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ABSTRACT

Life in the western United States was reshaped by a series of patents for a simple tool that helped ranchers tame the land: barbed wire. Nine patents for improvements to wire fencing were granted by the U.S. Patent Office to U.S. inventors beginning with Michael Kelly in 1868 and ending with Joseph Glidden in 1874. Vast and undefined prairies and plains yielded to range management, farming, and ultimately, widespread settlement. As the use of barbed wire increased, wide open spaces became less wide, less open, and less spacious, and the days of the free-roaming cowboy were numbered. Before the invention of barbed wire, lack of effective fencing limited the range of farming and ranching practices, and with it, the number of people who could settle in an area. Wooden fencing was not practical, so the widespread use of barbed wire changed life on the Great Plains dramatically and permanently. This lesson plan uses the patent drawing and description of Joseph Glidden's barbed wire invention to study the way life on the Great Plains was changed by its use. The lesson plan provides teaching activities, including history and civics and government standards correlation, document analysis activities, such as comparing written and visual descriptions, creative interpretation activities, and further research activity. Patent drawing, description, and a written document analysis worksheet are included. (BT)

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TEACHING WITH DOCUMENTS

Glidden's Patent Application for Barbed Wire

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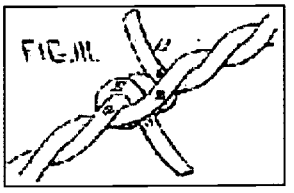
2002

Teaching With Documents Lesson Plan:

Glidden's Patent Application for Barbed Wire

Background



Life in the American West was reshaped by a series of patents for a simple tool that helped ranchers tame the land: barbed wire. Nine patents for improvements to wire fencing were granted by the U.S. Patent Office to American inventors, beginning with Michael Kelly in November 1868 and ending with Joseph Glidden in November 1874. Barbed wire not only simplified the work of the rancher and farmer, but it significantly affected political, social, and economic practices throughout the region. The swift emergence of this highly effective tool as the favored fencing method influenced life in the region as dramatically as the rifle, six-shooter, telegraph, windmill, and locomotive.

Barbed wire was extensively adopted because it proved ideal for western conditions. Vast and undefined prairies and plains yielded to range management, farming, and ultimately, widespread settlement. As the use of barbed wire increased, wide open spaces became less wide, less open, and less spacious, and the days of the free roaming cowboy were numbered. Today, cowboy ballads remain as nostalgic reminders of life before barbed wire became an accepted symbol of control, transforming space to place and giving new meaning to private property.

Before the invention of barbed wire, the lack of effective fencing limited the range of farming and ranching practices, and with it, the number of people who could settle in an area. Wooden fences were costly and difficult to acquire on the prairie and plains, where few trees grew. Lumber was in such short supply in the region that farmers were forced to build houses of sod. Likewise, rocks for stone walls—commonly found in New England—were scarce on the plains. Shrubs and hedges, early substitutes for wood and rock fencing materials, took too long to grow to become of much use in the rapidly expanding West. Barbed wire was cheaper, easier, and quicker to use than any of these other alternatives.

Without fencing, livestock grazed freely, competing for fodder and water. Where working farms existed, most property was unfenced and open to foraging cattle and sheep. Once a year, cattle owners, unhindered by fenced property lines, led their herds on long cattle drives, eventually arriving at slaughter-houses located near urban railheads for shipping convenience. The appearance of barbed wire meant the end of both the open range and the freedom of the rancher and cowboy, an event lamented in the Cole Porter song "Don't Fence Me In."

Wire fences used before the invention of the barb consisted of only one strand of wire, which was constantly broken by the weight of cattle pressing against it. Michael Kelly made a significant improvement to wire fencing with an invention that "twisted two wires together to form a cable for barbs—the first of its kind in America," according to Henry D. and Frances T. McCallum, the authors of *The Wire That Fenced the West*. Known as the "thorny fence," Kelly's double-strand design made the fence stronger, and the painful barbs taught cattle to keep their distance.

Predictably, other inventors sought to improve upon Kelly's designs; among them was Joseph Glidden, a farmer from De Kalb, IL. In 1873 and 1874, patents were issued for various designs to strengthen Kelly's invention, but the recognized winner in this series of improvements was Glidden's simple wire barb locked onto a double-strand wire. Glidden's invention made barbed wire more effective not only because he described a method for locking the barbs in place, but also because he developed the machinery to mass-produce the wire. His invention also survived court challenges from other inventors. Glidden's patent, prevailing in both litigation and sales, was soon known as "the winner." Today, it remains the most familiar style of barbed wire.

