

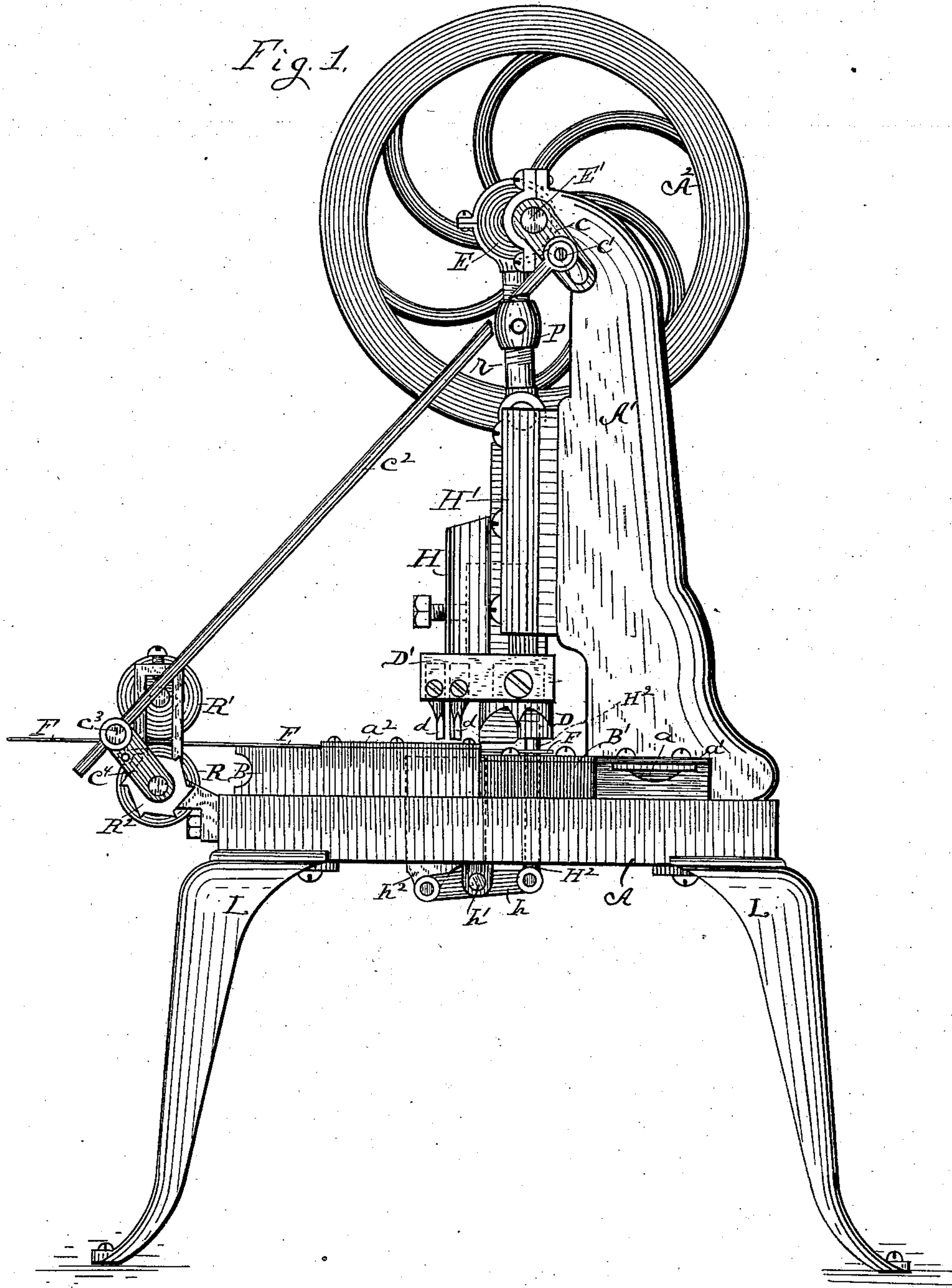
(No Model.)

