(No Model.)

3 Sheets—Sheet 1.

G. W. COPELAND.

STRIP TACK HEADING MACHINE.

No. 383,278. Patented May 22, 1888.

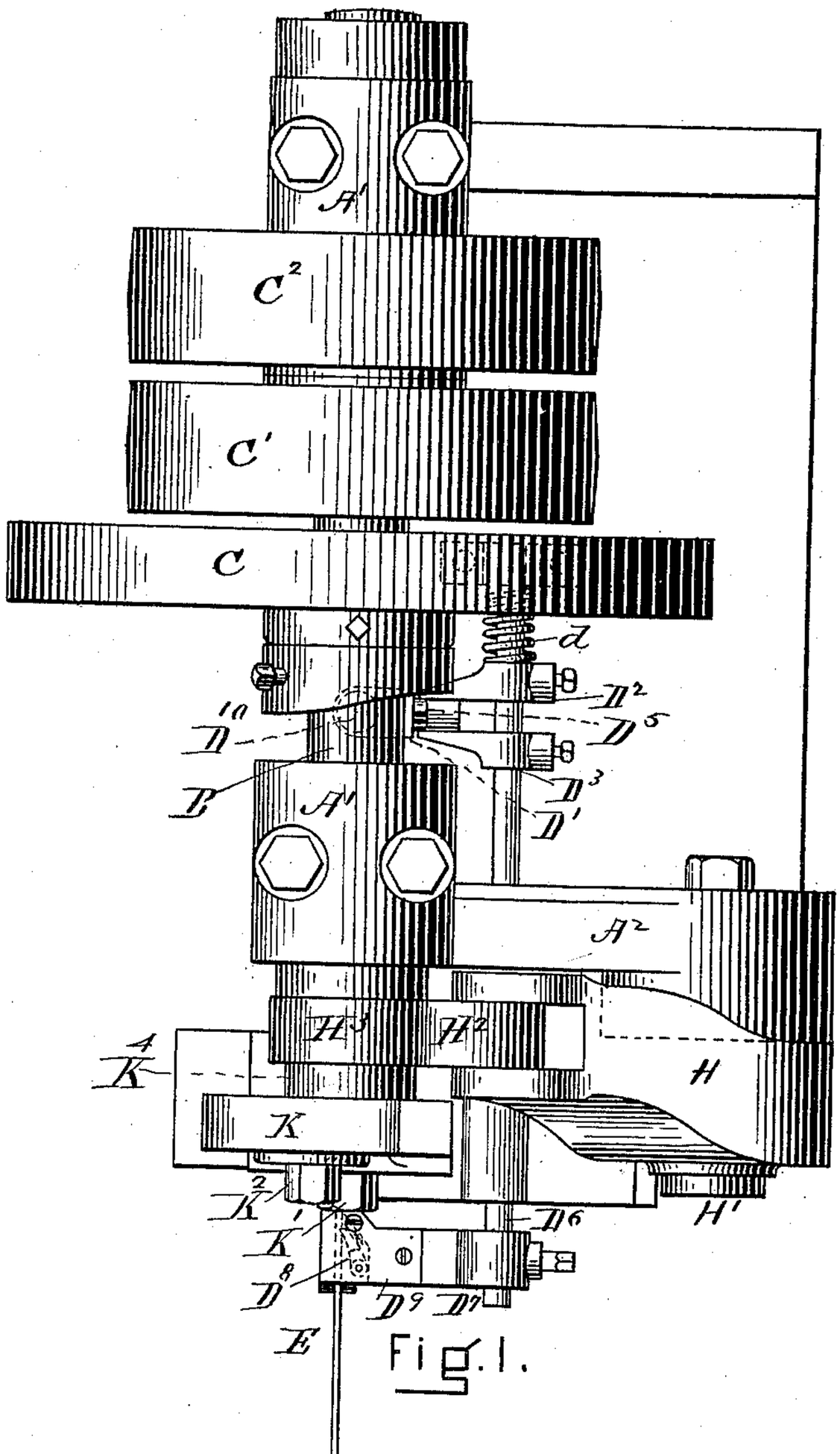

Fig. 1.

