

(No Model.)

3 Sheets—Sheet 1.

G. W. MANSON.

MACHINE FOR MAKING HAIR PINS.

No. 397,991.

Patented Feb. 19, 1889.

Fig. 2.

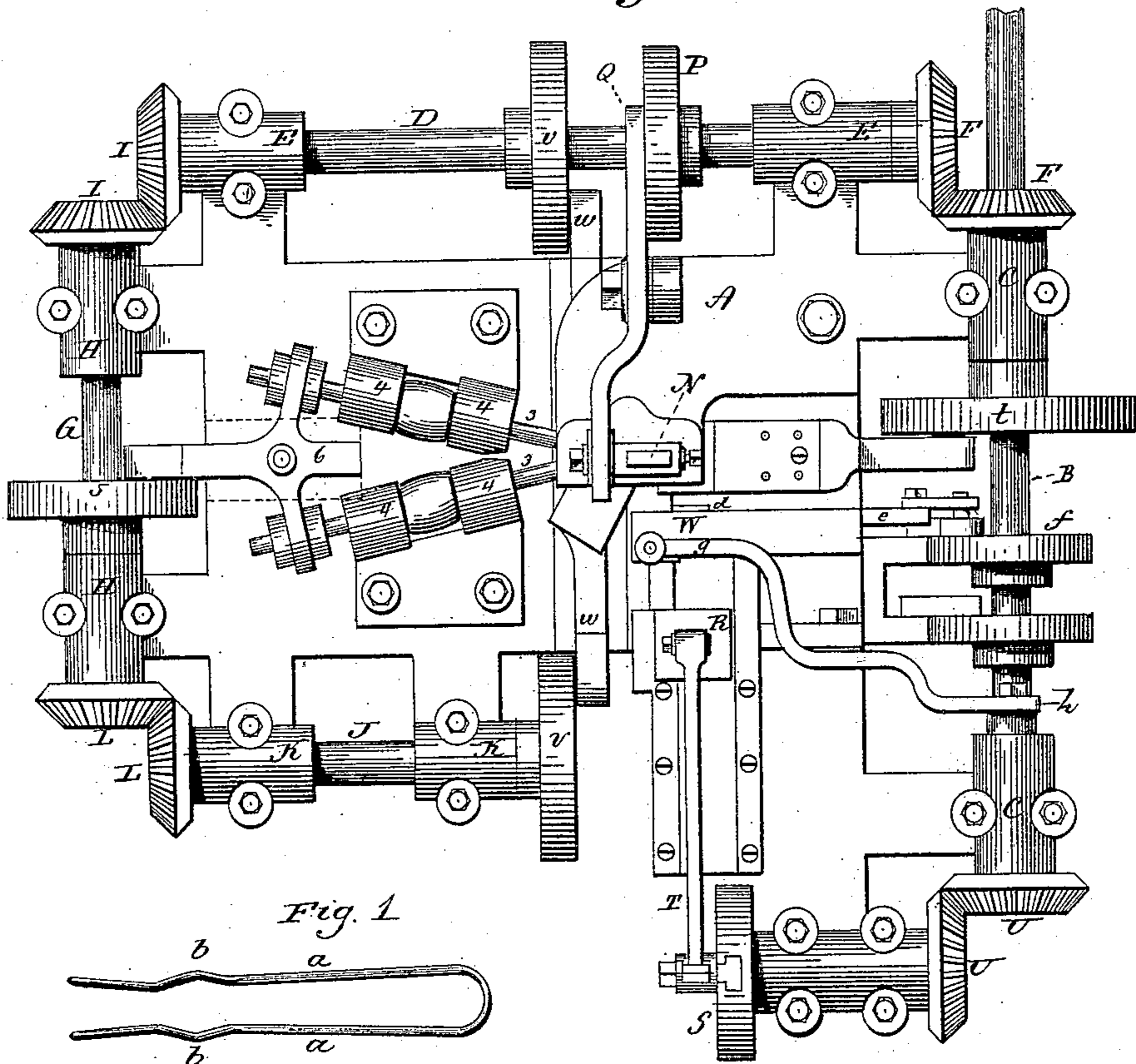


Fig. 1

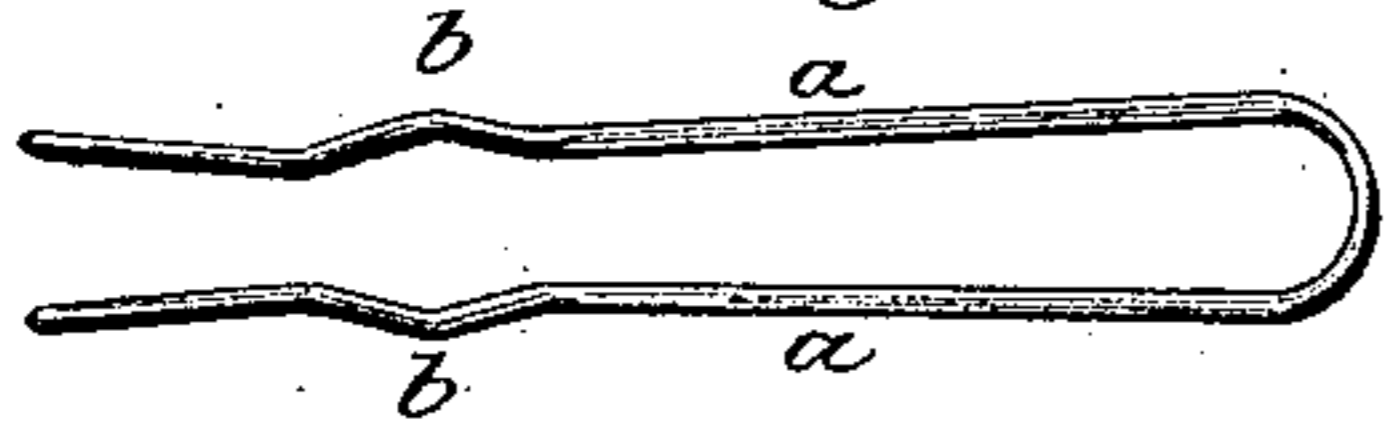
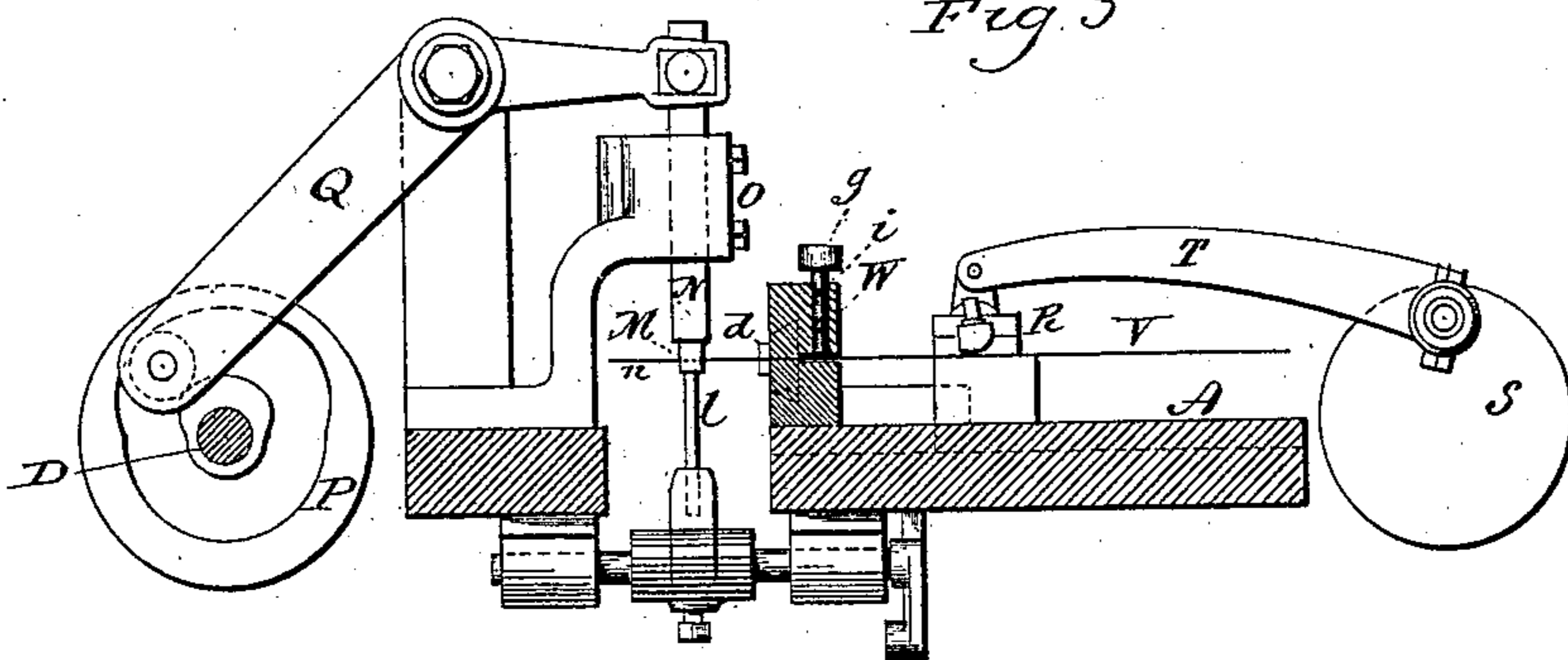


