

(No Model.)

H. WEEKS.
NAILING MACHINE.

No. 280,267.

Patented June 26, 1883.

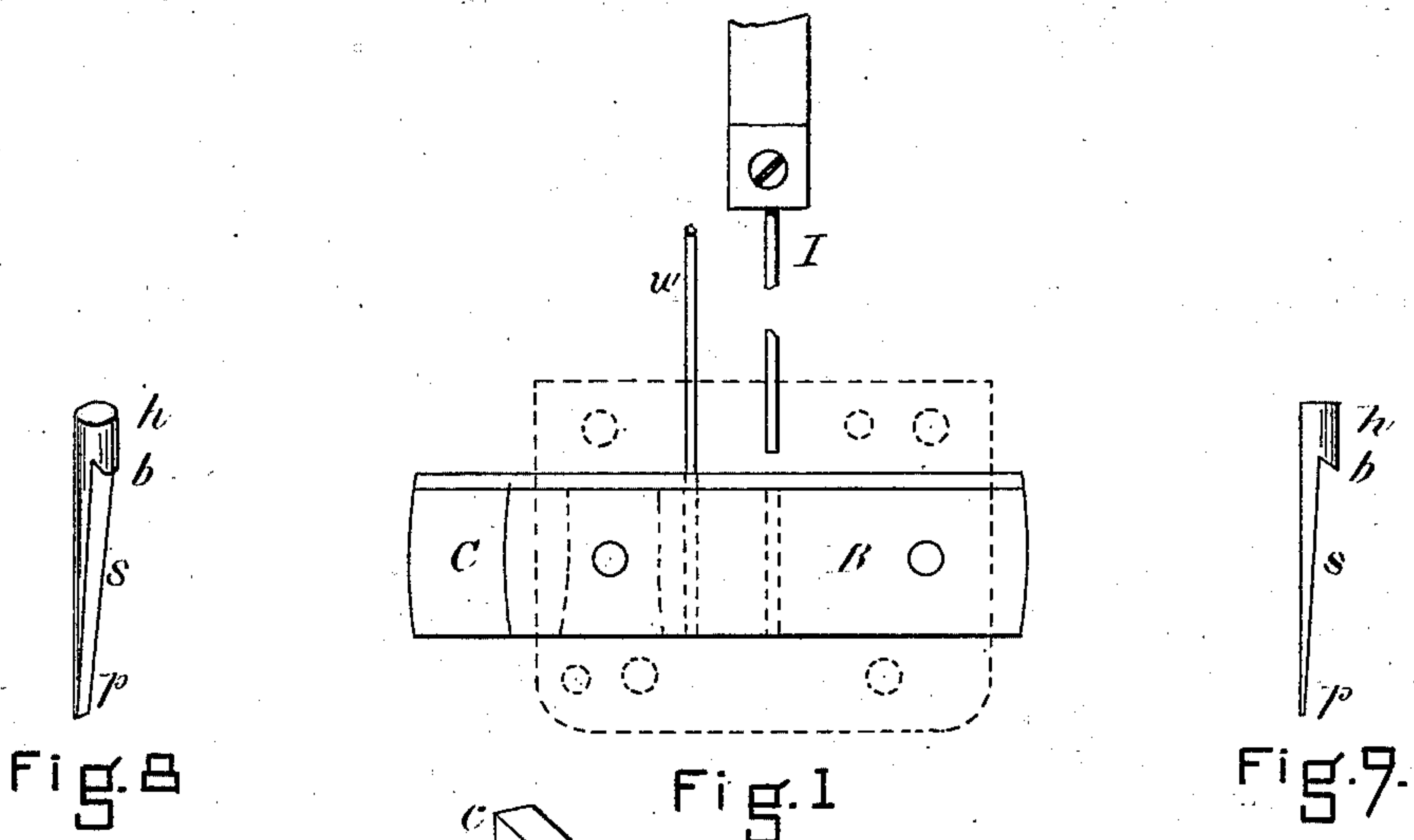


Fig. 2.

Fig. 1.

Fig. 3.

