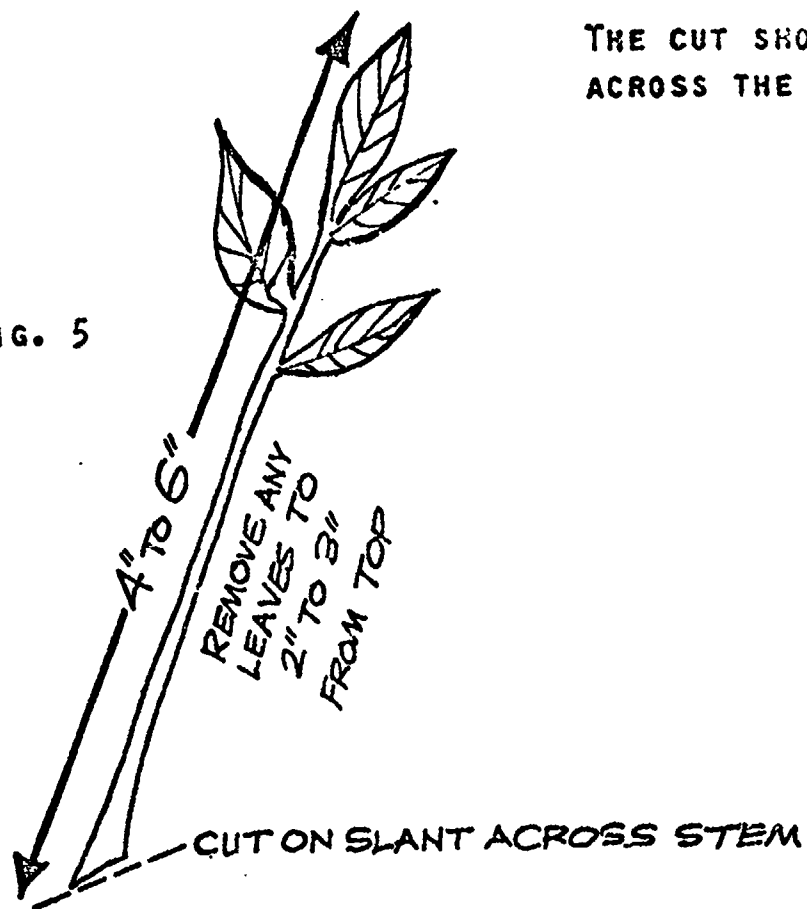
WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. TAKE SIX CUTTINGS 4" TO 6" IN LENGTH
FROM THE TERMINAL OF END GROWTH OF
THE PARENT PLANT- FIG. 5

MAKE SURE TO SELECT NEW GROWTH.

FIG. 5



THE CUT SHOULD BE MADE ON A SLANT
ACROSS THE STEM.

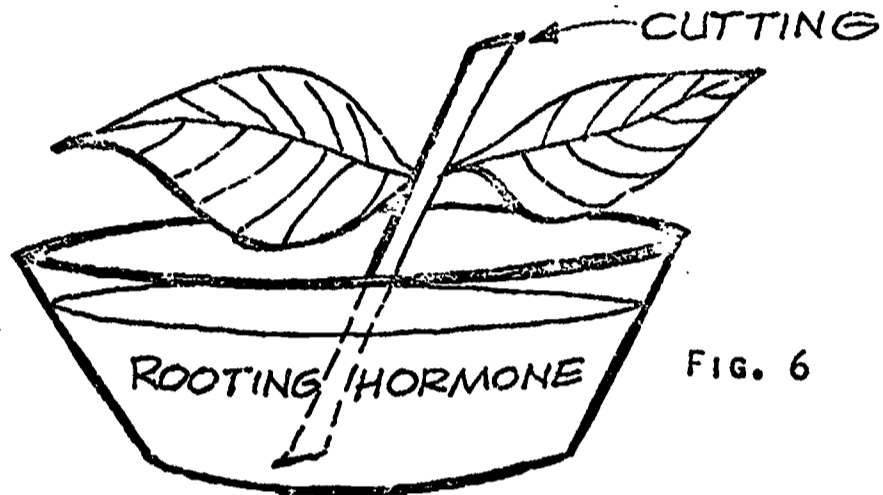
2. REMOVE ALL LEAVES UP TO WITHIN 2"-
3" OF THE TOP OF THE CUTTING

WHAT YOU MUST DO

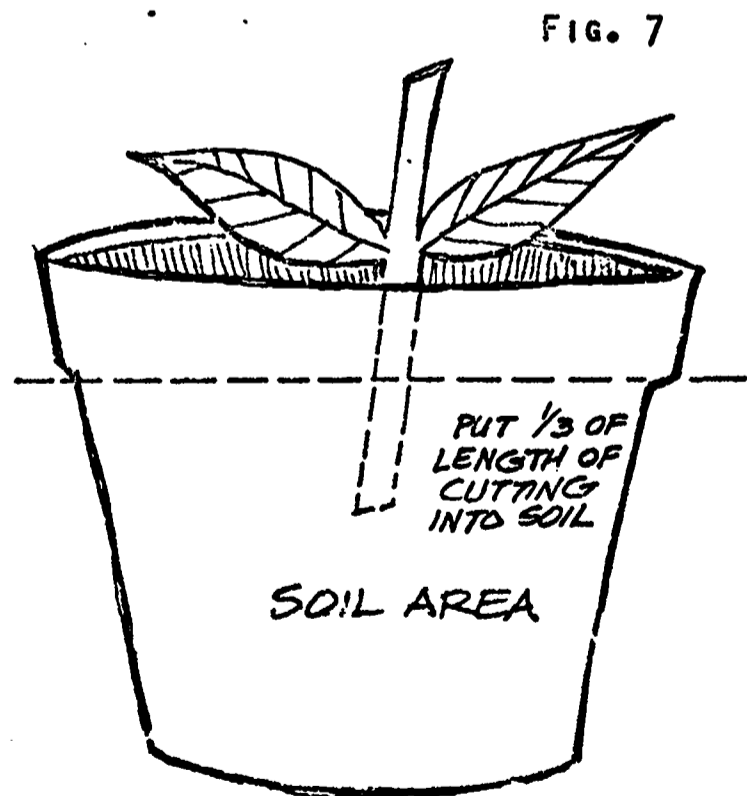
WHAT YOU MUST KNOW

3. DIP THE BASE OF THE CUTTING INTO THE ROOTING HORMONE-- FIG. 6

THE ROOTING HORMONE HELPS THE CUTTING DEVELOP ROOTS MORE QUICKLY.



4. INSERT 1/3 OF THE LENGTH OF THE CUTTING INTO THE SOIL MEDIA FIG. 7



5. FIRM THE SOIL AROUND THE CUTTING

YOUR THIRD EXPERIENCE IN CIVIL HORTICULTURE WILL BE:

TO PREPARE THE SOIL MEDIA AND SOW
THE SEED.

STEPS TO FOLLOW IN PREPARING THE SOIL MEDIA AND SOWING THE SEED:

TOOLS AND MATERIALS NEEDED: $\frac{1}{2}$ GALLON JIFFEY-MIX (COMMERCIALY PREPARED MIXTURE OF
HALF PEAT AND HALF VERMICULITE)
1 JIFFEY FLAT 6 X 9 X 2 $\frac{1}{2}$ "
SEED (GET THESE FROM THE INSTRUCTOR)
HOT WATER (THE WATER SHOULD NOT BE TOO HOT FOR YOU TO
HOLD YOUR HAND IN)
8" X 12" POLYETHYLENE FILM
MASKING TAPE
GERMINATION BOX
4" EMPTY CLAY POT
 $\frac{1}{2}$ " WOOD LABEL
ONE GALLON CAN

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. MEASURE $\frac{1}{2}$ GALLON OF THE JIFFEY-MIX-->

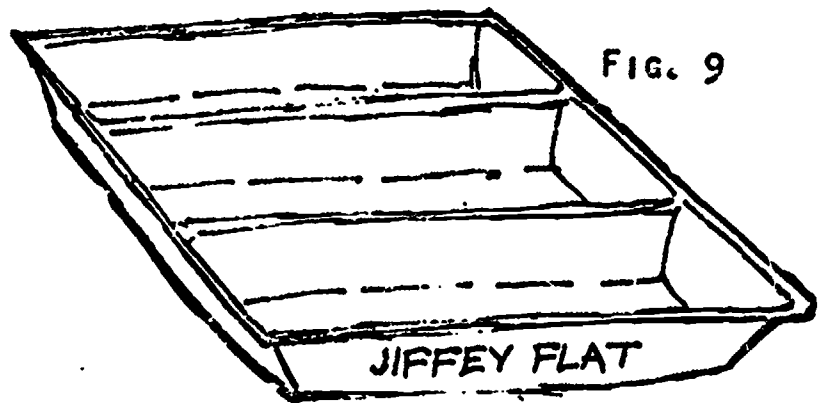
FILL THE GALLON CAN $\frac{1}{2}$ FULL.

2. ADD ENOUGH HOT WATER TO THE JIFFEY-
MIX TO MAKE IT THE CONSISTENCY OF
THICK DOUGH-- FIG. 8 ----->

USING YOUR HANDS, STIR THE JIFFEY-MIX
AS THE WATER IS ADDED.



FIG. 8



3. FILL THE JIFFEY FLAT TO A LEVEL 1" FROM THE TOP WITH THE JIFFEY-MIX-->
FIG. 9

BE SURE NOT TO FILL THE JIFFEY FLAT
COMPLETELY FULL. THE JIFFEY-MIX MUST
BE 1" FROM THE TOP.

WHAT YOU MUST DO

WHAT YOU MUST KNOW

4. MAKE ROWS IN THE WET JIFFEY-MIX.
USING THE $\frac{1}{2}$ " WOOD LABEL—FIG. 10 →

MAKE THE ROWS 2" APART AND $\frac{1}{4}$ " DEEP.

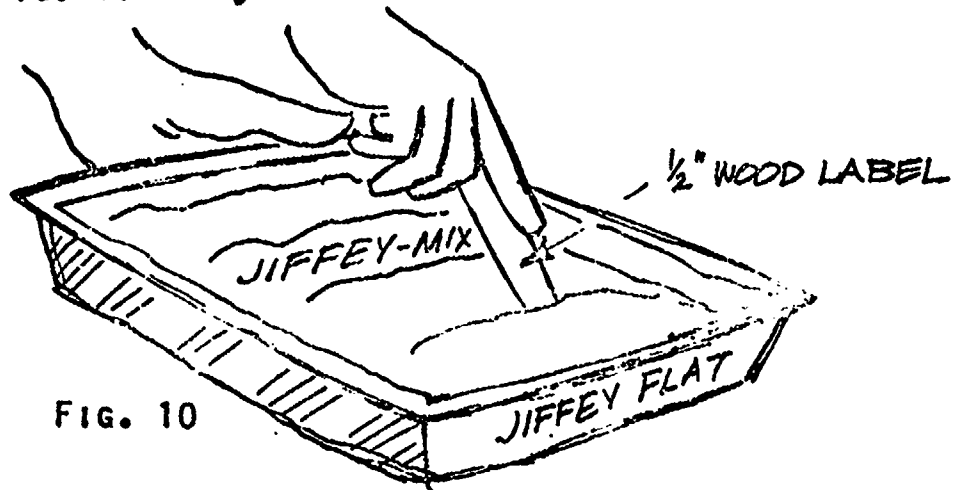


FIG. 10

5. SOW THE SEED IN THE ROWS →

DISTRIBUTE THE SEED EVENLY IN THE ROWS. IT IS USUALLY BEST TO DIVIDE THE SEED IN HALF, DISTRIBUTING HALF THE SEED OVER THE ENTIRE AREA THEN REPEATING THIS OPERATION WITH THE REMAINING HALF OF THE SEED.

6. COVER THE SEED WITH THE JIFFEY-MIX →
FIG. 11

DO NOT COVER THE SEED WITH TOO MUCH MIX. WITH SMALL SEED (SNAP DRAGON OR PETUNIA), COVER JUST ENOUGH TO HIDE THE SEED. WITH LARGER SEED, COVER WITH A DEPTH EQUAL TO THE THICKNESS OF THE SEED ITSELF.

7. FIRM THE SOIL →

PRESS LIGHTLY WITH THE EMPTY POT.

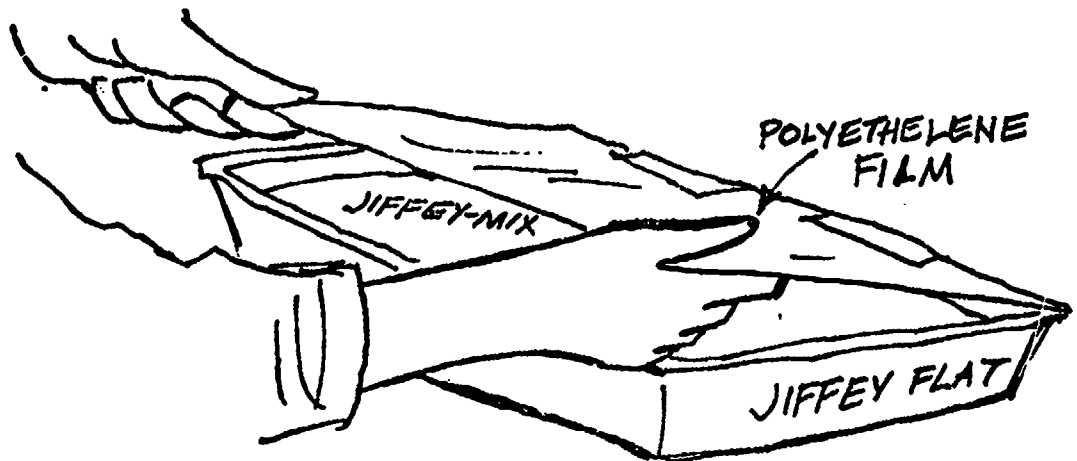


FIG. 11

8. COVER THE FLAT WITH THE POLYETHYLENE
FILM →

STRETCH THE COVERING TIGHT AND TAPE IT WITH THE MASKING TAPE. BE SURE THAT THE FILM IS TIGHT AND IS NOT TOUCHING THE SOIL.

WHAT YOU MUST DO

WHAT YOU MUST KNOW

9. PLACE THE FLAT IN THE GERMINATION BOX FIG. 12
10. CLOSE THE LID AND TURN ON THE LIGHTS IN THE BOX

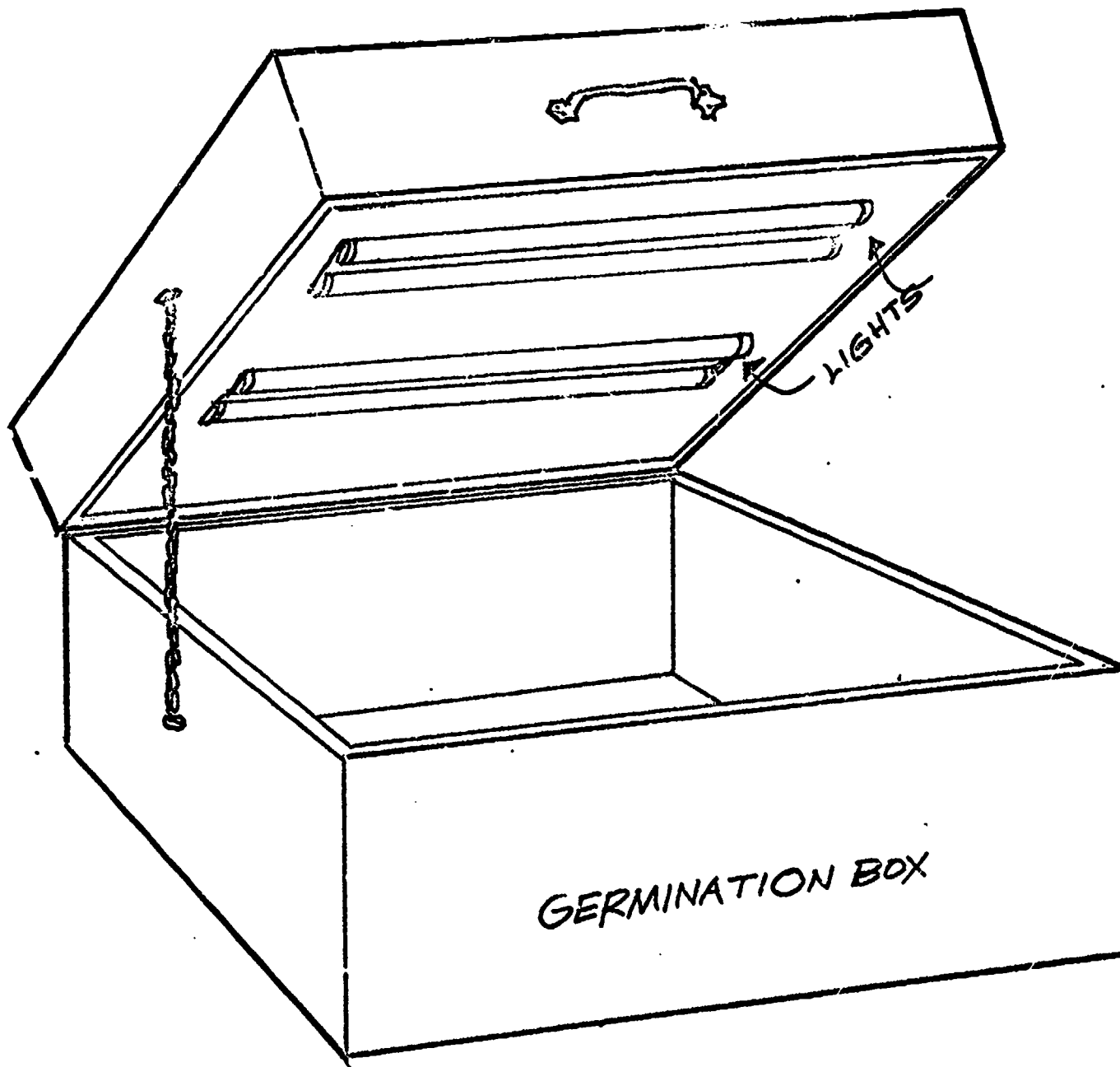
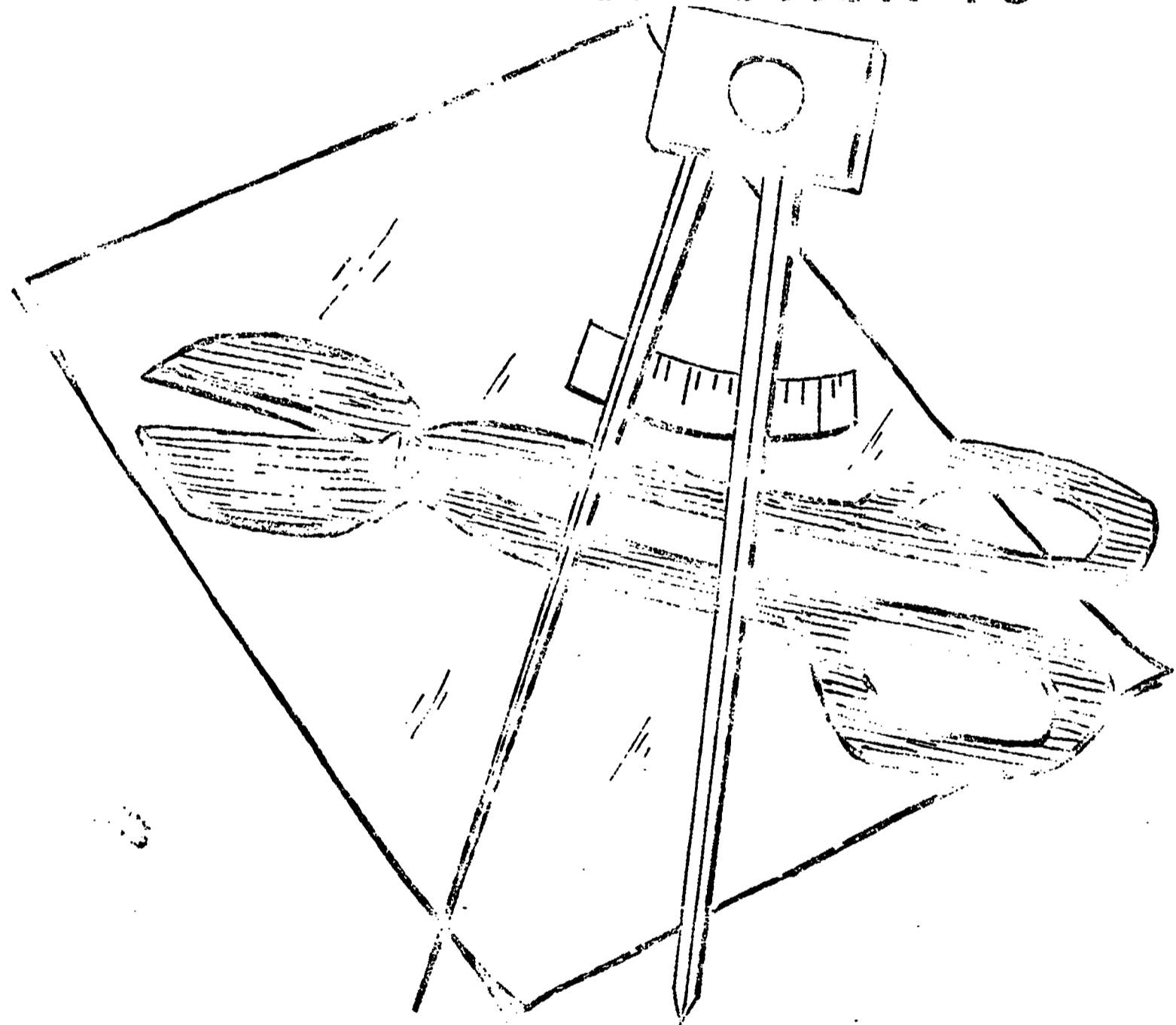


FIG. 12



AN INTRODUCTION TO



WALTER W. WALKER

PART M OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO SHEET METAL

BY DONALD HINKLE

SOME INTERESTING FACTS ABOUT SHEET METAL WORK

1. WHAT KIND OF WORK IS DONE?

CONSTRUCTION - AIR CONDITIONING DUCTS, ROOFING, GUTTERINGS, ARCHITECTURAL SHEET METAL (COVERINGS FOR BUILDINGS).

