(No Model.)

W. J. LEWIS.

MANUFACTURE OF BARBED FENCE RAILS.

No. 278,714. Patented June 5, 1883.

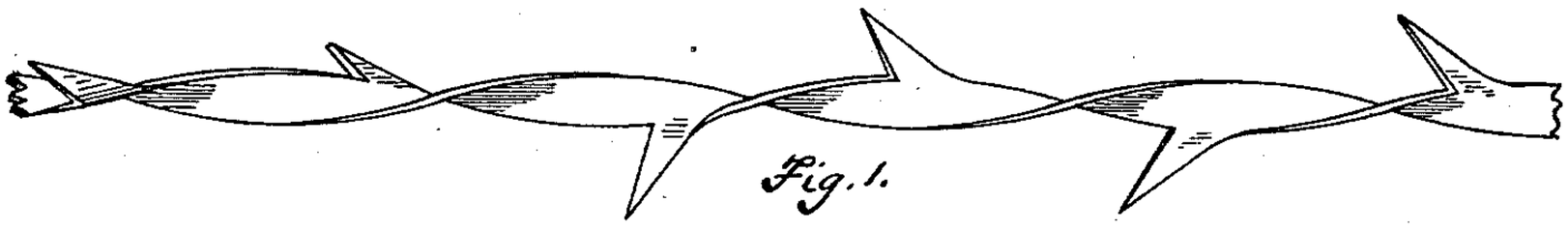


Fig. 1.

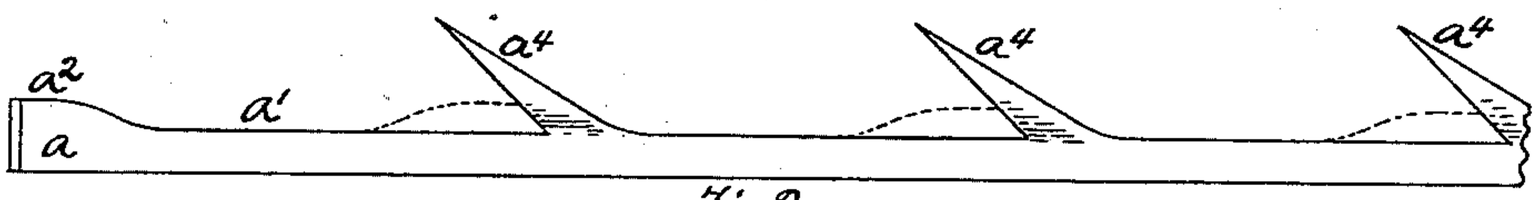


Fig. 2.

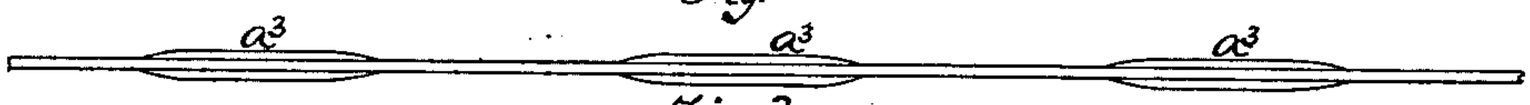


Fig. 3.

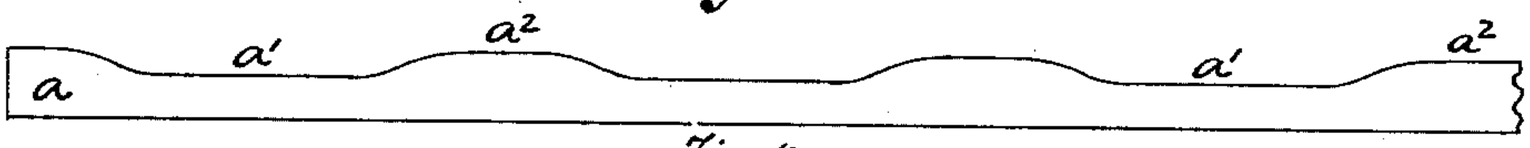


Fig. 4.

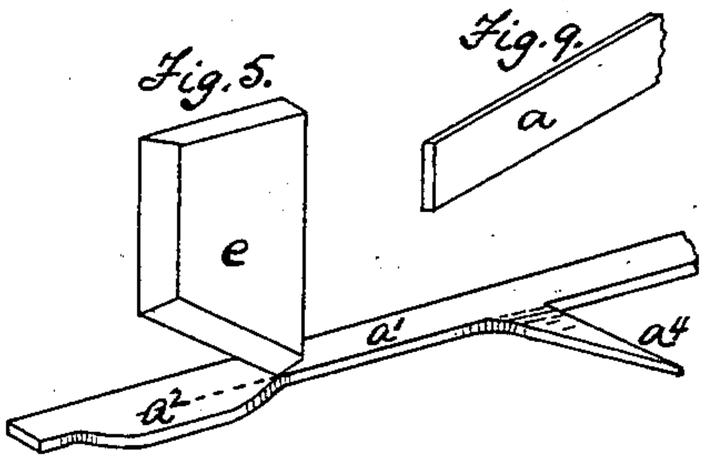


Fig. 5.