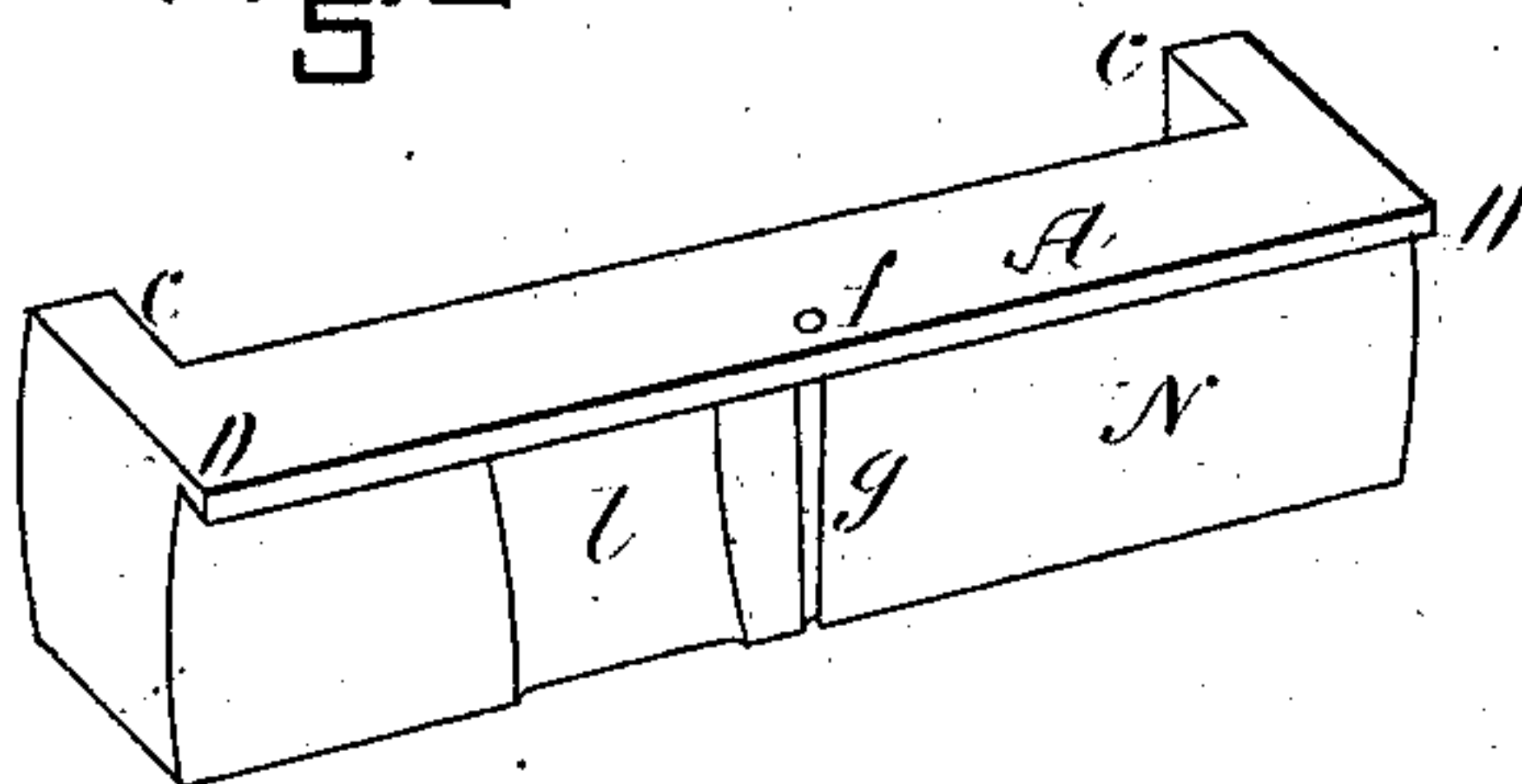


Fig. 4.