The widespread use of barbed wire changed life on the Great Plains dramatically and permanently. Land and water once open to all was fenced off by ranchers and homesteaders with predictable results. Cattlemen, increasingly cut off from what they regarded as common-use resources in such territories as Texas, New Mexico, Colorado, and Wyoming, first filed land-use petitions and then waged fierce range wars against the property-owning farmers. Gradually, there was a discernible shift in who controlled the land and thus wielded the superior power.

Living patterns of nomadic Native Americans were radically altered, as well. Further squeezed from lands they had always used, they began calling barbed wire "the Devil's rope." Fenced-off land meant that more and more cattle herders—regardless of race—were dependent on the dwindling public lands, which rapidly became overgrazed. The harsh winter of 1886, culminating in a big January 1887 blizzard, wreaked further havoc on the cattle market: losses totaled more than $20 million in Wyoming alone. In effect, large-scale, open-range cattle enterprises disappeared.

While barbed wire symbolized the range wars and the end of widespread open grazing land for livestock in the American West, it also became a widely used

commodity elsewhere, especially during land warfare. In early European history, pointed spears or palisades circumferentially surrounded many castles for protection. Barbed wire rapidly replaced these and other devices used to protect people and property from unwanted intrusion. Military usage of barbed wire formally dates to 1888, when British military manuals first encouraged its use.

During the Spanish American War, Teddy Roosevelt's Rough Riders chose to defend their camps with the help of barbed wire. In turn-of-the-century South Africa, five-strand fences were linked to blockhouses sheltering British troops from the encroachment of Boer commandos. During World War I, barbed wire was used as a military weapon. It was a formidable barrier along the front, stretching from Switzerland to the English Channel. Even now, barbed wire is widely used to protect and safeguard military installations and to establish territorial boundaries. It has also emerged as a commonly recognized instrument for prisoner confinement; the image of a corpse caught on the wires of a concentration camp fence has become the emblem of war's ravages. Today, barbed wire is often part of the containment wall of prisons all over the world.

Other less emotionally charged uses of barbed wire fencing exist in industry. Used on construction and storage sites and around warehouses, barbed wire protects supplies and persons and keeps out unwanted intruders. In any event, it has proved both highly useful and highly significant in altering traditional practices during both war and peace.

Glidden's patent, No. 157124, was issued November 24, 1874.

The Documents

1. Glidden's Patent Drawing, National Archives and Records Administration Records of the Patent and Trademark Office, Record Group 241

2. Glidden's Patent Description, National Archives and Records Administration, Records of the Patent and Trademark Office, Record Group 241

Lesson Resources

Standards Correlations

Teaching Activities

Document Analysis Worksheet

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Teaching Activities

Standards Correlations

This lesson correlates to the National History Standards.

- Era 6-The Development of the Industrial U.S. (1870-1900)
  - Standard 1C-Demonstrate understanding of how agriculture, mining, and ranching were transformed.

This lesson correlates to the National Standards for Civics and Government.

- Standard I.B.4.-Explain and evaluate competing ideas regarding the relationship between political and economic freedoms.
- Standard V.B.3.-Evaluate, take, and defend positions on issues regarding economic rights.

Cross-curricular Connections
Share this exercise with your history, government, economics, science, and language arts colleagues.

Analyzing the Document

1. Divide students into pairs, and ask them to take turns "free-associating" or describing aloud any words or images they associate with barbed wire. Then ask them to discuss ways in which this object has become a symbol of the romance of the old West, war and destruction, and confinement.
2. Project a transparency of the patent drawing on an overhead projector, read the written description aloud, and then ask the students the following questions: For whom was the drawing intended? Why was it created? What is the inventor actually seeking to patent? What are the strengths of the invention? How well does the written description depict the physical design and intended use? What aspects of the description need enhancement?
3. Ask students to consider what skills were required for the inventor to design these improvements to wire and what skills were required to manufacture, market, and sell the product. Ask the students to connect these skills to professions and technical fields, and list them on the

chalkboard. As an optional follow-up, ask some students to create advertisements for barbed wire. Help them locate a reproduction copy of a 19th-century Sears Roebuck catalog. Project copies of student designs and pages from the catalog that advertise barbed wire on an overhead projector, and ask the class to compare the two sets of designs.

