

W. P. MAXSON.

Improvement in Machines for Finishing the Lips and  
Points of Augers.

No. 133,238.

Patented Nov. 19, 1872.

fig. 1

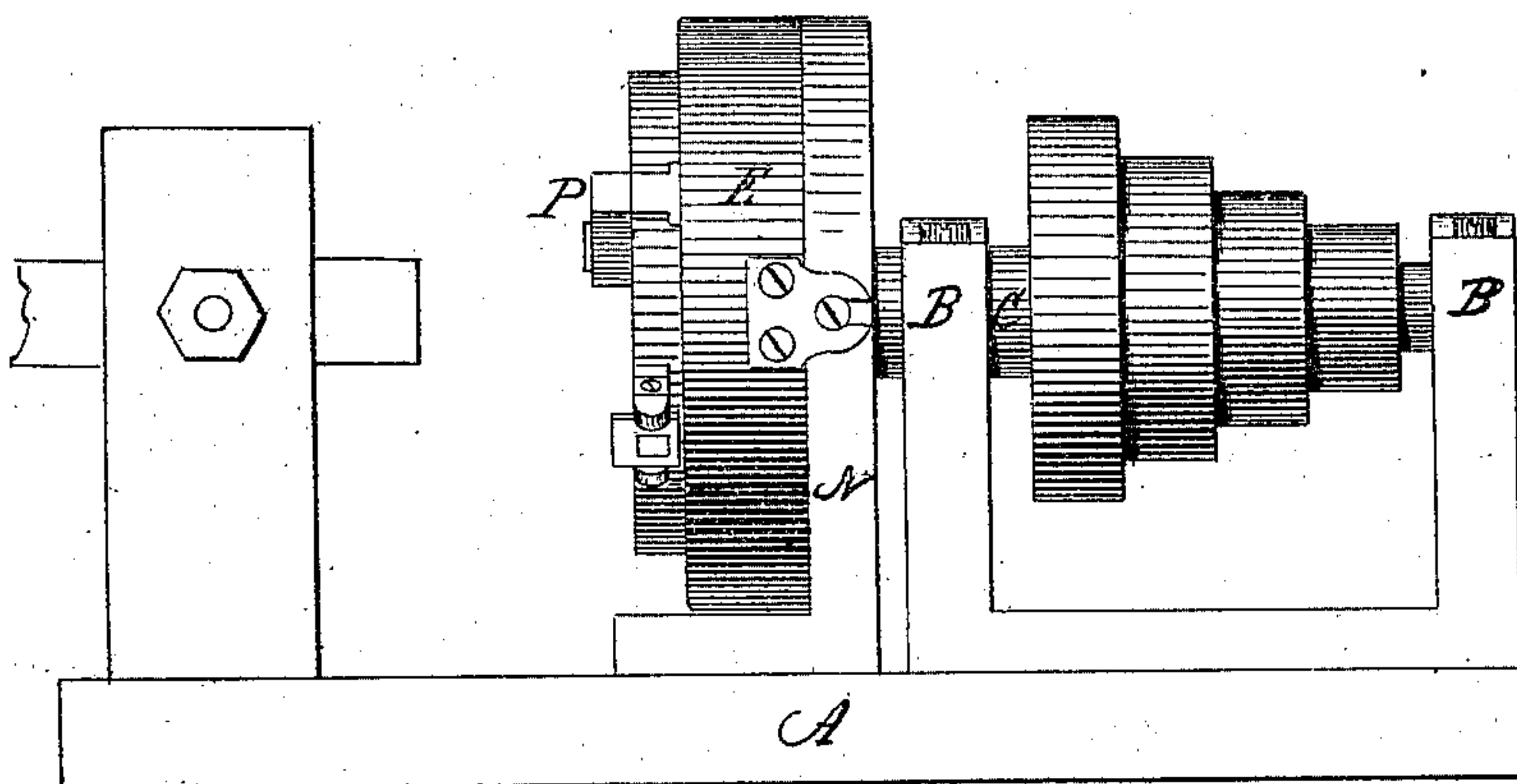
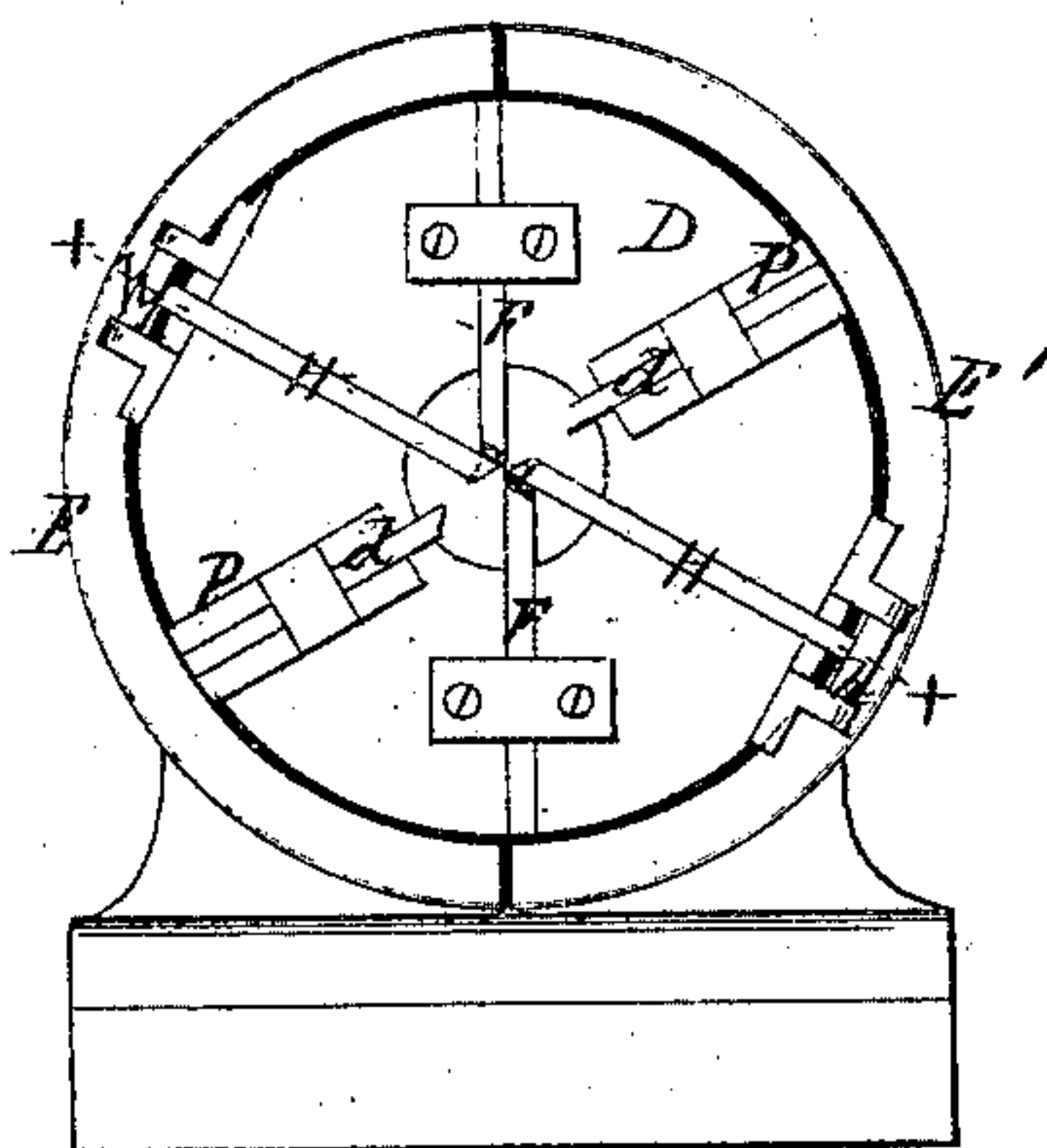