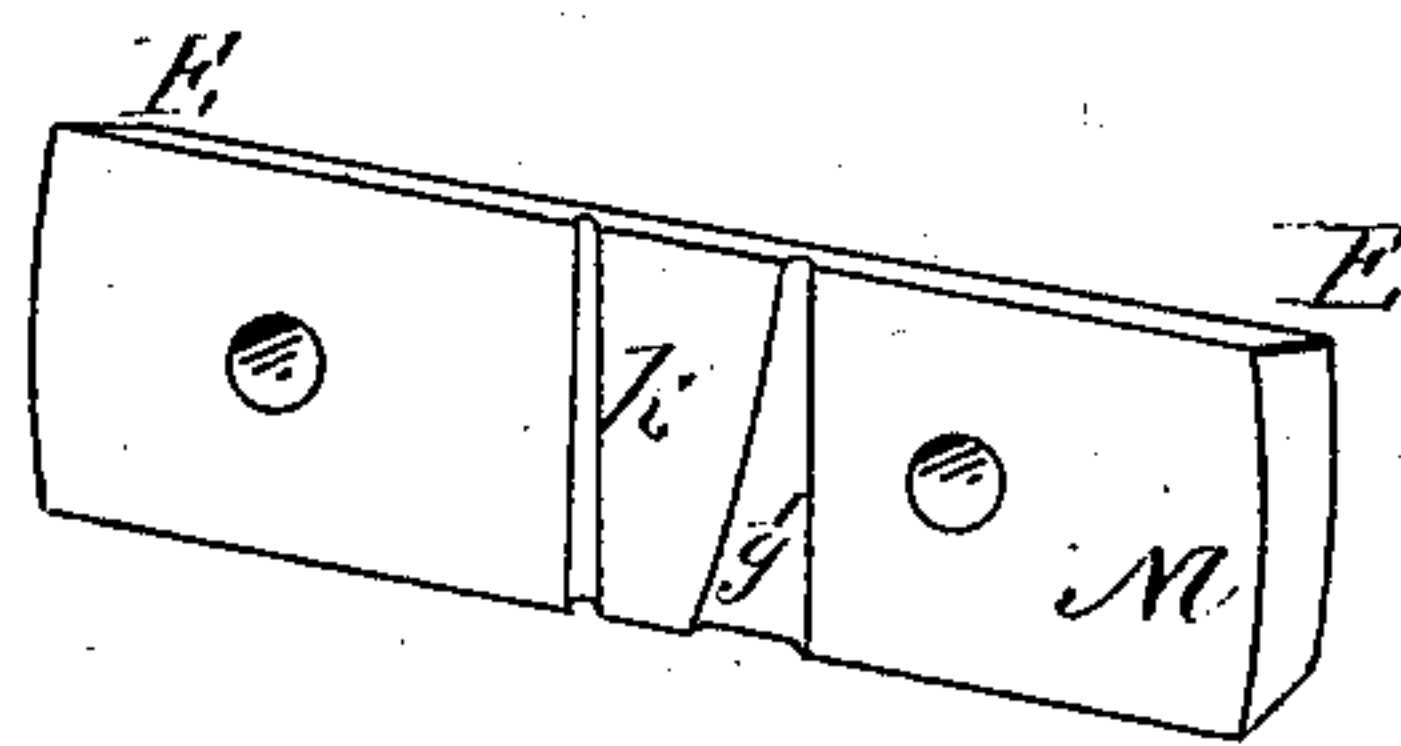


Fig. 5.