WITNESSES.

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Matthew M. Blunt,

INVENTOR.

Geo. W. Copeland,

(No Model.)

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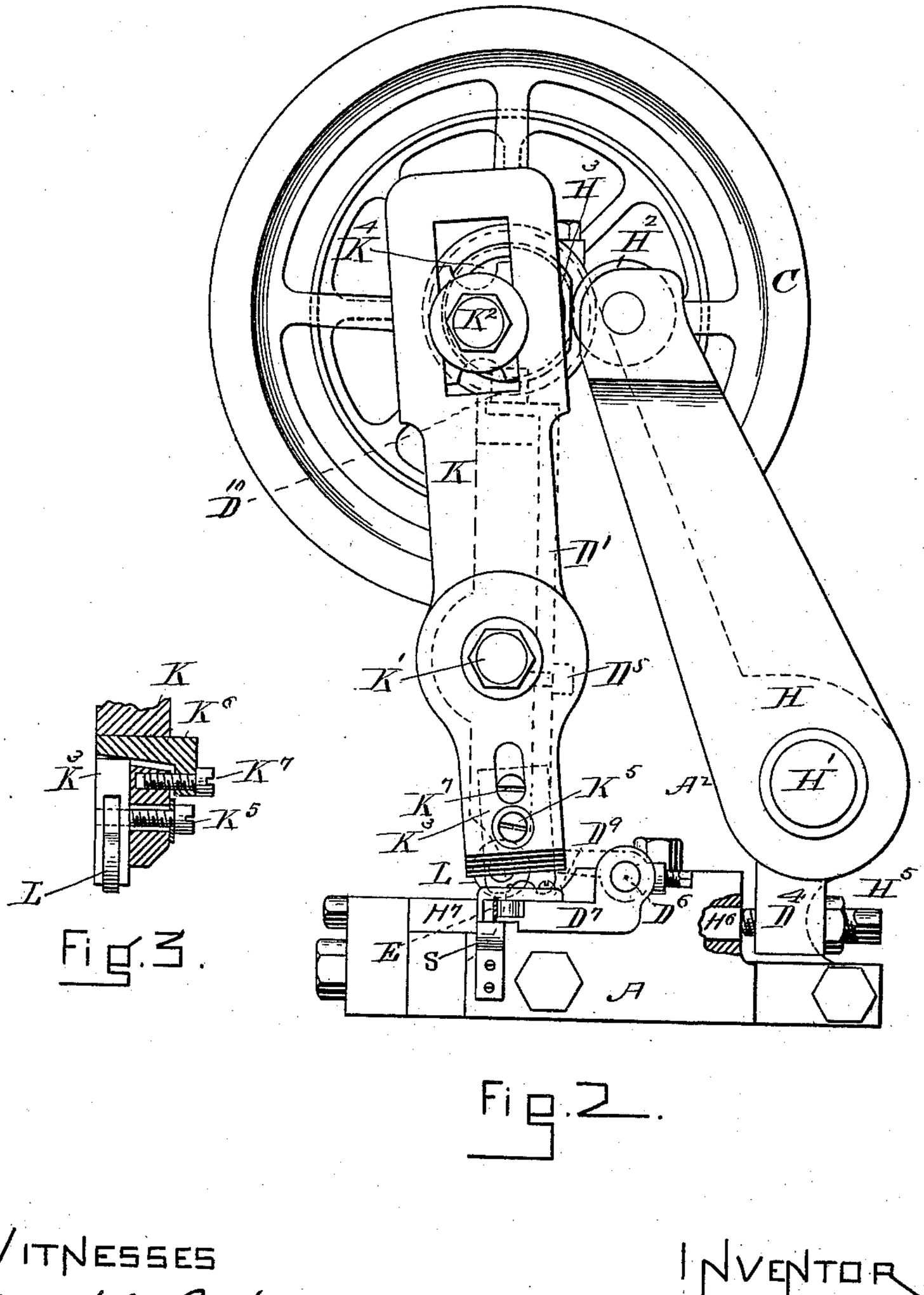

Fig. 3.