3 Sheets—Sheet 1.

C. B. BRAINARD.  
WIRE BARBING MACHINE.

No. 292,467.

Patented Jan. 29, 1884.



Witnesses.

*Thos. H. Hutchins,*  
*Wm. J. Hutchins,*

Inventor.  
*Curtis B. Brainard.*

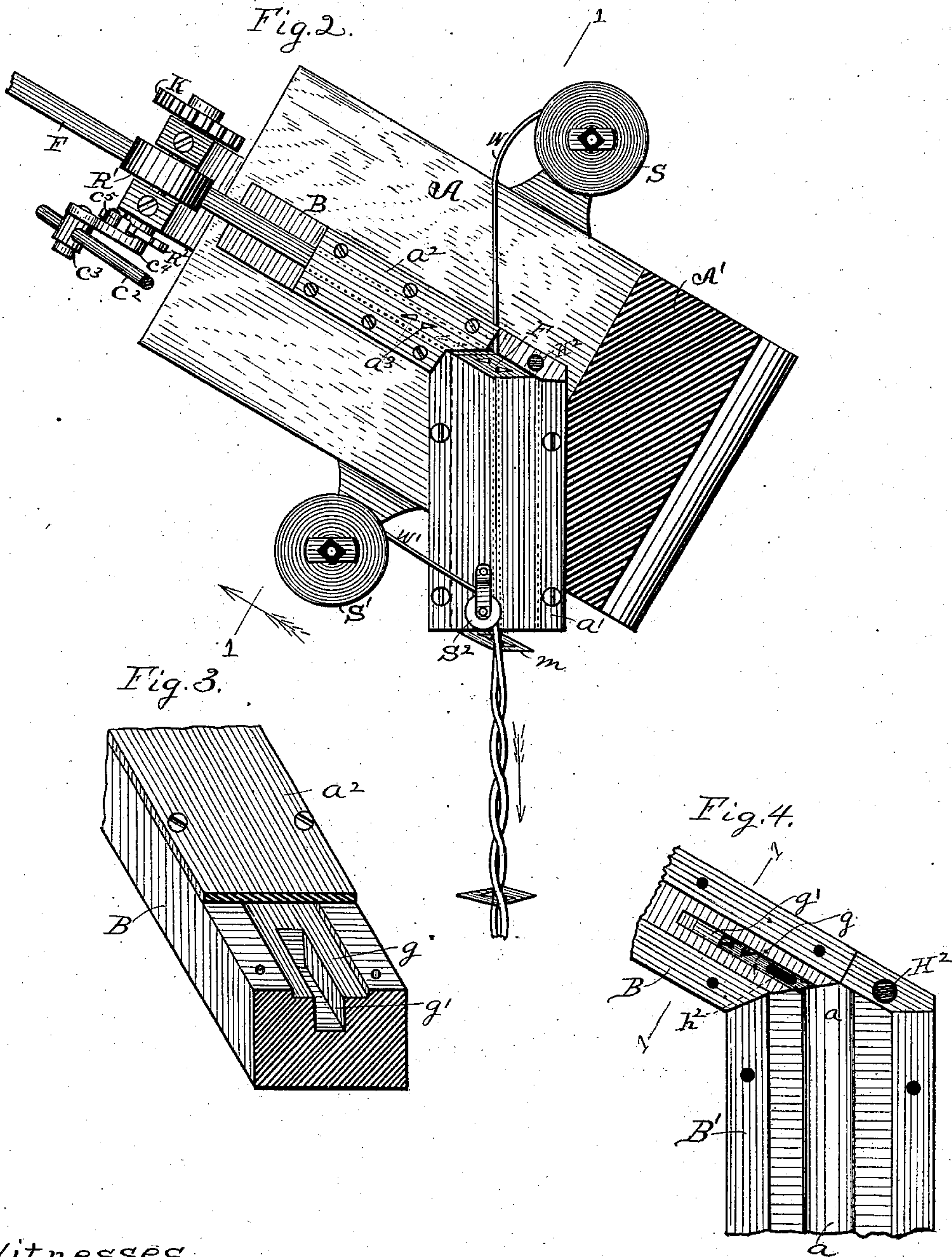
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