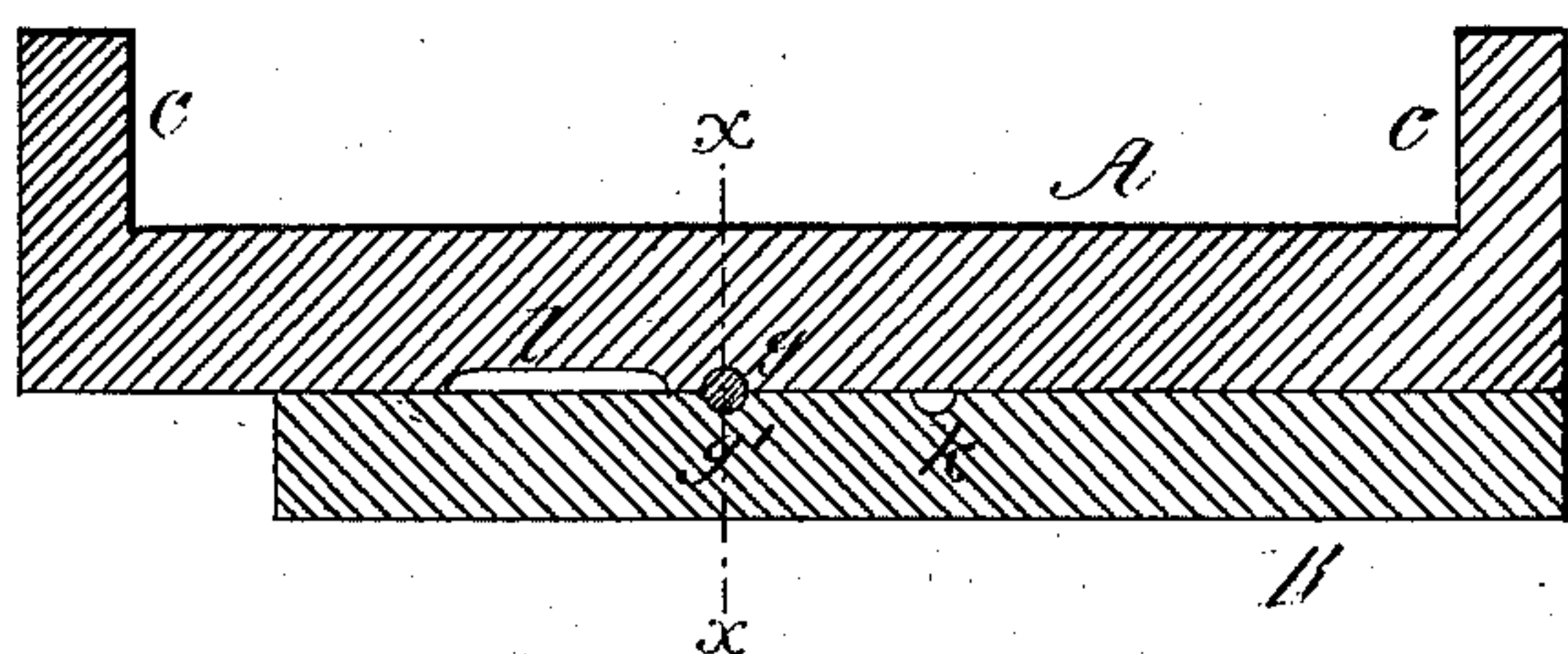


Fig. 6.

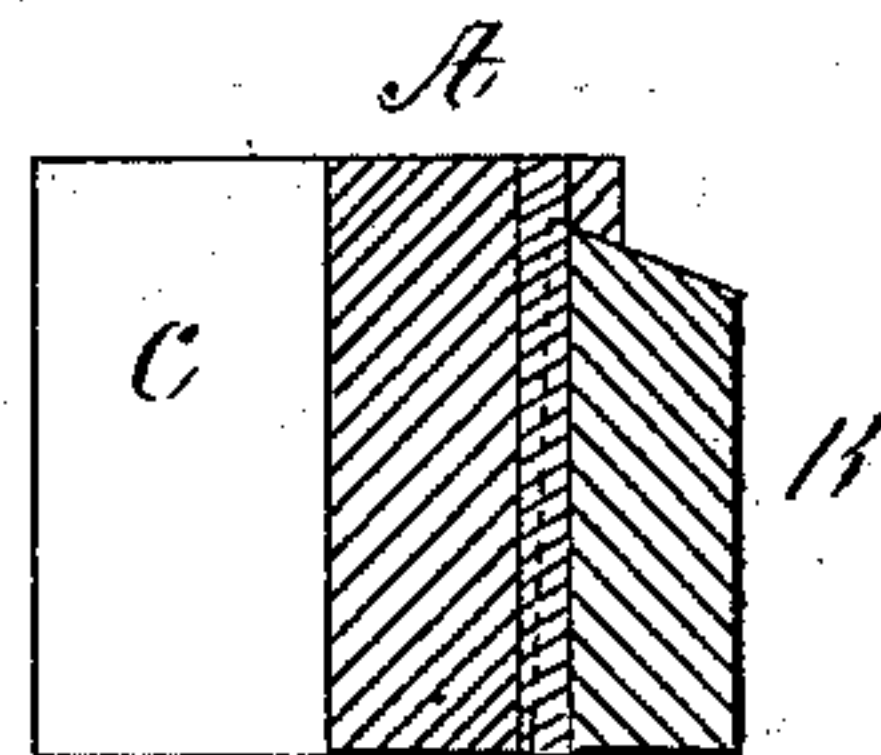


Fig. 7.

