

(No Model.)

3 Sheets—Sheet 1.

E. JORDAN.

METHOD OF AND MEANS FOR MAKING BARBED METALLIC FENCING.

No. 314,183.

Patented Mar. 17, 1885.

Fig 1.

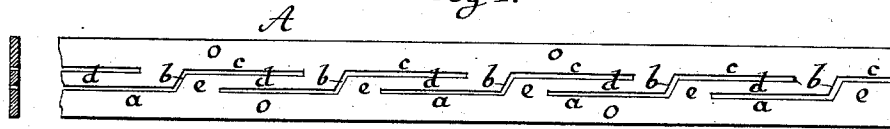


Fig 2.

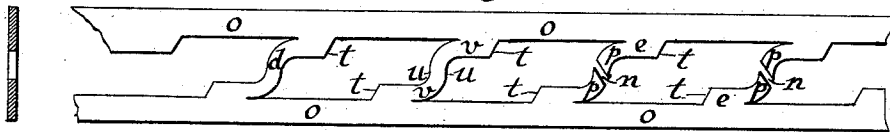


Fig 3.

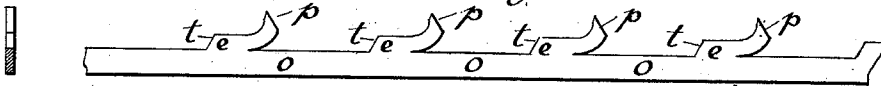


Fig 5.

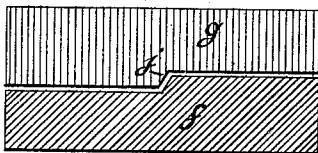


Fig 6.

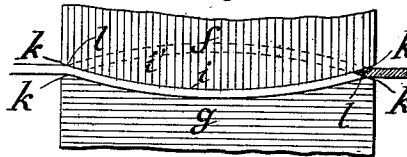


Fig 4.

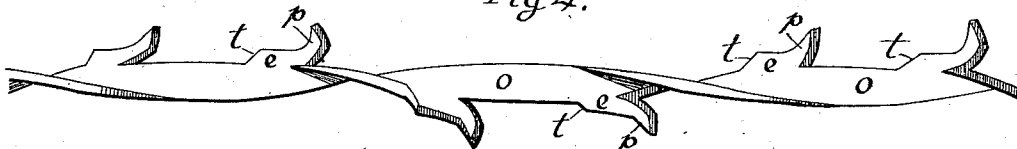
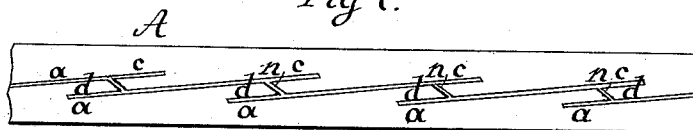


Fig 7.



WITNESSES=

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Fig. 8.