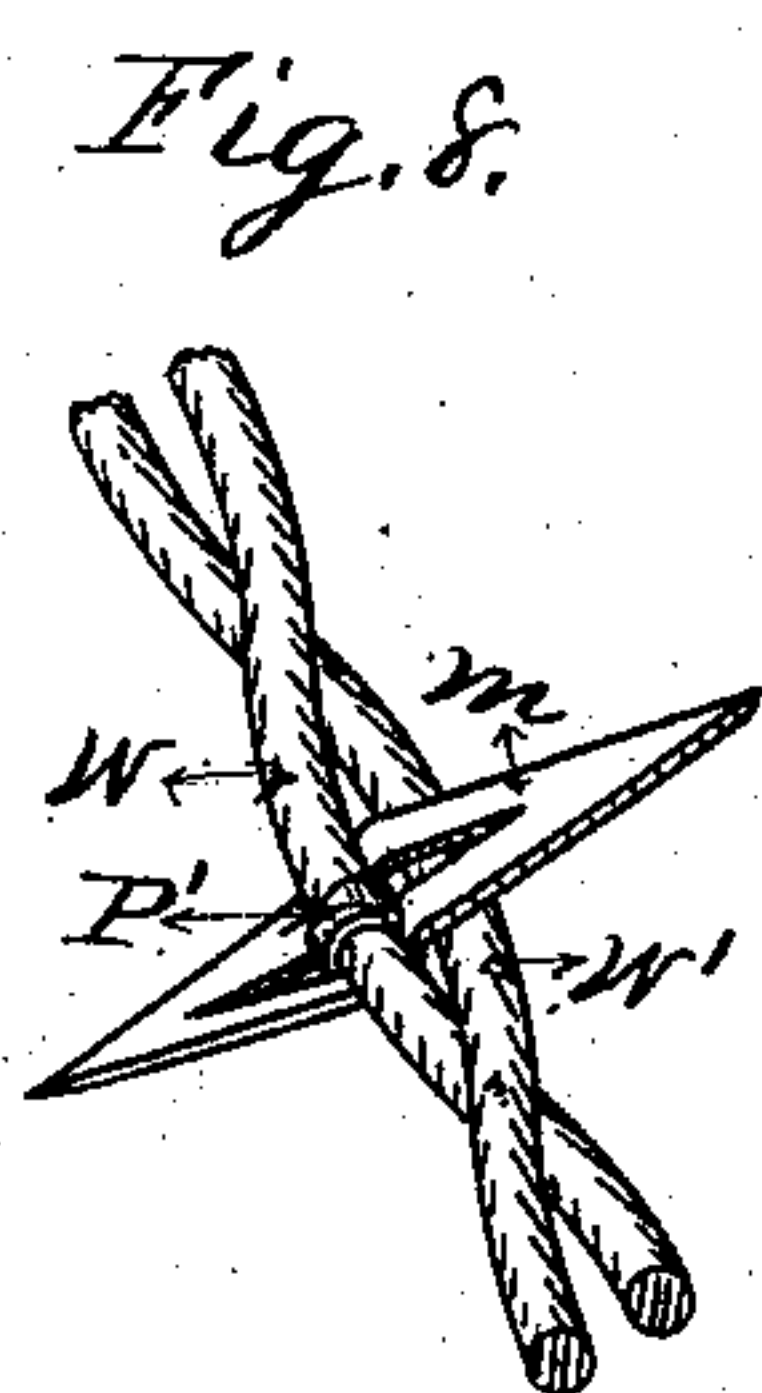
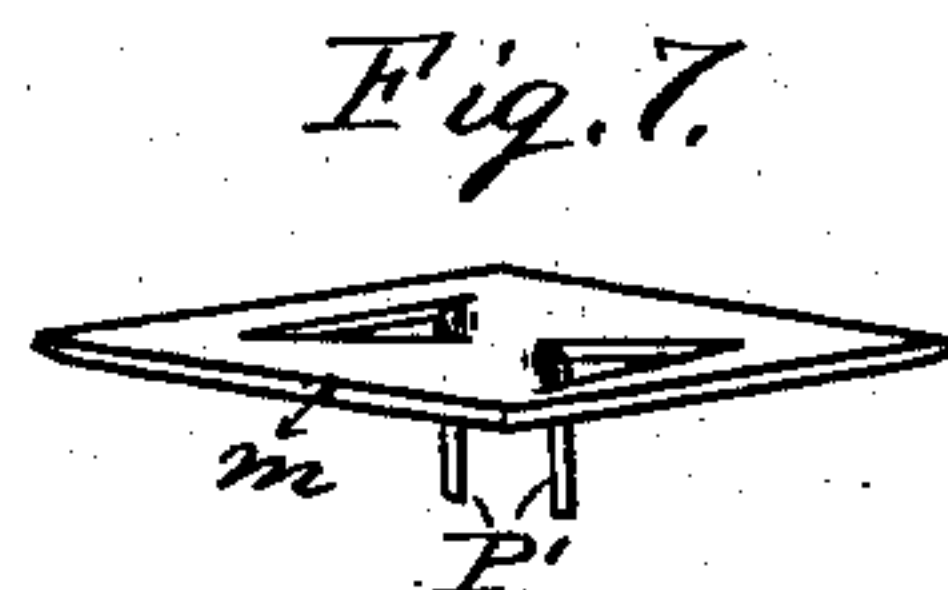
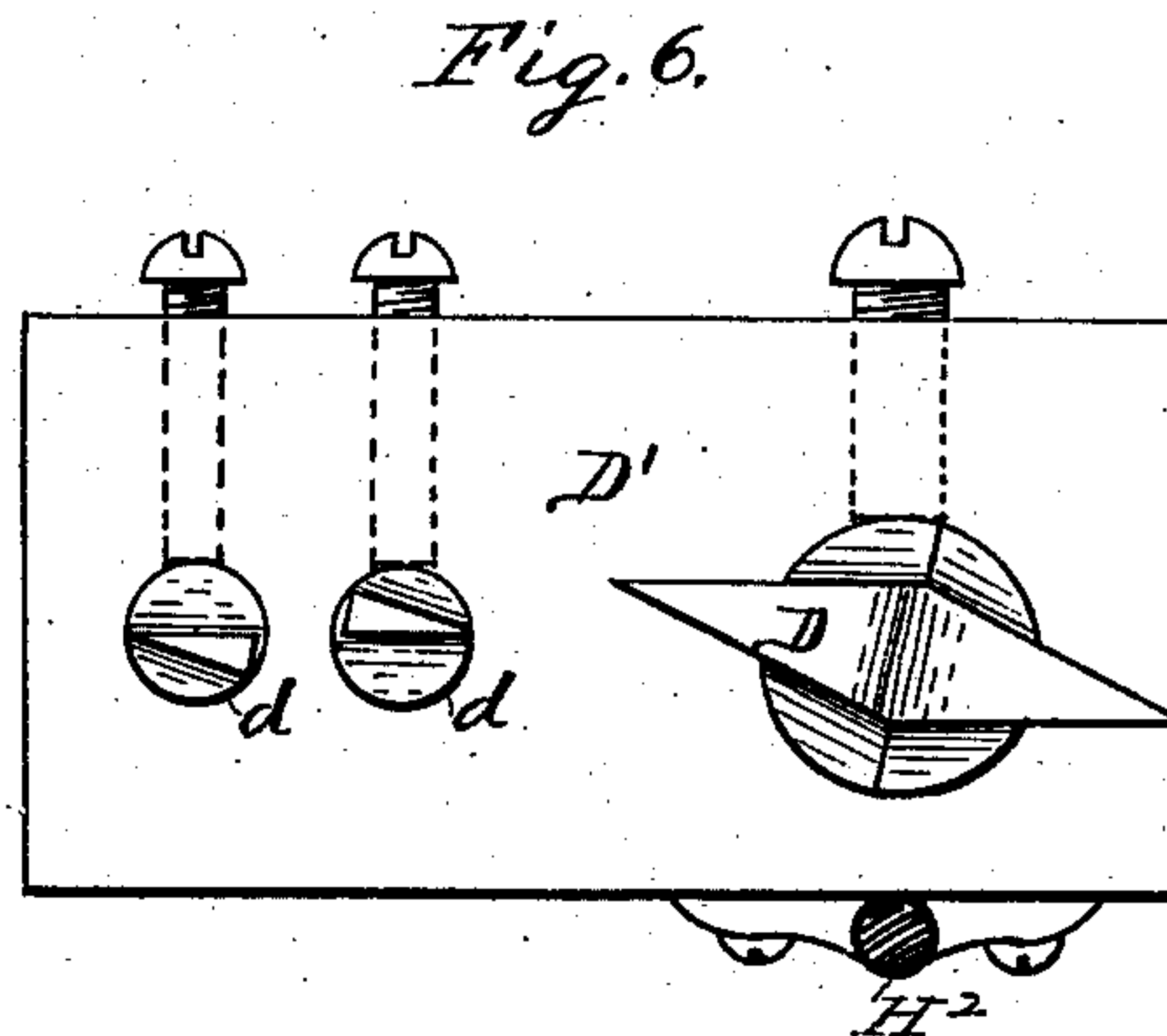