INDUSTRIAL - ELECTRONIC HOUSINGS AND CABINETS, OFFICE AND SCHOOL FURNITURE, MECHANISMS FOR COMPUTERS, TELEPHONE AND ELECTRICAL SWITCHING EQUIPMENT.

AIRCRAFT AND AEROSPACE - AIR FRAME, ENGINES MISSILE CASINGS AND ENGINES.

2. WORKING CONDITIONS:

CONSTRUCTION - YOU MAY BE SUBJECTED TO EXTREME VARIATIONS IN CLIMATE AND MAY BE REQUIRED TO WORK AT HEIGHTS IN EXCESS OF 30 FT. ALSO, THE WORK IS OFTEN ONLY TEMPORARY.

INDUSTRIAL - THIS IS USUALLY REPETITIOUS, HIGH SPEED PRODUCTION EXCEPT IN PROTOTYPE AND MODEL WORK. HOWEVER, IT IS NOT SUBJECT TO EXTREMES IN TEMPERATURE.

AIRCRAFT AND AEROSPACE - LIMITED PRODUCTION, INTERESTING - GENERALLY GOOD WORKING CONDITIONS.

3. SALARY SCALE:

CONSTRUCTION - IN THE UNION, JOURNEYMAN WAGES RANGE FROM \$6.00 TO \$20.00 PER HOUR WITH STARTING APPRENTICE WAGES AT 60% OF WHAT THE JOURNEY-

MAN RECEIVES. NON-UNION PAY IS \$2.50 TO \$5.00 PER HOUR, DEPENDING ON EXPERIENCE.

INDUSTRIAL - MINIMUM WAGE TO ABOUT \$3.50 PER HOUR.

AIRCRAFT AND AEROSPACE - \$2.50 TO \$4.50 PER HOUR WITH CONSIDERABLE OVERTIME.

4. TYPE OF CLOTHING WORN:

CONSTRUCTION - ROUGH WORK CLOTHES, BOOTS.

INDUSTRIAL - STREET CLOTHES, SHOP APRONS.

AIRCRAFT AND AEROSPACE - STREET CLOTHES.

5. PERSONAL QUALITIES NECESSARY:

MANIPULATIVE SKILLS:

CONSTRUCTION - YOU MUST KNOW HOW TO HANDLE HEAVY EQUIPMENT, LADDERS, HOISTS, ROPES, ETC.

INDUSTRIAL - IT IS NOT NECESSARY TO HAVE HIGHLY DEVELOPED MANIPULATIVE SKILLS.

AIRCRAFT AND AEROSPACE - A GREAT DEAL OF MANIPULATIVE SKILL AND MECHANICAL INGENUITY IS REQUIRED.

PERSONALITY CHARACTERISTICS:

CONSTRUCTION - YOU MUST HAVE OPTIMISM AND CONFIDENCE AND BE CAPABLE OF DEALING WITH CONSTANTLY CHANGING EMPLOYMENT CONDITIONS.

INDUSTRIAL - YOU MUST BE ABLE TO DO REPETITIOUS TASKS AND BE ABLE TO WITHSTAND MONOTONY AND WORKING ALONE.

AIRCRAFT AND AEROSPACE - YOU MUST HAVE MUCH MECHANICAL CURIOSITY AND INVENTIVENESS AND BE ABLE TO WORK ALONE OR WITH A TEAM.

EDUCATIONAL QUALIFICATIONS:

CONSTRUCTION - HIGH SCHOOL DIPLOMA

INDUSTRIAL - GENERALLY HIGH SCHOOL DIPLOMA

AIRCRAFT AND AEROSPACE - HIGH SCHOOL DIPLOMA. A DEGREE FROM A VOCATIONAL SCHOOL OR EVIDENCE OF TECHNICAL TRAINING IS NOT NECESSARY. YOUR MOST IMPORTANT ASSETS ARE SKILL IN SHEET METAL WORK AND A POSITIVE WORK ATTITUDE.

YOUR FIRST EXPERIENCE IN SHEET METAL WILL BE:

TO LAY OUT AND SHAPE TWO BOOK ENDS.

INTRODUCTION - PLEASE READ CAREFULLY:

A SET OF BOOK ENDS WILL BE PRODUCED USING TOOLS THAT MAY BE DANGEROUS OR MAY BE DAMAGED IF MISUSED BY THE STUDENT. ALL STUDENTS WILL BE INSTRUCTED IN THE USE OF THESE TOOLS AND WILL BE EXPECTED TO ASK HIS STUDENT INSTRUCTOR IF HE IS CONFUSED ABOUT USING THE TOOL.

ALL TRIMMING MUST BE DONE WITHIN 1/16" OF THE SCRIBED LINE OF THE WORK-PIECE. ALL BENDING MUST BE WITHIN 2° OF SQUARE.

1. READ THROUGH ASSIGNMENT, OPERATION AND OTHER SHEETS WITH THE STUDENT INSTRUCTOR.
2. THE STUDENT MUST FOLLOW THE OPERATION SHEET STEP BY STEP AND EACH OPERATION MUST BE COMPLETED AND INITIALED BY THE STUDENT INSTRUCTOR BEFORE THE STUDENT PROCEEDS TO THE NEXT OPERATION.
3. CHECK THE TOOLS OUT OF THE CRIB.
4. CHECK OUT THE SAFETY GOGGLES FROM THE SAFETY SUPERVISOR.
5. OBTAIN TWO BLANK PIECES OF MATERIAL FROM THE STUDENT INSTRUCTOR.
6. DO NOT ATTEMPT TO USE ANY TOOLS UNTIL THE STUDENT INSTRUCTOR GIVES INSTRUCTION IN THEIR USE.

STEPS TO FOLLOW! LAYING OUT THE BOOK ENDS:

TOOLS AND MATERIALS NEEDED: TEMPLATE, 1" C-CLAMPS, SCRATCH AWL, 2 PIECES
5" x 9" 20 GAGE SHEET METAL

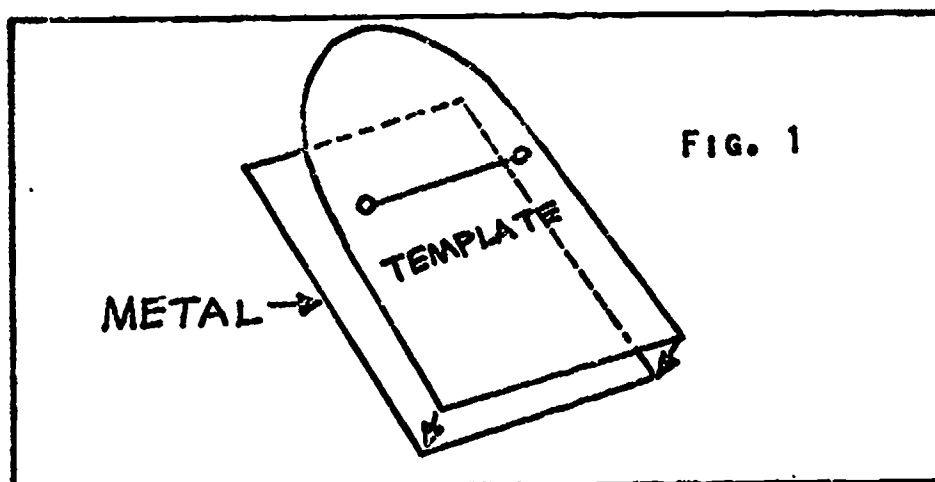
WHAT YOU MUST DO

1. PLACE THE TEMPLATE OVER 20 GAGE METAL MAKING SURE EDGES ARE EVEN

FIG. 1

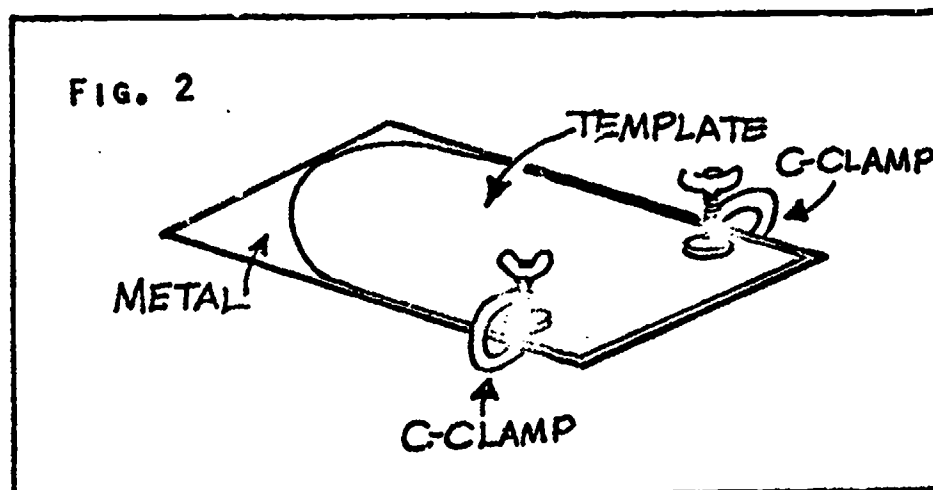
WHAT YOU MUST KNOW TO DO THESE STEPS

WHEN THE TEMPLATE IS IN POSITION ON THE BLANK SHEET METAL, THE TWO PIECES OF METAL MUST BE HELD TOGETHER TIGHTLY SO THAT THEY WILL NOT SLIP. BE SURE TO COMPLETE THE REMAINING 5 OPERATIONS ON ONE BOOK END BEFORE BEGINNING WORK ON THE OTHER ONE.



2. FASTEN THE C-CLAMPS TIGHTLY OVER THE TEMPLATE AND BLANK - FIG. 2

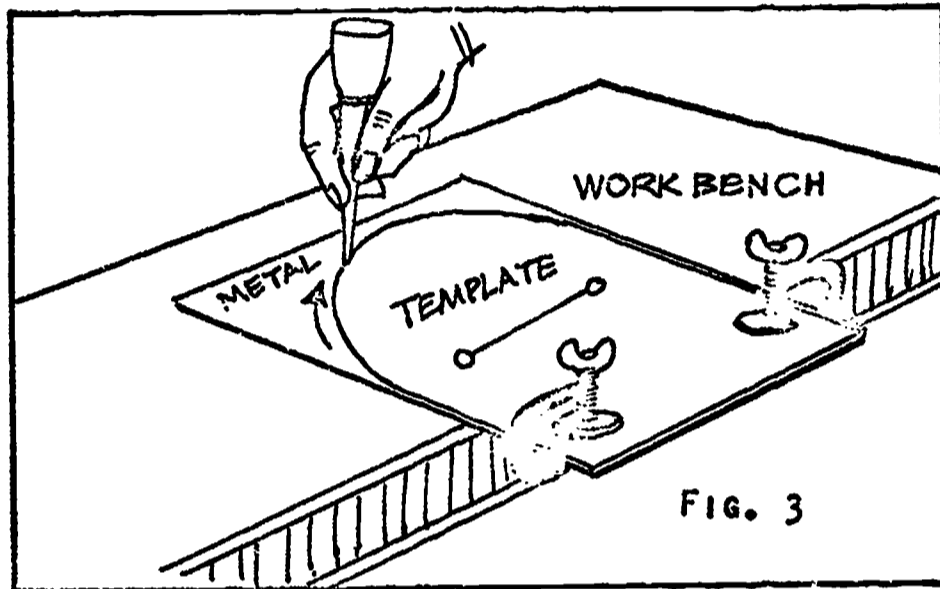
DO NOT TIGHTEN THE C-CLAMPS EXCESSIVELY OR THEY WILL TWIST OUT OF SHAPE. POSITION C-CLAMP AT VERY EDGE ON OPPOSITE SIDES OF TEMPLATE AND BLANKS.



WHAT YOU MUST DO

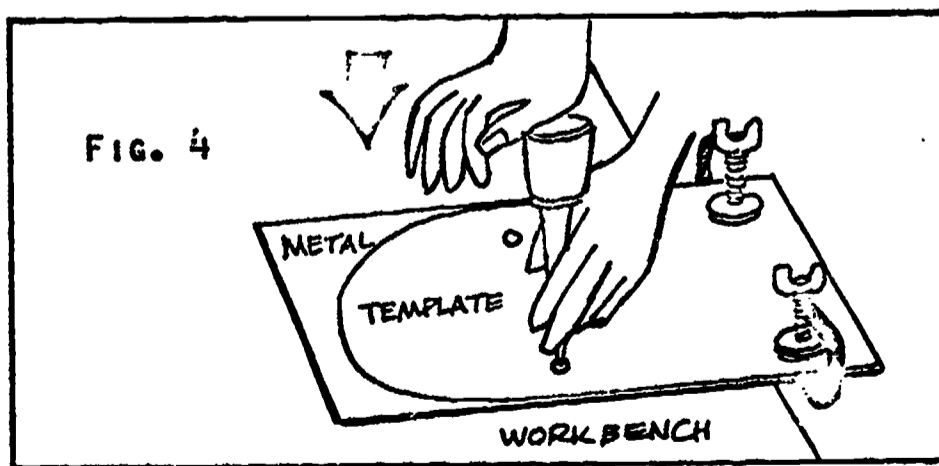
3. USE THE SCRATCH AWL AND SCRATCH ONE SMOOTH LINE ON THE BLANK AROUND THE TEMPLATE --- FIG. 3 ---▶

HOLD THE SCRATCH AWL AT A SLIGHT ANGLE SO THE LINE SCRATCHED WILL BE EXACTLY THE SAME SIZE AS THE TEMPLATE.



4. PLACE THE BLANK AND THE TEMPLATE ON THE WORK BENCH WITH THE C-CLAMPS EXTENDING OUT AWAY FROM WORK BENCH ---▶ THE PARTS MUST BE PLACED SO THEY ARE FLAT ON BENCH.

5. PLACE THE SHARP END OF THE SCRATCH AWL THROUGH THE TWO HOLES PUNCHED IN THE TEMPLATE AND STRIKE THE HANDLE A SHARP BLOW WITH THE HEEL OF YOUR HAND - FIG. 4 -----▶ THE PARTS MUST BE FLAT ON THE BENCH TO PROVIDE BACKUP FOR THE SCRATCH AWL IN MAKING A PUNCH MARK.



6. RELEASE THE C-CLAMPS AND REPEAT THE PRECEDING OPERATIONS ON THE SECOND BOOK END

STEPS TO FOLLOW IN SHAPING THE BOOK ENDS:

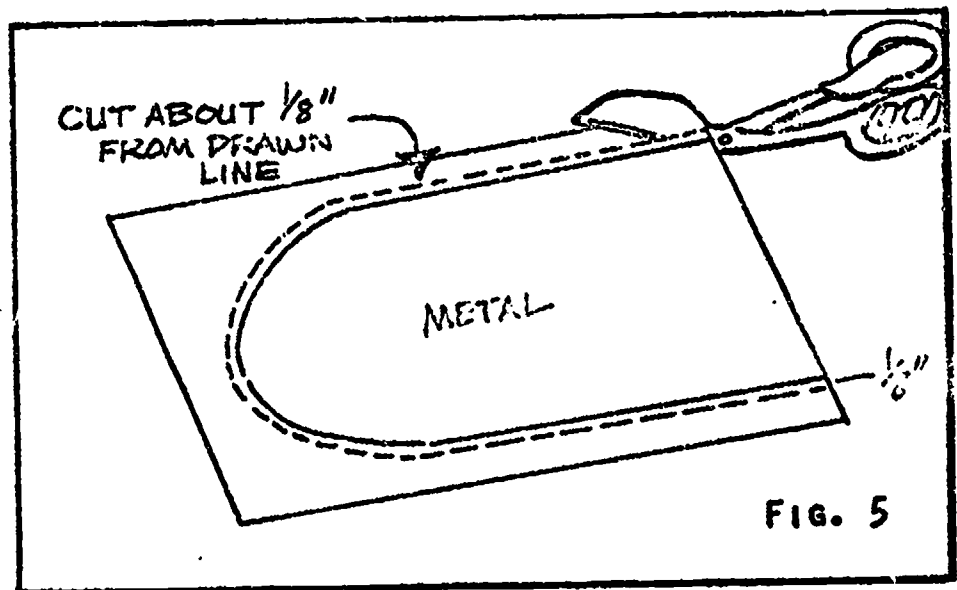
TOOLS AND MATERIALS NEEDED: AVIATION SNIPS, 6 INCH VISE,
4 FT. CORNICE BRACKET, 1/8 IN. METAL SQUARE

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

1. TRIM THE EXCESS MATERIAL APPROXIMATELY 1/8" FROM THE SCRIBED OUTLINE ON THE BLANK USING AVIATION SNIPS -- FIG. 5

SNIPS MUST BE HELD 90° TO MATERIAL AT ALL TIMES.

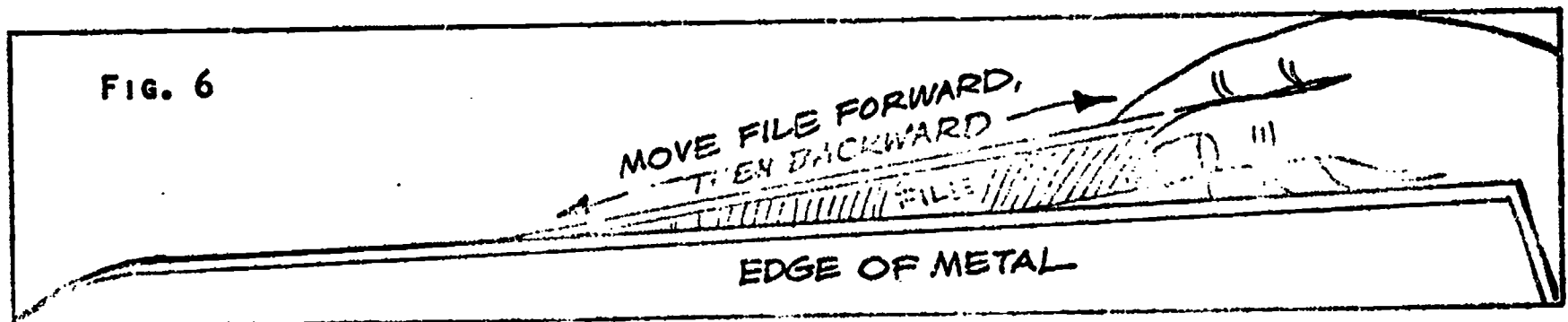


2. MAKE THE FINAL TRIM EXACTLY ON THE SCRIBE LINE, USING AVIATION SNIPS

MOVE THE SNIPS ALONG THE SCRIBE LINE CUTTING AS CONTINUOUSLY AS POSSIBLE.