fig. 2



Witnesses.

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fig. 3

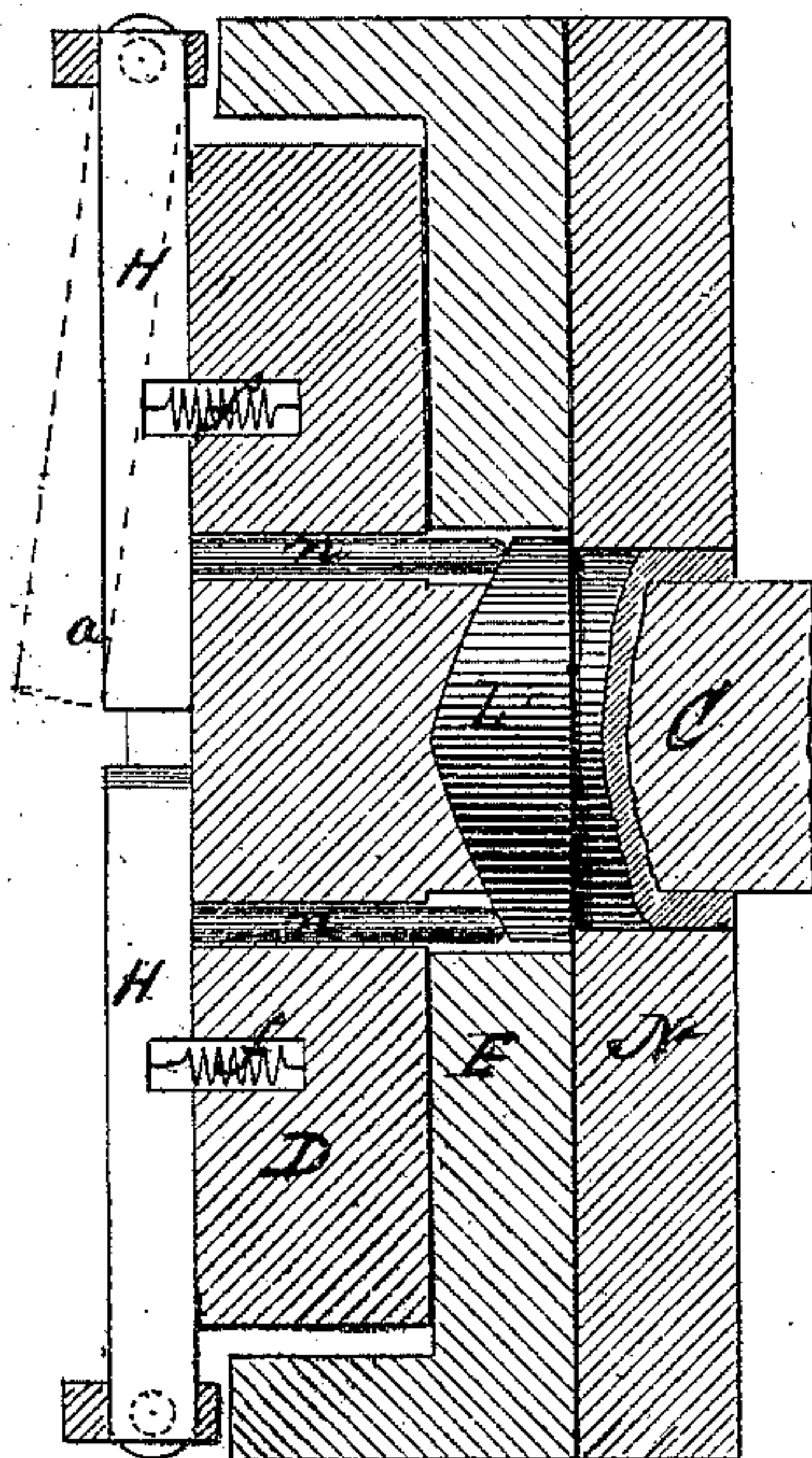


