2 Sheets—Sheet 1.

R. A. BELDEN.

Machine for Making Fence-Barb.

No. 216,594. Patented June 17, 1879.

fig. 1

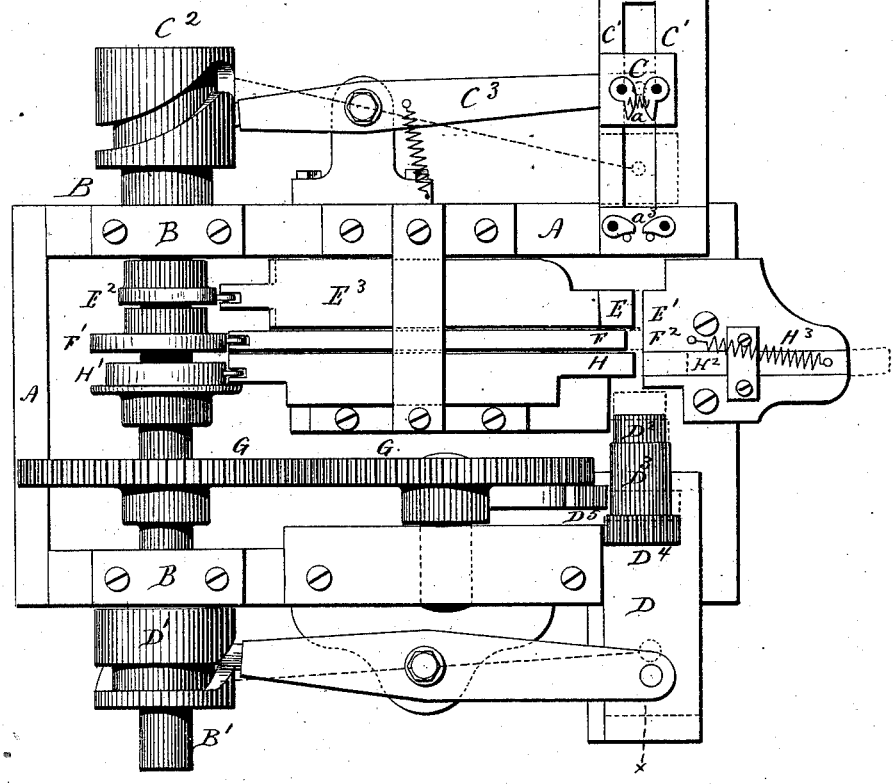


fig. 7

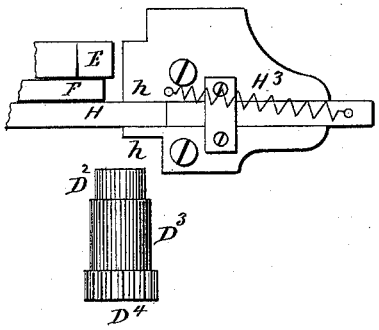
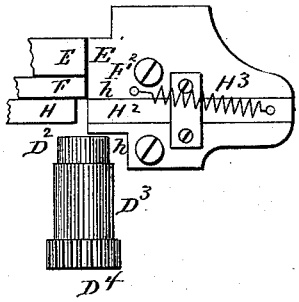


fig. 8



Witnesses.
J. H. Shumway
Jos. C. Earle

Russell A. Belden
Inventor,
By atty.
Wm. C. Earle

2 Sheets—Sheet 2.

R. A. BELDEN.

Machine for Making Fence-Barb.

No. 216,594. **Patented June 17, 1879.**

fig. 2

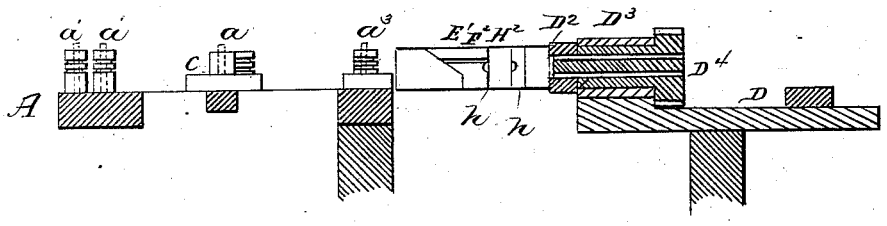


fig. 3

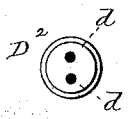


fig. 4

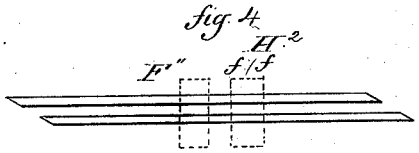


fig. 5

fig. 6

Witnesses.

J. H. Shumway.

Jos. C. Earle

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Inventor.

By atty. Wm. E. Earle

UNITED STATES PATENT OFFICE.

RUSSELL A. BELDEN, OF DANBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF HIS RIGHT TO F. A. HULL, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING FENCE-BARBS.

Specification forming part of Letters Patent No. **216,594**, dated June 17, 1879; application filed February 3, 1879.

To all whom it may concern:

Be it known that I, RUSSELL A. BELDEN, of Danbury, in the county of Fairfield and State of Connecticut, have invented a new Machine for Making Fence-Barbs; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan or top view; Fig. 2, a longitudinal section on line *x x* of Fig. 1; Figs. 4, 5, and 6, method of making the barb; Figs. 3, 7, and 8, detached views.