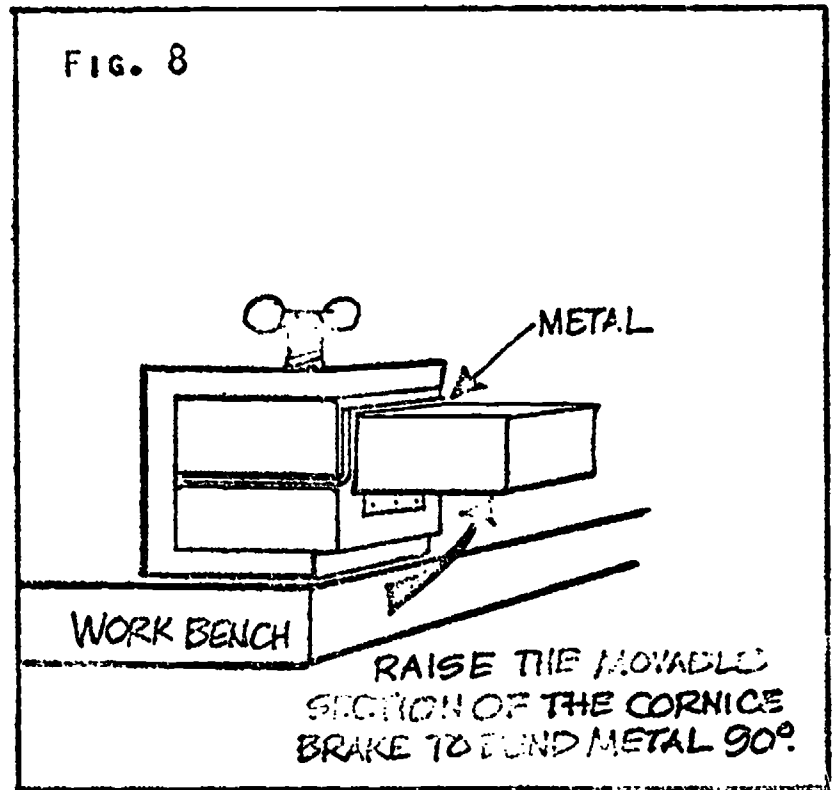
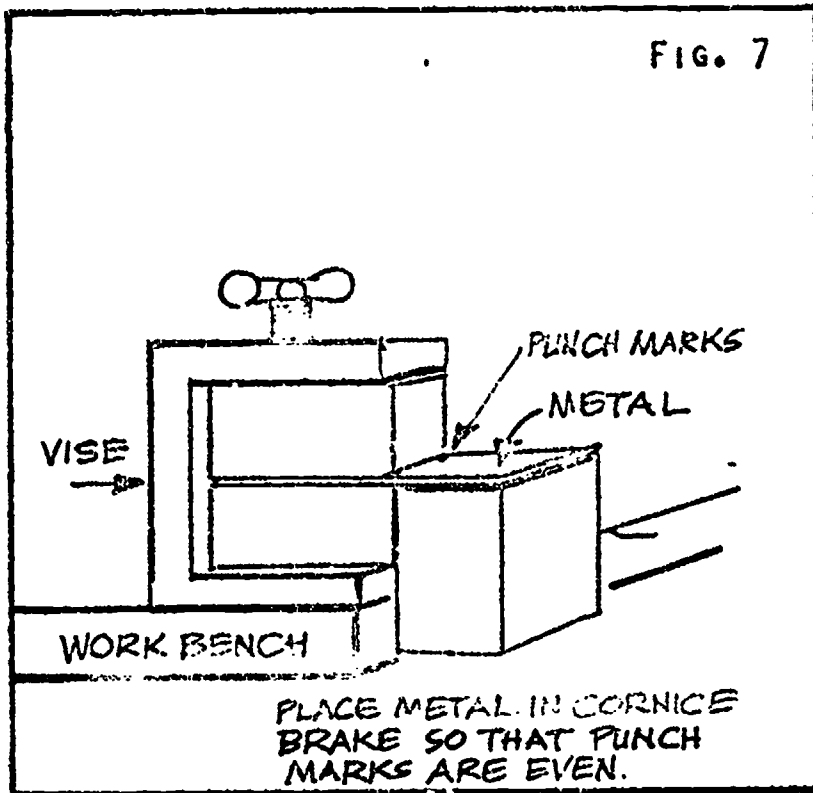
3. FILE YOUR WORK PIECES SMOOTHLY TO THE SCRIBE LINES -- FIG. 6

PRESS THE FILE TIGHTLY AGAINST THE WORK PIECE ON THE FORWARD STROKE ONLY, RAISING FILE ON THE BACK STROKE.



4. PLACE YOUR WORKPIECE IN THE CORNICE BRAKE WITH THE UPPER JAWS PLACED EVENLY ON THE PUNCH MARKS MADE WITH THE SCRATCH AWL — FIG. 7 —————>

THE STUDENT INSTRUCTOR WILL DEMONSTRATE AND AID THE STUDENT IN THE OPERATION OF THE CORNICE BRAKE.



5. BEND THE WORKPIECE UP 90° FIG. 8

6. REMOVE THE WORKPIECE FROM THE BRAKE

7. CHECK THE BEND TO SEE THAT IT IS SQUARE OR 90° —————>

USE A COMBINATION SQUARE.

8. IF YOUR WORKPIECE IS NOT BENT SQUARE, CORRECT THE BEND BY USING YOUR HANDS —————>

AGAIN CHECK THE BEND WITH A COMBINATION SQUARE. THIS BEND MUST BE WITHIN 2° OF SQUARE.

9. REPEAT THE ABOVE OPERATIONS ON THE SECOND WORKPIECE

10. PRESENT THE WORKPIECES TO THE INSTRUCTOR FOR EVALUATION —————>

ALL THE PARTS MUST BE TRIMMED WITHIN 1/16" OF THE SCRIBE LINES AND ALL BENDING MUST BE WITHIN 2° OF BEING SQUARE.

YOUR SECOND EXPERIMENT IN SHEET METAL MILLING

TO MAKE A SHEET METAL BOX WITH A
SLIDING TOP.

INTRODUCTION - PLEASE READ CAREFULLY:

INSTRUCTIONS WILL BE GIVEN BY THE
STUDENT INSTRUCTOR ON THE USE OF SHEET
METAL LAYOUT AND SHAPING TOOLS.

"LAYOUT" INVOLVES SCRATCHING THE
PATTERN OR THE DESIGN ON THE METAL.

ALL LAYOUT MUST BE WITHIN 1/16"
OF THE SPECIFIED DIMENSIONS.

ALL TRIMMING MUST BE WITHIN 1/16"
OF THE SPECIFIED DIMENSIONS.

STEPS TO FOLLOW IN THE LAYOUT OF THE TOP AND THE BOTTOM OF THE BOX:

TOOLS AND MATERIALS NEEDED: COMBINATION SQUARE
SCRATCH AWL
PROTRACTOR
1 PIECE 28 GAGE SHEET METAL - $4 \frac{1}{8}''$ x $5 \frac{7}{8}''$
1 PIECE 28 GAGE SHEET METAL - $5 \frac{1}{2}''$ x $7 \frac{1}{2}''$

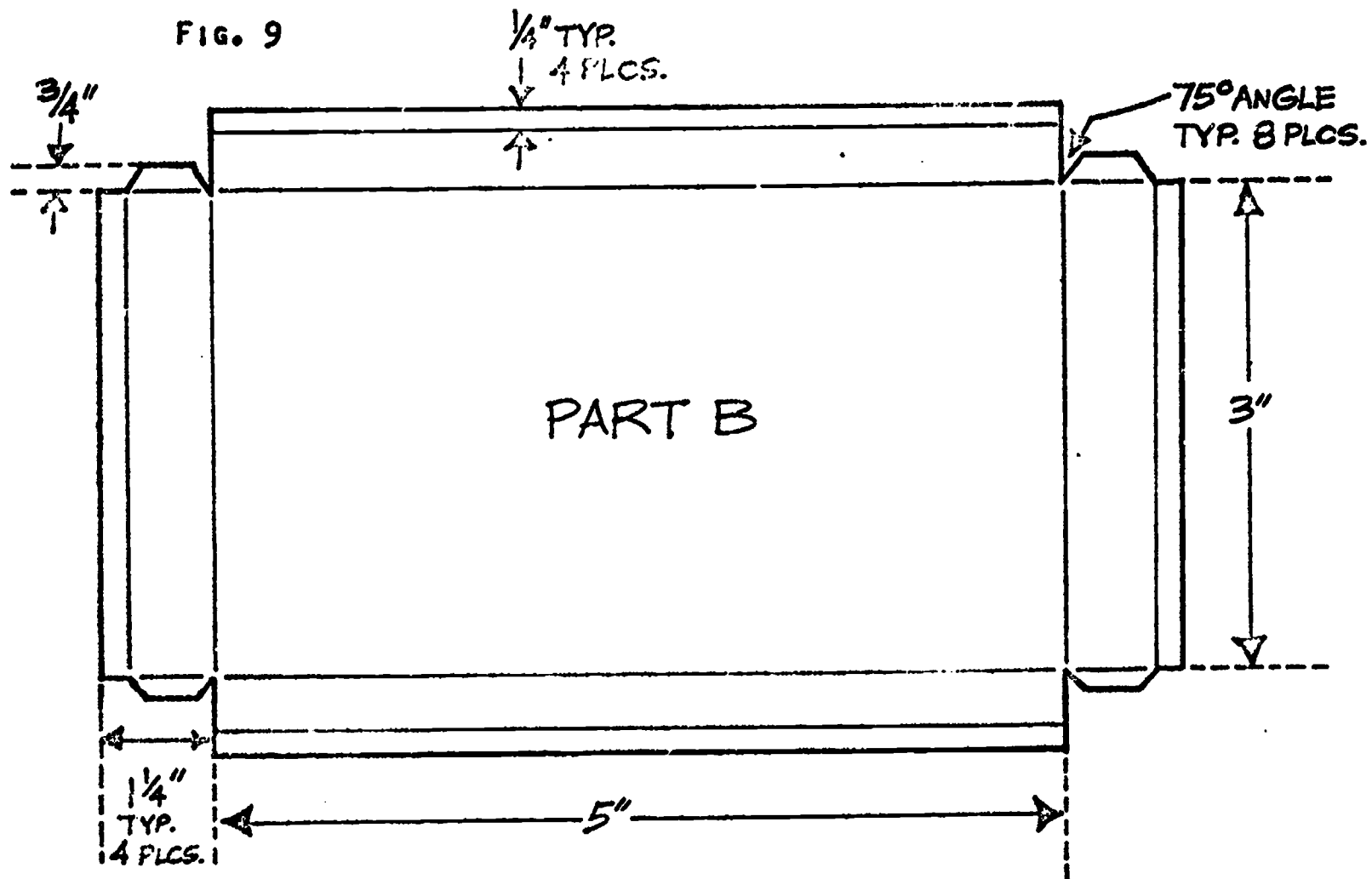
WHAT YOU MUST DO

1. STUDY THE LAYOUT DIAGRAM AND THE ILLUSTRATION OF THE COMPLETED BOX ----->
2. LAY OUT PART B ON BOTH SIDES OF THE MATERIAL TO THE DIMENSIONS SPECIFIED ON THE SKETCHES - FIG. 9 ->

WHAT YOU MUST KNOW TO DO THESE STEPS

REFER TO THESE THROUGHOUT YOUR WORK.

USE THE COMBINATION SQUARE, THE SCRATCH AWL, AND THE PROTRACTOR. THE LAYOUT MUST BE DONE ON BOTH SIDES OF THE MATERIAL BECAUSE BENDS MUST BE MADE ON BOTH SIDES. THE BLADE OF THE SQUARE MUST BE SET AT THE DIMENSION SPECIFIED ON THE SKETCH.

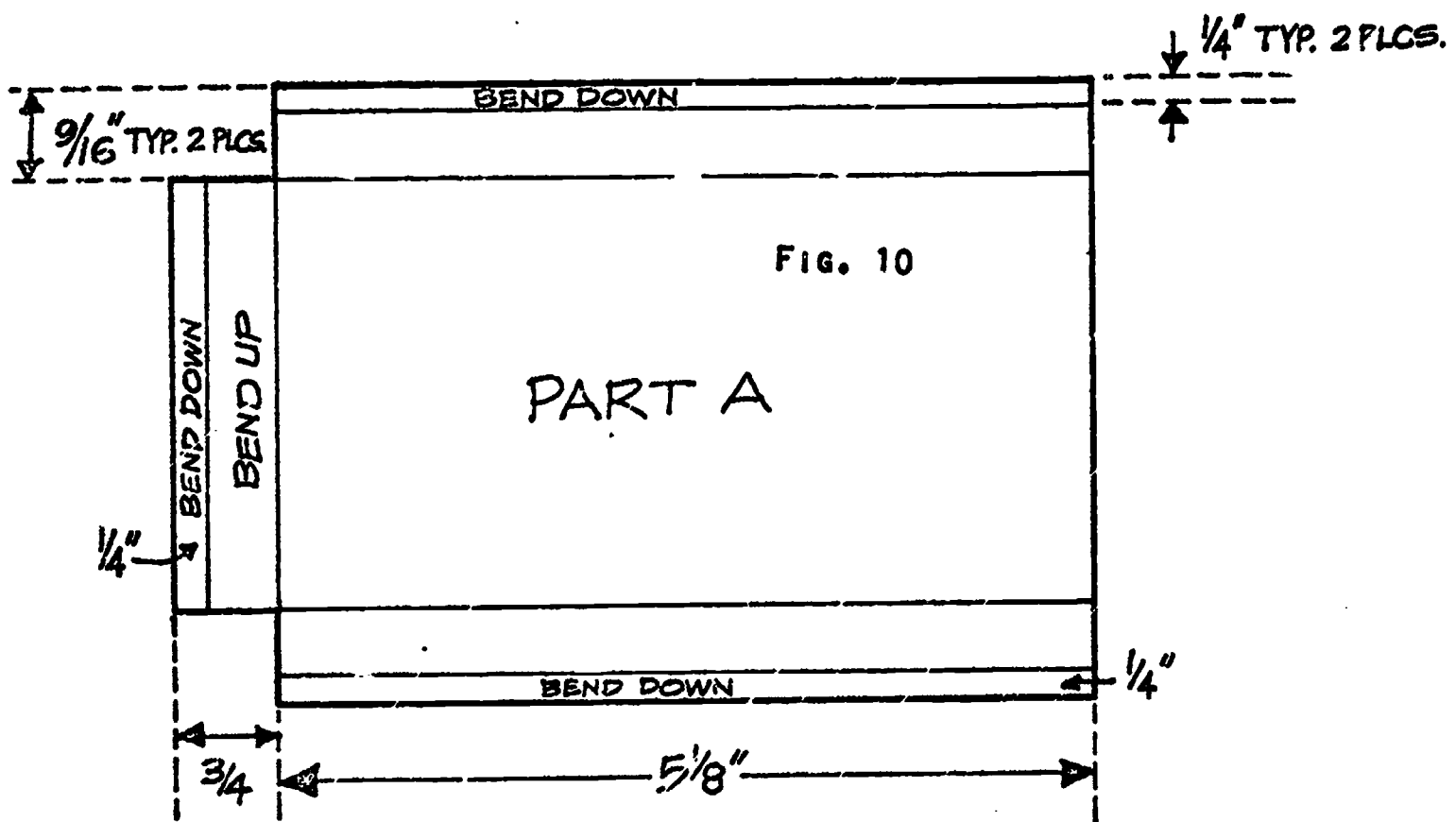


WHAT YOU MUST DO

3. LAY OUT PART A ON BOTH SIDES OF THE MATERIAL TO THE DIMENSIONS SPECIFIED ON THE SKETCHES -FIG. 10-->
4. PRESENT BOTH LAYOUTS TO THE STUDENT INSTRUCTOR SO THAT HE CAN CHECK THEM FOR ACCURACY
5. REPEAT THESE STEPS IF YOUR WORK WAS INACCURATE

WHAT YOU MUST KNOW

USE A COMBINATION SQUARE AND THE SCRATCH AWL.
THE BLADE OF THE SQUARE MUST BE SET AT THE DIMENSION SPECIFIED ON THE SKETCH.



STEPS TO FOLLOW IN SHAPING THE TOP AND THE BOTTOM OF THE BOX:

TOOLS AND MATERIALS NEEDED:	COMBINATION SQUARE	SMOOTH FILE
	PROTRACTOR	16 GAGE SCRAP PIECE OF METAL
	AVIATION SNIPS	SPOT WELDER
	BOX AND PAN BRAKE	THE LAYOUTS FOR PARTS A AND B

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE STEPS

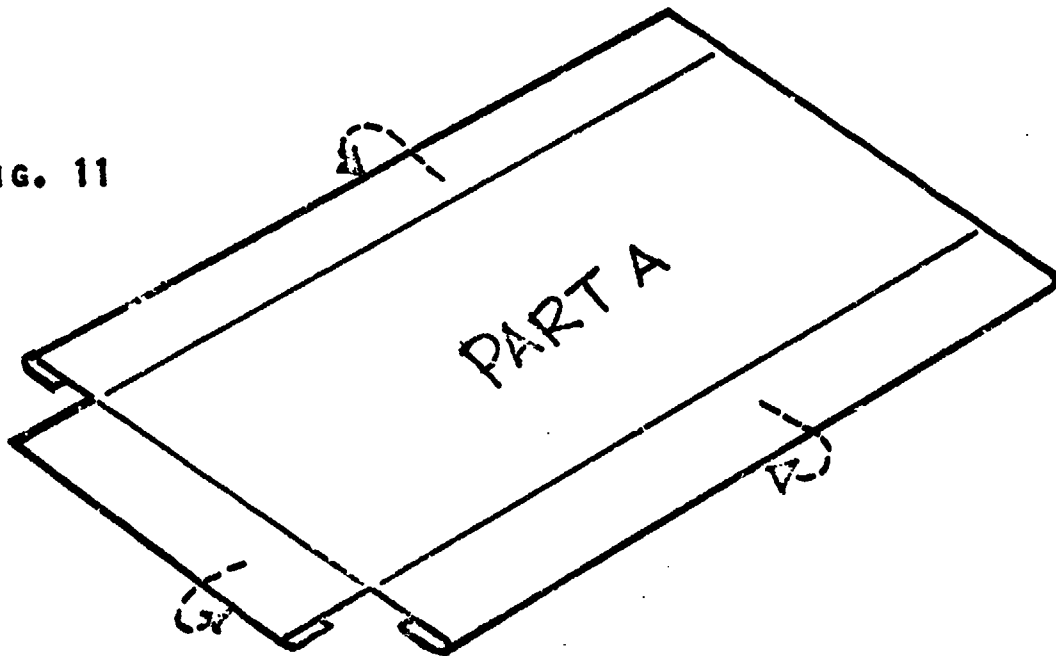
1. TRIM OUT THE TWO $3/4''$ x $9/16''$ NOTCHES ON PART A ----->
2. REMOVE THE SHARP EDGES AND BURRS ----->
3. BEND ALL THREE $1/4''$ HEMS ON PART A OVER 180° -- FIG. 11 ----->

REFER TO THE DEMONSTRATION BY THE STUDENT INSTRUCTOR ON THE USE OF LEFT AND RIGHT HAND AVIATION SNIPS. KEEP THE EXCESS MATERIAL OVER THE LOWER BLADE OF THE AVIATION SNIPS.

USE A SMOOTH FILE.

USE THE BOX AND A PAN BRAKE TO MAKE THE BENDS. REFER TO THE DEMONSTRATION BY THE STUDENT INSTRUCTOR ON THE USE OF THIS EQUIPMENT.

FIG. 11



BEND $1/4''$ HEMS 180° , AS SHOWN BY ARROWS.