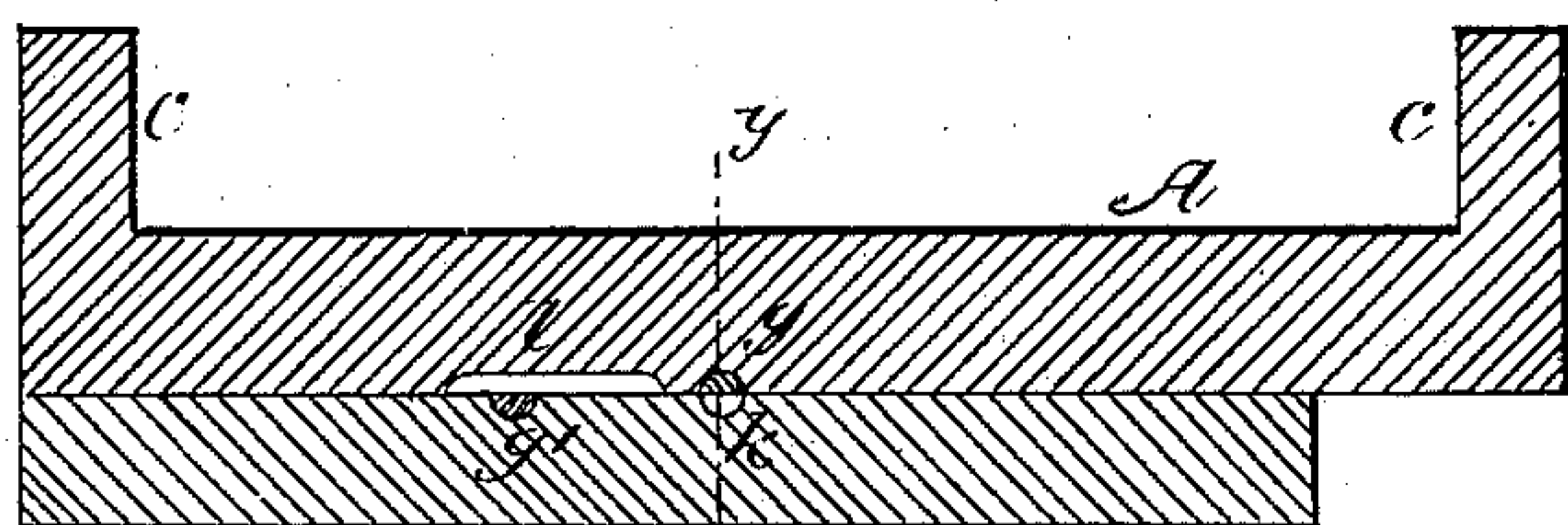


Fig. 8.

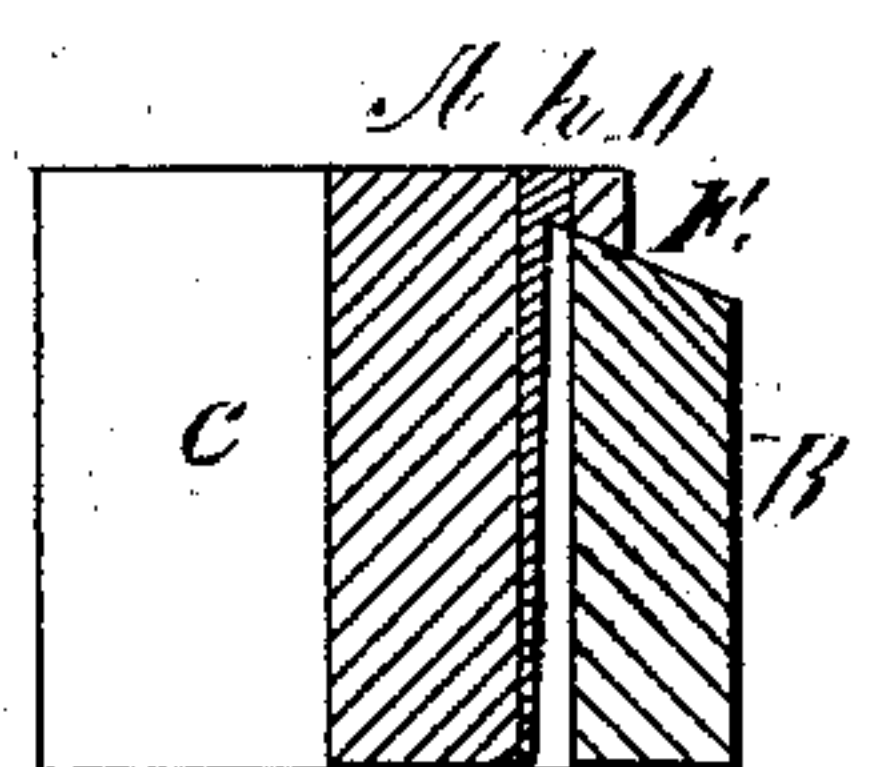


Fig. 9.

