

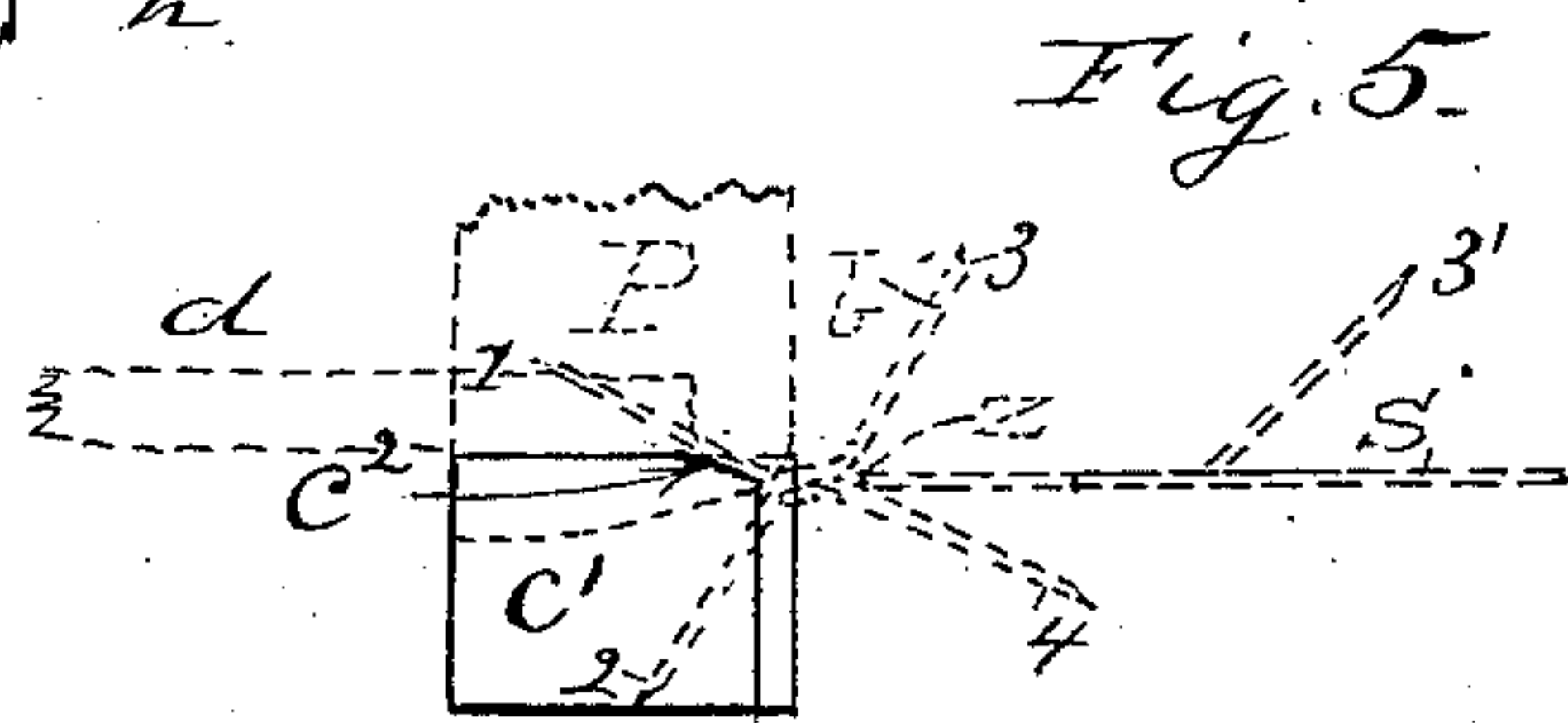