WHAT YOU MUST DO

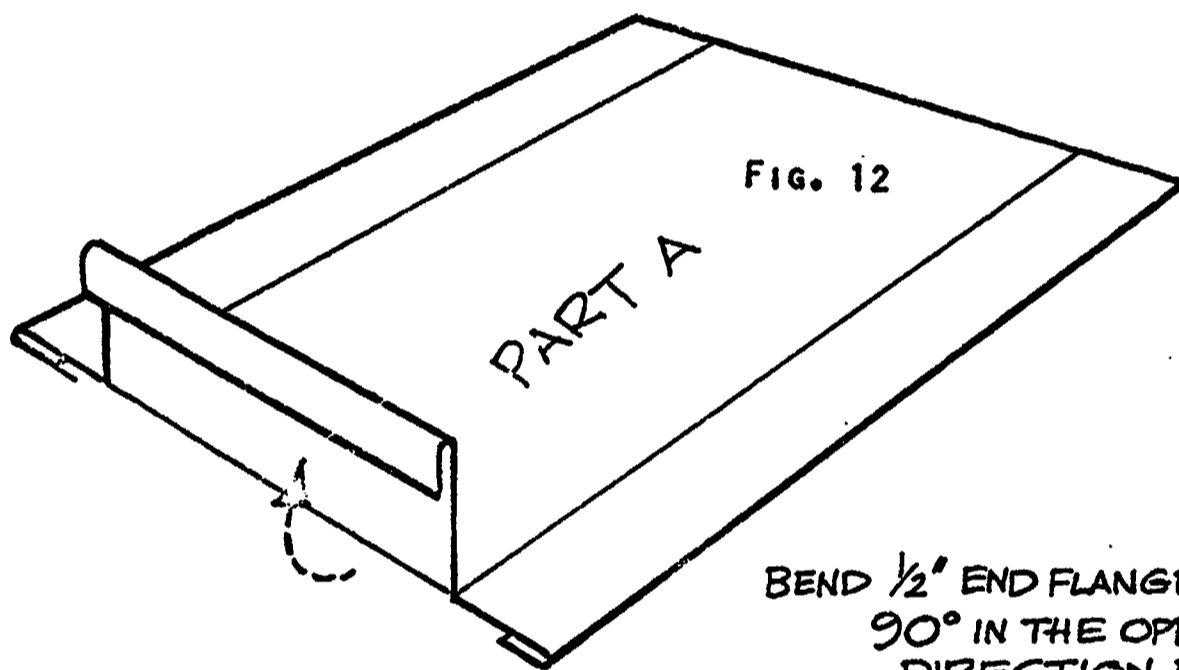
WHAT YOU MUST KNOW

4. FLATTEN THE $\frac{1}{4}$ " X 3" HEM ON THE LEFT END OF PART A

5. PLACE A 16 GAGE SCRAP PIECE OF METAL BETWEEN THE FOLDS OF THE HEMS ON BOTH SIDES OF PART A AND FLATTEN THE HEMS ONTO IT

6. REMOVE THE 16 GAGE SCRAPS FROM THE SIDE HEMS OF PART A

DO NOT DISTORT THE WORKPIECE.



BEND $\frac{1}{2}$ " END FLANGE
90° IN THE OPPOSITE
DIRECTION FROM HEMS
IN STEP 3.

7. BEND THE $\frac{1}{2}$ " END FLANGE ON PART A 90° IN THE OPPOSITE DIRECTION FROM THE BEND OF THE HEMS IN STEP 3. FIG. 12

USE THE BOX AND PAN BRAKE.

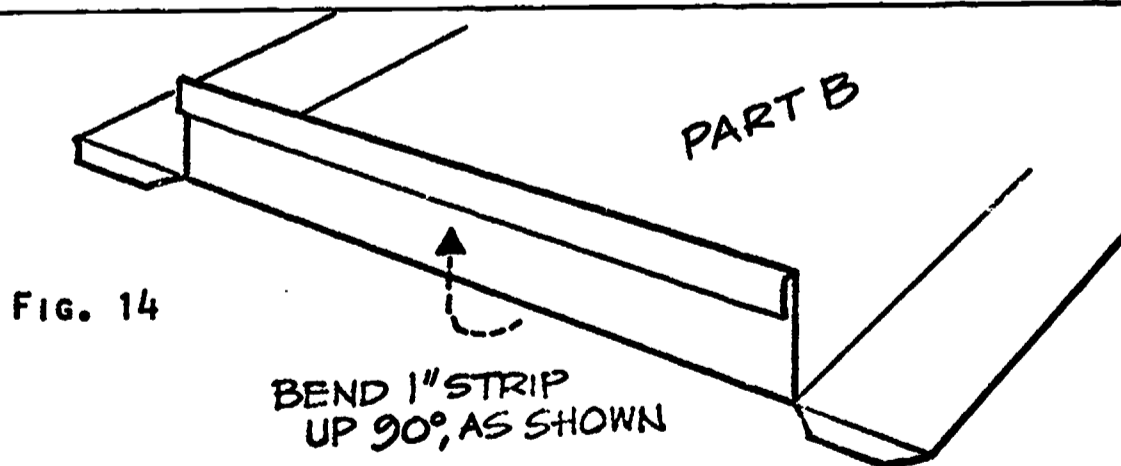
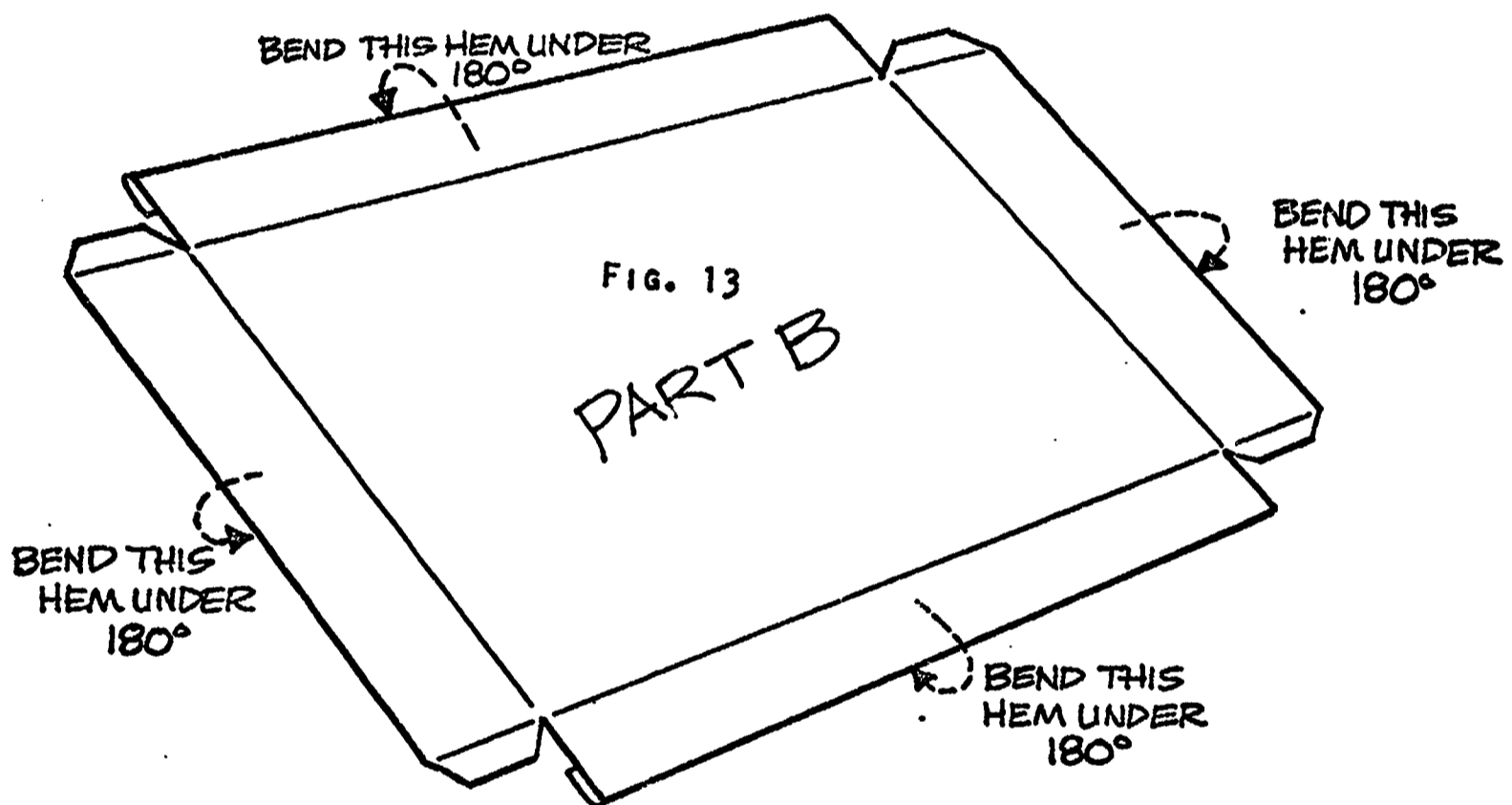
WHAT YOU MUST DO

8. BEND THE TWO $\frac{1}{4}$ " X 3" END HEMS IN PART B OVER 180° AND FLATTEN THEM \dashrightarrow
9. BEND THE TWO $\frac{1}{4}$ " X 5" SIDE HEMS OVER 90° IN THE SAME DIRECTION AS THE BENDS IN STEP 8 \dashrightarrow

WHAT YOU MUST KNOW

USE THE BOX AND PAN BRAKE. FIG. 13

USE THE BOX AND PAN BRAKE AND THE COMBINATION SQUARE.



10. IN PART B BEND THE TWO 1" STRIPS ON THE 5" SIDES UP 90° IN THE OPPOSITE DIRECTION FROM THE BEND OF THE HEMS IN STEPS 8 AND 9 FIG. 14 \dashrightarrow

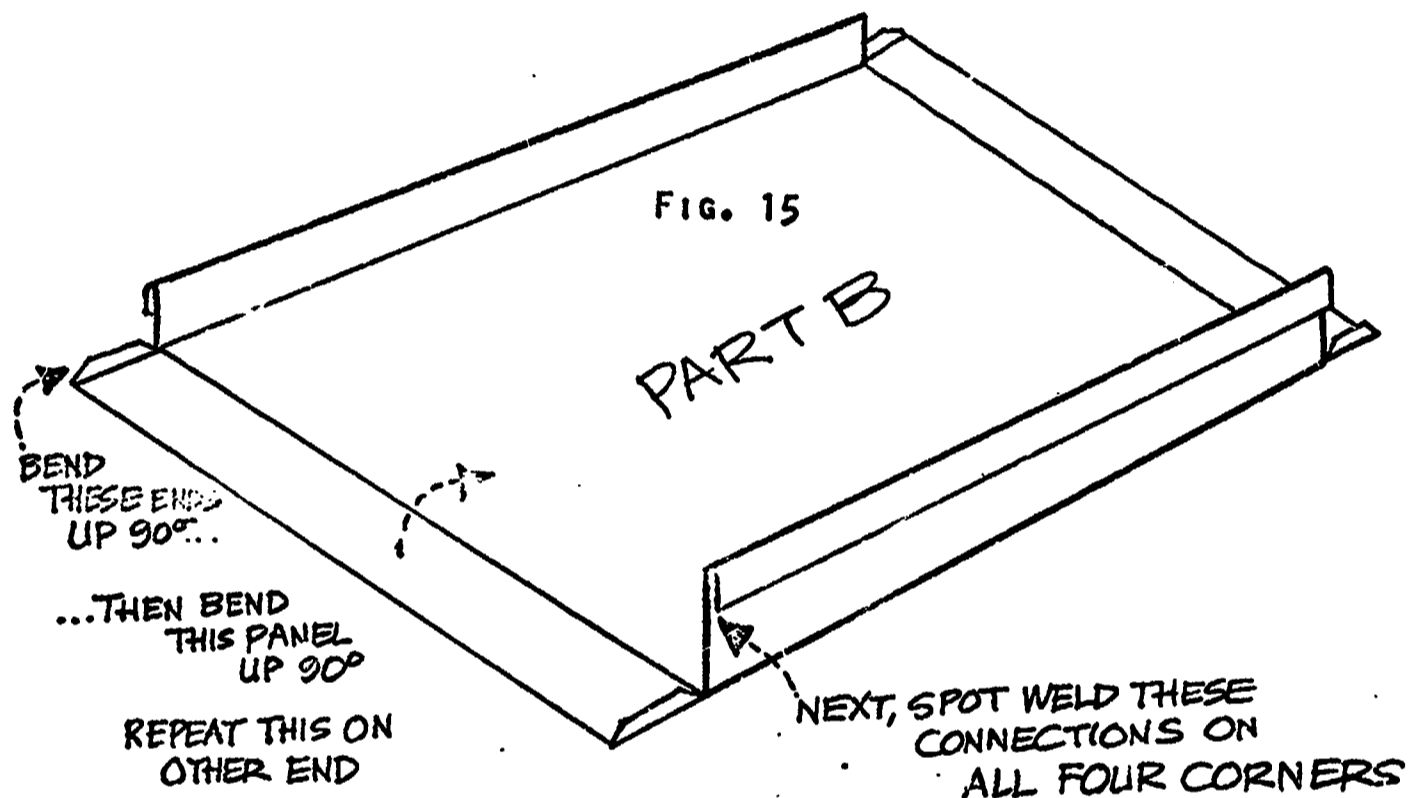
USE THE BOX AND PAN BRAKE AND THE COMBINATION SQUARE.

WHAT YOU MUST DO

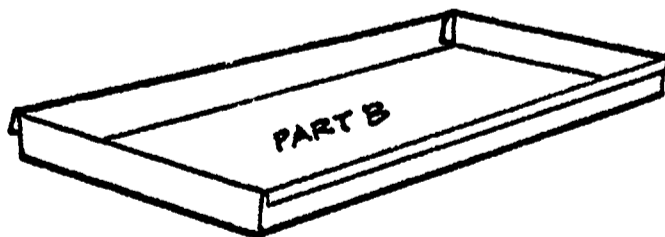
11. BEND THE FOUR $3/4$ " TABS UP 90°
(PART B) ----->
12. BEND THE STRIPS ON THE 3" ENDS
UP 90° (PART B) -- FIG. 15 ----->

WHAT YOU MUST KNOW

BEND THE TABS IN THE SAME DIRECTION AS THE BENDS IN STEP 10. USE THE BOX AND PAN BRAKE AND THE COMBINATION SQUARE.



13. SPOT WELD THE $3/4$ " TABS ON PART B TO THE INSIDES OF THE BOX ----->

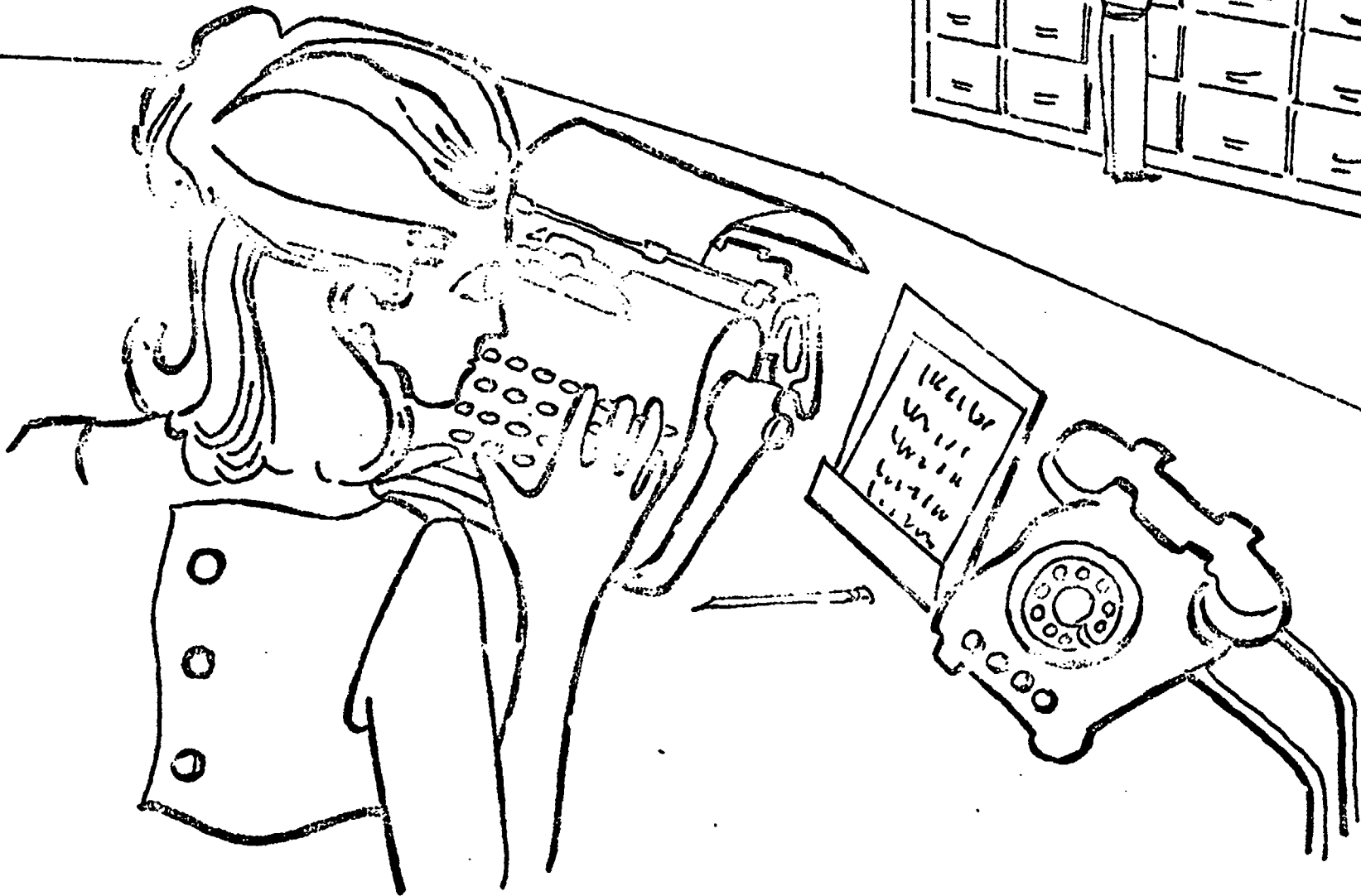


USE A 3" UPPER JAW IN THE BOX AND PAN BRAKE.
AS YOU BEND THE SIDES UP 90° BE SURE THAT THE $3/4$ " TABS GO TO THE INSIDES OF THE BOX. THESE WILL BE BENT IN THE SAME DIRECTION AS THE BENDS IN STEPS 10 AND 11.
USE THE SPOT WELDER UNDER THE SUPERVISION OF A STUDENT INSTRUCTOR.

14. CHECK TO SEE THAT THE TOP SLIDES ON AND OFF THE BOX EASILY
15. REWORK IT IF NECESSARY
16. PRESENT THE BOX TO THE INSTRUCTOR FOR EVALUATION



AN INTRODUCTION TO



VOCATIONAL OFFICE EDUCATION

PART II OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE
217

AN INTRODUCTION TO VOCATIONAL OFFICE EDUCATION

BY LYNN ALICE DAY
CAROLYN GOSE

SOME INTERESTING FACTS ABOUT VOC. OFFICE EDUCATION

1. WHAT KIND OF WORK IS DONE?

PEOPLE IN OFFICE OCCUPATIONS HANDLE THE PAPER WORK OF BUSINESS. OFFICE WORKERS MUST PROCESS AND STORE THE INFORMATION NEEDED FOR THE OPERATION OF A BUSINESS AND MUST BE ABLE TO PRODUCE THIS INFORMATION IN A USABLE FORM WHEN IT IS NEEDED. IT MAY BE AS SIMPLE AS TAKING A MESSAGE ON THE PHONE OR HAND WRITING A CUSTOMER ORDER, OR IT MAY MEAN BEING THE "RIGHTHAND MAN" FOR THE PRESIDENT OF A LARGE CORPORATION. USUALLY THIS WILL INVOLVE THE OPERATION OF SOME KIND OF OFFICE MACHINERY.

OFFICE JOBS CHANGE FROM ONE OFFICE TO ANOTHER DEPENDING UPON THE NATURE OF THE BUSINESS, ITS SIZE, THE NUMBER OF PEOPLE EMPLOYED, AND THE AMOUNT OF PAPER WORK AND RECORDKEEPING INVOLVED. OFFICE WORKERS ARE USUALLY RESPONSIBLE FOR TYPING, FILING, RECEIVING CALLERS, AND HANDLING MAIL.

TYPES OF JOBS FOR BEGINNING OFFICE WORKERS ARE: BILLING CHECKER OR INVOICE CHECKER, JUNIOR BOOKKEEPER, CASHIER, TELLER, DUPLICATING MACHINE OPERATOR, KEY PUNCH OPERATOR, BEGINNING GENERAL CLERK, FILE CLERK, MAIL CLERK, MESSENGER, RECEPTIONIST, TELEPHONE OPERATOR, CLERK-TYPIST, SECRETARY, STENOGRAPHER, TRANSCRIBING MACHINE OPERATOR, TYPIST, AND TELETYPE OPERATOR.

2. WORKING CONDITIONS:

MOST WORK IN OFFICE OCCUPATIONS IS ON THE INSIDE, USUALLY UNDER VERY GOOD CONDITIONS. OFTEN OFFICES ARE CARPETED AND AIR-CONDITIONED. OCCASIONALLY A SECRETARY IS NEEDED WHO CAN TRAVEL WHEN THE WORK DEMANDS IT. FOR EXAMPLE, A SECRETARY WORKING FOR AN ENGINEER OR AN ARCHITECT MAY HAVE TO LEAVE THE OFFICE TO ACCOMPANY HER BOSS TO THE WORK SITE.