Fig. 2.

WITNESSES

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(No Model.)

3 Sheets—Sheet 3.

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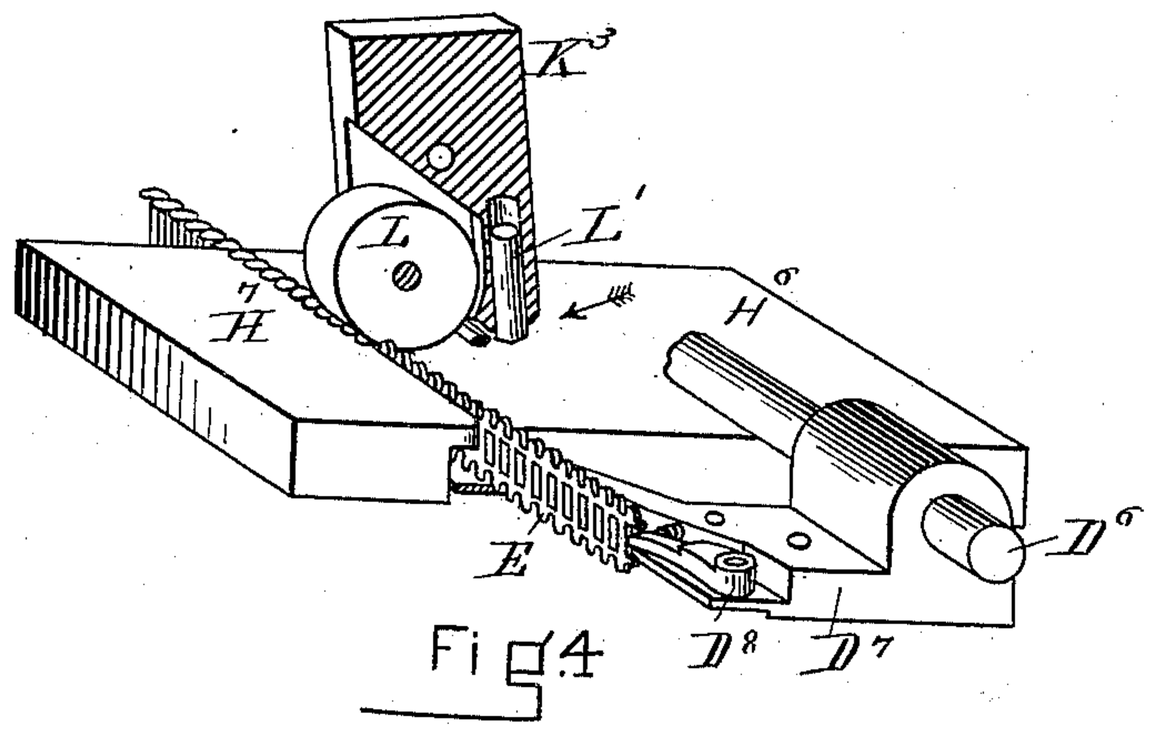

Fig. 4

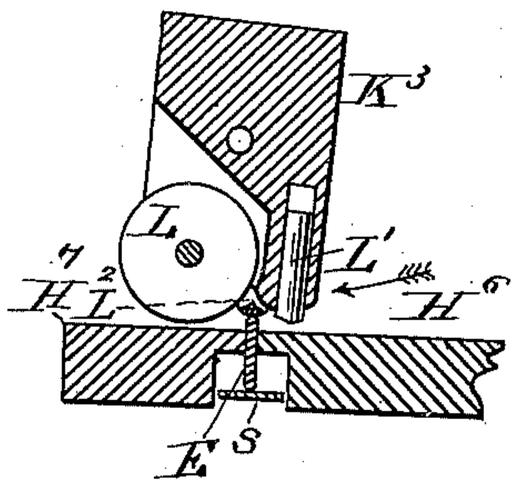

Fig. 5.