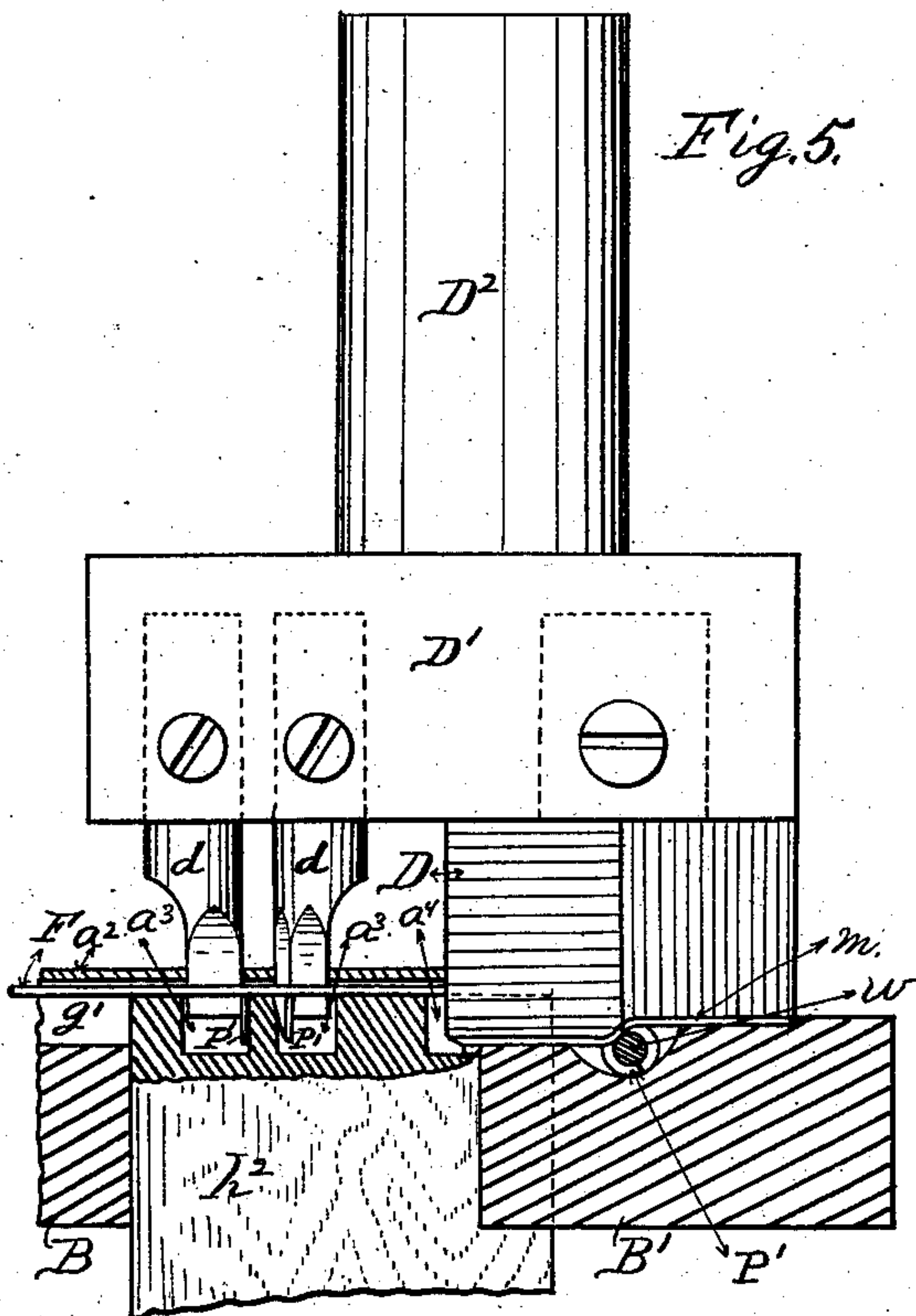
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# UNITED STATES PATENT OFFICE.