3. SALARY SCALE:

THE RANGE FOR OFFICE WORKERS IS ABOUT \$65 - \$150 A WEEK. THEY USUALLY BEGIN WITH THE MINIMUM WAGE, THOUGH SOME MAY EARN LESS.

4. TYPE OF CLOTHING WORN:

THE DRESS OF AN OFFICE WORKER DEPENDS UPON THE POLICY OF THE COMPANY OR OF THE INDIVIDUAL OFFICE IN WHICH THE WORKER IS EMPLOYED. USUALLY MEN WEAR DRESS SHIRTS AND TIES, AND WOMEN OFFICE WORKERS WEAR STREET DRESSES OR MATCHED PANTS SUITS.

5. PERSONAL QUALITIES NECESSARY:

SKILLS: ANYONE ENTERING AN OFFICE OCCUPATION NEEDS TYPING SKILL AND A KNOWLEDGE OF BOOKKEEPING AND OFFICE MACHINES. OF COURSE, THE MORE SKILLED THAT THE APPLICANT IS, THE BETTER CHANCE HE HAS FOR A HIGHER-PAYING JOB. PERSONS WITH HIGHLY DEVELOPED TYPING AND SHORTHAND SKILLS WILL HAVE NO TROUBLE FINDING A JOB IN THE FIELD OF OFFICE OCCUPATIONS, REGARDLESS OF THE JOB MARKET SITUATION.

PERSONALITY CHARACTERISTICS: ANYONE ENTERING THIS FIELD SHOULD BE NEAT, ORDERLY, RESPONSIBLE, PROMPT, COURTEOUS, AND SHOULD TAKE PRIDE IN WORK WELL DONE. THEY SHOULD HAVE SELF-CONTROL AND THE ABILITY TO GET ALONG WELL WITH OTHERS, BE ABLE TO FOLLOW DIRECTIONS, AND BE ABLE TO HANDLE CONFIDENTIAL MATTERS.

EDUCATION QUALIFICATIONS: A HIGH SCHOOL DIPLOMA IS ALWAYS NECESSARY. ANYONE WHO DEVELOPS GOOD SKILLS IN SHORTHAND AND TYPING IN HIGH SCHOOL CAN USUALLY FIND A JOB WITHOUT FURTHER TRAINING.

6. OTHER FACTS OF INTEREST:

IN 1970 CLERICAL WORKERS REPRESENTED 17.4 PERCENT OR THE SECOND LARGEST EMPLOYMENT GROUP OF THE ENTIRE LABOR FORCE IN THE UNITED STATES.

THERE IS A SERIOUS SHORTAGE OF QUALIFIED TYPISTS, STENOGRAPHERS, SECRETARIES, AND BOOKKEEPERS.

ALMOST ALL COLLEGES ACCEPT SOME CREDITS IN BUSINESS COURSES FOR ENTRANCE.

IN TODAY'S LABOR FORCE, 1 OUT OF 7 PERSONS IS IN OFFICE WORK.

TRANSPORTATION COMPANIES PREFER MALE OFFICE WORKERS.

FOR MANY YEARS THE UNEMPLOYMENT RATE FOR THOSE POSSESSING OFFICE SKILLS HAS BEEN LOWER THAN THE NATIONAL RATE OF UNEMPLOYMENT.

TODAY, 7 OUT OF EVERY 10 PERSONS WHO GRADUATE FROM HIGH SCHOOL SEEK EMPLOYMENT IMMEDIATELY.

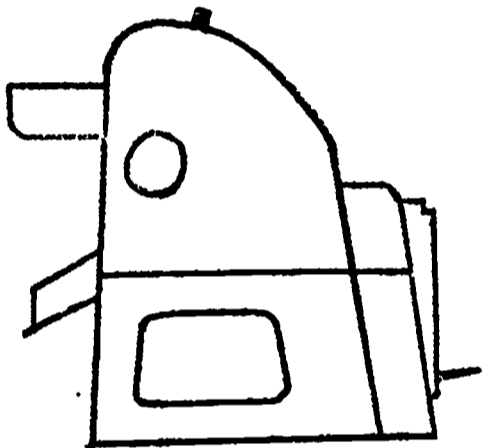
JOB OPPORTUNITIES FOR CLERICAL AND SALES WORKERS ARE EXPECTED TO INCREASE MORE THAN 30 PERCENT BETWEEN NOW AND 1975.

ACCORDING TO A SURVEY MADE OF THE GRADUATES OF ALL LOCAL HIGH SCHOOLS, THOSE GRADUATES WHO MAJORED IN BUSINESS IN HIGH SCHOOL SEEMED TO FIND EMPLOYMENT IN WORK RELATED TO THEIR CURRICULUM MORE READILY THAN THOSE WHO FOLLOWED ANY OTHER CURRICULUM. ALSO, MORE GRADUATES IN THE LOCAL AREA FOUND EMPLOYMENT IN BUSINESS SERVICES AND RETAILING BUSINESSES THAN IN ANY OTHER TYPE OF BUSINESS ORGANIZATION.

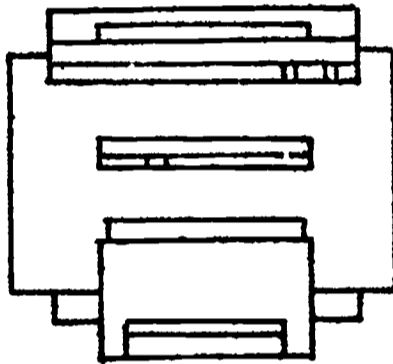
REPRESENTATIVES OF THE STATE OFFICE OF EMPLOYMENT SECURITY STATE THAT THE MAJORITY OF STUDENTS WHO MAJOR IN BUSINESS IN HIGH SCHOOL AND WHO DEVELOP GOOD SKILLS IN SHORTHAND AND TYPING CAN BE PLACED ON A JOB WITHOUT HAVING FURTHER TRAINING AFTER HIGH SCHOOL. THEY EMPHA-

SIZE THAT, IN ADDITION TO SKILL, EQUAL IMPORTANCE IS GIVEN TO MATURITY, POISE, AND APPEARANCE.

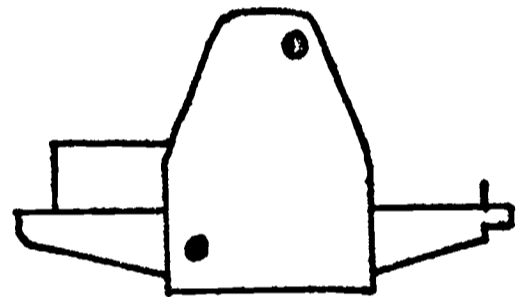
FOR THOSE OF YOU WHO HAVE FOUND A BUSINESS AREA THAT INTERESTS YOU AND THAT YOU THINK REALISTICALLY MATCHES YOUR APTITUDES, ABILITIES, AND PERSONALITY, YOUR NEXT STEP IS TO TALK TO YOUR BUSINESS TEACHERS, THE HEAD OF THE BUSINESS DEPARTMENT IN YOUR SCHOOL, AND YOUR GUIDANCE COUNSELOR. THEY WILL HELP YOU PLAN THE COURSE OF STUDY THAT WILL MAKE IT POSSIBLE FOR YOU TO ACHIEVE YOUR GOALS.



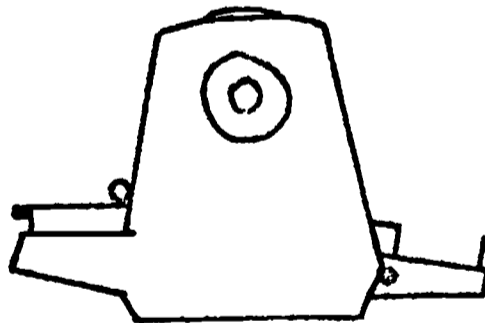
OFFSET



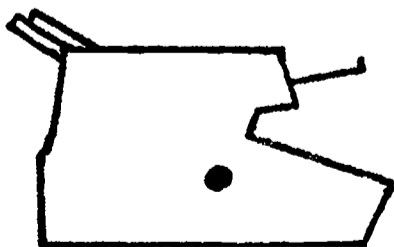
COPIER



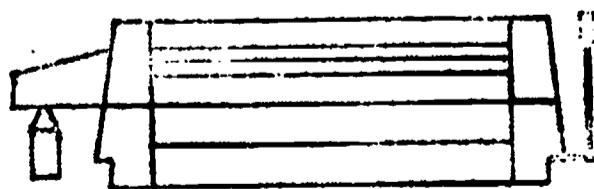
SPIRIT



MIMEOGRAPH



FOLDER



PHOTOCOPIER

YOUR FIRST EXPERIENCES IN USE OF DATA PROCESSING CARDS

TO READ AND CODE DATA PROCESSING
CARDS.

INTRODUCTION -- PLEASE READ CAREFULLY:

ALL INFORMATION RECEIVED BY, SENT FROM, OR USED IN AN OFFICE CAN BE RECORDED TO AS DATA. WHATEVER IS DONE WITH THIS DATA IS CALLED PROCESSING. THEREFORE, WE HAVE A VERY POPULAR TERM - DATA PROCESSING. WORKING WITH DATA BY HAND IS CALLED MANUAL DATA PROCESSING. MACHINES ARE NOW BEING USED TO DO MORE OF THIS MANUAL WORK, AND IT IS WITH THIS LAST PHASE (MACHINE DATA PROCESSING OR AUTOMATED DATA PROCESSING) THAT WE WANT TO FOCUS YOUR ATTENTION.

MANY DATA PROCESSING MACHINES "READ" THEIR INFORMATION FROM CARDS WITH HOLES PUNCHED IN THEM. A CARD HAS 12 ROWS DOWN AND 80 COLUMNS ACROSS.

TO RECORD A LETTER, TWO HOLES ARE PUNCHED IN THE SAME COLUMN. ONE PUNCH IS CALLED THE ZONE PUNCH AND APPEARS IN THE 12, 11, OR 0 ROWS. THE 11 AND 12 ARE NOT PRINTED ON THE ACTUAL CARDS. THE NUMBER PUNCH APPEARS IN THE 1-9 ROWS.

THE ALPHABET IS CODED AS FOLLOWS:

A=12+1	J=11+1	S=0+2
B=12+2	K=11+2	T=0+3
C=12+3	L=11+3	U=0+4
D=12+4	M=11+4	V=0+5
E=12+5	N=11+5	W=0+6
F=12+6	O=11+6	X=0+7
G=12+7	P=11+7	Y=0+8
H=12+8	Q=11+8	Z=0+9
I=12+9	R=11+9	

STEPS TO FOLLOW IN READING AND CODING INFORMATION ON DATA PROCESSING CARDS:

- TOOLS AND MATERIALS NEEDED:** PENCIL
 CODED IBM CARD
 BLANK IBM CARD
 PAPER

WHAT YOU MUST DO

1. ASK THE STUDENT RECEPTIONIST FOR YOUR MATERIALS
2. COPY THE NAME "SALLY STENO" ON A BLANK PIECE OF PAPER FIG. 1
3. USING THE CODE GIVEN TO YOU IN THE INTRODUCTION, WRITE THE ZONE AND THE NUMBER CODE FOR EACH LETTER IN THE NAME SALLY STENO-----

WHAT YOU MUST KNOW TO DO THESE STEPS

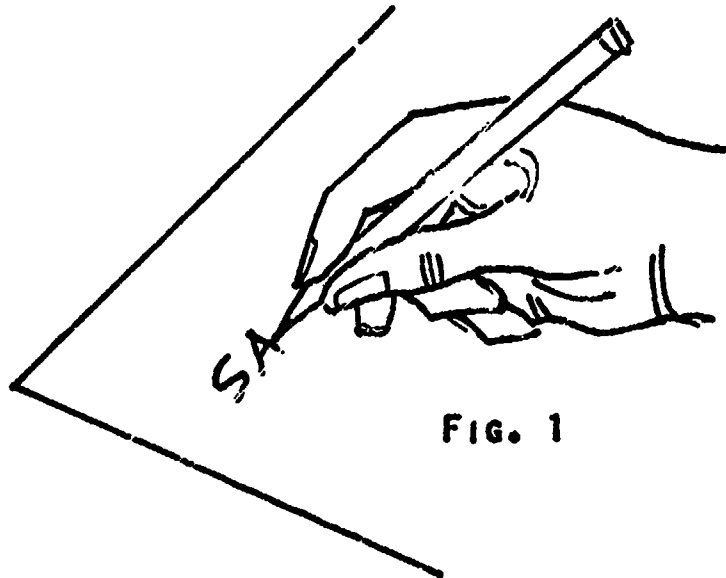


FIG. 1

FOR EXAMPLE:

S	A	L	L	Y	S	T	E	N	O
11/1	11/6	12/1	11/5	0/2	11/4	12/9	0/3	12/8	

4. TAKE YOUR PROBLEM TO THE STUDENT RECEPTIONIST TO SEE HOW WELL YOU DID
5. WRITE THE NAME "ANY TOWN HIGH SCHOOL" ON A BLANK PIECE OF PAPER
6. USING THE CODE, WRITE THE ZONE AND NUMBER CODE FOR EACH LETTER JUST AS YOU DID FOR "SALLY STENO" FIG. 2

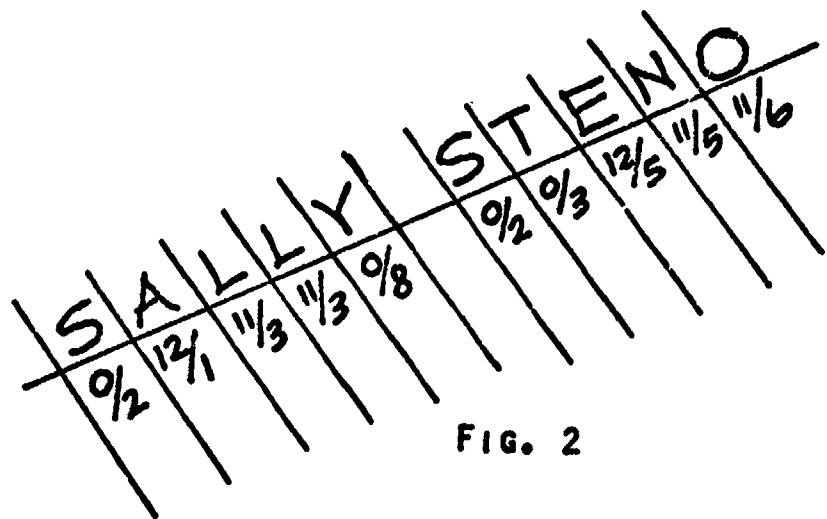


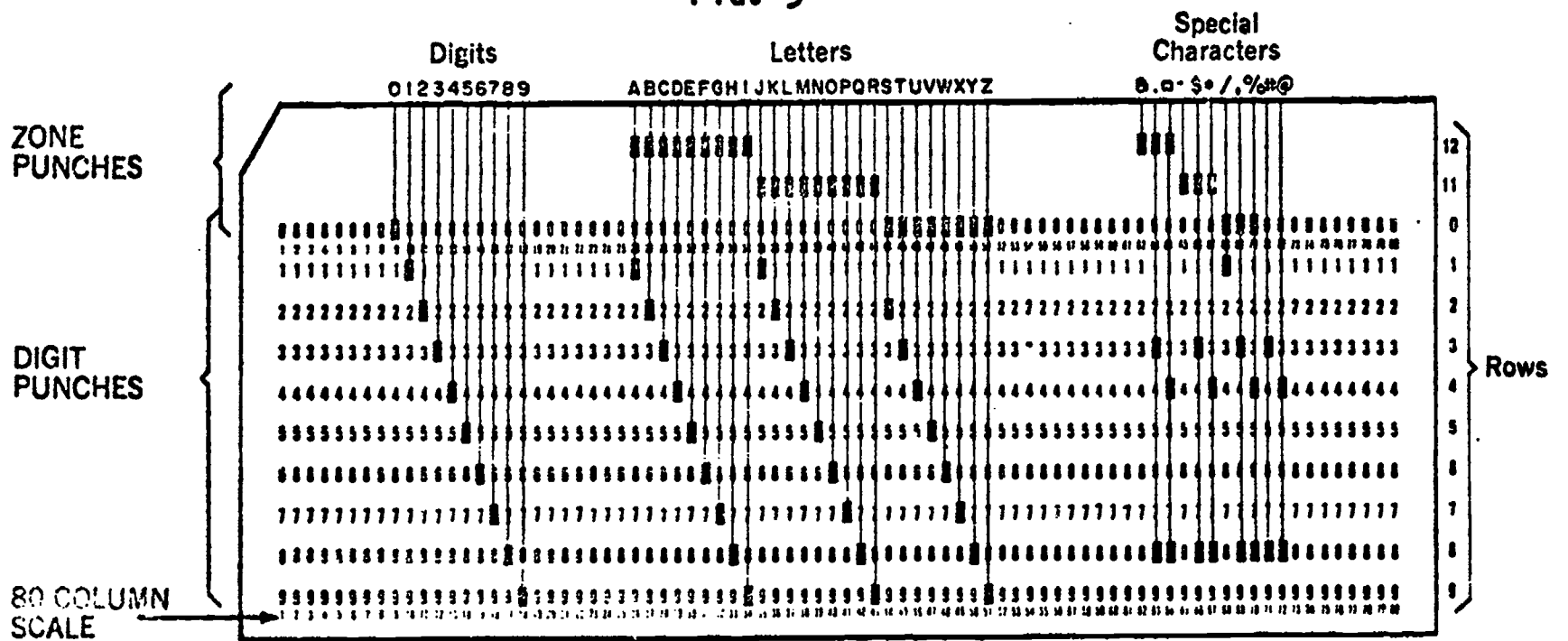
FIG. 2

WHAT YOU MUST DO

7. LET THE STUDENT RECEPTIONIST LOOK AT YOUR WORK
8. LOCATE THE PUNCHED CARD IN YOUR PACKET OF MATERIALS
9. READ THE PUNCHES CODED IN EACH COLUMN AND PRINT THE LETTERS ON A SEPARATE PIECE OF PAPER FIG. 3
10. TAKE YOUR PAPER TO THE STUDENT RECEPTIONIST TO BE CHECKED

WHAT YOU MUST KNOW

FIG. 3



YOUR SECOND EXAMINATION IN THE OFFICE EDUCATION:

TO ALPHABETICALLY INDEX TWO LISTS
OF NAMES AND SEVERAL LETTERS.

INTRODUCTION -- PLEASE READ CAREFULLY:

THOUSANDS OF PAPERS ARE SENT AND RECEIVED BY OFFICES EVERY DAY. EACH ITEM RECEIVED MUST BE KEPT AND STORED FOR FUTURE REFERENCE. RECORDS MUST ALSO BE KEPT OF EVERYTHING THAT IS MAILED FROM AN OFFICE. THE PROCESS OF STORING THESE ITEMS AND FINDING THEM FOR FUTURE USE IS CALLED FILING.

FILING IS A VERY SYSTEMATIC PROCESS. THERE IS A PLACE FOR EVERYTHING AND EVERYTHING MUST BE IN ITS PLACE. THE FOLLOWING RULES ARE BUT A FEW OF THE LARGE NUMBER REQUIRED TO COVER THE MANY SITUATIONS THAT CAN ARISE IN STORING AND FINDING ITEMS.

THE FIRST STEP IN THE FILING PROCEDURE IS THE INDEXING. WHEN YOU ARRANGE NAMES FOR FILING PURPOSES, YOU ARE INDEXING. THE FOLLOWING ARE RULES FOR ALPHABETIC INDEXING:

1. WHEN YOU CONSIDER THE NAME WALTER B. ANDERSON, EACH WORD AND EACH INITIAL OR ABBREVIATION IS A SEPARATE INDEXING UNIT. THUS, YOU HAVE THREE SEPARATE INDEXING UNITS. THE UNITS OF AN INDIVIDUAL'S NAME ARE CONSIDERED IN THIS ORDER: (A) SURNAME (LAST NAME) (B) FIRST NAME, INITIAL, OR ABBREVIATION (C) MIDDLE NAME, INITIAL, OR ABBREVIATION. THEREFORE ANDERSON IS THE FIRST INDEXING UNIT, WALTER IS THE SECOND, AND B. IS THE THIRD.

2. WHEN THE SURNAMES OF INDIVIDUALS ARE DIFFERENT, THE ALPHABETIC ORDER IS DETERMINED BY THE SURNAMES ALONE. FOR EXAMPLE: HALL, HILL, HULL

3. WHEN THE SURNAMES ARE ALIKE, YOU THEN CONSIDER THE FIRST NAMES OF INDIVIDUALS IN DETERMINING ALPHABETIC ORDER. WHEN THE SURNAMES AND THE FIRST NAMES ARE ALIKE, THE MIDDLE NAMES DETERMINE ALPHABETIC ORDER.