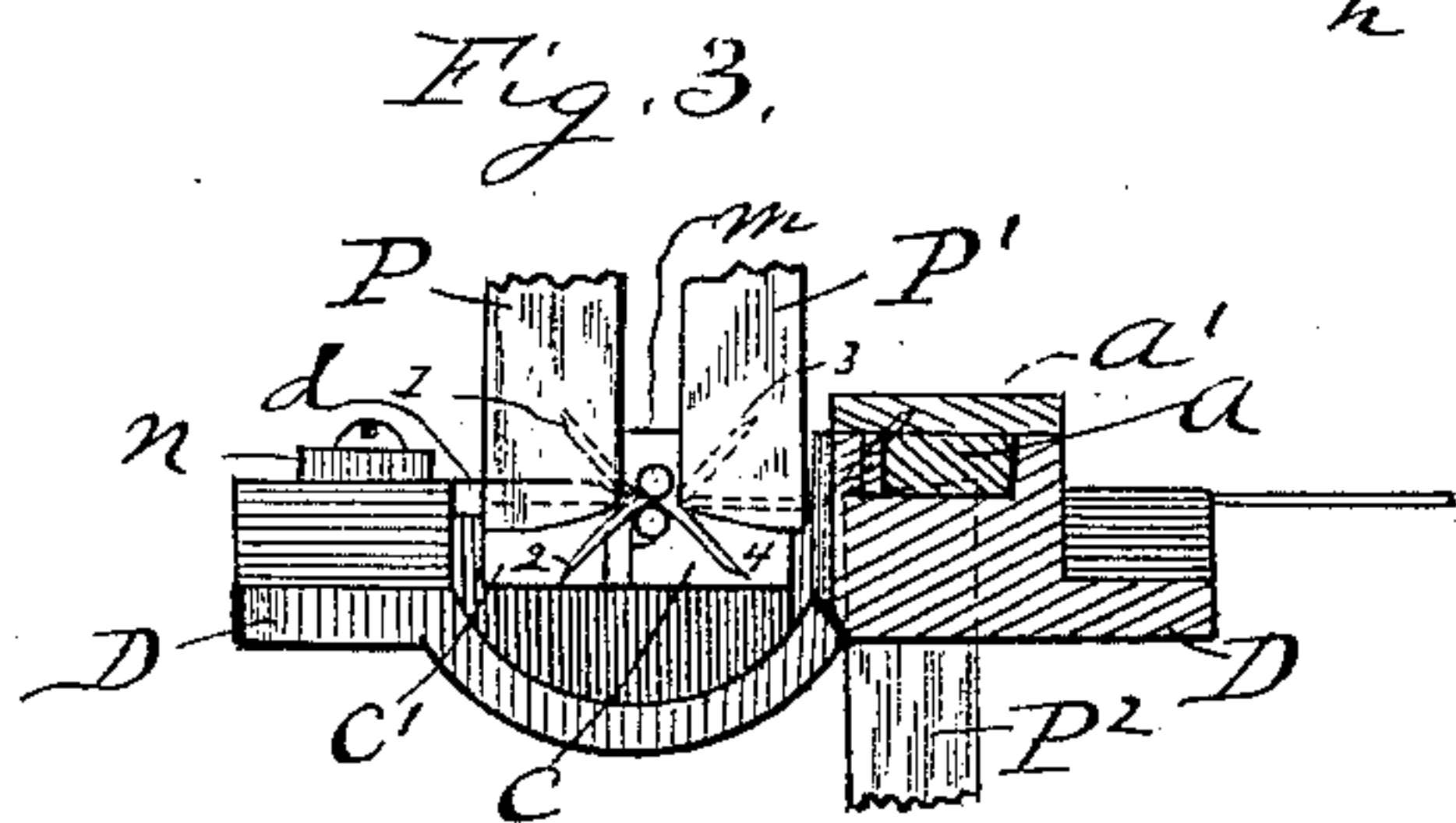