Writing and Defining a Position

4. Divide the class into four groups, and instruct each group to research and prepare a position on the invention as follows: first group, cowboys or herders; second, farmers; third, Native Americans; and fourth, wire manufacturers. Convene a community meeting to discuss the various viewpoints of each group regarding the safety, privacy, and other issues related to the invention.

Comparing Written and Visual Descriptions

5. Ask students to write a description of an improvement for an object they use regularly in the classroom, such as a pencil sharpener, chalkboard, or desk. Pair the students, and instruct them to take turns reading the description aloud to their partners, who must draw their impressions of what the object looks like. Ask them to assess the accuracy of the results and to explore reasons why the visual and verbal descriptions matched or failed to match. Then discuss with the class why the patent office requires both written and visual descriptions of patent applications.

Relating Personal Experiences

6. Collecting barbed wire is a popular hobby. The Barbed Wire Museum in Canyon, TX, has over 200 specimens of barbed wire in its collection. Ask your students what their encounters with barbed wire have been. Also ask them how they would account for the continued fascination with barbed wire.

Creative Interpretation

7. Locate the words and a recording of Cole Porter's song "Don't Fence Me In." Ask the class to identify the point of view of the singer as you project the words from a transparency and play the recording. Ask students to translate the images raised by the songwriter in another medium, such as a drawing, pantomime, poem, or dance. Encourage some students to take another viewpoint related to the changes produced by barbed wire and to express those feelings in an appropriate medium.

Further Research Activity

8. Ask for volunteers to research other inventions or improvements to inventions that significantly influenced the changing landscape of the American West, such as the rifle, six-shooter, telegraph, windmill, and locomotive. Arrange for these students to conduct a panel discussion for the class on the effects of these improvements on life in the West.

Page URL: http://www.archives.gov/digital_classroom/lessons/barbed_wire_patent/teaching_activities.html

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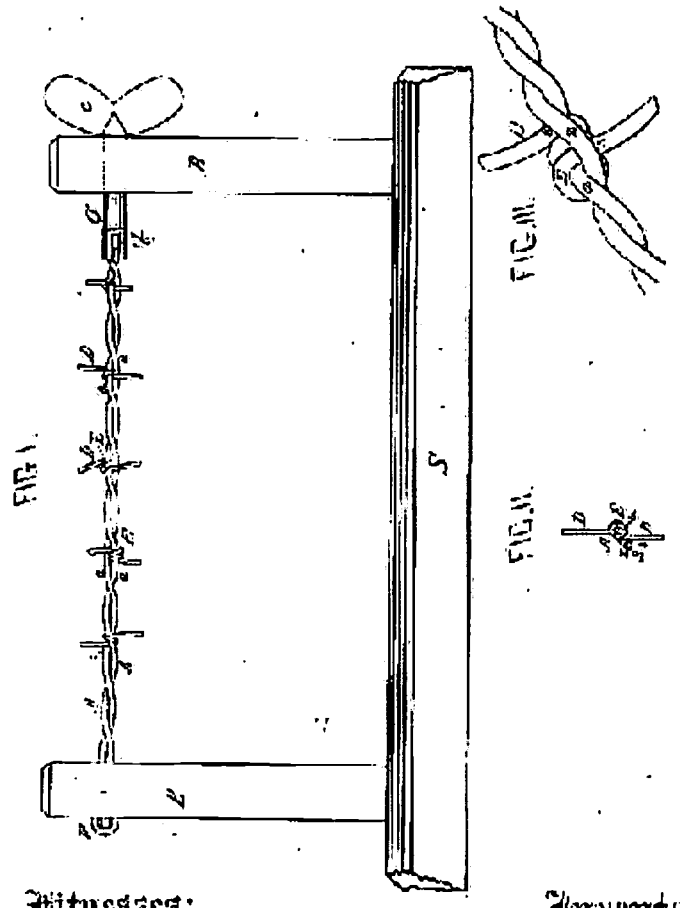
J. F. GLIDDEN.

Wire-Fences.

No. 157,124. Patented Nov. 24, 1874.



Witnesses:

Inventor:

Document 1: Glidden's Patent Drawing

UNITED STATES PATENT OFFICE.

JOSEPH F. GLIDDEN, OF DE KALB, ILLINOIS.

IMPROVEMENT IN WIRE FENCES.

Specification forming part of Letters Patent No. 157,124, dated November 24, 1874; application filed October 27, 1873.