<u>UNIT 1</u>	<u>UNIT 2</u>	<u>UNIT 3</u>
SMITH	WILLIAM	A.
SMITH	ZELDA	
THOMPSON	WALTER	<u>CLARK</u>
THOMPSON	WALTER	<u>CRANE</u>

4. A FIRST OR MIDDLE INITIAL IS CONSIDERED AN INDEXING UNIT AND PRECEDES ALL NAMES THAT BEGIN WITH THE SAME LETTER.

BROGAN	R.
BROGAN	ROBERT

REFERENCES:

SECRETARIAL OFFICE PRACTICE, 6TH.
ED., BY AGNEW AND MEEHAN.
GENERAL OFFICE PRACTICE, 2ND. ED.,
BY ARCHER ET AL.
BUSINESS FILING, 2ND. ED., BY
BASSETT AND AGNEW.
PROGRESSIVE FILING, 7TH. ED. BY
KAHN ET AL.

STEPS TO FOLLOW IN ALPHABETIC INDEXING:

TOOLS AND MATERIALS NEEDED: PENCIL
PAPER
DUPLICATED LETTERS
PAPER CUTTER

WHAT YOU MUST DO

WHAT YOU MUST KNOW
TO DO THESE STEPS

1. ASK THE STUDENT RECEPTIONIST FOR YOUR MATERIALS
2. ON A PLAIN PIECE OF PAPER, ALPHABETICALLY INDEX THE FOLLOWING NAMES ACCORDING TO THE RULES GIVEN IN THE INTRODUCTION:

HENRY DAVID BROWN	THOMAS F. SMITH
EDWARD J. COX	JOHN H. KRAMER
J. B. DAVIS	L. STEVEN MORRIS
MICHAEL F. ROSS	L. C. ANDREWS
MARY P. SMITH	HENRY T. ALLAN-----

FOR EXAMPLE:

UNIT 1
BROWN
COX

UNIT 2
HENRY
EDWARD

UNIT 3
DAVID
J.

3. TAKE THIS EXERCISE TO THE STUDENT RECEPTIONIST TO HAVE IT CHECKED
4. LOCATE SHEETS A, B, AND C IN YOUR PACKET OF MATERIALS FIG. 4
5. CUT EACH SHEET INTO FOURTHS-----

YOU MAY USE THE PAPER CUTTER FOR THIS.
THERE ARE NOW 12 SMALL LETTERS.

A

71

July 16, 19--

Mr. Edward Baldwin
Ballinger and Perrot Jewelry Co.
Danville, Illinois

Dear Mr. Baldwin:

Needless to say, I am very happy to learn that John Bridges, manager of our Advertising Department, is being considered for the "Advertising Executive of the Year" award given by the National Advertising Foundation.

Mr. Bridges started as a copy writer and layout man in our Advertising Department. His work was so outstanding that after only five years (and as still a very young man) he was the logical successor when the manager of our Advertising Department retired. Mr. Bridges has served in the capacity of manager for the past nine years; and under his leadership our magazine has not only tripled its advertising business, it also has won four awards from your Institute for Advertising Artistry.

We believe Mr. Bridges more than meets your standards of creativeness, integrity, and service; he does the advertising industry proud. I am sure that the selection of John Bridges as recipient of this year's award would be hailed enthusiastically here and nationally.

As you request, we shall regard all correspondence pertaining to the award with the utmost secrecy.

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

Walter Stanton
Managing Editor

CF

77

August 29, 19--

Mr. E. M. Bradley, President
Beardslee Chandelier Mfg. Co.
216 South Jefferson Street
Chicago 14, Illinois

Dear Mr. Bradley:

Enclosed are three marked copies of the August issue of our magazine in which your article appeared.

Some provocative letters have already been received about your article. Some of these letters will be printed in the "Letters to the Editor" column of our next issue. This is the kind of lively response we welcome.

Possibly you will want to make some response to your critics in the same column in a subsequent issue. I hope so--readers love to see a good "fight" in print. And I'm convinced that they learn more through these exchanges than through the article itself!

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

Roy Milton
Assistant Editor

NP
Enclosures

FIG. 4

8

July 9, 19--

Mr. B. Brager
49 Crosby Street
New York 24, New York

Dear Mr. Brager:

Mr. Philip Becker has applied for a position as internal auditor in our Accounting Department. He tells us he was employed in your organization for two years.

We are very much interested in Mr. Becker. His high school and college records are quite impressive. We should, however, like to have your opinion of this young man. Is he trustworthy? Is he a hard worker? Does he get along well with his co-workers? Any information you can give us about Mr. Becker's on-the-job performance will be very much appreciated.

Your reply will be kept in strict confidence. I am enclosing a self-addressed envelope for your convenience.

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

James Cromwell
Office Manager

MO
Enclosure

59

August 24, 19--

Mr. B. G. Baker
29 Jones Street
Newburgh, New York

Dear Mr. Baker:

Thank you for your letter of August 20 concerning a position as assistant office manager.

Although we do not have a vacancy at the moment, we expect that one will be created at the end of this year when a member of our staff retires. We are interested in young men with your background and experience, and I shall certainly keep your application in mind. Naturally, we are hoping to attract a number of applications.

By all means, telephone me when you are in the New York City area. I should like to meet you and learn more about your education and on-the-job experience. My telephone extension is 2179.

Incidentally, I had lunch with Dean Lodge last week. He is making a remarkable record at Central University, and I have a very high regard for him.

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

James Cromwell
Office Manager

228
11

MO

61

July 25, 19--

Thomas Saunders
Selling Department
Ocean Color Company
Broadway
New York

Dear Mr. Saunders:

I am sorry that faulty packing caused part of your July shipment to arrive in a damaged condition.

Your account has been credited for \$50, and we are shipping a fresh supply by truck today. Would you please return the damaged materials to us, freight collect.

We shall do everything in our power to avoid a repetition of this annoying incident.

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

Henry Watkins, Manager
Job Printing Department

HC

23

July 23, 19--

Dr. Louis Bell, Chairman
Social Science Department
Allegheny University
Fulton, New York

Dear Louis:

Of course I'm disappointed that we can't have that series of articles from you right away so that it might be published in TOUR AND TRAVEL late this year. Alas, we'll just have to wait.

I am convinced, however, that these articles are a "must" in next year's issues. Travelers are becoming more and more aware of the role of the early settlers in our rich American heritage. In every state there are literally hundreds of places of interest centering around their adventures. The stories must be told, and my guess is that it will take a dozen issues to do the job right.

Please let me know the instant you are free. I can't think of any other person who could bring this topic off as well as you. I want to sit down and discuss it with you at your first opportunity.

Cordially yours,

TOUR AND TRAVEL MAGAZINE

Charles Lyons, Editor

FT

FIG. 4

61

August 24, 19--

Mr. Paul O. Abbe
30 Broad Street
New York 12, New York

Dear Mr. Abbe:

Thank you for your letter of August 21.

Our business does not sell mailing lists for direct mail campaigns. May we suggest Mailing Services, Inc., 60 Broadway; or R. L. Barton & Co., 247 Sussex Street, both of New York City. We would use the services of these two organizations to your complete satisfaction.

We are in the publishing and printing business. TOUR AND TRAVEL MAGAZINE has the world's largest circulation for publications of its type. A display advertisement in it can help put across any selling campaign you are contemplating.

The rate schedule you requested is enclosed. Our trained advertising counselors can help you plan a message to send to your prospective customers. Let us help you make 55,000 new contacts.

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

John Bridges, Manager
Advertising Department

GK
Enc.

70

August 31, 19--

Dr. C. B. Babcock
768 Mission Street
Joliet, Illinois

Dear Doctor Babcock:

Your article is such a "natural" for the feature in our Valentine-season issue--February--that we have taken the liberty of holding it until then.

Many new subscriptions to TOUR AND TRAVEL are coming in every week. This means that your fine article will be read by many more people in February.

Sincerely yours,

TOUR AND TRAVEL MAGAZINE

Mary Paxton
Assistant Editor

229

FM

29

July 24, 19--

Mr. E. A. Brett, Manager
Commercial Division
Brett & Goode Company
461 Eighth Avenue
New York 33, New York

Dear Mr. Brett:

A portion of the floor on the second story of our factory is badly cracked.

We should like to have it resurfaced immediately before it causes one of our workers to have an accident.

If you will let us know when the repairs can be started, we shall adjust our production schedules accordingly.

Sincerely yours,
TOUR AND TRAVEL MAGAZINE

Walter Stanton
Managing Editor

CF

58

August 22, 19--

Mr. E. Bert Fenton, Manager
Publicity Department
W. S. Barstow & Company
50 Pine Street
Bloomington, Illinois

Dear Mr. Fenton:

The readers certainly shared your enthusiasm about the new Picture-a-Minute camera. If our mail response was any indication, your mail room must have been swamped!

Since the article had such "pulling" power, we'd like to suggest that you use reprints of it as an advertising piece. If you decide to do this, we can produce these reprints for you at a price of fifteen cents a copy. Won't you send us your approval without delay?

Sincerely yours,
TOUR AND TRAVEL MAGAZINE

Mary Paxton
Assistant Editor

DN

FIG. 4

16

July 13, 19--

Mr. Frederic W. Donahoe, Editor
Advertising and Merchandising Journal
Benfield-Leach Company
445 Plymouth Court
Chicago 40, Illinois

Dear Mr. Donahoe:

I am pleased to recommend a consultant for the "Vacation" issue of the Advertising and Merchandising Journal. He is Mr. Thomas Burnside, manager of the Travel and Transportation Department of Abbott-Knox Corporation, Peoria, Illinois.

In his work at Abbott-Knox, Mr. Burnside makes use of all methods of commercial travel (including chartered). During the year he plans hundreds of business and pleasure trips for the members of his organization. I know of no one who has such an excellent grasp of the entire travel and transportation industry. Besides, he is a good writer. He has written a number of articles for TOUR AND TRAVEL, and I am enclosing a reprint of one of his best.

You may write to Mr. Burnside directly; and, if you wish, it will be perfectly all right to mention my name.

Sincerely yours,
TOUR AND TRAVEL MAGAZINE

Charles Lyons, Editor

FT
Enclosure

42

August 7, 19--

Mr. Harold Bagley
205 Rose Lane
Springfield 5, Illinois

Dear Mr. Bagley:

Have you ever dreamed you were lolling on the sands of Waikiki, climbing the Pyramids in Egypt, or taking in an exciting bullfight in Spain? It is a rare person who is not periodically seized with a yen to taste the pleasures of faraway places.

Even if you can't enjoy the pleasure of traveling to these exciting places and events in person, you can be there in spirit--through the pages of TOUR AND TRAVEL MAGAZINE. You can climb the challenging precipices of Mount Everest or bask on the shores of some idyllic Pacific isle through the magic of our fascinating articles and stories.

Mail the enclosed card today to get away from the cares of the work-a-day world. A 12-issue subscription will enable you to travel to your heart's content for only \$3.

Sincerely yours,
TOUR AND TRAVEL MAGAZINE

Edgar Bailey, Manager
Circulation Department

LD
Enc.

PS If you travel widely, TOUR AND TRAVEL MAGAZINE will help you to get the most for your time and money.

230
13

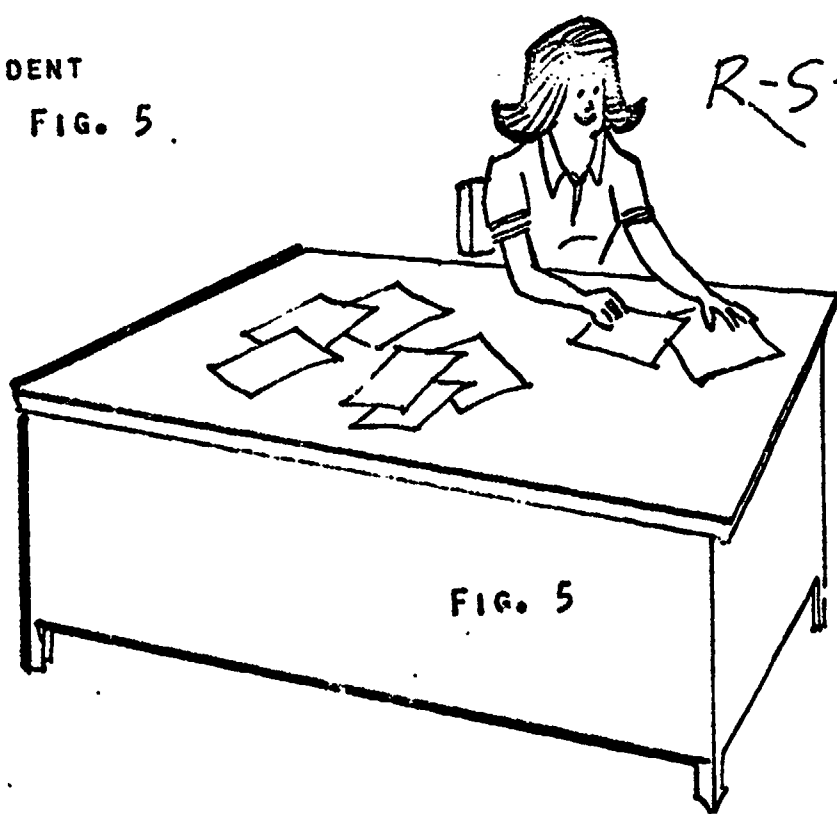
WHAT YOU MUST DO

6. INDEX THE NAMES ON EACH LETTER BY DRAWING ONE LINE UNDER THE FIRST UNIT, TWO LINES UNDER THE SECOND AND THREE LINES UNDER THE THIRD UNIT

7. SORT THE LETTERS IN ALPHABETICAL ORDER

8. ON A PLAIN PIECE OF PAPER, LIST THE NUMBER OF EACH LETTER AS IT APPEARS IN ALPHABETICAL ORDER

9. TAKE YOUR PROBLEM TO THE STUDENT RECEPTIONIST TO BE CHECKED FIG. 5.



YOUR THIRD EXPERIENCE IN VOCATIONAL OFFICE ED. 16:

TO PREPARE, CORRECT, RUN, AND FILE
A SPIRIT DUPLICATING MASTER.

INTRODUCTION -- PLEASE READ CAREFULLY:

IF YOU EXPECT TO WORK IN AN OFFICE, YOU MUST KNOW HOW TO MAKE MANY COPIES OF NOTICES, ANNOUNCEMENTS, REPORTS, NEWS RELEASES, SCHEDULES, PRICE CHANGES, AND HUNDREDS OF OTHER BUSINESS PAPERS. KNOWING HOW TO MAKE COPIES IS JUST AS IMPORTANT AS KNOWING HOW TO TYPEWRITE OR HOW TO ANSWER A TELEPHONE.

IF YOU NEED JUST 5 OR 6 COPIES, YOU CAN WRITE OR TYPE THEM ALL AT ONCE BY USING A CARBON PAPER. BUT WHAT IF YOU NEED 25 OR 300 COPIES? IT WOULD TAKE TOO LONG TO WRITE OR TO TYPE THEM, EVEN WITH CARBON PAPER. BESIDES, THE COPIES MIGHT NOT BE EXACTLY ALIKE. SO, YOU WOULD USE A MACHINE THAT MAKES EXACT COPIES OF THE ONE COPY THAT YOU PREPARE. THIS MACHINE IS CALLED A "DUPLICATOR."

BUSINESSMEN PREFER A SPIRIT DUPLICATOR BECAUSE IT IS THE QUICKEST AND CHEAPEST WAY TO MAKE COPIES. THOUGH YOUR EXPERIENCE IN THIS DEPARTMENT WILL BE WITH ONLY ONE BRAND OF MACHINE, YOU WILL BE ABLE TO USE OTHER SIMILAR MACHINES.

THIS PROCESS HAS SOME OTHER NAMES. BECAUSE THE PAPER TOUCHES THE MASTER DIRECTLY, DITTO INCORPORATED CALL IT THE "DIRECT PROCESS." BECAUSE A WATERY LIQUID IS USED, THE PROCESS IS ALSO CALLED A "LIQUID PROCESS." BECAUSE THE LIQUID IS A CHEMICAL, THE TERM "SPIRIT PROCESS" IS ALSO USED.

THE SPIRIT DUPLICATING PROCESS WORKS LIKE THIS:

1. YOU MAKE THE ORIGINAL COPY, USING A SPECIAL CARBON PAPER. IT IS SPECIAL BECAUSE IT CONTAINS ANILINE DYE. THE ORIGINAL COPY IS CALLED THE "MASTER."

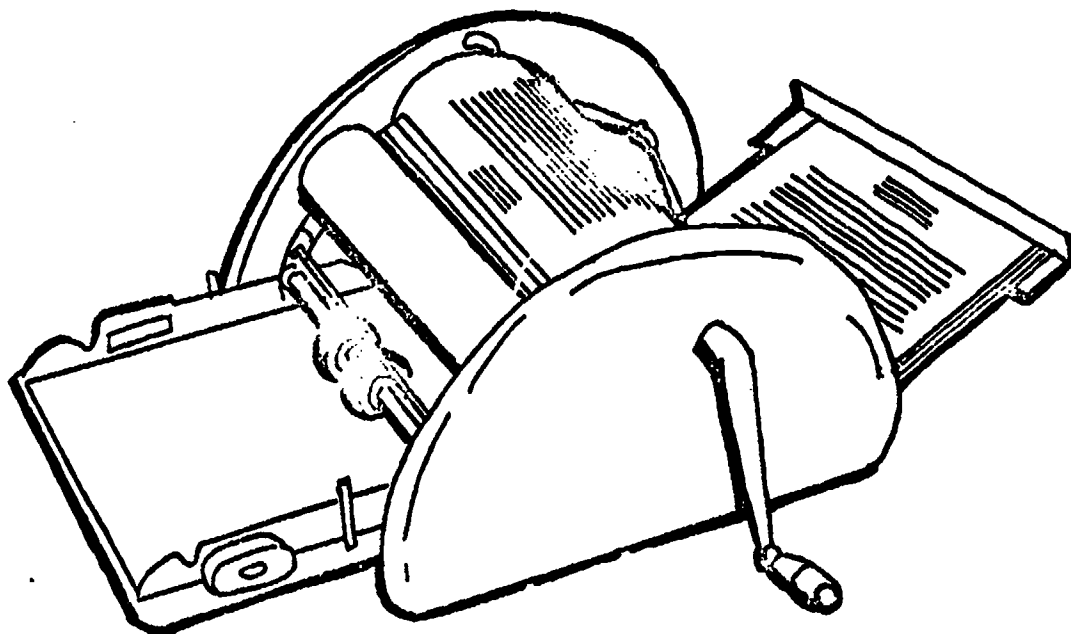
2. YOU FASTEN THE MASTER ONTO THE DRUM (THE REVOLVING PART) OF THE DUPLICATING MACHINE.

3. AS YOU TURN THE HANDLE OF THE DRUM, MANY THINGS HAPPEN AUTOMATICALLY:

- A. THE PAPER IS DRAWN INTO THE MACHINE.
- B. THE PAPER IS DAMPENED WITH A CHEMICAL.
- C. THE PAPER IS PRESSED AGAINST THE MASTER.
- D. SOME OF THE DYE IS DISSOLVED FROM THE MASTER, MAKING AN EXACT COPY.
- E. THE PAPER COMES OUT INTO A TRAY.

REFERENCES:

- CLERICAL OFFICE PRACTICE, 3RD.
ED., BY AGNEW AND MEEHAN.
GENERAL OFFICE PRACTICE, 2ND.
ED., BY ARCHER.
EFFECTIVE SECRETARIAL PRACTICES,
4TH. ED., BY BEAMER.
APPLIED SECRETARIAL PRACTICE,
5TH. ED., BY GREGG.
COLLEGE SECRETARIAL PRACTICE,
4TH. ED., BY REGINER.