Fig. 3



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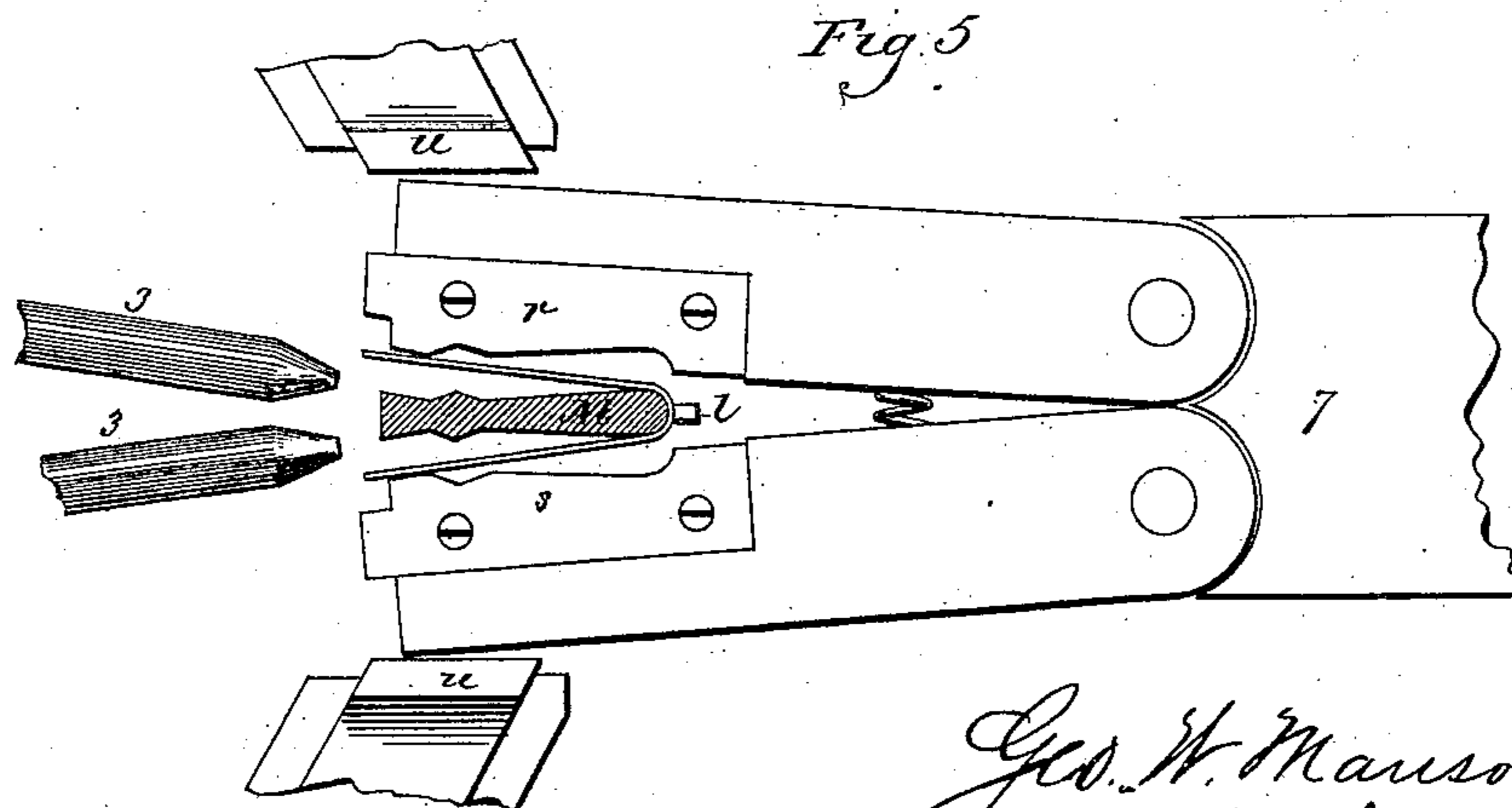
