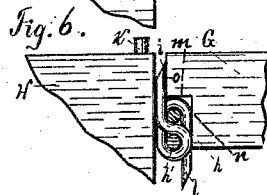
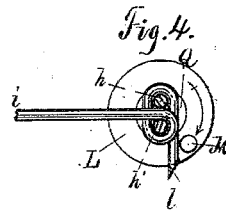
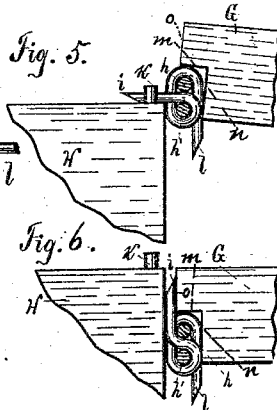
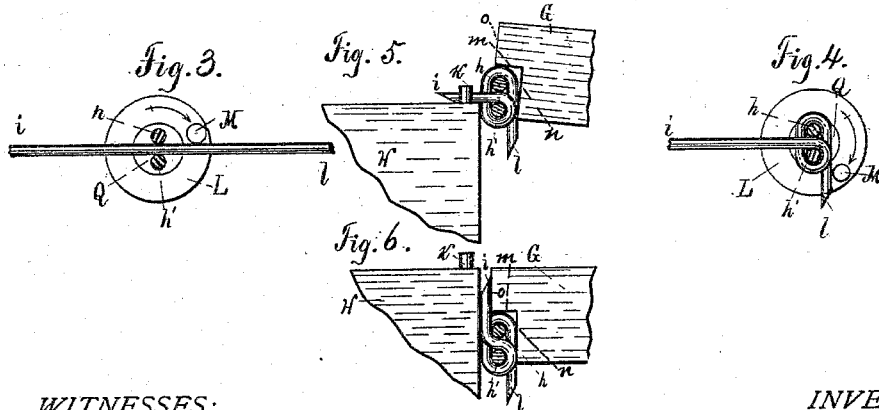
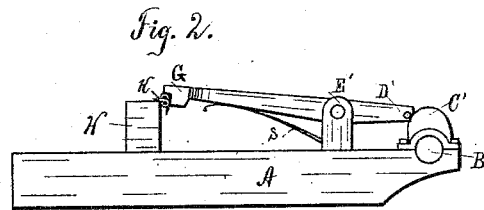
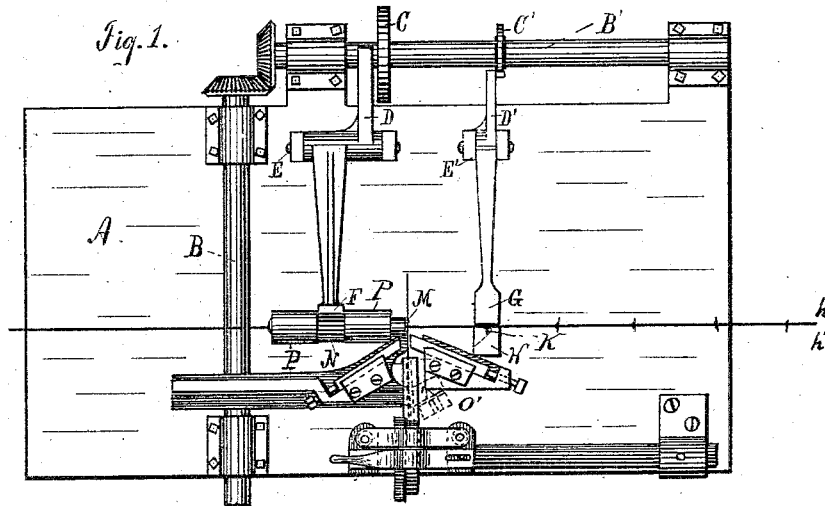


(No Model.)

D. C. STOVER.
WIRE BARBING MACHINE.

No. 301,533.

Patented July 8, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

DANIEL C. STOVER, OF FREEPORT, ILLINOIS.