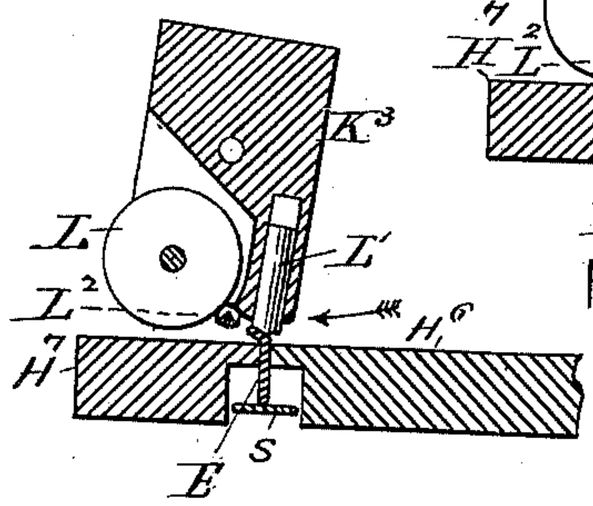

Fig. 6.

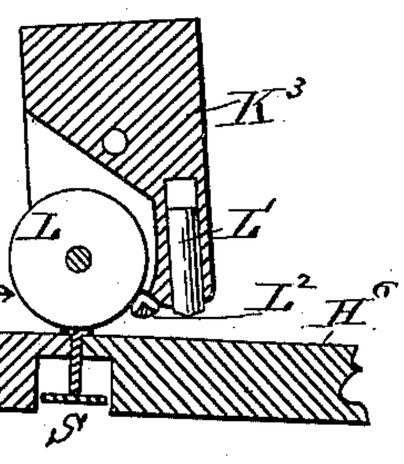

Fig. 7.

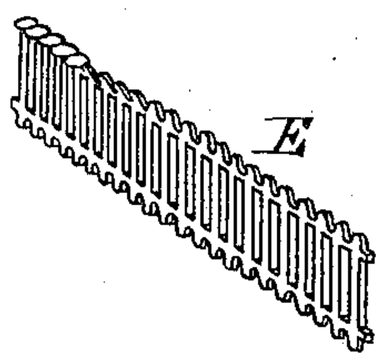

Fig. 8.

WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE W. COPELAND, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO DANIEL T. COPELAND, OF SAME PLACE.

STRIP-TACK-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,278, dated May 22, 1888.

Application filed February 8, 1888. Serial No. 263,362. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. COPELAND, of Malden, in the county of Middlesex and Commonwealth of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Strip-Tack-Heading Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The object of my invention is to construct a machine that will form a number of heads on that class of tacks known as "strip-tacks" without resorting to blows or direct pressure, the work being done by certain parts of the machine acting in alternation to crowd the head metal over in one direction and then rolling it from the other direction, so as to cause a part of the head metal to flow back and thus form a head which is nearly round and projects pretty evenly from the shank part of the tack. I attain this object by means of the mechanism shown in the accompanying drawings, in which—

Figure 1 is a plan of my machine. Fig. 2 is an end elevation of the same. Fig. 3 is a detail of the tool-holding device. Fig. 4 is a perspective view of parts illustrating the action of my machine. Figs. 5, 6, and 7 are detail views illustrating the action of my machine step by step. Fig. 8 is a perspective view of a series of my strip tacks, a few being shown completely headed and a few bent over, illustrating the first step in the heading action of my machine.

This present invention is for the purpose of heading the strip-tacks after they have passed through machines described in patents granted to me and others jointly and to Erastus Woodward and to Thomas Barrett.

In the drawings, A represents the bed-plate of the machine; A′ A′, a heading for supporting the main shaft.

B is the shaft. It has upon it fast and loose pulleys C′ and C² and the fly-wheel C near its end. It also carries the cam H³ and crank-disk K⁴, Figs. 1 and 2.

The device for holding the strip-tacks while being headed consists of a fixed jaw, H⁷, and a movable jaw, H⁶, between which the strip-tack E moves while being fed in, and is gripped while under the action of the heading mechanism.

S, Figs. 2, 5, 6, and 7, is a flat spring which serves to keep the strip-tacks up against the gage L², Fig. 5.