STEPS TO FOLLOW IN PREPARING A SPIRIT MASTER:

TOOLS AND MATERIALS NEEDED: SPIRIT MASTER BLOCKOUT PENCIL
PEN OR PENCIL PLASTIC BACKING SHEET
RAZOR BLADE TYPEWRITER (OPTIONAL)
SCOTCH TAPE SPIRIT DUPLICATOR
SCISSORS GUMMED LABEL

WHAT YOU MUST DO

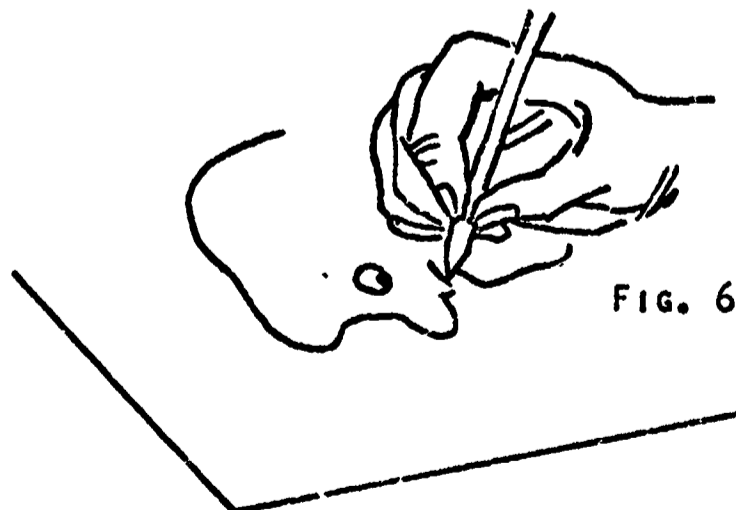
1. ASK THE STUDENT RECEPTIONIST FOR THE MATERIALS LISTED ABOVE-----

2. YOU MAY WRITE, TYPE OR DRAW ANYTHING THAT YOU CHOOSE ON YOUR SPIRIT MASTER. THIS MAY BE COPIED OR IT MAY BE YOUR OWN CREATIVE WORK--- FIG. 6 -----

WHAT YOU MUST KNOW TO DO THOSE STEPS

MANY TYPISTS USE "MASTERSSETS" INSTEAD OF LOOSE CARBONS AND MASTER SHEETS. A MASTERSSET CONSISTS OF ONE SHEET OF CARBON AND ONE SHEET OF MASTER PAPER FASTENED TOGETHER AT THE BOTTOM, WITH A THIN SHEET OF TISSUE PAPER SEPARATING THE TWO. THE TISSUE MUST BE TAKEN OUT BEFORE YOU TYPE OR WRITE ON A MASTERSSET. THE CARBON PAPER CAN BE USED ONLY ONCE.

IF YOU WISH TO DRAW OR WRITE ON A MASTER, USE A BALL-POINT PEN OR A PENCIL WITH A VERY HARD LEAD. PRESS EVENLY AND FIRMLY. IF YOU HAVE A PLASTIC BACKING SHEET, PLACE IT UNDER THE BACK OF THE CARBON. DOING THIS WILL GIVE YOU A CLEARER COPY.



IF YOU WISH TO TYPE ON YOUR MASTER, BE SURE THAT YOU TYPE ON THE MASTER PAPER AND NOT ON THE CARBON SHEET.

STEPS TO FOLLOW IN CORRECTING A SPIRIT MASTER:

TOOLS AND MATERIALS NEEDED: SPIRIT MASTER
RAZOR BLADE
SCOTCH TAPE

SCISSORS
BLOCKOUT PENCIL
GUMMED LABEL

WHAT YOU MUST DO

1. IF YOU DO NOT NEED TO WRITE OVER THE MISTAKE, YOU CAN (A) CUT IT OUT OF THE PAPER WITH A RAZOR BLADE, KNIFE OR SCISSORS (B) COVER THE ERROR WITH SCOTCH TAPE, GUMMED LABEL, OR THE "BLOCKOUT" WAX OF A BLOCKOUT PENCIL---

FIG. 7

WHAT YOU MUST KNOW TO DO THESE STEPS

WHEN YOU PREPARE A MASTER, YOUR WORK SIMPLY PUTS CARBON ON THE BACK OF THE MASTER. WHEN YOU MAKE AN ERROR, YOU HAVE CARBON WHERE YOU DO NOT WANT IT. IF THE ERROR IS CUT OUT OR COVERED OVER, IT CANNOT REPRODUCE. EITHER METHOD IS GOOD FOR ELIMINATING AN EXTRA LETTER BETWEEN WORDS, A WORD THAT RUNS INTO THE MARGIN, AN UNWANTED UNDERSCORE OR PUNCTUATION MARK, ETC.

2. IF YOU MUST MAKE A CORRECTION AT THE POINT OF THE ERROR (AS IN A MISPELLED WORD), YOU MUST FIRST ELIMINATE THE ERROR. THIS YOU DO BY:

LIGHTLY SCRAPING OFF THE CARBON
OR, BY COATING THE ERROR WITH
BLOCKOUT WAX
OR, BY ERASING THE ERROR VERY
THOROUGHLY
OR, BY SCRAPING AND COATING
THE ERROR

FIG. 7

3. INSERT A SLIP OF FRESH CARBON (CUT FROM THE BOTTOM OF THE CARBON SHEET OR FROM ANOTHER CARBON SHEET) UNDER THE MASTER AT THE POINT WHERE YOU MUST TYPE-----



FIG. 7

AFTER THE ERROR HAS BEEN DISPOSED OF, YOU ARE READY TO MAKE THE CORRECTION. HOWEVER, REMEMBERING THAT YOU "USED UP" THE CARBON AT THAT POINT WHEN YOU TYPED THE ERROR, YOU MUST PROVIDE SOME NEW CARBON THERE.

WHAT YOU MUST DO

4. MAKE THE CORRECTION
5. REMOVE THE EXTRA SLIP OF CARBON PAPER BEFORE GOING ON

STEPS TO FOLLOW IN RUNNING A SPIRIT MASTER:

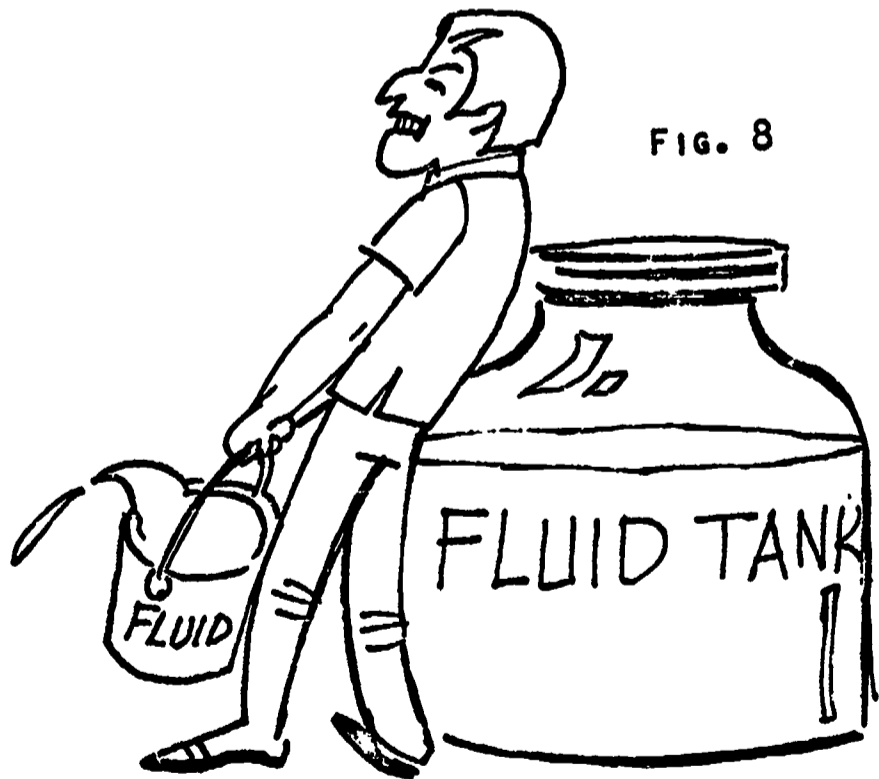
TOOLS AND MATERIALS NEEDED: SPIRIT MASTER
SPIRIT DUPLICATOR

-
- PLEASE DO NOT ATTEMPT TO OPERATE THE DUPLICATOR WITHOUT THE AID OF THE STUDENT RECEPTIONIST.
-

WHAT YOU MUST DO

1. BE SURE THAT THERE IS FLUID IN THE FLUID TANK FIG. 8
2. PLACE THE PAPER ON THE FEED TRAY
3. ADJUST THE GUIDE RAIL AT THE SCALE MARKING ON THE FEED TABLE CORRESPONDING TO THE WIDTH OF THE PAPER
4. SEE THAT THE PAPER TRAY (WHICH CATCHES THE COPIES) IS IN POSITION

WHAT YOU MUST KNOW TO DO THESE STEPS



WHAT YOU MUST DO

5. SET THE COPY CONTROL LEVER AT MEDIUM-▶

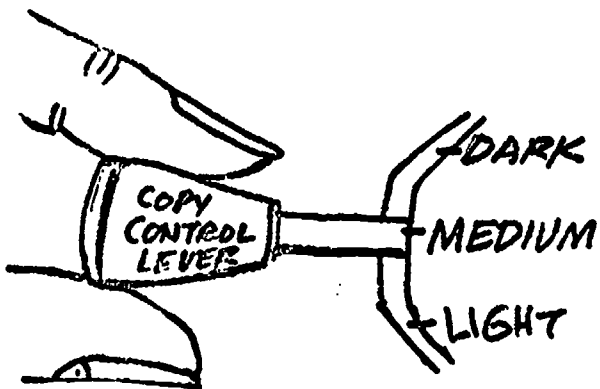


FIG. 9

WHAT YOU MUST KNOW

ON SOME MACHINES THE COPY CONTROL LEVER IS CALLED THE WICK PRESSURE CONTROL OR THE PRESSURE LEVER. EACH DUPLICATOR HAS A STRIP OF FELT CALLED THE "WICK" PLACED WHERE IT MOISTENS A RUBBER ROLLER WHICH IN TURN MOISTENS THE PAPER THAT COMES INTO THE MACHINE. THE WICK MUST BE MOIST WHEN YOU ARE RUNNING COPIES. IF YOU MAKE THE WICK VERY WET, YOU WILL GET DARKER COPIES. IF THE WICK IS TOO DRY YOU WILL GET LIGHT COPIES. THE COPY CONTROL LEVER CONTROLS THE AMOUNT OF MOISTURE IN THE WICK. FIG. 9

6. SET THE IMPRESSION ROLLER PRESSURE AT LOW

7. OPEN THE MASTER CLAMP IF NECESSARY---▶

ON SOME MACHINES THE MASTER CLAMP OPENS AUTOMATICALLY.

8. INSERT THE MASTER (CARBON IMAGE SIDE UP) INTO THE CLAMP--- FIG. 10 -----

THE SCALE ON THE CLAMP INDICATES THE EXACT CENTERING OF THE MASTER.

9. CLOSE THE CLAMP AND GENTLY PULL ON THE BOTTOM OF THE MASTER TO CREASE IT AT THE EDGE OF THE CLAMP



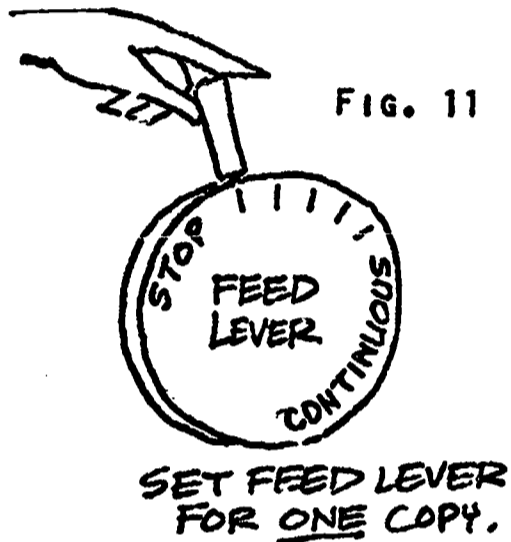
FIG. 10

10. SET THE MASTER SELECTOR LEVER (ON ELECTRIC MODELS) TO THE LENGTH OF THE MASTER (11" OR 14")

11. START THE MACHINE

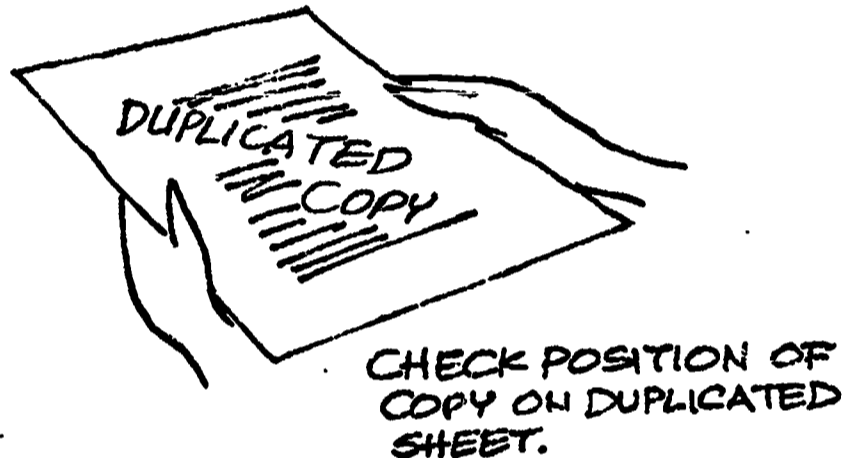
WHAT YOU MUST DO

12. MOVE THE FEED LEVER TO FEED A SINGLE SHEET OF PAPER THROUGH THE DUPLICATOR-- FIG. 11 ----->



WHAT YOU MUST KNOW

IF YOUR MATERIAL HAS BEEN DUPLICATED EITHER TOO HIGH OR TOO LOW ON THIS SHEET, FOLLOW THE INSTRUCTIONS GIVEN BY THE STUDENT ASSISTANT TO RAISE OR LOWER THE COPY. FIG. 12



13. SET THE COPY COUNTER AT ZERO AND MOVE THE FEED LEVER FOR CONTINUOUS FEEDING OF THE PAPER----->

AS THE COPIES ARE RUN, THE INTENSITY OF THE COLOR WILL SLOWLY FADE. INCREASING THE IMPRESSION ROLLER PRESSURE WILL SUPPLY ADDITIONAL COPIES WITH INCREASED INTENSITY.

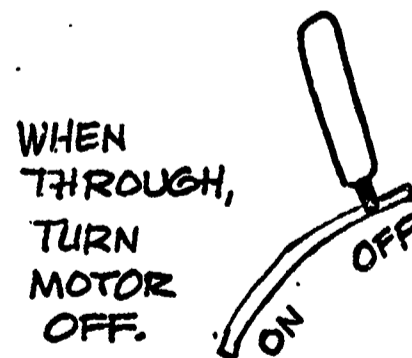
14. WHEN YOU ARE THROUGH WITH THE MACHINE, POSITION THE FEED LEVER IN THE STOP POSITION FIG. 13

15. TURN OFF THE MOTOR

16. RELEASE THE IMPRESSION ROLLER AND THE WICK PRESSURE

17. YOU MAY NEED TO TURN THE FLUID TANK SO THAT THE VALVE IS UP

18. OPEN THE MASTER CLAMP AND REMOVE THE MASTER



STEPS TO FOLLOW IN FILING A SPIRIT MASTER:

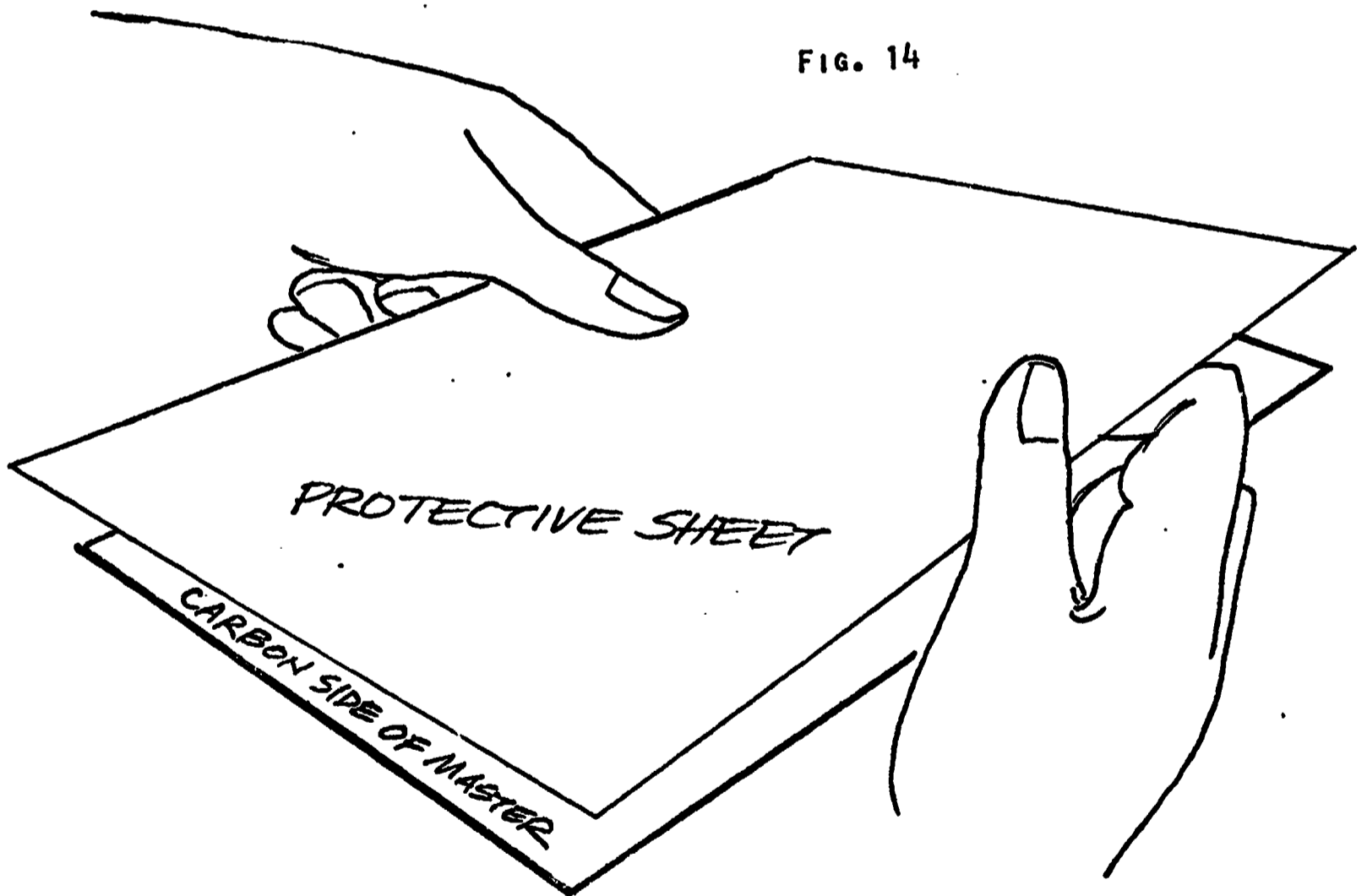
TOOLS AND MATERIALS NEEDED: SPIRIT MASTER
CLEAN SHEET OF PAPER OR
THE PROTECTIVE SHEET

WHAT YOU MUST DO

1. PLACE A CLEAN SHEET OF PAPER AGAINST THE CARBON SIDE OF THE MASTER TO PROTECT THE IMAGE---FIG. 14 -----

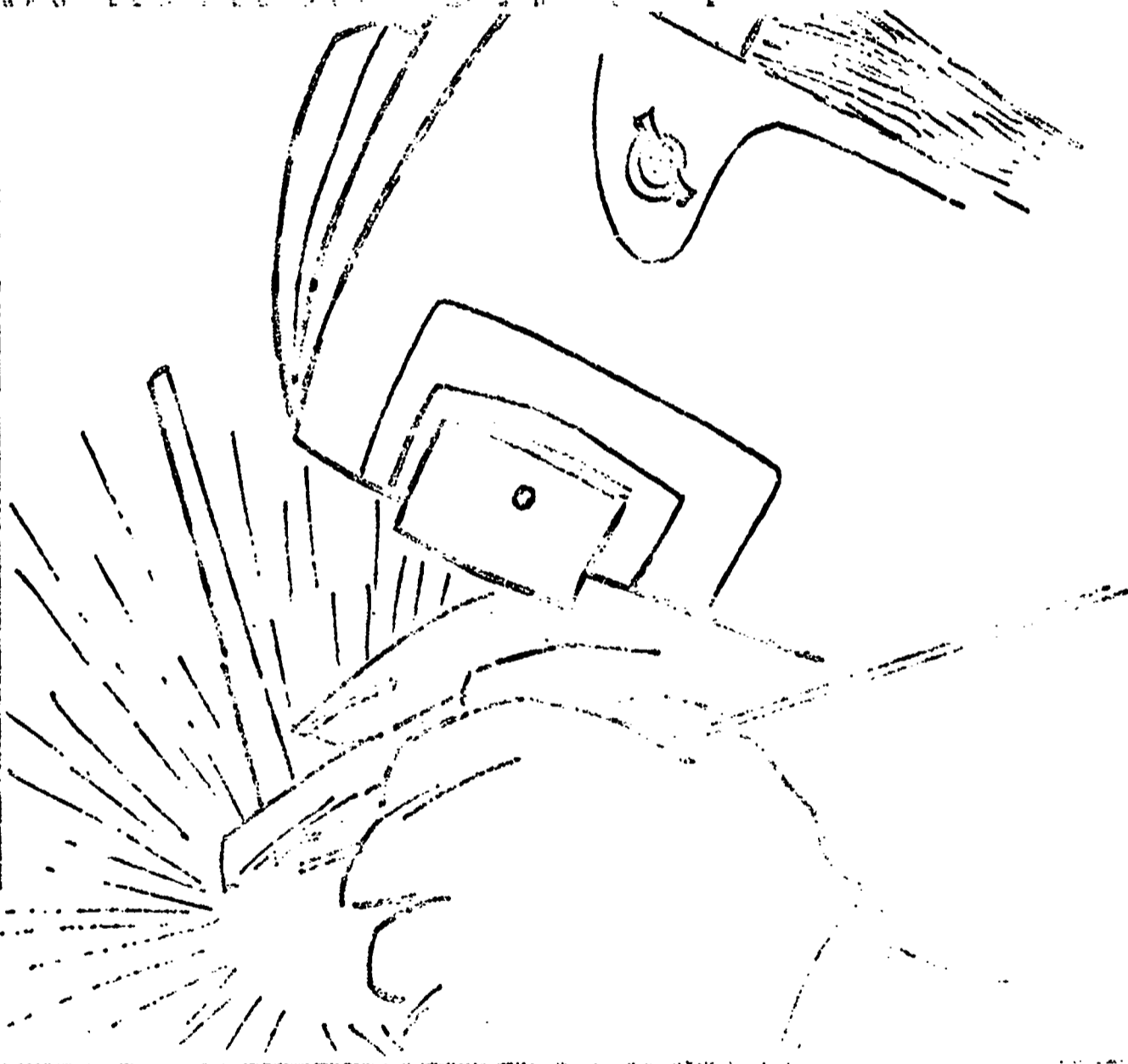
WHAT YOU MUST KNOW TO DO THESE STEPS

THE PROTECTIVE SHEET MAY BE USED FOR THIS PURPOSE.