To all whom it may concern:

Be it known that I, JOSEPH F. GLIDDEN, of De Kalb, in the county of De Kalb and State of Illinois, have invented a new and valuable Improvement in Wire Fences; and that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view of a section of fence exhibiting my invention. Fig. 2 is a sectional view, and Fig. 3 is a perspective view, of the same.

This invention has relation to means for preventing cattle from breaking through wire fences; and it consists in combining, with the twisted fence-wires, a short transverse wire, coiled or bent at its central portion about one of the wire strands of the twist, with its free ends projecting in opposite directions, the other wire strand serving to bind the spur-wire firmly to its place, and in position, with its spur ends perpendicular to the direction of the fence-wire, lateral movement, as well as vibration, being prevented. It also consists in the construction and novel arrangement, in connection with such a twisted fence-wire, and its spur-wires, connected and arranged as above described, of a twisting-key or head-piece passing through the fence-post, carrying the ends of the fence-wires, and serving, when the spurs become loose, to tighten the twist of the wires, and thus render them rigid and firm in position.

In the accompanying drawings, the letter B designates the fence-posts, the twisted fence-wire connecting the same being indicated by the letter A. C represents the twisting-key, the shank of which passes through the fence-post, and is provided at its end with an eye, *b*, to which the fence-wire is attached. The outer end of said key is provided with a transverse thumb-piece, *c*, which serves for its manipulation, and at the same time, abutting against the post, forms a shoulder or stop, which prevents the contraction of the wire from drawing the key through its perforation in said post.

The fence-wire is composed at least of two strands, *a* and *a*, which are designed to be twisted together after the spur-wires have been arranged in place.

The letter D indicates the spur-wires. Each of these is formed of a short piece of wire, which is bent at its middle portion, as at E, around one only of the wire strands, this strand being designated by the letter *a*. In forming this middle bend or coil several turns are taken in the wire, so that it will extend along the strand-wire for a distance several times the breadth of its diameter, and thereby form a solid and substantial bearing-bead for the spurs, which will effectually prevent them from vibrating laterally or being pushed down by cattle against the fence-wire. Although these spur-wires may be turned at once around the wire strand, it is preferred to form the central bend first, and to then slip them on the wire strand, arranging them at suitable distances apart. The spurs having thus been arranged on one of the wire strands are fixed in position and place by approaching the other wire strands *a* on the side of the bend from which the spurs extend, and then twisting the two strands *a a* together by means of the wire key above mentioned, or otherwise. This operation locks each spur-wire at its allotted place, and prevents it from moving therefrom in either direction. It clamps the bend of the spur-wire upon the wire *a*, thereby holding it against rotary vibration. Finally, the spur ends extending out between the strands on each side, and where the wires are more closely approximated in the twist, form shoulders or stops *d*, which effectually prevent such rotation in either direction.

Should the spurs, from the untwisting of the strands, become loose and easily movable on their bearings, a few turns of the twisting-key will make them firm, besides straightening up the fence-wire.

What I claim as my invention, and desire to secure by Letters Patent, is—

A twisted fence-wire having the transverse spur-wire D bent at its middle portion about one of the wire strands *a* of said fence-wire, and clamped in position and place by the other wire strand *a*, twisted upon its fellow, substantially as specified.

JOSEPH F. GLIDDEN.

Witnesses:
G. L. CHAPIN,
J. H. ELLIOTT.

Document 2: Glidden's Written Patent Description

Written Document Analysis Worksheet

1. TYPE OF DOCUMENT (Check one):

___ Newspaper	___ Map	___ Advertisement
___ Letter	___ Telegram	___ Congressional record
___ Patent	___ Press release	___ Census report
___ Memorandum	___ Report	___ Other

2. UNIQUE PHYSICAL QUALITIES OF THE DOCUMENT (Check one or more):

___ Interesting letterhead	___ Notations
___ Handwritten	___ "RECEIVED" stamp
___ Typed	___ Other
___ Seals	

3. DATE(S) OF DOCUMENT:

_____

4. AUTHOR (OR CREATOR) OF THE DOCUMENT:

_____

POSITION (TITLE):

_____

5. FOR WHAT AUDIENCE WAS THE DOCUMENT WRITTEN?

_____

6. DOCUMENT INFORMATION (There are many possible ways to answer A-E.)

A. List three things the author said that you think are important:

_____
_____
_____

B. Why do you think this document was written?

_____
_____

C. What evidence in the document helps you know why it was written? Quote from the document.

_____
_____

D. List two things the document tells you about life in the United States at the time it was written:

_____
_____

E. Write a question to the author that is left unanswered by the document:

_____
_____

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