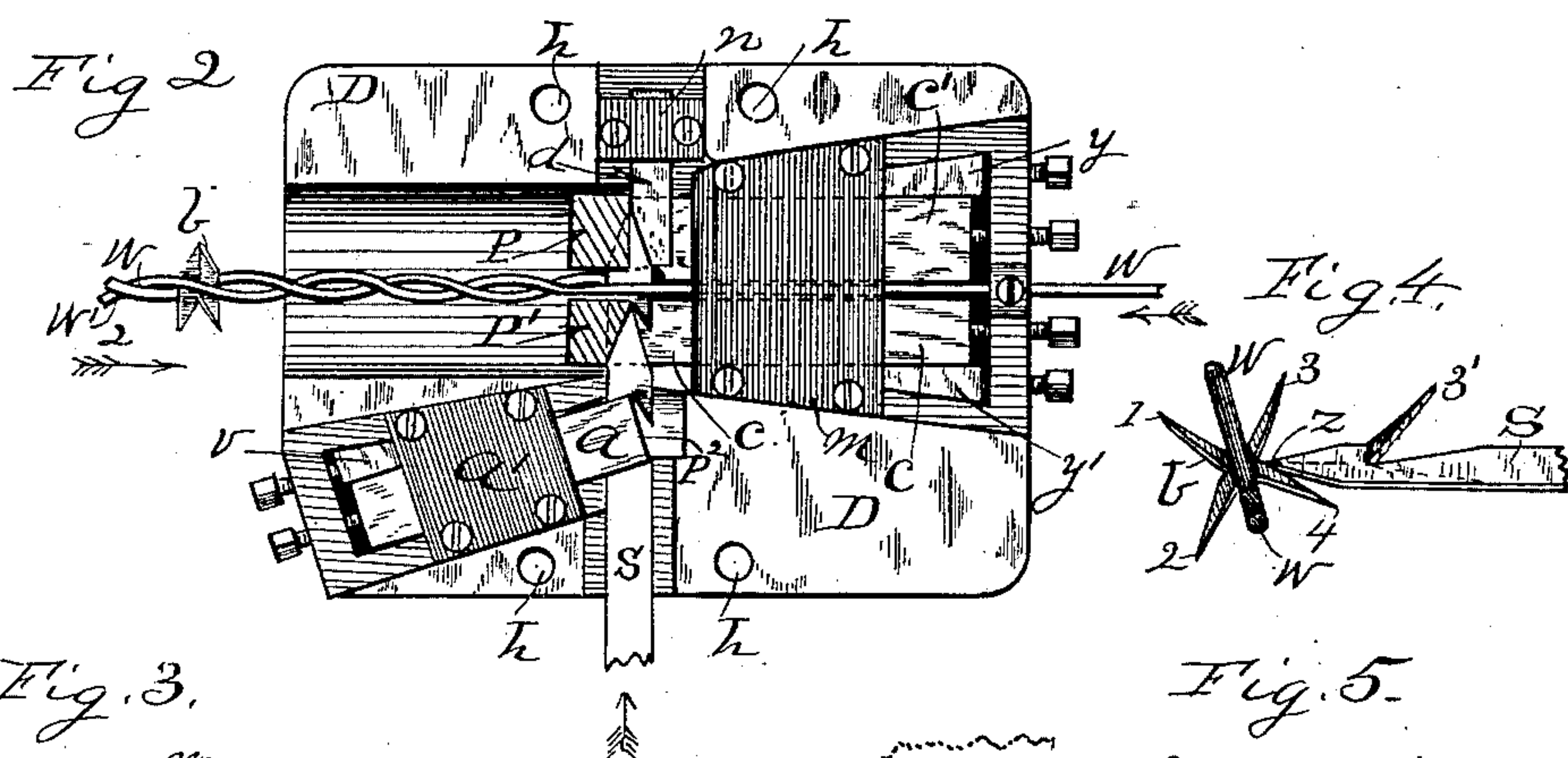