Fig. 9.

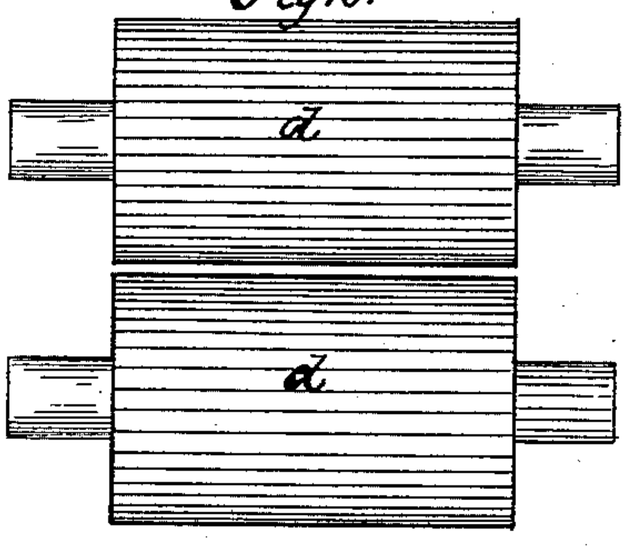


Fig. 8.

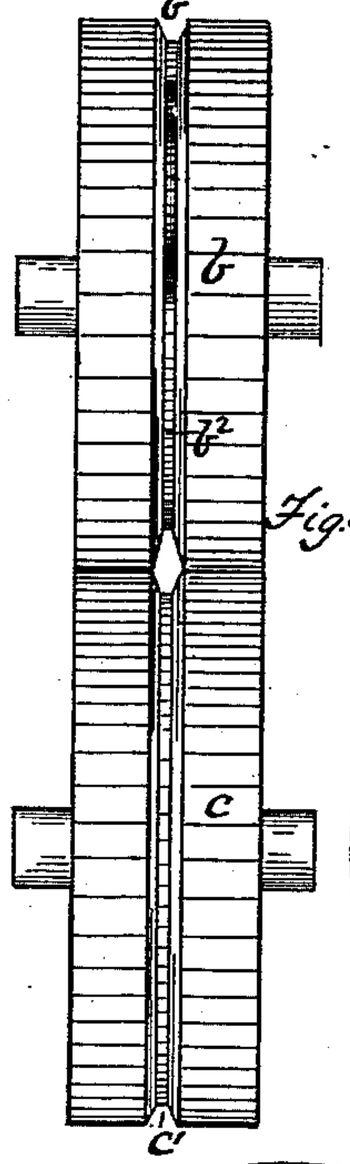


Fig. 6.

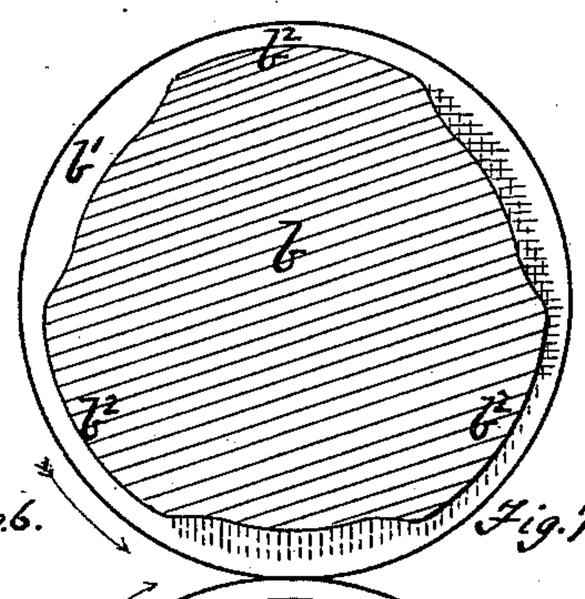
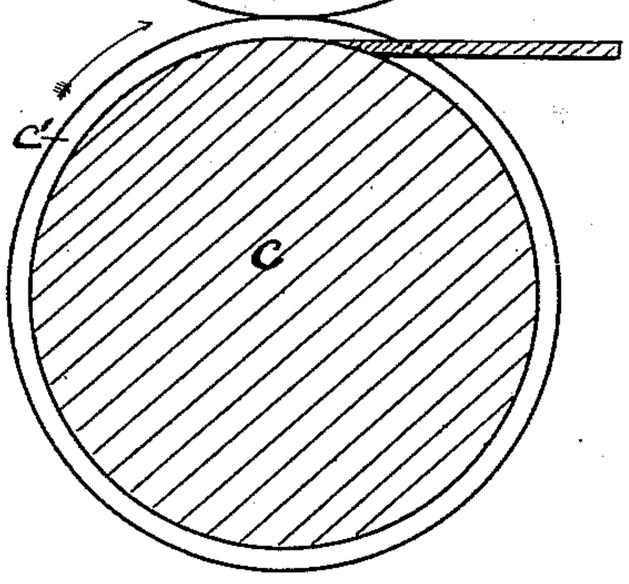


Fig. 7.