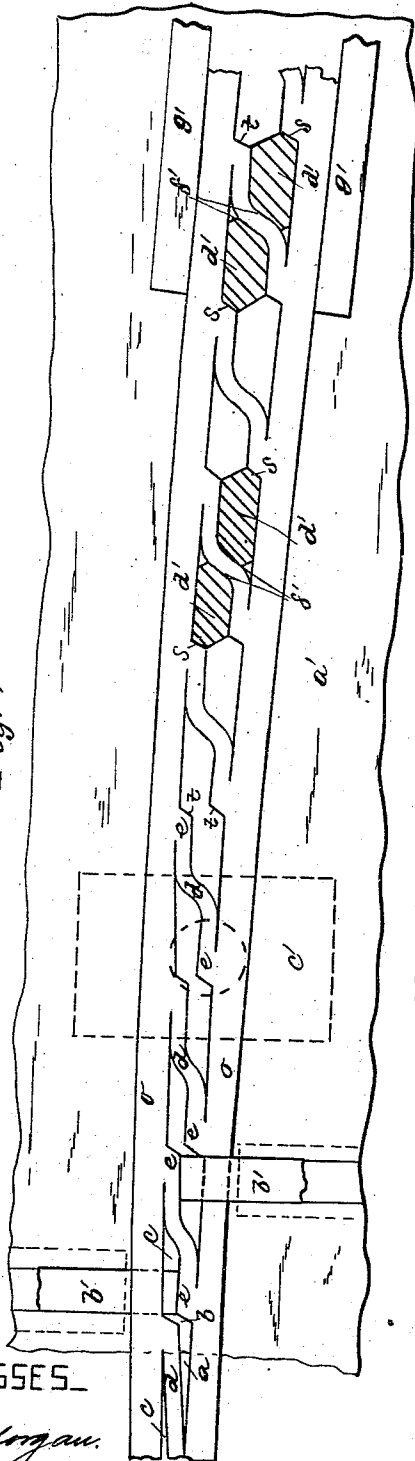
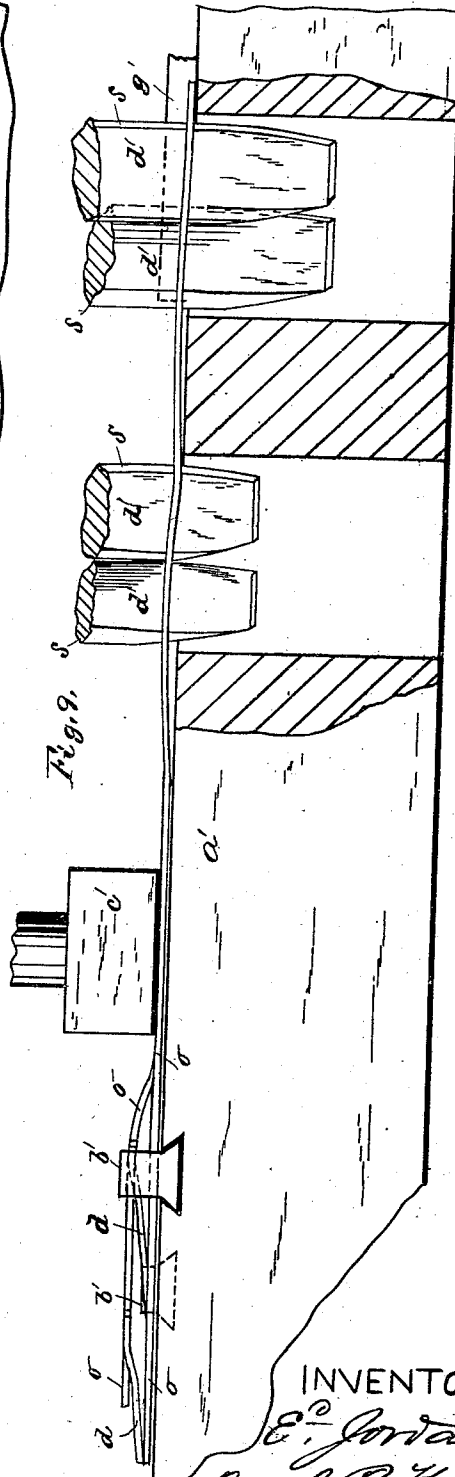


Fig. 9.



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(No Model.)

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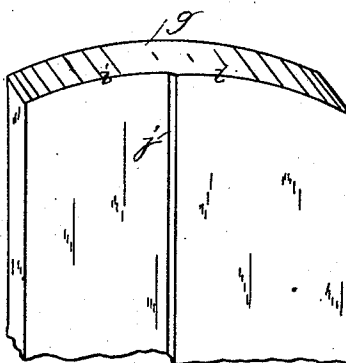
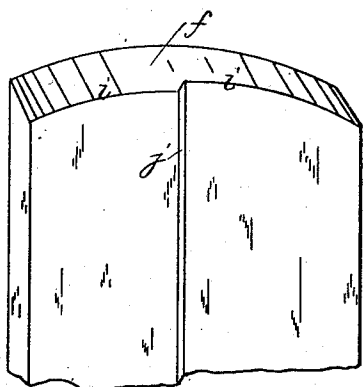
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Fig. 10.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDMUND JORDAN, OF BROOKLYN, ASSIGNOR TO MICHAEL H. CASHMAN,
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METHOD OF AND MEANS FOR MAKING BARBED METALLIC FENCING.

SPECIFICATION forming part of Letters Patent No. 314,183, dated March 17, 1885.

Application filed December 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDMUND JORDAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Methods of and Means for Making Barbed Metallic Fencing, of which the following is a specification.

My invention relates to an improved method of and means for making barbed metallic fencing, of which the bars are plain flat strips, and the barbs are portions of the same projecting from the edge in the plane of the strip. Said barbs are of the full thickness of the strip, and have parallel edges the greater portion of their length with bevel or taper points, and are bent along the parallel portion, which makes a bend of uniform curve extending from the junction with the strip along the whole length of the parallel portion, whereby much stronger and more durable barbs are made than such as are bent wholly at the base or junction with the strip. The points are adapted to be bent around square to the strip, and they stand up stronger and with greater resistance to any force tending to bend them in any direction, and particularly back against the strip, in which direction other barbs bent at the base only are not as strong as is desirable.