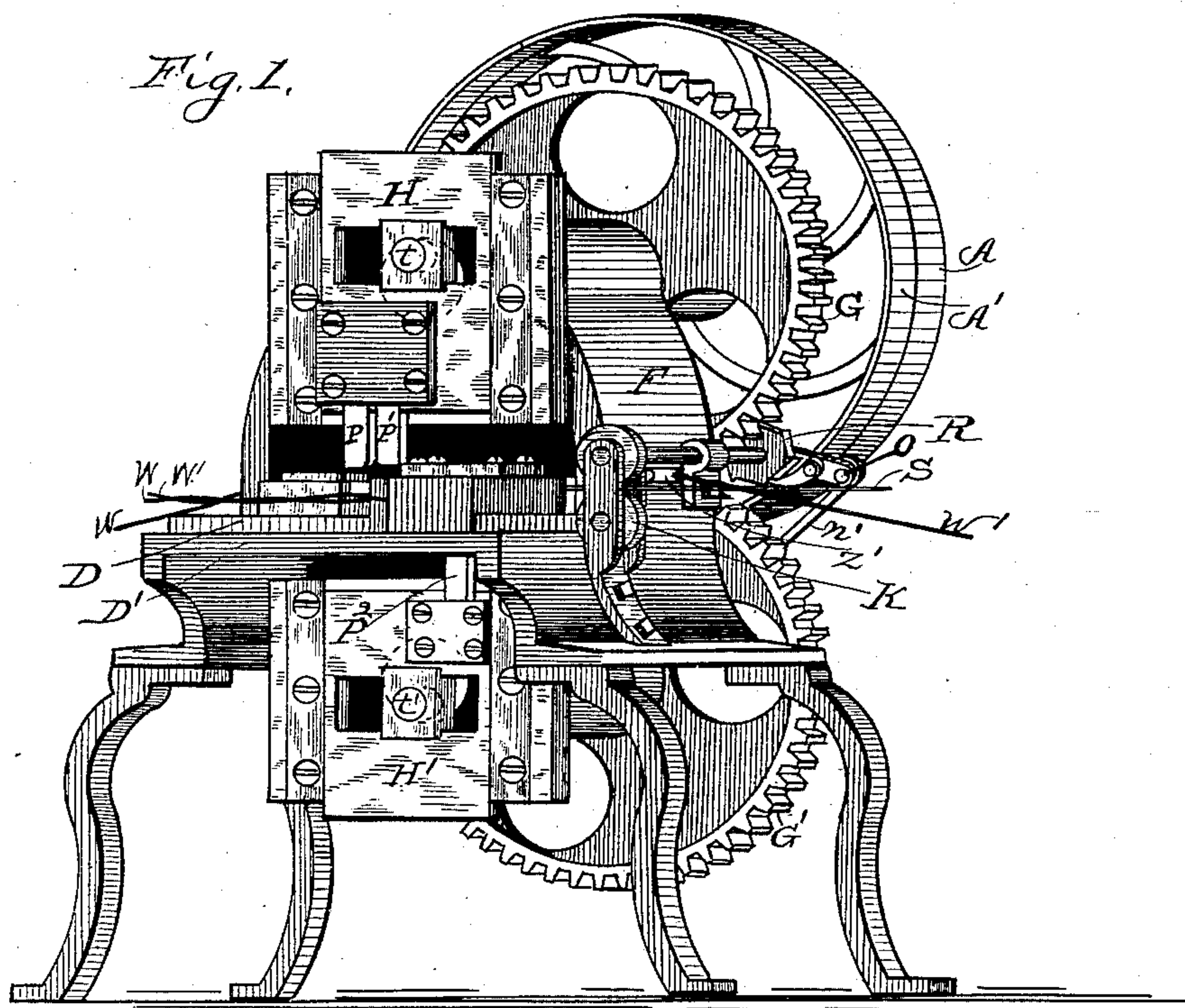
(No Model.)