AN ILLUSTRATION BY THE



WE CAN DO IT

PART 3 OF HANDS ON
KNOX COUNTY DEPARTMENT OF PUBLIC INSTRUCTION
KNOXVILLE, TENNESSEE

AN INTRODUCTION TO WELDING

BY CHARLES RUTHERFORD

SOME INTERESTING FACTS ABOUT WELDING

1. WHAT KIND OF WORK IS DONE?

THOUGH MILD STEEL, STAINLESS STEEL, ALUMINUM, AND CAST STEEL ARE THE MOST COMMONLY USED METALS, PRACTICALLY ALL KNOWN METALS CAN BE WELDED. AUTOMOBILES, TRAINS, BUILDINGS, SHIPS, AIRPLANES, WINDOW FRAMES, AND KITCHEN EQUIPMENT ARE TYPICAL METAL PRODUCTS. WELDING IS UTILIZED IN CONSTRUCTION AS WELL AS IN REPAIR WORK. THE JOB DEPENDS UPON BOTH THE TYPE OF METAL AND THE END PRODUCT.

2. WORKING CONDITIONS:

MOST WELDING SHOPS ARE CLEAN, WITH GOOD VENTILATION AND GOOD SAFETY CONDITIONS. HOWEVER, CONSTRUCTION WORK IS OFTEN HAZARDOUS.

3. SALARY SCALE:

THE SALARY RANGES FROM THE MINIMUM WAGE OF \$1.60 PER HOUR TO \$8.00 - \$9.00 PER HOUR, WITH TIME AND ONE-HALF TO DOUBLE TIME PAID FOR OVER 40 HOURS PER WEEK. MOST CONSTRUCTION WAGE CONTRACTS CALL FOR DOUBLE TIME FOR ANY WORK BEYOND 8 HOURS IN ONE DAY AND FOR WORK ON WEEK-ENDS AND HOLIDAYS.

4. TYPE OF CLOTHING WORN:

A WELDER MUST OFTEN WEAR PROTECTIVE CLOTHING SUCH AS A LEATHER JACKET OR APRON, A LONG SLEEVE SHIRT, HIGH TOP SHOES OR BOOTS, LEATHER GLOVES, AND A

WELDING HEAD SHIELD WITH A SUITABLE FILTER LENS.

5. PERSONAL QUALITIES NECESSARY:

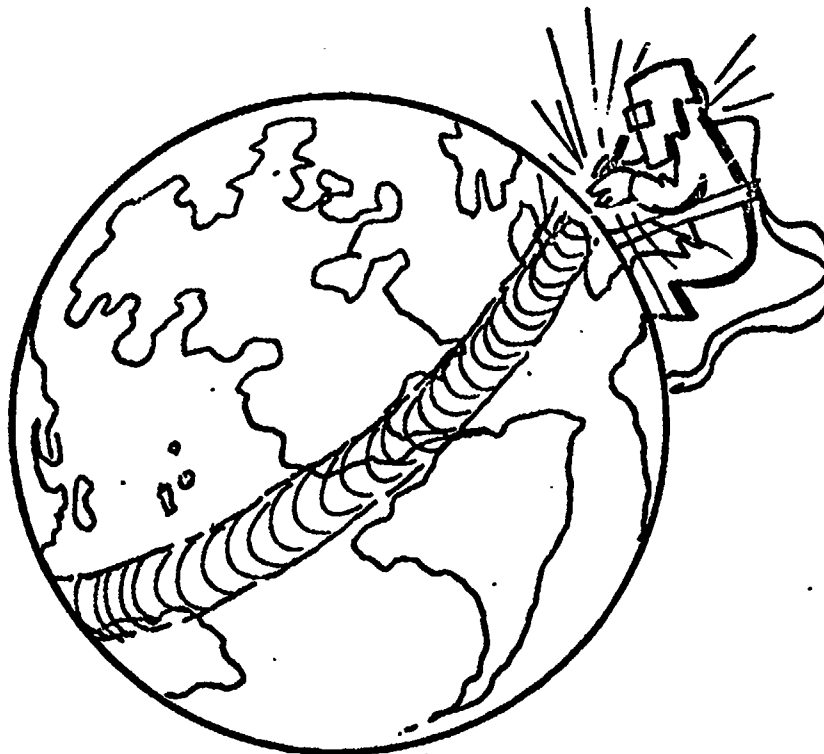
MANIPULATIVE SKILLS: YOU SHOULD HAVE GOOD EYESIGHT AND SUFFICIENT COORDINATION TO USE TOOLS WELL. THE ABILITY TO USE BLUEPRINTS OR SHOP SKETCHES IS HELPFUL.

PERSONALITY CHARACTERISTICS: YOU SHOULD HAVE GOOD WORK HABITS AND BE PATIENT ENOUGH TO STAY WITH A PROJECT UNTIL IT IS COMPLETED.

EDUCATIONAL QUALIFICATIONS: A WELDER SHOULD HAVE A HIGH SCHOOL EDUCATION. HOWEVER, THE MORE EDUCATION THAT YOU HAVE, THE FURTHER YOU WILL ADVANCE IN RESPONSIBILITY AND IN SALARY.

6. OTHER FACTS OF INTEREST:

THE PROCESS OF JOINING METALS BY WELDING IS BECOMING INCREASINGLY IMPORTANT IN OUR INDUSTRIAL SOCIETY. A QUALIFIED WELDER CAN USUALLY FIND WORK IN OTHER COUNTRIES OR IN ANY SECTION OF THE UNITED STATES.



YOUR FIRST EXPERIENCE IN WELDING WILL BE:

TO STRIKE AND HOLD AN ARC

INTRODUCTION -- PLEASE READ CAREFULLY:

BECAUSE OF THE INTENSE LIGHT EMITTED BY THE WELDING ARC, EYE SAFETY BECOMES AN IMPORTANT FACTOR IN THE WELDING SHOP. BE SURE TO OBSERVE ALL SAFETY RULES AND REGULATIONS. EYE SAFETY CANNOT BE EMPHASIZED ENOUGH. THE FILTER LENS IN THE WELDING HEAD SHIELD IS DESIGNED TO FILTER OUT THE HARMFUL ULTRAVIOLET RAYS THAT CAUSE EYE BURN.

STEPS TO FOLLOW IN STRIKING AND HOLDING AN ARC:

TOOLS AND MATERIALS NEEDED: 1/4" TO 3/8" x 6" x 6" SCRAP METAL, 1/8 INCH DIAMETER ELECTRODES # E-6012 OR E-6013, SLAG HAMMER, WELDING SHIELD, FILTER LENS, WELDING MACHINE, GLOVES, JACKET OR LONG SLEEVE SHIRT

WHAT YOU MUST DO

**WHAT YOU MUST KNOW
TO DO THESE STEPS**

1. PUT ON THE SAFETY EQUIPMENT-----▶
EQUIPMENT NEEDED: GLOVES, WELDING SHIELD AND FILTER LENS, JACKET OR LONG SLEEVE SHIRT.

CHECK THE WELDING SHIELD FILTER LENS FOR CLEANLINESS. REPLACE THE LENS IF IT IS BROKEN.

2. CONNECT THE GROUND CLAMP-----▶ THE GROUND CLAMP IS THE CABLE WITH THE INSULATED SPRING CLAMP ON THE END. CONNECT IT TO THE METAL LEG OF THE WORK TABLE.

3. SET THE MACHINE AMPERAGE-----▶ SET THE AMPERAGE HAND WHEEL UNTIL THE POINTER POINTS TO 100.

4. SET THE MACHINE POLARITY-----▶ SET THE POLARITY TO A.C. POSITION.

5. PLACE AN ELECTRODE IN THE HOLDER-----▶ SELECT AN ELECTRODE. PLACE THE BARE END BETWEEN THE JAWS OF THE ELECTRODE HOLDER.

6. PLACE SCRAP METAL ON THE WORK TABLE

7. TURN ON THE MACHINE-----▶ LOCATE THE ON - OFF SWITCH. PUSH THE BLACK BUTTON TO START. DO NOT TOUCH THE ELECTRODE TO THE METAL PLATE BEFORE THE FACE SHIELD IS IN PLACE.

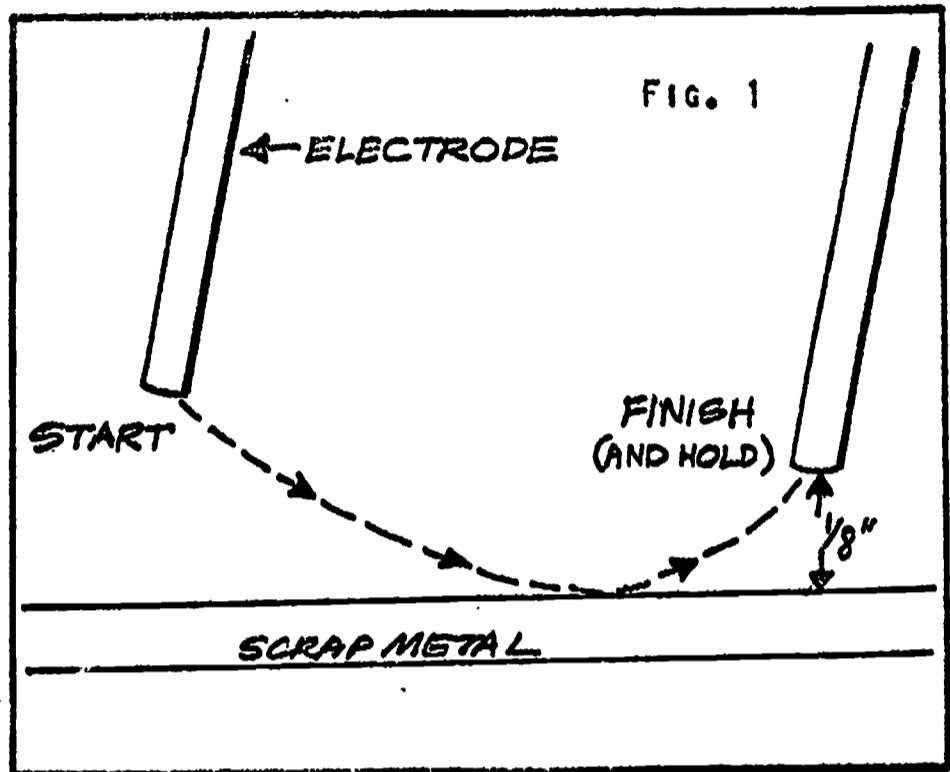
8. LOWER THE FACE SHIELD OVER YOUR FACE

WHAT YOU MUST DO

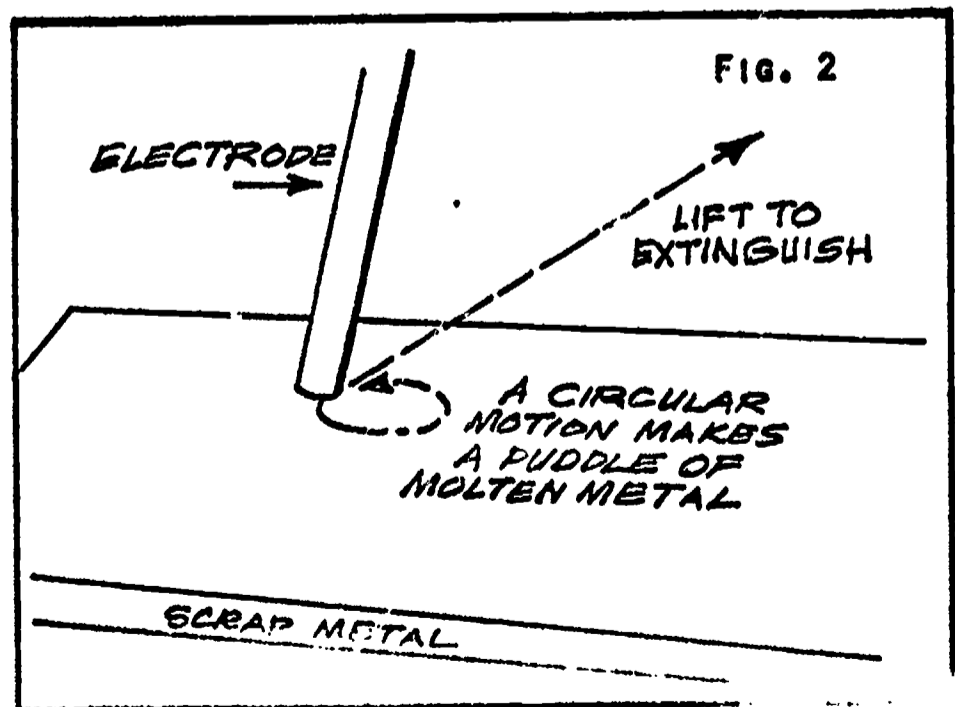
9. STRIKE AN ARC-----
10. HOLD THE ELECTRODE $1/8''$ ABOVE THE METAL, KEEPING THE ARC GOING FIG. 1

WHAT YOU MUST KNOW

USE A SCRATCHING MOTION WITH THE ELECTRODE AGAINST SCRAP METAL



11. USING A CIRCULAR MOTION, MAKE A SMALL PUDDLE OF MOLTEN METAL-----
Do NOT ATTEMPT TO RUN A WELD BEAD UNTIL YOU HAVE PRACTICED STRIKING AND HOLDING AN ARC FOR SEVERAL MINUTES. THE INSTRUCTOR WILL CHECK THE PUDDLES.
12. LIFT THE ELECTRODE TO EXTINGUISH THE ARC FIG. 2



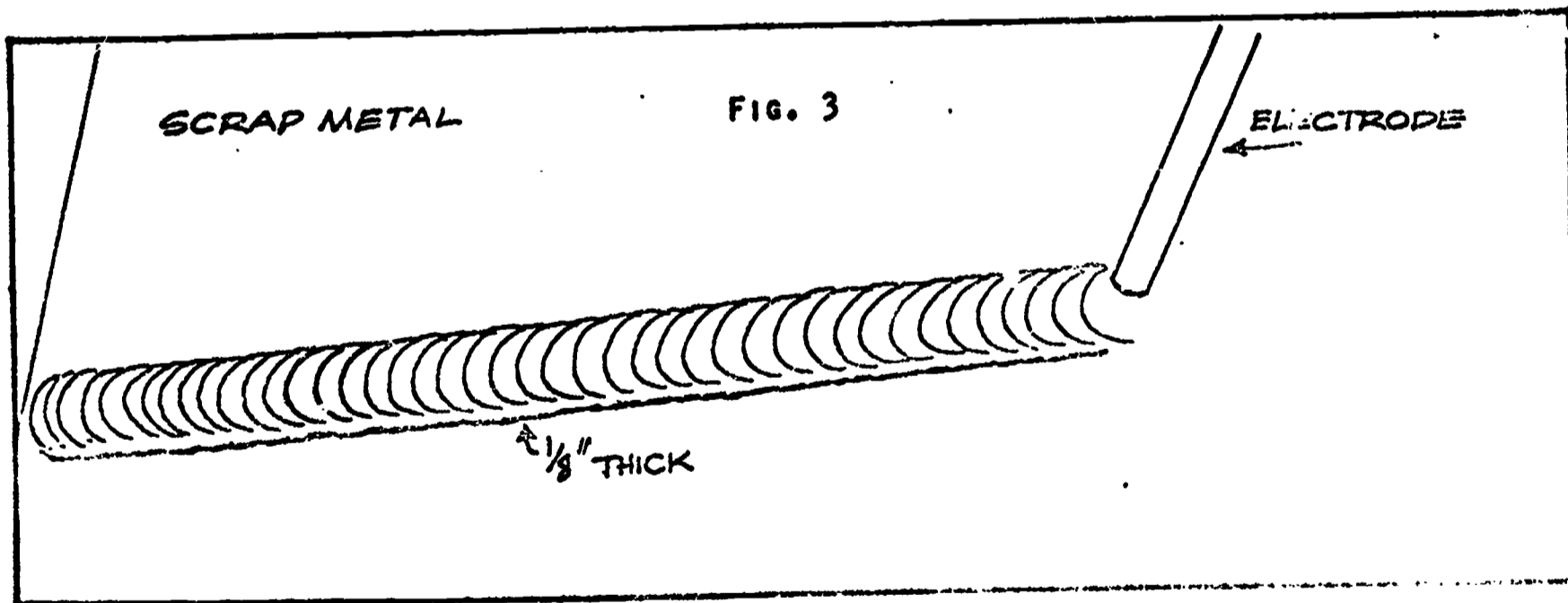
STEPS TO FOLLOW IN RUNNING A STRAIGHT WELD BEAD:

TOOLS AND MATERIALS NEEDED: SCRAP METAL, 1/8" DIAMETER ELECTRODES #E-6012 OR E-6013, PROTECTIVE CLOTHING, WELDING SHIELD, FILTER LENS, SLAG HAMMER, ELECTRODES, LEATHER GLOVES, SCRAP METAL, WELDING MACHINE

WHAT YOU MUST DO

WHAT YOU MUST KNOW TO DO THESE TESTS

1. SET UP AND ADJUST THE MACHINE-----▶ REFER TO THE STEPS TO FOLLOW IN STRIKING AND HOLDING AN ARC.
2. USE PROTECTIVE CLOTHING-----▶ GLOVES, WELDING SHIELD, FILTER LENS, JACKET OR LONG SLEEVE SHIRT.
3. STRIKE AN ARC-----▶ REFER TO THE STEPS TO FOLLOW IN STRIKING AND HOLDING AN ARC.
4. RUN A WELD BEAD ALL THE WAY ACROSS A PRACTICE PLATE-FIG. 3 -----▶ USE A DRAGGING MOVEMENT ACROSS THE PLATE. THE BEAD (THE METAL DEPOSITED ON THE PLATE BY THE ELECTRODE) SHOULD BE 1/8" THICK.



5. REPEAT STEP 4, MAKING SEVERAL WELD BEADS
6. USE THE SLAG HAMMER TO REMOVE THE SLAG FROM WELD-----▶ SLAG IS THE LOOSE CRUST ON THE WELD. VISUALLY INSPECT THE WELD FOR EVENNESS AND FOR SMALL HOLES. A GOOD WELD WILL HAVE SMOOTH, EVEN RIPPLES WITH NO HOLES.