The method of making this improved metallic fencing consists of slitting a plain flat strip or blank of metal which is equal in width to two of the completed barbed strips and the breadth of the barbs by irregular slits, which offset from one plane to another at the middle, and so overlap that the offset-line crosses from the plane of one part of the slit to that of the other between the ends of the next succeeding slits each way. By this slitting bars of the length of the projecting portions of two barbs are separated along their sides from the two strips, which are also separated by the same means out of the blank; but said bars remain connected at the ends to the respective strips. The strips are then wedged apart to bend the bars outward from the strips, and the bars are then cut apart at the middle diagonally, and thus form a bent and pointed barb on each strip; or the bars may be first cut apart and then be bent separately, all as hereinafter

fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of a blank strip as it appears after being slitted and before being wedged apart to bend the bars which, when cut, form the barbs; also a cross-section. Fig. 2 is a plan view of the partly separated and barbed strips as they appear when wedged apart to bend the bars which, when cut, form the barbs, with two of said bars represented as being cut apart; also a cross-section. Fig. 3 is a plan view of one of the barbed strips as it appears when cut apart from the other strip; also a cross-section. Fig. 4 is a side view of a complete and twisted strip of my improved barbed fencing. Fig. 5 is a plan view of the bed-die and horizontal section of the movable die such as I employ for slitting the blank strip. Fig. 6 is a side elevation of the same. Fig. 7 is a plan view of a blank strip, showing how the method of slitting the strip may be modified. Fig. 8 is a plan view, and Fig. 9 is a side elevation, with some parts in section, of contrivances for wedging the strips apart and bending the barbs previously to cutting the barbs apart. Fig. 10 is a perspective view of the faces of the dies employed for cutting the slits in the blank strip, die *f* being inverted and reversed.

I take a plain flat bar or strip, *A*, of steel, Fig. 1, and make slits *a b c* in it, the part *b* being an offset from *a* to *c* equal to the width of the barbs that I propose to make and being at the middle of the slit. The parts *a* of the slits separate the bars *d* for two barbs along one side of said bars, and the parts *c* of said slits separate the said bars *d* on the other side, and these slits also mainly separate the blank into two strips, *e*; but the slits may be made without the offsets *b*, arranging them obliquely to the strip, as in Fig. 7. The successive slits are advanced along the bar a distance equal to the distance the barbs are to be apart on the finished strips, the blank strip being suitably fed to the dies employed for making the slits, and the length of the slits is such that, being so advanced, the distance from offset *b* to the beginning of the next slit is the length of metal left at *e*, connecting the barbs at the base with the strips, which may

be more or less, as preferred, being varied according as the slits are made longer or shorter; but it is designed to have ample length of solid metal thereat to form substantial connection of the barbs with less material and weight, as in the case of barbs formed by cutting obliquely into the edge of the strips, below the surface, and bending out the barbs, in which the base-webs of the barbs extend from barb to barb, which is unnecessary and adds weight without strength. The length of the barbs is governed by their distance apart, the slits being made longer for longer barbs or shorter for shorter ones, but always being advanced successively along the strip the distance of the barbs apart from point to point. For so slitting the blank strips or bar I use a pair of slitting dies or cutters, *f g*, having convex edges *i*, longer than the length of the slits to be made, and being offset in the middle at *j*, to make the offsets *b* in the slits, which said cutters may be arranged in any approved way and operated by any approved means, but so that the ends or angles *k* do not approach each other nearer than the opposite surfaces of the blank strip, so that no part of the cutters enters the metal to distort it, but they simply slit and bend the parts asunder between the angles *l*. Where said edges cross each other and form angles *l* to the surfaces of the blanks, they only partially sunder the metal. When the blank has been slitted, as above described, I wedge it apart, as represented in Fig. 2, to bend the bars *d*, and then cut the bars apart diagonally, as at *n*, which completes the making of the barbs *p*. By this means, also, I make two barbed strips, *o*, out of one blank, *A*, which it will be seen is accomplished without any waste of metal, by making the barbs on one strip *o* out of the metal removed from between the barbs of the other strip, so that the barbs are formed on and project from the surface of the edge of the strips, said strips being of uniform breadth between the barbs, so that it twists uniformly.

The cutting of the slits *a b c* by the dies *f g* results in practice in disposing the two strips *o* in different planes with the bars *d* stretching obliquely from one to the other, about as represented at the left hand of Fig. 9, and the cutting also forces the strips apart about as represented by the first slits, *c* and *a*, at the left hand of Fig. 8. The slitted blank *A* may then be placed on a table, *a'*, and be fed along between a pair of pushing-slides, *b'*, working laterally to the strip and the direction of its feed movements, and suitably located and arranged on said table to adapt one of said pushers to pass under the uppermost strip *o* and bear against one edge of a bar, *d*, at one of its ends *e*, and the other pusher to pass over the lowermost strip and bear against the other edge of said bar at its other end *e*, by which the strips may be pushed farther apart, and the bars *d* may be partly bent in the process of effecting the required projection of the barbs.