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MACHINE FOR FORMING AND SETTING FLAT METAL BARBS.

No. 318,079.

Patented May 19, 1885.



Witnesses

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MACHINE FOR FORMING AND SETTING FLAT METAL BARBS.

SPECIFICATION forming part of Letters Patent No. 318,079, dated May 19, 1885.

Application filed December 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. BATES, a citizen of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in a Machine for Forming and Setting Flat Metal Barbs, of which the following is a specification, reference being had therein to the accompanying drawings.

10 Figure 1 is a perspective view. Fig. 2 is a plan view on the top of the bed-plate of the machine which supports the dies. Fig. 3 is a front view of Fig. 2, looking at it in the direction indicated by the arrow *z*; Fig. 4, a perspective view of a barb and a portion of the barb-strip, showing a finished barb placed between the two strand-wires, and showing one prod of the next succeeding barb formed in advance of its being applied to the strand-wires; and Fig. 5, an end view of the die *c'* and a side view of a portion of the punch *P*, in dotted lines, that splits the advance point of the barb-strip to form the two advance prods of the barb.

25 This invention relates to certain improvements in a machine for cutting, forming, and setting flat metal barbs between a pair of fence-wires for fence purposes, the construction and operation of which is set forth and described in the following specification and claims.

Referring to the drawings, *D'* represents the bed of the machine supported on suitable legs, and supporting on its upper surface the bed-plate *D*, secured thereto by means of suitable bolts or screws passing through the bolt-holes *h*, as shown in Fig. 2. In the rear of bed-plate *D* is a frame, *F*, in which is boxed a pair of shafts, one above and one below said bed-plate, parallel with each other and geared together at their rear ends by means of the cog-wheels *G G'*, of equal diameters. The upper shaft is provided with the loose pulley *A* and also the fast pulley *A'*, to which the power is applied to drive the machine. The inner ends of said shafts are respectively provided with the crank-pins *t* and *t'*, passing through sliding boxes, which respectively traverse the horizontal rectangular openings or slots in the respective sliding heads *H* and *H'*, by means of which said sliding heads are reciprocated

vertically simultaneously as said shafts rotate. The crank-pins *t* and *t'* are set on their respective shafts so that they will reciprocate said sliding heads to and from each other, so that all the punches do their cutting at the same time. The upper sliding head, *H*, is provided with the vertically-set cutting-punches *P P'*, and the lower sliding head, *H'*, is provided with the vertically-set cutting-punch *P²*. The corresponding cutting-dies *a c c'* are shown in Fig. 2, and are held in their places by the plates *a'* and *m*. Proper set-screws at their rear ends furnish means for setting said dies up to the punches, and wedges *y, y'*, and *V* furnish means for their lateral adjustment.

Punch *P* cuts in conjunction with die *c'*. Punch *P'* cuts in conjunction with die *c*, and punch *P²* cuts in conjunction with die *a* from below.

A gage, *d*, (shown in Figs. 2, 3, 5,) is set in the bed-plate *D* and held in proper position by means of the cap-plate *N*. Its inner end lies on the upper side of the inner end of die *c'*, as shown in said figures, and is beveled, as shown in Fig. 2, to conform to the shape of the pointed end of the barb-strip *S*, and is for the purpose of guiding said pointed end of said barb-strip and holding it properly until punch *P* and die *c'* can split it to form the two advance prods 1 and 2 of the barb.

The strand-wires *w w* pass into the machine, one from each side, over sheave-wheels placed in the sides of the machine and meet and cross the bed-plate *D*, one immediately above the other, as shown in Fig. 2, and at right angles with the barb-strip *S*, which is fed in intermittently between a pair of feed-rolls, *k*, operated by means of the ratchet *R* and pawl *o*, through the medium of connecting-rod *n'*, attached to a crank-pin on the outer end of the lower shaft.

The machine is so timed that when the barb-strip *S* has been fed forward so enough of it to form a barb lies between the two strand-wires, as shown in Fig. 2, the punches all move simultaneously toward their respective dies to cut and form the several prods of the barb, the result of which is that the punch *P* and die *c'* split the pointed end of the barb-strip and form the two advance prods 1 and 2 of the barb. Punch *P'* and die *c* cut and

form the prod 4, and punch P^2 and die a cut and form the prod 3' of the next succeeding barb, which becomes prod 3 of the finished barb, as shown in Fig. 4.