CURTIS B. BRAINARD, OF JOLIET, ILLINOIS.

## WIRE-BARBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 292,467, dated January 29, 1884.

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

*To all whom it may concern:*

Be it known that I, CURTIS B. BRAINARD, 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 Wire-Barbing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side elevation; Fig. 2, a plan view on the top of the bed of the machine; Fig. 3, a perspective view of a section of the barb-strip guideway on line 1 of Figs. 2 and 4; Fig. 4, a plan view on the top of a portion of the barb-strip guideway B and the barb-guideway B', showing their relation to each other; Fig. 5, a side elevation of the punch-chuck and punches and a section of the guideways B and B', showing the manner in which the punches *d d* punch the prongs P' from the barb-strip, and the punch D cutting off a barb, *m*, and clinching the prongs P' around the strand-wire W; Fig. 6, a bottom view of the punch-chuck and punches; Fig. 7, a perspective view of a finished barb before it is applied to the strand-wire; Fig. 8, a perspective view of a finished barb applied to the strand-wires, being the product of the machine.

This invention relates to certain improvements in machines for forming flat-metal barbs and attaching them to a strand wire or wires for fence purposes, and is of that class that forms the barb from a strip of flat metal with prongs or tongues punched from their central or body portion between their sides, and then attaches them by compression to the strand-wire, so as to cause the tongues thus formed to clasp the strand wire or wires to hold it on.

Referring to the drawings, and particularly to Fig. 1, for a general view, A represents what may be termed the "bed" of the machine, and which is supported by suitable legs, L, and supports the working parts of the machine.