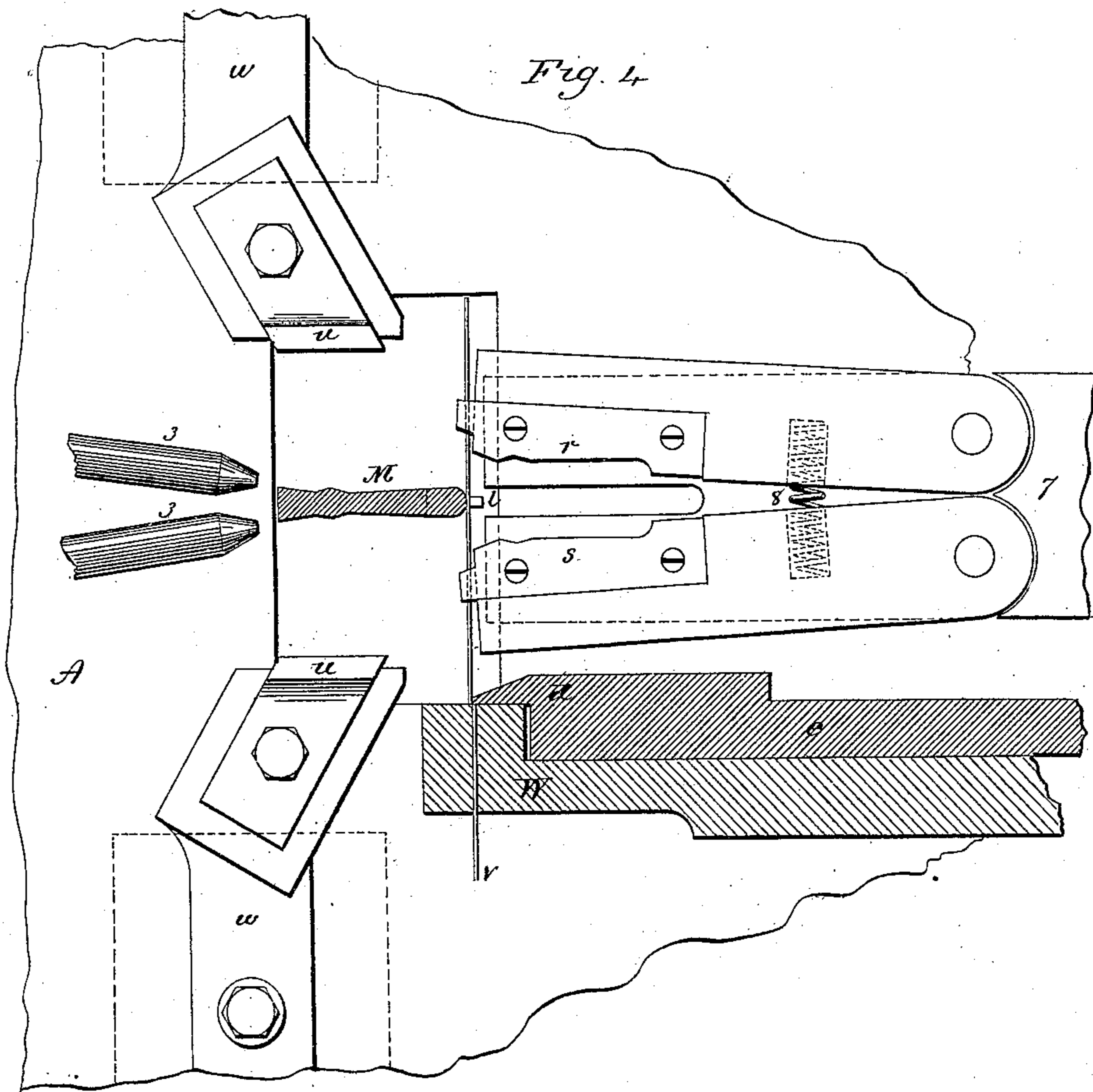
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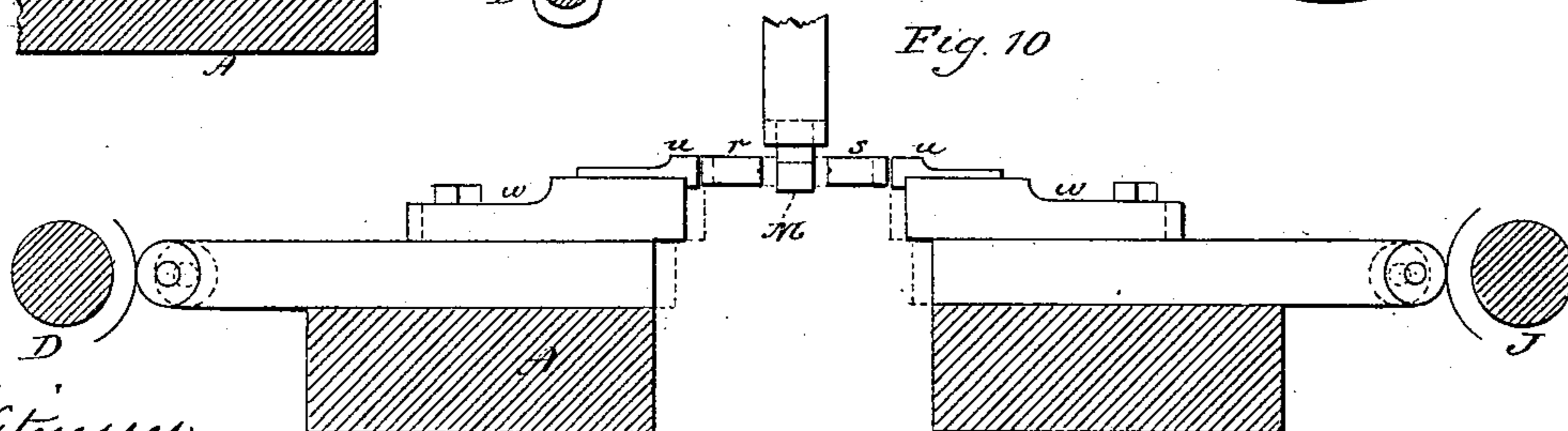