This invention relates to a machine for making barbs for wire fences, and particularly to that class of barbs which are made from two short pieces of wire pointed at their ends, twisted together at the center, and so as to be applied and secured to the line of wire at intervals; and the invention consists in the construction and combination of parts, as hereinafter described, and more particularly recited in the claims.

A is the frame or bed of the machine, on which, in suitable bearings B, the driving-shaft B′ is arranged, and so as to revolve by the application of power thereto in any convenient manner. C is a slide, moving longitudinally in guides C^1, and to which the device *a* is applied to grasp the wire as the slide moves toward the machine, and to release the hold upon the wire in the opposite direction. The reciprocating movement of this slide is imparted by a cam, C^2, through a lever, C^3, and so that the extent of motion of the slide is sufficient to give the requisite length for the wires from which the barb is to be made. The wires are introduced through any suitable guiding or straightening device, as a^1, provided with grooves to hold the wire in line, and preferably so that one line of wire is above the other, as shown in Fig. 2, there being a separate groove for each line of wire. Clamps a^3 are provided, having grooves corresponding to the grooves in the guides, and through which the advancing wire will freely pass, but which, on the return of the slide or tendency of the wire to retreat, will firmly grasp and hold the wire from the retreating influence of the feeding device. At the opposite end of the machine is arranged a similar reciprocating slide, D, to which an intermittent reciprocating movement is imparted by a cam, D^1, and on this slide a twister, D^2, is arranged in a bearing, D^3. The inner end of the twister is provided with two perforations, *d d*, having the same relative position to each other as the grooves for guiding the incoming wire, and, as seen in Fig. 3, which receive the two ends of the wire as they are moved forward by the feeding device, and having received these two ends the lengths are cut off by a diagonal cutter, E, working against a corresponding stationary diagonal cutter, E^1. (See Fig. 2.) An intermittent reciprocating movement is imparted to this cutter by a cam, E^2, working the slide E^3, on which the cutter is mounted. This diagonal cutter gives to the two wires a point, as seen in Fig. 4.

At the time the cut is made the holder F is moved forward by a cam, F′, and grasps the two wires—say, as between the point *f f*, Fig. 4. This done, the twister advances, and the pinion D^4, on its outer end, engages with a toothed segment, D^5, which is constantly rotated by means of pinions G G, and this engagement with the segment D^5 imparts to the twister two or three revolutions, more or less, sufficient to twist the two wires together, as seen in Fig. 5, at about the center of their length, leaving the two ends untwisted. Then the bender H is advanced by a cam, H^1, against the twist of the wire, and forces it between two stationary cheeks, *h h*, bending the ends toward each other, as seen in Fig. 6, which is a perspective view of the barb complete. Between the cheeks *h h* is a follower, H^2, which is forced back as the bender advances, as seen in Fig. 7, Fig. 8 showing the condition of the parts at the time that the bender begins to advance; but immediately on the advancing of the bender the holder F retreats to release the twisted wires. So soon as the bending is performed the bender H retreats. The follower H^2 returns by the action of a spring, H^3, or otherwise, and throws the barb from the machine complete and ready to be applied to the main wire.

Parts of the machine may be dispensed with or be embodied in an auxiliary machine—as, for instance, the bender may be dispensed with, and the two wires cut and twisted together only, and in that condition discharged from the machine, the bending of the barb to be done by a subsequent and independent operation. Again, the cutting and feeding of the wire thereto may be dispensed with, and the wires cut to the required length by an independent device, and fed in pairs to the holder and twisting device. I therefore do not wish to be understood as limiting this invention to the combination of all the elements described; and I would also state that any suitable feeding device may be substituted for the feeding device shown; but

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

1. In a machine for making barbs for wire fence, the combination, substantially as described, of a holder to receive and grasp the two pieces from which the barb is to be made, and a twister having an intermittent rotary movement, and constructed to receive one end of each wire and twist the two together near the center of their length, and a bender which, after twisting, will bend the two wires at the twisted part, constructed to turn the opposite ends of the two pieces toward each other, substantially as described.

2. In a machine for making barbs for wire fence, the combination, substantially as described, of a holder to receive and grasp the two pieces from which the barb is to be made, and a twister having an intermittent rotary movement, and constructed to receive one end of each wire and twist the two together near the center of their length, and a bender which, after twisting, will bend the two wires at the twisted part, constructed to turn the opposite ends of the two pieces toward each other, with an intermittent feeding device, and a diagonal cutter substantially as described.

3. In a machine for making barbs for wire fence, the combination, substantially as described, of a holder to receive and grasp the two pieces from which the barb is to be made, and a twister having an intermittent rotary movement, and constructed to receive one end of each wire and twist the two together near the center of their length, and a bender which, after twisting, will bend the two wires at the twisted part, constructed to turn the opposite ends of the two pieces toward each other, an intermittent feeding device, a diagonal cutter, and a follower forced back by the advancing bender and returning to discharge the completed barb, substantially as described.

RUSSELL A. BELDEN.

Witnesses:

DWIGHT E. ROGERS,
HENRY W. HOYT.