A' is a standard, having suitable boxes at its upper end for a shaft, E', to turn in, which shaft is provided with the band fly-wheel A<sup>2</sup>, to which the power is applied, and also the eccentric E and crank *c*, having a slot and movable wrist-pin, *c'*, by means of which the stroke

of the feed-pitman *c*<sup>2</sup> is regulated. The face of the standard A' is provided with ways H', in which a sliding head, H, reciprocates by means of its connection with the eccentric E above by the pitman *r*, constructed in two parts threaded in opposite directions on their meeting ends, and connected by the right and left nut P for the purpose of adjusting the length of said pitman and the stroke of the punches below. The lower end of the sliding head H is provided with the punch-chuck D', attached thereto by an integral stem, D<sup>2</sup>, passing up into the sliding head and held therein by a set-screw, *d'*. This chuck is shown also in Figs. 5 and 6, and is provided with proper recesses for the reception of the three punches *d*, *d*, and D. The two punches *d d* in their descent pass the plate *a*<sup>2</sup> on the top of the guide B through the holes *a*<sup>3</sup>, Fig. 2, and serve to punch the tongue or prongs P' (such as is shown particularly in Fig. 7) from the central part or body of the barb between its outer sides, or in the strip of flat metal from which the barb is made, immediately before it is severed loose by the cutting-off punch D. The punch D serves to sever the barb loose from the end of the barb-strip F after it has been furnished with the tongues P' and is in shape on its cutting end, as is shown in Fig. 6.

The metal strip F, from which the barb is made, is shown at F, Figs. 1, 2, and 5, and is fed in the machine by an ordinary ratchet-feed, (shown in Figs. 1 and 2,) consisting of a pair of milled feed-rollers, R' and R, ratchet R<sup>2</sup>, crank *c*<sup>4</sup>, having a pawl to engage with ratchet R<sup>2</sup>, and receives its reciprocating motion by means of its connection with the crank *c* above by the pitman *c*<sup>2</sup>. Each revolution of shaft E' and crank *c* will operate the feed so as to feed in just enough of the strip F to form a barb. From the feed the strip F passes under the plate *a*<sup>2</sup> in a guideway, B, having a channel or groove, *g*, (shown more particularly in Figs. 3 and 4,) to guide and hold it properly under all the punches. Said channel or groove *g* is provided at its part where the punches *d d* descend with a deeper channel, *g'*, as shown in Figs. 3 and 4, for the reception of the tongues P' after they are punched, to hang or project downward, as is shown in Fig. 5, so they will move



forward without injury. When the punches descend, a barb is sheared off from the end of the strip F, at the end of the barb-strip guide B, which forms a die and supports the strip while shear-punch D descends to shear it off, as the said guide B and follower  $h^2$  is elevated a little above the other parts of the bed, as shown in Fig. 5, so the punch D can descend far enough down to shear off the barb. The punches  $d$   $d$  are far enough apart from punch D, so there is always enough metal between them to form a barb having its tongues punched in at the last descent of the punches; hence punch D always shears off a barb that had its tongues formed at the last descent of the punches. The strand-wire W, upon which the barbs are to be placed, passes into the machine, as shown in Fig. 2, off the spool S, so as to pass under the barb between its two tongues and under punch D, as shown in Fig. 5, into a concave channel,  $a$ , as shown also in Fig. 4. When punch D descends, it cuts off a barb and presses it downward over the strand-wire W into the guideway B' in such manner that the tongues P' are driven down one on each side of wire W, down the concave sides of the channel  $a$ , and bent under to clasp said wire tightly, as shown in Figs. 5 and 8, to firmly attach the barb to said strand-wire. The punches then ascend, and a suitable spooling device takes up the wire far enough, so that the next descent of punch D will place on another barb in the same manner at the proper distance from the one previous. It will be observed that barb-strip F is fed in, formed into flat diamond-shaped two-pointed barbs, and placed upon the strand-wire by the use of the three punches  $d$ ,  $d$ , and D and their accompanying parts below for supporting the barbing material and the strand-wire automatically and very economically. When the punches  $d$   $d$  descend to punch the tongues, the barbing-strip F requires to be supported from below just at the place where the tongues are punched. This is accomplished by a follower,  $h^2$ , (shown in Figs. 1 and 5,) which has its lower end pivoted into the walking-beam  $h$ , and passes up through the bed A and emerges in the channel  $g'$ , as shown in Fig. 4, looking down on its upper end. The walking-beam  $h$  is pivoted at its center between a pair of hanging ears,  $h'$ , attached to the bottom of the bed A, and its outer end or opposite end from the said follower is pivoted to the vertical shaft H<sup>2</sup>, which passes up through the bed A and attaches permanently to the side of the chuck D', as shown in Fig. 6, so that it ascends and descends with it, and consequently vertically reciprocates the follower  $h^2$ , to meet the descending punches  $d$   $d$ , and support the barb-strip while the tongues P' are being punched in it or through it. Said follower is provided on its upper end with suitable recesses for the tongues formed in the previous barb, and also the ones being formed to pass