fig. 4

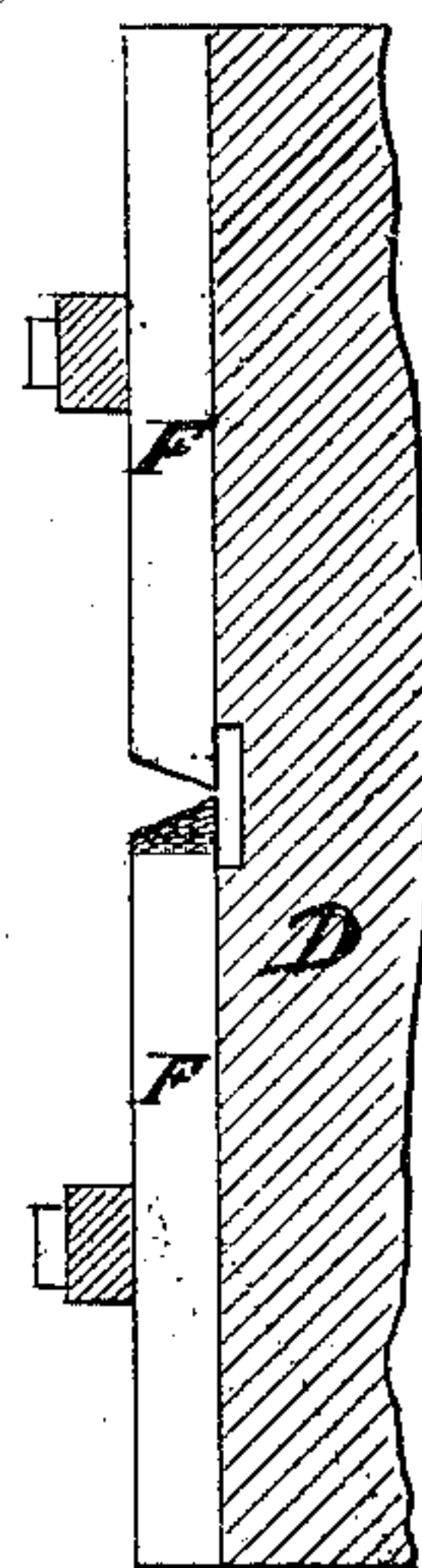
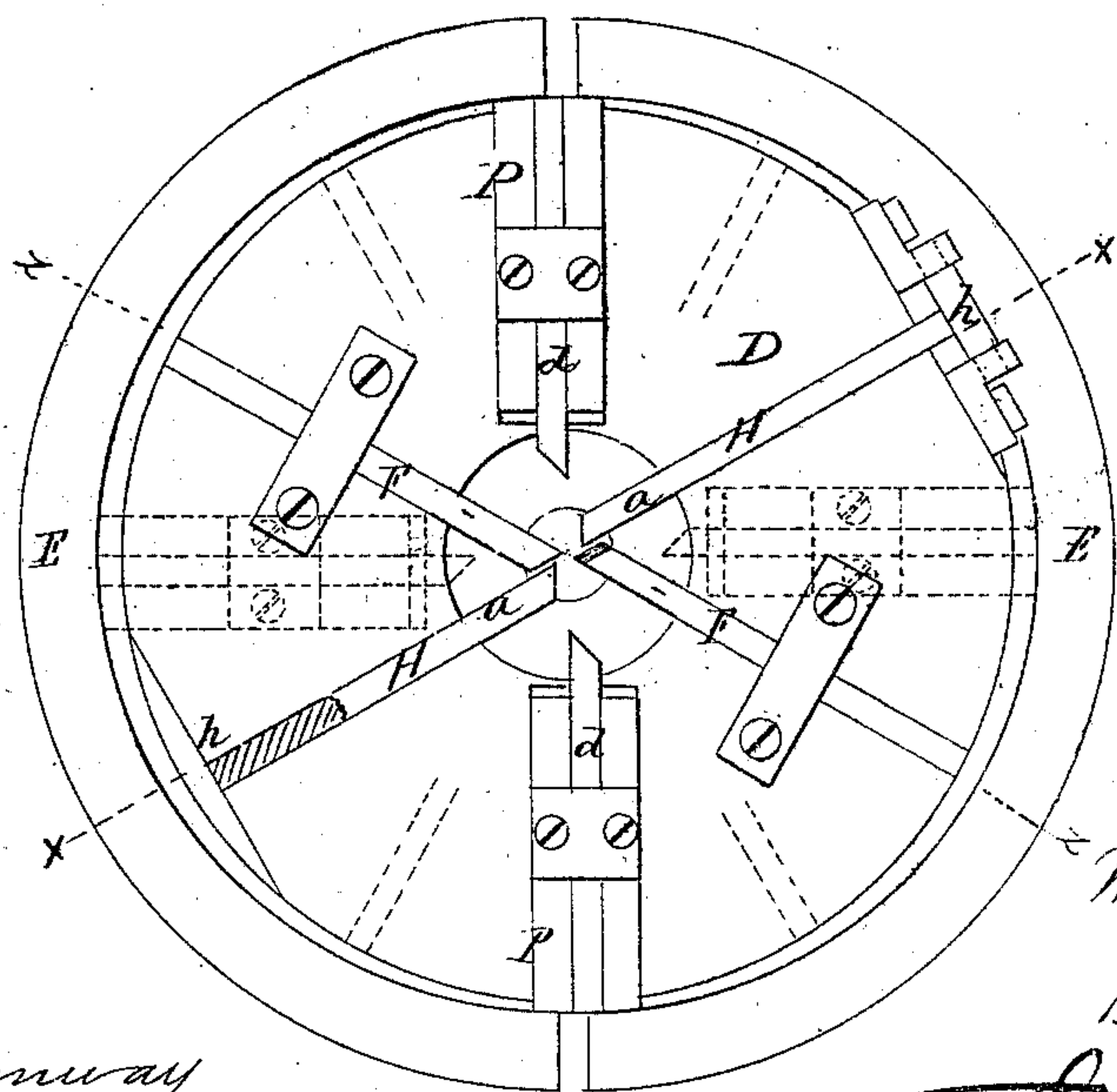