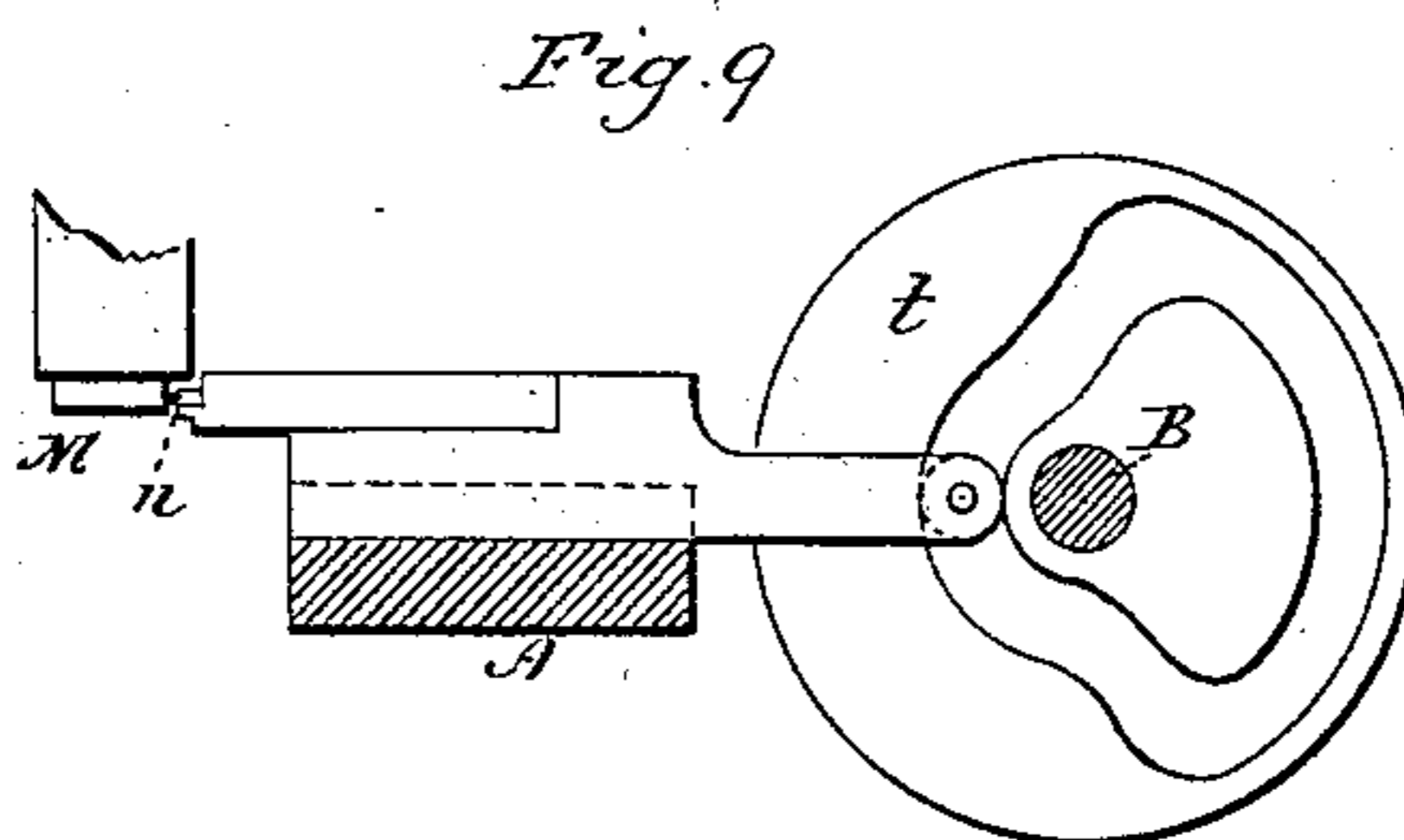
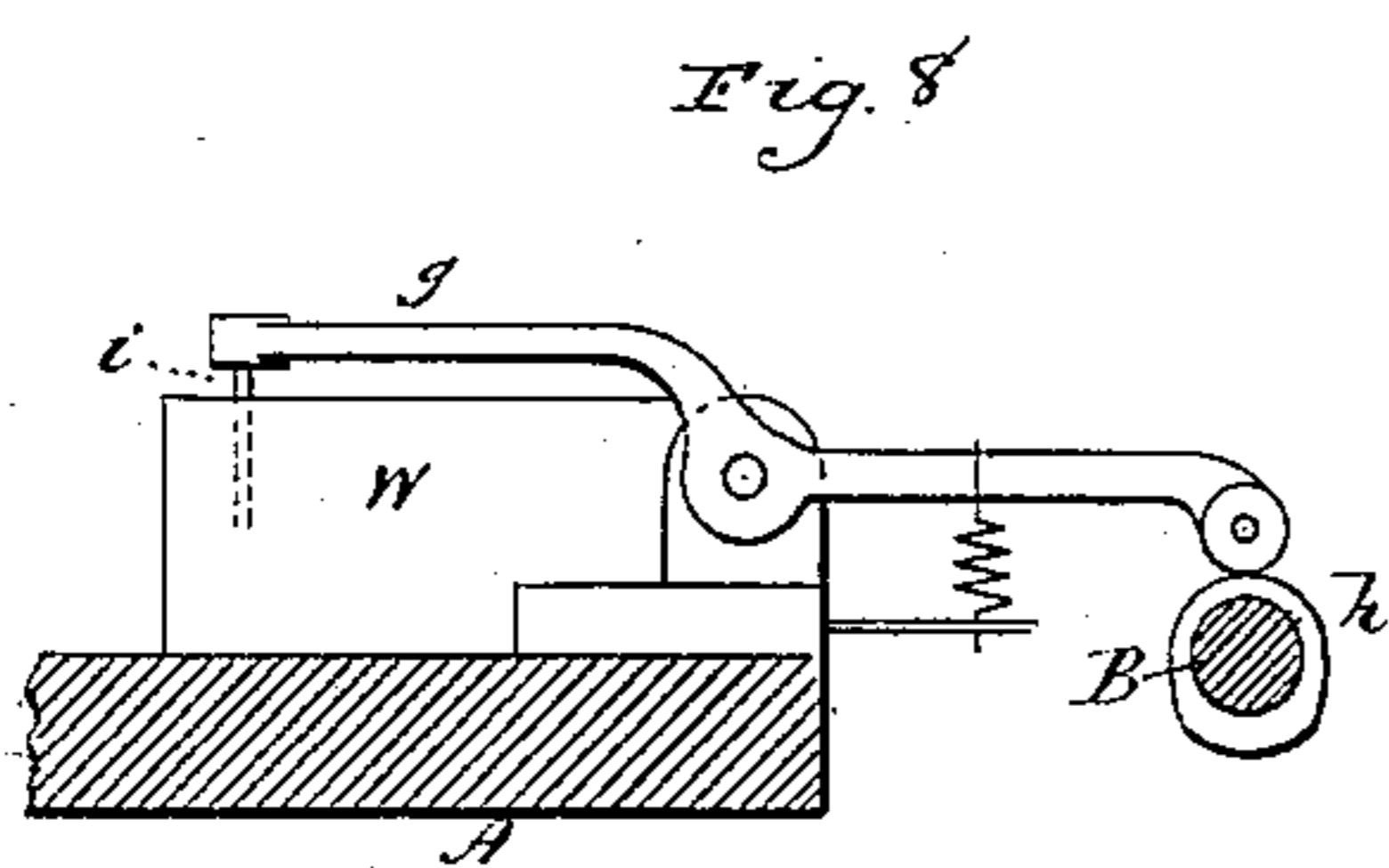
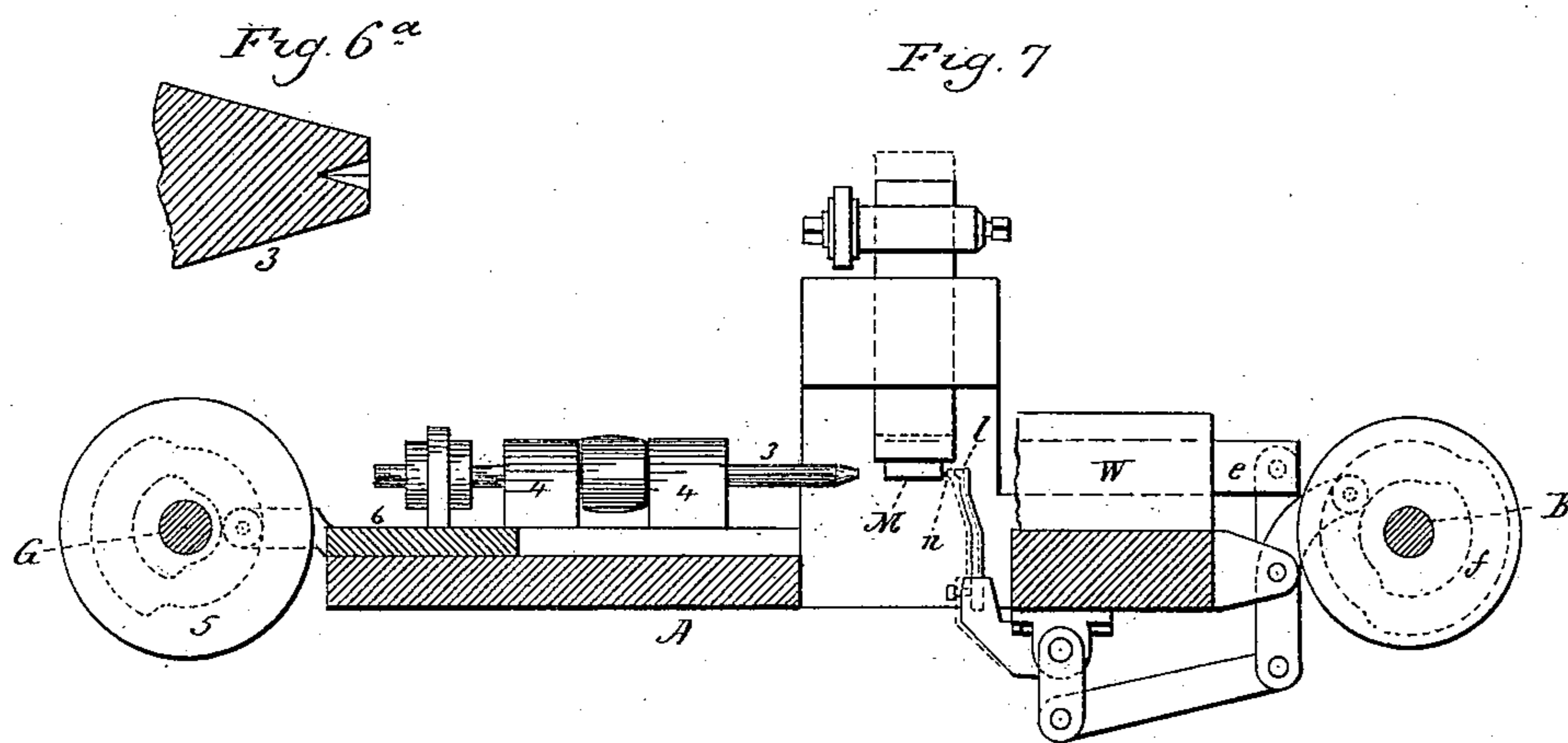