into and not be injured by it, which cavities are represented by the dark spots or places shown in Fig. 4. After the barbs are thus formed and placed on the strand-wire W, the barbed wire is drawn along and taken up by a suitable spooler as it emerges from under plate  $a'$ , as shown in Fig. 2. When the barbed wire W emerges from the machine, as shown in Fig. 2, a fellow wire, W', may be taken and coiled with it as it uncoils off the spool S', and passes over the sheave-wheel S<sup>2</sup> to guide it, and in so coiling with the strand-wire W incloses the barb on its back or opposite side from that in which its tongues project, as shown in Fig. 8, so that the barb is inclosed between the two twisted strand-wires W and W', when the barbed fence-wire is finished, forming a double-strand two-pointed flat-metal barbed wire.

In order to assist in preventing any lateral motion of the barb between the two-strand wires, the punch D is so formed on its cutting-face as to bend a slight shoulder in the middle of the barb transversely across it, forming a sort of seat for it to set on the strand-wires. After the barbs have been thus formed and placed on the strand-wire, a suitable spooling device is used to draw the wire through the machine and take up the finished barbed wire.

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

1. In the wire-barbing machine described, the combination of the bed A, standard A', shaft E', slotted crank  $c$ , pitman  $c'$ , eccentric E, two-part connecting-rod  $r$ , nut P, reciprocating head H, ways H', punch D, chuck D', barb-strip guide B, having the plate  $a^2$  and channels  $g$  and  $g'$ , barbed-wire guide B', having the concave channel  $a$ , follower  $h^2$ , walking-beam  $h$ , vertical shaft H<sup>2</sup>, feed mechanism consisting of the milled rollers R and R', ratchet R<sup>2</sup>, and crank  $c'$ , and means for punching the tongues of the barbs, all adapted to operate as and for the purpose set forth.

2. In the barbing-machine described, the combination of the punch D, channeled guides B and B', follower  $h^2$ , walking-beam  $h$ , shaft H<sup>2</sup>, and means for punching the tongues of the barbs, as and for the purpose set forth.

3. In the wire-barbing machine described, the combination of the bed A, reciprocating head H, shaft H<sup>2</sup>, walking-beam  $h$ , follower  $h^2$ , punch D, chuck D', barb-strip guide B, having the plate  $a^2$ , and channels  $g$  and  $g'$ , barbed-wire guide-strip B', having the concave channel  $a$ , and means for punching the tongues of the barbs, as and for the purpose set forth.

4. In the barbing-machine described, the combination of the tongue-punches  $d$   $d$ , chuck D', reciprocating head or slide H, connecting-rod  $r$ , eccentric E, follower  $h^2$ , walking-beam  $h$ , guide B, and bed A, as and for the purpose set forth.

5. In the wire-barbing machine described, the combination, with the bed of the machine, punch D, to sever the barb from the end of the barb-strip F and press the barb on the strand-wire W and force the tongues P' under to clasp the strand-wire W to attach said barb thereto, guides B and B', follower  $h^2$ , plate  $a^2$ , the feed mechanism described, and means for punching the tongues of the barbs, as and for the purpose set forth.

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