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HORACE WEEKS, OF BOSTON, MASS., ASSIGNOR TO THE CORRUGATED WIRE FASTENING COMPANY, OF HARTFORD, CONN.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 280,267, dated June 26, 1883.

Application filed April 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, HORACE WEEKS, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Nailing-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 which—

Figure 1 is a front elevation of the cutting-off slide with the driver in position above it. Fig. 2 is a perspective of the movable and carrying jaw of the cut-off. Fig. 3 is a perspective of the stationary jaw of the cut-off. Fig. 4 is a longitudinal section of the two jaws of the cut-off on a horizontal plane with the wire from which the nail or tack is to be cut in its first position. Fig. 5 is a transverse section of the two jaws on a vertical plane along the line *xx* of Fig. 4. Fig. 6 is a horizontal longitudinal section of the two slides after a cut has been made. Fig. 7 is a vertical transverse section of the two jaws with their nail on the line *yy* of Fig. 6, and with the nail just ready to drive.

This invention relates to an improvement in the tacking-machines manufactured by the Corrugated Wire Fastening Company, and to the tack or nail made by the said machine. These machines are patented by Letters Patent No. 225,527, dated March 16, 1880, and No. 241,550, dated May 17, 1881, to Albion Knowlton, of Boston, and the modification thereof, which constitutes the present invention, is entirely in the cutting-off and carrying device, and in the form of fastener, nail, or tack made by it. The specific organization and the means of driving the cut-off and carrier are described to be like those of the patent of 1881, referred to, and the principal mechanical change is in the form and relation of the cut-off and carrier, called "K" in that patent, and in one of its guides or ways. In the machine of the Knowlton patent of 1881, on which this is an improvement, the top of the cut-off or carrier severs the nail or wire and carries it below the driving-bar by the same motion employed in the improvement; but there is a change of shape and relation of the cutting and carrying slide, which produces cuts in three places in-

stead of one, and hence a different nail, and one of much greater importance and value.

Figs. 8 and 9 are two views of the nail. The nail which I desire to produce is made from a continuous wire of almost any even cross-section—square, round, oval, or prismatic—or from such wire horizontally corrugated, and this nail has four principal parts. *h* is the head, which is of the full cross-section of the wire. *b* is the barb of the head, produced by horizontal or beveled undercutting of the wire in cutting away to make the shank. *s* is the shank of the nail, which is tapered pretty uniformly from head to point, being of about one-half the size of the original wire close to the head, and tapering at the point to nearly or quite a chisel edge. *p* is the point.

It will be observed that in case this nail with an overhanging part, as shown, be driven into stock against a clinching-surface—such, for instance, as the iron bottom of a last—the point is so thin and slender that it will readily curve back into the stock and clinch on one side, while the overhanging barb *b* of the head, produced by the beveled undercutting, will form a clinching-surface beneath the head and will compress the stock upon the shank of the nail, so as to increase its binding force by friction against the particles of stock.

In order to make this nail, the improved cut-off and carrying-jaws referred to (shown in Figs. 1 to 7) are employed. Of these, *A* is the removable jaw and *B* is the fixed jaw. The offsets of the movable jaw are shown at *C*. The movable jaw is provided with a projecting cutting-flange, as shown at *D*, Fig. 2, beveled to form the overhanging barb, if desired, and the stationary jaw has an oppositely-beveled surface, *E*, Fig. 3, against which the under surface of the projecting flange *D* of the slide *A* fits and slides. Through the flange *D* is made a hole, *f*, of proper size for the passage of the wire, as in the patent of 1881, referred to, and the wire is fed down through it at appropriate distances, according to the feed-gage of the machine. As the wire feeds down it enters into a cavity or groove, *g*, in the movable jaw *A* and an opposite cavity, *g'*, in the fixed jaw *B*, and these grooves are made with cutting-edges, so that