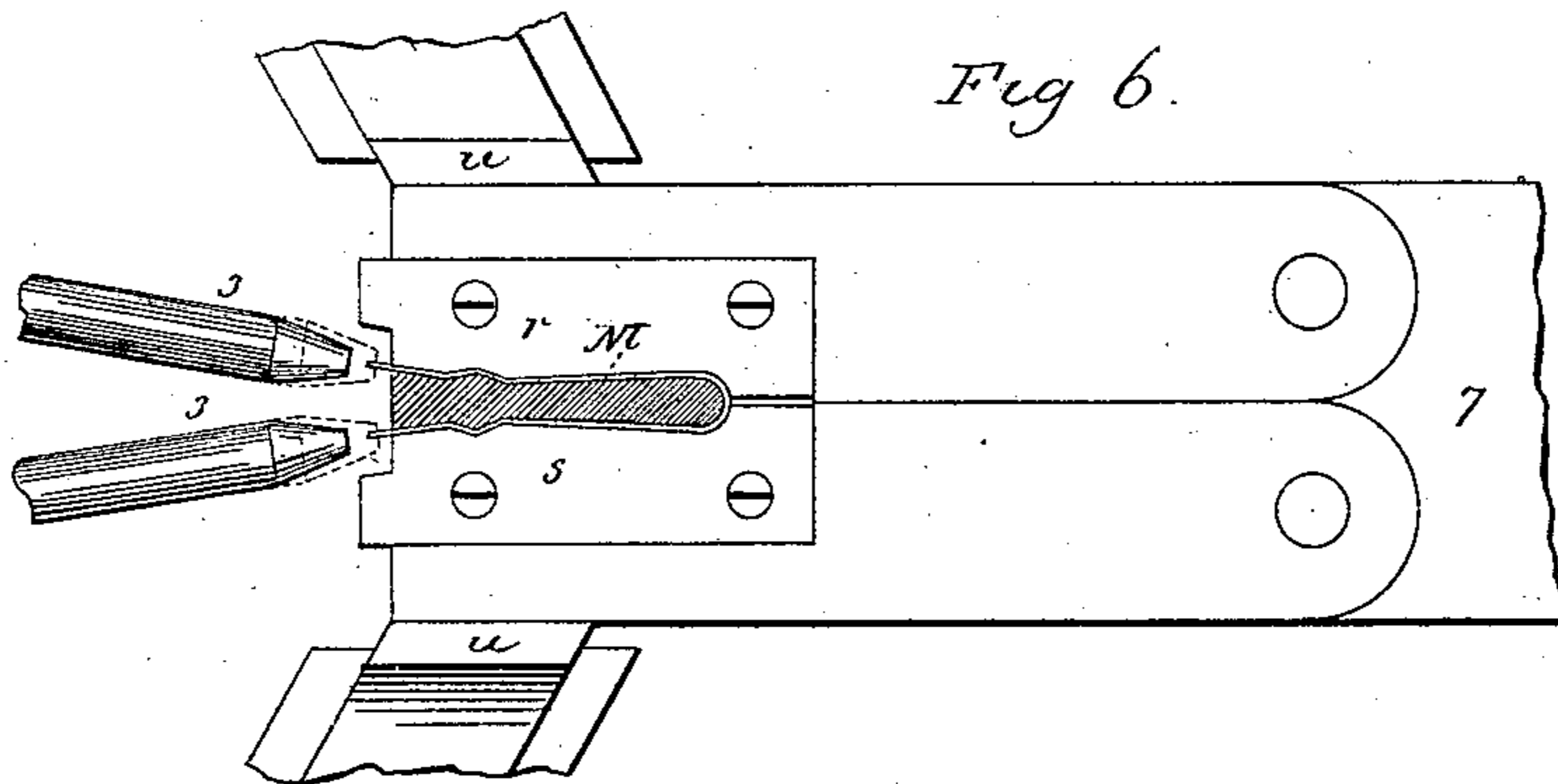
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Patented Feb. 19, 1889.