D⁹ is a plate attached to the feeding-jaw D⁷, and it extends over the top of the channel which receives and guides the tack-strips upon their entrance into the machine. The moving gripping-jaw H⁶ is operated by the lever H, said lever H being pivoted at H′ to a part, A², of the frame of the machine, and has at its upper end a friction-roller, H², through which the cam H³, Figs. 1 and 2, acts to give a swinging motion to the lever. The lower end of the lever H is shown at D⁴, Fig. 2, and carries an adjusting set-screw, H⁵, which, acting upon the gripping-jaw H⁶, gives it the desired motion.

The feeding device (see Figs. 1, 2, and 4) consists of a block, D⁷, which carries a spring-pawl, D⁸, the pawl being adapted to engage with the strip-tacks and feed the desired number to the point at which the heads are to be formed. Motion is imparted to this feeding-block through the sliding rod D⁶, which in turn is acted upon by a swinging lever, D′, Fig. 1, (pivoted at D⁵, Fig. 2;) also shown in dotted line D′, Fig. 2, the swinging lever being operated by the face-cam D, which comes in contact with the friction-roll D¹⁰, Figs. 1 and 3, attached to its upper end. The lower end of the lever D′ acts alternately upon the projections D² D³, affixed to the sliding rod D⁴. The spring *d* serves to act against the movement caused by the lever D′, so as to throw the feed-block D⁷ back ready for its next feeding action.

I will now describe the heading action of my machine.

K is a swinging lever pivoted at K′ to the pawl. In a slot made in its upper end (see Fig. 2) a crank-pin, K², attached to the crank-disk K⁴, operates, causing the lever K to swing back and forth on its pivot K′. In the lower end of the lever K, I place an adjustable tool-carrier, K³, which is held in place by means of a clamping-screw, K⁵, Figs. 2 and 3, and a

wedge, K^6, which is adjusted and held in place by a screw, K^7, Fig. 3.

The action of the tools proper, L L′, is illustrated in Figs. 4, 5, 6, and 7.

L′ is a heading-tool attached to the lower part of the tool-holder, and L is a pressure-roller which serves to impart to the head a rolling motion, which flattens or swages and at the same time evenly distributes the head metal.

L^2 is a gage, also attached to the lower part of the tool-holder.

My machine acts as follows: The strip-tacks are placed in the channel of the machine and fed to the point at which they are to be headed at the time that the tools L L′ are placed as shown in Fig. 5. Now the first action of the machine is to move the tool-carrier in the direction indicated by the arrow in Fig. 6 and bend the head metal over to the inclined position shown in Fig. 6. Then the tool-carrier returns in the direction indicated by the arrow, Fig. 7, and causes the roller L to act upon the head metal, flattening a part onto the fixed jaw H^7 and causing a part to flow over onto the jaw H^6, thus making an even flat head.

If desirable, the heading-tool L′, instead of being a fixed bar, as represented in the drawings, may be a roller similar to L.

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

1. In a strip-tack-heading machine, the combination of gripping-jaws for holding the blank, an oscillating operating-tool for bending the head in one direction, and a roller for bending or swaging the point or end of said head back upon itself in the reverse direction, substantially as described.

2. In a strip-tack-heading machine, the combination of gripping-jaws for holding the blank, an oscillating tool-holder carrying a tool for bending the head in one direction, and a roller for bending or swaging the point or end of said head back upon itself in the reverse direction, substantially as described.

3. In a strip-tack-heading machine, the combination of the gripping-jaws H^6 H^7 with the oscillating tool-holder K^3, provided with a bending-tool, and a flattening-roller, L, substantially as described, and for the purposes set forth.

4. In a strip tack-heading machine, the combination of the gripping-jaws H^6 H^7 with the feeding-pawl D^8, block D^7, and its actuating mechanism, substantially as described, and for the purposes set forth.

5. In a strip-tack-heading machine, the combination of the fixed gripping-jaw H^7 and the movable gripping-jaw H^6 with the swinging lever D^4 H, roller H^2, and a suitable bending-tool and roller for bending or swaging the heads, and cam H^3, all substantially as described, and for the purposes set forth.

GEO. W. COPELAND.

Witnesses:
M. A. BALLINGER,
J. H. GRAY.