From the pushers *b'* the strip *A* may pass under a hammer, *c'*, to press down the higher strip *o* and the obliquely-bent bars *d* flat on the table, for returning the bars for the barbs to the plane of the strips *o*, and for enabling the rest of the work of bending the bars to the required form for the barbs to be effected by wedges *d'*, which may be arranged in, say, two pairs, and be mounted like punches, to be forced down through the slits in the blank, and thus wedge the two strips apart, the two pairs being suitably graduated to do the work progressively. The wedges will preferably all be connected to one sliding stock for working them all together; but the different pairs may be separately mounted, if desired, the wedges of each pair being mounted together. Besides the parallel sides of the wedges for working between the edges of the strips *o* and the edges of the parts *e* of the bars *d*, said wedges also have one bevel-edge, *s*, to act on the shoulders *t* of parts *e* of the bars, and one curved edge, *f'*, to form the bends of the bars *d*, said wedges being suitably tapered on the sides and edges to enable them to enter the apertures in the blank. Any suitable stripper device may be employed to strip the blanks from the punches when they rise. The lengthwise shift of the strips *o* relatively to each other, due to the shortening of the distance between the ends of the bars *b* by bending them, is compensated for by a curvature of the strip *A*, (represented in Fig. 8,) which results from the bending of said bars, together with more or less buckling of the strips, (indicated in Fig. 9,) but mainly by the curvature in which that strip that is subject to tension by the effect of the wedges takes the inside shortest curve, and the other strip, whereon the wedges take effect by compression, takes the outer and longer curve, and thus enables the strips to shift relatively to each other sufficiently for enabling the bars *d* to be bent without materially distorting the strips. This curvature will be more or less, according as the pushers and wedges are located closer together or farther apart. The strips *o* may pass along the last or finishing wedges in a guideway of cleats, *g'*, between which the wedges may so press the strips as to straighten them, if desired.

It will be preferred in practice to have the pushers, hammer, and wedges organized for acting simultaneously together, with feed mechanism for shifting the blank strip the length of one bar *d* for each operation of the same. After thus bending and shaping the bars *d* they are to be cut apart at *n* by any approved shearing-dies, such as are well known in the art. But if it may be preferred to cut the bars *d* apart before bending the barbs, that may be done by cutting them diagonally at the middle, subsequently to making the slits, by any approved form of cutters, and then the barbs may be bent out by wedges of any suitable form driven between them and the bars *o*.

It will be seen that the contrivance of the slits *a b c* with offsets *b* to separate the strips

and form the barbs not only enables the barbs to be formed on one rod of material out of the spaces between the barbs of the other rods, that would be useless if left thereon and would be wasted if cut off, but also forms the shoulders *t*, against which the edges *s* of the wedges may have bearing to force the strips apart and shape the bends of the barbs. The webs *e*, joining the barbs at the base with the strips, are of equal width with the barbs, and extend along the strips a distance greater than the width of the barbs, forming substantial connection of the barbs with the strips, and enabling the barbs to be bent out in the plane of the strips with better results than if no longer than the width of the barbs.

For successfully bending the barbs out in the plane of the strip without buckling, the strips should be nearly as thick as the width of the barbs is to be; but thinner barbs can be successfully bent by wedging the strips apart before cutting the bars than if cut first and bent out singly, because in this case the bars *d* are mainly pulled out by the respective strips, so that the bars are exposed to equal tension the whole length, and thus will yield only in the the direction of the tension.

When the slits *a c* are to be made obliquely to the strips, as in Fig. 7, and without the offset *b*, the dies *f g* will be made without the offset *j*.

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

1. The method of making bar or strip barbed metallic fencing, consisting of making successive overlapping slits along a blank strip, and thereby partially separating the blank into two

strips and forming bars *d*, connected at the ends with the said partially-formed strips, respectively, separating the two partially formed sections of the strip so made by forcing them asunder, and then completing their separation and at the same time pointing the barbs constituted of the bars which have thus far held them united by severing said bars at the middle.

2. The blank strip *A*, having successive overlapping slits partly separating said strip into two strips, *o*, with connecting-bars *d*, and thus adapted to form fencing-strips with barbs *p*, when cut apart and bent substantially as described.

3. The improvement in the art of making barbed fencing, consisting of the partial construction of barbed fencing-strips by forming a blank strip, *A*, with successive overlapping slits, partly separating said strip into two strips, *o*, with connecting-bars *d*, of which barbs *p* may be formed alternately on said strips *o*, when cut apart and bent substantially as described.

4. The improved cutters *f g*, for partially separating metallic fencing-strips, and also partly forming barbs thereon having convex edges *i*, with offset *j* in the middle of said edges, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDMUND JORDAN.

Witnesses:

GEORGE H. PRICE,
THOS. H. KELLY.