WIRE-BARBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 301,533, dated July 8, 1884.

Application filed May 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, DANIEL C. STOVER, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Wire-Barbing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention is a new and improved mechanism adapted to complete the wrapping of certain forms of wire barbs, and at the same time to compress them closely on the main wires, to which they are attached. The barbs in whose manufacture it may be used vary in some respects; but their general form is much the same, and the principal steps in their construction are of the same character and follow each other in the same order. In them all the barb-wire is fed between the strands of a two-strand cable. The free end of the barb is wrapped by suitable means any desired number of times about the main wires. The barb is then severed, and the end of the barb thus freed is bent ninety degrees in a plane at right angles to the main wire. The wrapping of the free end of the barb about the main wires may be accomplished by any suitable means. It is the formation of the last bend of ninety degrees that is accomplished by the mechanism which forms the subject of this application.

The device is fully described and explained in the following specification, and shown in the accompanying drawings, in which—

Figure 1 is a plan of the machine; Fig. 2, a front elevation of the bending and compressing device; Figs. 3 and 4, front elevations of the wrapping-sleeve and stationary spindle, showing the wrapping of the free end of the barb; and Figs. 5 and 6, enlarged views of the surfaces of the bending and compressing device which come in contact with the barb, showing the operation of said parts in the formation of a barb.

In these views, A is the bed of the machine; B, the driving-shaft thereof, and B' a side shaft connected with the driving-shaft by miter-gears.

Near the center of the bed, and in a line par-

allel to the side shaft, B', are two posts, P P', rigidly attached to the bed. A stationary spindle, Q, is formed integrally with or rigidly attached to the rear post, P, and extends forward through the post and projects a short distance in front of it, both the post P and spindle Q being longitudinally perforated for the passage of two main wires, *h h'*. A sleeve, L, surrounds and rotates freely upon the spindle Q, and extends from the front face of the post P through the post P', in which it is journaled, and projects in front of said post the same distance as the spindle, the front faces of the sleeve and spindle being flush with each other. The front face of the sleeve L is provided with a wrapping-lug, M. On the rear end of the sleeve L, in the space between the posts P P', is a pinion, N, rigidly mounted thereon and engaging with a segmental gear, F. The segment is attached to a lever, D, pivoted between its ends in a bearing, E, and actuated by a cam, C, which imparts to it a reciprocal vertical motion, the cam C being rigidly mounted on the side shaft, B'. In front of the sleeve and spindle is an anvil, H, whose vertical face is very nearly in the vertical plane of the main wires, while its horizontal face is in the horizontal plane of the lower main wires. In the horizontal face is a vertical stop, K, whose distance from the face of the sleeve and spindle is equal to the space between two contiguous barbs on the main wires. In the same transverse line with the anvil H is a hammer, G, formed integrally with a lever, D', which is pivoted in a suitable bearing, E', and receives reciprocal motion from a cam, C', rigidly mounted on the shaft B'. When the hammer and its lever are in a horizontal line, the vertical face of the hammer is parallel to the face of the anvil. The face of the hammer is recessed, the upper part of the face *o* being at a distance from the face of the anvil equal to the diameter of the barb-wire, while the vertical face *n* of the recessed lower portion is at such a distance from the anvil as to admit between them the main wires with the barb wrapped about them. The upper limit of the recessed face is a shoulder, *m*. The pivot on which the lever D' is hung is below the horizontal plane of the top of the anvil, so that the distance between the faces of

the anvil and hammer is greatest when the hammer is at the end of its upward stroke, and least when the hammer is down with the lever D' in a horizontal position.

5 From the foregoing description it is evident that the rotation of the shaft B' imparts reciprocal rotary motion to the sleeve L, and reciprocal vertical motion to the hammer G, and that as the hammer G makes its downward
10 stroke it approaches the vertical plane of the face of the anvil H. It is also plain that the cams C C' may be so timed as to produce the movements described in any desired order.