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UNITED STATES PATENT OFFICE.

GEORGE W. MANSON, OF NEW YORK, N. Y., ASSIGNOR TO THE SELF RETAIN-
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MACHINE FOR MAKING HAIR-PINS.

SPECIFICATION forming part of Letters Patent No. 397,991, dated February 19, 1889.

Application filed June 11, 1888. Serial No. 276,704. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MANSON, of New York, in the county of New York and State of New York, have invented a new Improvement in Machines for Making Hair-Pins; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of a pin complete, such as this machine is adapted to make; Fig. 2, a top view of the machine complete; Fig. 3, a vertical transverse section at the feed; Fig. 4, an enlarged top view showing a horizontal section of the former, the bending-jaws, side pressers, and pointing-mandrels in the position at the time the blank has been delivered to the machine; Fig. 5, the same parts at the time the bending-jaws have reached their extreme advanced or forward movement; Fig. 6, the same, showing the jaws in their closed position upon the pin on the former; Fig. 6^a, an enlarged longitudinal sectional view of the head or cutting end of one mandrel; Fig. 7, a longitudinal vertical section near the former; Fig. 8, a partial section illustrating the gripping device for the wire to prevent its retreat on the return of the feed; Fig. 9, a partial section illustrating side view of the former with the bending-jaws about to advance; Fig. 10, a transverse vertical section showing end view of the bending-jaws and side view of the pressers.

This invention relates to an improvement in machines for making that class of hair-pins in which the two legs are bent out of line, but in the plane of the two legs, so as to give to the legs an irregular or corrugated shape that they may take a better hold in the hair. Such a pin is represented in Fig. 1. It is a well-known construction of pin, and is made from wire bent into U shape to form the two legs *a a*, the ends of the two legs pointed, and the said legs each having a lateral outward bend, *b*, in the same plane as the two legs, the bend being a short distance from the point ends of the legs, and the point ends of the legs each

turned outward, so that from the bends the legs diverge.

The object of the invention is the construction of a machine which will automatically receive the wire, bend it into the required shape, point the ends, and deliver the pin complete from the machine; and it consists in the construction of the machine, as hereinafter described, and particularly recited in the claims.

A represents the bed, upon which the operative mechanism of the machine is arranged.

B represents the driving-shaft, which is supported in bearings C C, and so as to revolve freely therein, power being communicated to the driving-shaft by any of the usual means employed for this purpose. This shaft B is arranged at one end of the bed, and upon the rear side of the bed is a second shaft, D, at right angles to the shaft B, supported in bearings E, and which receives its rotation from the shaft B by means of bevel-gears F F, and upon the end of the machine opposite the shaft B a third shaft, G, is arranged in bearings H, which shaft G receives its rotation from the shaft B through the shaft D by means of bevel-gears I, and upon the front side of the machine is a fourth shaft, J, supported in bearings K K, which receives its rotation from the shaft G by bevel-gears L L, and so that the rotation imparted to the shaft B will be communicated to the respective shafts to cause them to revolve with the same rotation as that of the shaft B.

M represents a former, which in horizontal section is of a shape corresponding to the shape of the pin seen enlarged in Figs. 4 and 5—that is to say, one edge of the former is of a shape corresponding to the head end of the pin. Near the opposite edge the two sides are made of irregular shape, corresponding to the irregular bend required for the two legs of the pin, and from this irregular bend to the opposite edge the sides diverge corresponding to the required divergence of the point end portions of the pin. The said former is made fast to the lower end of or a part of a vertical slide, N, supported in guides O, (see Fig. 3,) and so that an up-and-down movement may be imparted to the former, it

being understood that the bending operation is performed upon the wire in a horizontal plane.

The required up-and-down movement is imparted to the slide N by means of a cam, P, on the shaft D through a lever, Q, and so that on the rotation of the said cam the former will be given an up-and-down movement to bring it into the plane of the wire to be bent, or take it therefrom after the bending shall have been performed. This up-and-down movement is indicated in broken lines in Figs. 7 and 10.