the wire, when the slide A is moved across the slide B, shall be cut in a proper form longitudinally, as shown in Figs. 8 and 9, and the under-cut of the head, made by the cutting-edge of the surface E of the slide B and the adjacent edge of the under surface of the flange D of the slide A passing over each other, which under-cut, if beveled upward and inward, will form the overhanging barb *b* of the nail, Figs. 8 and 9. The edge of the hole *f* in the upper surface of the movable jaw A cuts off the wire against the side of the guidetube, (called "K" in the Knowlton patent of 1880,) through which the wire is fed, so that there is inserted in the carrier-jaw A a particularly-formed nail when said jaw is moved the width of the hole *f*, and the waste cut-off from the nail remains in the cavity *g'* of the stationary jaw D, as indicated in Fig. 5. The form of the nail which remains in the carrying-jaw A is substantially as indicated in Fig. 7 at *h p*. The movable jaw A has now become a carrier, and carries forward the nail to a position under the driving-bar I, as indicated in Fig. 1, in which *w* is the wire and I is the driving-bar, and the position of the jaws A B is as shown in Fig. 6. When the hole *f* and cavity *g* of the movable jaw A are beneath the driving-bar I they coincide with the cavity K of the fixed jaw B, and thus the nail is in a position where it can be driven down into the stock by means of the driving-bar I, (shown,) while at any other position the under-cut head and barb *b* are supported on the top of the fixed jaw B, and consequently cannot be forced downward. At the same time that the cavity *g* of the movable jaw A coincides with the cavity K of the fixed jaw B the cavity *g'* of the fixed jaw B will coincide with the cavity *l* of the movable jaw A, and there will be a clearance made for the waste of the nail, which waste will drop out and the machine be ready for a back-stroke, a second feeding of the wire, a second cutting off, a second driving, and so on.

It will be noticed that the fixed jaw of the sliding shears B has a slightly undercut bevel in order to taper the point of the nail, and that the cavity *g'*, which forms the cutting-off device, is somewhat enlarged longitudinally at its bottom, and its cutting-edge curved, so as to give a draw-cut, a good clearance, and an easy drop for the waste; and it will also be noticed that this under-cut formation of the stationary jaw requires for making a tapering nail that the cavity K in the fixed jaw B, through which the nail is driven, should be in cross-section about a half-circle at the top and rather more than a half-circle at the bottom, and it will be observed that this, in the de-

scent of the nail into the stock, steadies it under the blow of the driving-bar I.

It will also be noticed that the front surface of the movable jaw A is beveled complementarily, so as to form a close sliding blade for cutting-off purposes, and that the cavity *g* is about the size of a half-circle at the top and less than a half-circle at the bottom. The cavity *l* is made large, so that the waste of the wire shall not be held, but may freely drop out when the machine has made its stroke and driven its nail.

It will also be observed, on reference to the Knowlton patent of 1881, that whereas that cuts off only on the plane of the upper surface of the carrier, the carrier A, herein described, corresponding so far with the Knowlton carrier K of the patent of 1881, has two additional cutting-edges at preferably a slightly-acute angle with each other to form the lower part of the nail, and that hence a new function (cutting-off) is given to the carrier-guides, (F of the Knowlton patent of 1880,) and it is to these modifications of the machine that my invention relates.

It will also be observed that the nail may be cut without a bulging or undercut head, if desired; but I prefer the barb-headed nail described.

In use of this machine wire corrugated horizontally with substantial uniformity is the equivalent of wire of uniform cross-section, and almost any prismatic form may be given to the wire.

The clearance-cavity *l* is a convenience rather than a necessity, and may often be sufficiently represented by an easy fit between the jaws behind hole *g'*.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The stationary jaw B, provided with cutting-edge cavity *g'* and driving-recess K, in combination with movable jaw A, provided with cutting-edge cavity *g* and clearance-recess *l*, substantially as and for the purposes described.

2. The stationary jaw B, provided with cutting-edge cavity *g'* and driving-recess K, in combination with movable jaw A, provided with cutting-edge cavity *g* and cutting-flange D, substantially as described.

3. In the stationary jaw B, the cavity *g'*, vertical on its dead side, enlarged on its lower side, and having a draw-cutting edge, substantially as and for the purposes described.

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