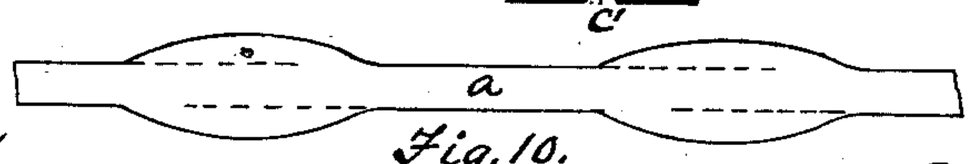


Fig. 10.

Witnesses—
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Inventor—
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by his attys
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UNITED STATES PATENT OFFICE.

WILLIAM J. LEWIS, OF PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF BARBED FENCE-RAILS.

SPECIFICATION forming part of Letters Patent No. 278,714, dated June 5, 1883.

Application filed December 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LEWIS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Barbed Fence-Rails; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side view of my improved barbed fence-rail. Fig. 2 is a view of the same before twisting. Figs. 3 and 4 are respectively top and side views of the bar after passing through the rolls shown in Figs. 6 and 7. Fig. 5 is a view illustrating the operation of forming the barbs. Figs. 6 and 7 are views of the rolls by which the blank is made. Fig. 8 is a view of the finishing-rolls. Fig. 9 is a view of the bar before being put through the rolls. Fig. 10 is a plan view of a modified form.

Like letters of reference indicate like parts in each.

I take a flat bar, *a*, of iron or steel, and preferably rectangular in cross-section, and heat it properly and pass it through the rolls *b c*, which are provided with grooves *b′ c′*, arranged opposite to each other, to form the pass. The grooves *b′ c′* are of slightly more than sufficient width for the easy entering and delivery of the bar, and of flaring form, to provide room for the swelling of the metal at the points where the bar is broken down. The groove *c′* is plain, while the groove *b′* is provided with a number of projections, b^2, which form indentations *a′*, Fig. 4, in the bar *a*, as it passes through them. They also have the effect of swelling out the bar laterally at the broken-down portions *a′*. The bar is then passed through a pair of plain-faced finishing-rolls, *d*, Fig. 8, being entered on its side. This pass has the effect of elongating the bar and of rolling in the lateral bulges or swells a^3, which are produced at the points *a′* during the first pass. The bar thus produced is of uniform thickness or gage, but has narrow and wide parts *a′* a^2. It is then passed through a suitable slitting-machine and the projections a^2 are sheared from the body of the bar nearly their entire length. The operation of the shearing-knife *e* causes the cut portions a^3 to be pressed downward until they stand out at an angle to the bar, as shown in Fig. 5. As the ends of the projections a^2 taper down into the body of the bar, the cut end of each projection a^3 is sharp. The projections a^3 constitute the barbs a^4. The bar or strip is then twisted in a suitable machine, which has the effect of throwing the barbs out in all directions, and after the usual painting or galvanizing the barbed strip or fence-rail thus produced is ready for use.

If desired, depressions similar to the depressions *a′* may be formed in the roll *c*. Then the strip or bar will be provided with projections a^2 on both sides, and the barbs may be formed by shearing the projections, as shown in Fig. 10. The groove may be formed in one of the rolls *a b* and the other roll be plain. In this case the groove would be made flaring, so as to provide room for the lateral swelling of the metal when the bar is broken down to form the depressions.

When I speak of a "flat" or "wide" bar I mean a bar having a greater diameter in one direction than the other, whether it be of rectangular, oval, or other shape. The groove of the rolls should approximate to the shape of the bar.

The method herein described of forming bars, rods, or strips of uniform thickness and varying width is applicable not only to the manufacture of the fence-rail herein described, but also for other articles, such as bolster-plates, umbrella-ribs, and other blanks rolled in connected series. It is also useful in the manufacture of bars used for structural and other purposes where it is necessary to punch the bar at intervals in its length and it is desirable to retain a uniform strength throughout its length. This can be done in bars made by this method by punching them in the widened parts.

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

1. The method of making barbed fence-rails, consisting, first, in breaking down a wide bar of iron or steel laterally at intervals; second, rolling the bar flatwise to bring it to a uniform gage; and, third, shearing one end of the projections and turning out the cut end to form the barbs, substantially as and for the purposes described.

2. The method herein described of making metallic bars, strips, and rails of uniform thickness and varying width, consisting, first, in breaking down a bar laterally at intervals; and, second, rolling it flatwise to bring it to a uniform thickness, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 20th day of December, A. D. 1882.

WILLIAM J. LEWIS.

Witnesses:
W. B. CORWIN,
T. B. KERR.