The wire is fed into the machine at right angles to the plane of the former. The feed to deliver the wire may be of any of the many known constructions. As here represented, it consists of a slide, R, arranged in suitable guides, said slide carrying a jaw (not shown) which is adapted to grasp the wire, and to the said slide a reciprocating movement is imparted by a crank-wheel, S, through a connecting-rod, T, the said crank receiving a constant revolution from the driving-shaft B through bevel-gears U U, the feed being parallel with the axis of the shaft B. The slide is adapted to engage the wire in its inward or advance movement and to disengage the wire as the slide returns to take a new hold, so that at each movement of the slide the required length of wire is fed into the machine. I do not illustrate the details of this slide, as the feed is a common and well-known one, and for which any of the many known feeds may be substituted. In Fig. 3, V represents the wire being thus fed to the machine. It passes through a die, W, and so as to be cut off by a cutter, d, arranged to reciprocate on the face of the die W and across the opening through the die W, as seen in Fig. 4, the cutter being arranged upon a slide, e, to which the requisite reciprocating movement is imparted by a cam, f, on the shaft B, and so that at the proper time the length of wire will be cut off, as represented in Fig. 4. The wire is clamped before the return movement of the feed by means of a lever, g, as seen in Fig. 3, the said lever actuated by a cam, h, on the shaft B, as more clearly seen in Fig. 8. The lever is provided with a stud, i, which works into the die W, as represented in Fig. 3, so as to bear upon the wire and hold it while the slide returns. This also is a common and well-known device. The feed of the wire delivers it across the rear end of the former M, as seen in Fig. 4, and so that the two ends of the wire are equidistant from the central line of the former. The blank thus delivered is grasped against the former by means of a clamp, l, (see Fig. 7,) which is caused to bear against the wire by means of a cam, m, and so that after the wire has been presented it will be grasped by the clamp l against the former and there held in its proper relation after the blank has been cut off. n represents the wire or blank thus cut. The blank is now in condition for bending, and it is doubled around the former M

by a pair of horizontally-swinging jaws, r s, hung upon a slide, 7. The face of these two jaws is in shape as seen in Fig. 4, corresponding to the outside of the finished pin. In the face of the jaws a groove is formed, as seen in Fig. 10, directly in the plane of the blank as it is held upon the former. The jaws r s are advanced by the action of a cam, t, on the shaft B from the position seen in Fig. 4 to that seen in Fig. 5. The jaws are normally held apart by a yielding spring, 8, (see Fig. 4,) and so that they stand farther apart than the width across the widest portion of the pin. As the jaws advance from the position seen in Fig. 4 to that in Fig. 5 the wire is doubled around the head-edge of the former into substantially V shape, as seen in Fig. 5. As the jaws arrive at their advanced position, as seen in Fig. 5, they receive an inward or lateral movement to cause them to approach each other, which movement is imparted by means of pressers u u, arranged upon slides w w, the said slides being supported in suitable guides and so as to slide in a plane at right angles to the plane of movement of the said jaws r s, the said pressers being actuated by cams 2 2 on the respective shafts D and J, as seen in Fig. 2, and so that at the proper times they advance and retreat. As the jaws r s reach their advanced position, as seen in Fig. 5, the pressers u u advance, and striking the jaws force them toward each other, as seen in Fig. 6, and so as to bring the wire blank into contact with the outer surface of the former and give to the wire the required shape for the complete pin, as seen in Fig. 6. The extreme ends of the legs of the thus-bent pin project beyond the former, as seen in Fig. 6, and the ends diverge, as before described. While the blank is thus held by the jaws, as seen in Fig. 6, the two legs are pointed, and this pointing is produced by means of two revolving mandrels, 3 3, arranged in bearings 4, the line of the said mandrels being in the same divergence and in line with the end portions of the two legs, as seen in Figs. 2 and 6. These revolving mandrels have a longitudinal movement imparted to them by means of a cam, 5, on the shaft G, working through a slide, 6, which is in engagement with the two mandrels, as represented, and so that the advance and retreating movement of the slide 6 under the action of the said cam will be imparted to the said mandrels, as from the position Fig. 6 to that in broken lines, said figure, and return. The inner end of the two mandrels is provided with a suitable cutter, which, as the mandrels advance, operates upon the projecting ends of the two legs of the pin and so as to produce the required pointed end, as indicated in Fig. 6^a. After the points have been thus completed, the former, under the action of its cam P, rises, and, because the pin is held in the grooves on the respective jaws, the former will be drawn from between the legs of the pin. Then the jaws open to the position seen

in Fig. 5, leaving the pin free to fall. The jaws then retreat, the former is again moved down to receive a second blank, the second blank is delivered, bent, and the pin completed in like manner, and, so continuing, successive blanks are fed to the machine, and are bent, pointed, and each pin delivered complete from the machine.

While I prefer to feed the wire and cut the blanks in the machine, it will be evident that the feeding and cutting device may be omitted, and the blanks previously cut to the proper length may be delivered to the machine by either of the many known devices for delivering short wire blanks to bending apparatus.

I claim—

1. In a machine for making hair-pins, the combination of the former M, around one edge of which the blank is adapted to be bent, the sides of the former near the opposite edge of like irregular shape, and the said sides from the said irregular shape toward the said opposite edge diverging, the sliding and swinging jaws *r s*, arranged to pass one each side of said former, and the sides of the said jaws adjacent to the said former of a shape cor-

responding to the sides of the said former, and transverse side pressers, *u u*, arranged to bear said jaws toward said former, with a pair of revolving mandrels, *3 3*, the said mandrels diverging and in line with the diverging sides of the said former, with mechanism, substantially such as described, to impart longitudinal movement to said mandrels, substantially as and for the purpose described.

2. The combination of the former M, the clamp *l*, the sliding and swinging jaws *r s*, side pressers, *u u*, and diverging, revolving, and longitudinally-reciprocating mandrels *3 3*, all substantially as and for the purpose described.

3. The combination of the former M, mechanism, substantially such as described, to impart a vertical reciprocating movement to said former M, a feed mechanism adapted to deliver the wire to the machine, clamp *l*, sliding and swinging jaws *r s*, transverse side pressers, *u u*, and diverging, revolving, and longitudinally-reciprocating mandrels *3 3*, all substantially as and for the purpose described.

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