The operation of the machine in the formation of a barb is as follows: The barb-wire *i* is
15 fed between the main wires by suitable feed-rolls, (shown in Fig. 1,) and takes the position shown in Fig. 3, the wire being in contact with the face of the sleeve and immediately under the wrapping-lug M. The sleeve
20 is then rotated in the direction indicated by the arrow through an angular space of four hundred and fifty degrees, when it reaches the position shown in Fig. 4. The barb is then severed by suitable mechanism, and the main
25 wires are fed forward a distance equal to the space between two barbs, carrying the barb with them. At the end of the forward movement the barb strikes the stop K on the anvil
30 H, and lies in the position shown in Fig. 5, the end *i* of the barb lying on the horizontal face of the anvil, and the faces *m n* of the hammer being above and at the side of the barb, respectively. The hammer then descends,
35 forcing the end *i* of the barb upward, and at the same time the end *i* is pressed perfectly straight by the projecting face *o* of the hammer, while the wrapped portion of the barb is pressed by the face *n*. The barb is thus
40 clamped firmly on the wires and rendered practically immovable.

I have already stated that the mechanism shown may be employed in the manufacture of other barbs differing slightly in form from
45 the one shown in the drawings. For example, if the end *l* of the barb be wrapped ninety degrees farther or five hundred and forty degrees and the end *i* bent in the opposite direction from that which it follows in the barb
50 shown in the drawings, a different barb is produced, and it is evident that the addition of still another ninety degrees to the wrap will result in still another form of barb. In all the
55 forms, however, the wrapped end when completed lies in a plane parallel to the plane of the two main wires, and the hammer and anvil shown simply bend the remaining end from the position in which it is fed between the wires to a position in a plane also parallel to
60 the plane of the main wires.

In the drawings, the hammer G is represented as being thrown down by means of a pin attached to the lever D', and moving on the face of an outside cam, while the hammer
65 is thrown up by a spring, S. It is evident, however, that the pin may move in a groove in the side face of the cam, and both upward

and downward strokes of the hammer be positive.

I am aware that a hammer and anvil adapted to compress a barb upon a single wire about which it is wrapped has already been used,
70 and I do not, therefore, desire to claim such a mechanism broadly; but,

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wire-barbing machine, the combination of means for supporting two main wires, means for feeding the barb-wire between said
80 main wires, means for wrapping the free end of the barb-wire about such main wires, means for severing the barb between the main wires and said feeding mechanism, means for feeding forward the main wires with said barb
85 thereon a distance equal to the desired space between two contiguous barbs, and means, substantially as shown and described, for bending the severed end of the barb at right angles and in a plane at right angles to the plane
90 of the main wires, and at the same time compressing the entire barb upon said wires.

2. The combination of means for supporting the main wires *h h'*, means for feeding the barb-wire *i* between said main wires, means
95 for wrapping the free end *l* of the barb about said main wires, means for severing the barb, means for feeding forward the main wires with the barb attached, the anvil H, adapted to support the end *i* of the barb, the recessed
100 hammer G, whose faces *m n* are both in contact with the barb, and means for depressing said hammer, whereby the face *m* presses the barb in a line parallel to the plane of the two
105 main wires, while the face *n* presses it in a line at right angles to said plane, substantially as shown and described, and for the purpose set forth.

3. The combination of means for supporting the main wires, means for feeding, wrapping, and severing the barb, means for feeding forward the main wires with the barb attached, and the stop K, rigidly attached to the
110 anvil H and adapted to determine positively the distance through which said barb is fed forward, substantially as shown and described, and for the purpose set forth.

4. The combination of the anvil H, having two working-faces, one vertical the other horizontal, and the oscillating hammer G, pivoted
120 at a point below the plane of the horizontal face of the anvil, whereby the downward motion of the hammer decreases the distance between the vertical faces of the hammer and anvil, substantially as shown and described, and
125 for the purpose set forth.

In witness whereof I have signed this specification in the presence of two subscribing witnesses.

DANIEL C. STOVER.

Witnesses:

R. H. WILES,
OSCAR TAYLOR.