5 A single operation of the punches and dies produces a finished barb and forms a prod on the next succeeding barb, as is shown in Fig. 4 in perspective, and by the dotted lines in Fig. 5, and leaves a finished barb lying be-
10 tween the strand-wires, which are being twisted continuously as the barb is being formed and placed between them, and immediately twist upon the barb to hold it in. The strand-wires also travel forward continuously and
15 draw the wire along far enough for the next succeeding barb before the punches and dies form another.

The form of the several punches and dies is such that at each operation they cut and bend
20 the prods of the barb in the form shown in Figs. 3, 4, and 5. By thus forming the prod 3' of the next succeeding barb in advance, before prod 4 is formed, the barb being formed between the strand-wires is held in place and
25 supported by the barb-strip S while the advance barb is being formed by punches $P P'$ and dies $c c'$. The strand-wires are drawn from the machine and twisted together by means of an ordinary twister and spooler, (not
30 necessary to be shown.)

The die a , which forms a shear with punch P^2 , is square on its cutting end, while punch P^2 is formed to be at a slight angle at its cutting end and is rounded at its heel or part
35 next the base of prod 3', and will, after the prod has been cut from the strip and as its rounded part engages with the base of said prod, bend it up at an angle of about forty-five degrees.

40 The punches P and P' , working from above, are of the same form on their cutting ends, and cut and bend down prods 2 and 4 in the same manner as prod 3' is bent up.

The die c' , which forms a shear with punch
45 P to split the advance point of the barb-strip S to form the prods 1 and 2, has the portion of its cutting end which engages the heel or rounded part of the cutting end of punch P beveled, as shown in Fig. 5, at c^2 , and as the
50 said prods are being split apart and as far up as to the beveled part c^2 of die c' , prod 1 lies flat on die c' ; but when said punch passes down past beveled part c^2 of said die the body

of the barb must be carried down and the barb be slightly rotated in the direction the strand-
55 wires are being twisted. The result is prod 1 is bent upward and the body of the barb rotated slightly forward, as shown in Fig. 4 and by dotted lines in Fig. 5. By thus partially
60 rotating the barb its rear prods will be elevated enough so that when the barb is being carried forward by the strand-wires prod 3 will not catch on the point of the barb-strip
65 S . By this arrangement of punches and dies, operated as shown, it becomes possible to cut, form, and set automatically four-pointed flat metal barbs between a pair of strand-wires.

Having thus described my invention, what I claim as new, and desire to secure by Letters
70 Patent, is as follows, to wit:

1. The machine for cutting, forming, and setting flat metal barbs, consisting of the bed
75 D' , bed-plate D , sliding heads $H H'$, shafts and crank-pins for operating said sliding heads, gear-wheels $G G'$, punches $P P' P^2$, dies $c c' a$, gage d , feed-rolls K , and their operating parts, all arranged to operate as and for the purpose
80 stated.

2. In the machine described for cutting, forming, and setting flat metal barbs, the combination of the punches $P P' P^2$ and dies $c c'$
85 a , and the means described for operating said parts, as and for the purpose set forth.

3. The means described for cutting, forming, and setting between a pair of strand-wires
90 a four-pointed flat metal barb, consisting of the punches $P P' P^2$ and dies $c c' a$, supported and formed substantially as shown and arranged, to operate as specified.

4. In combination with the bed-plate D and
95 the punches and dies for cutting a four-pointed flat metal barb, as shown and described, the gage or guide d , arranged and formed as and for the purpose set forth.

5. In the machine for making flat metal
100 barbs described, the train of punches and dies arranged and formed, as shown, to cut and form three prods of a barb while between two strand-wires, and simultaneously cut and form one rear prod of the next succeeding barb, as set forth.

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Witnesses:

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