fig. 5



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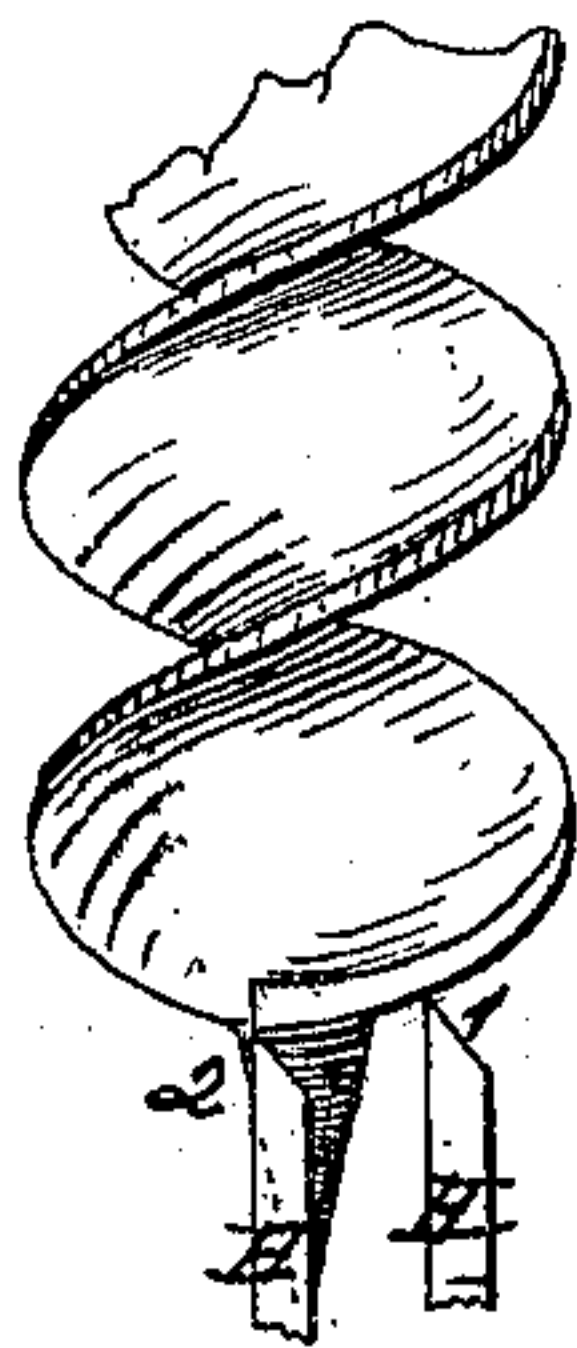
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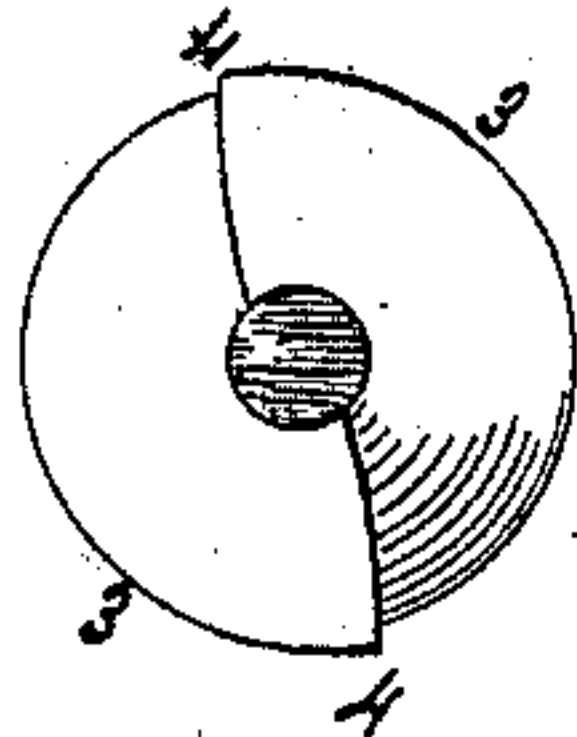
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*fig. 6.*



*fig. 7.*



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# UNITED STATES PATENT OFFICE

WILLIAM P. MAXSON, OF ELMIRA, NEW YORK.

IMPROVEMENT IN MACHINES FOR FINISHING THE LIPS AND POINTS OF AUGERS.

Specification forming part of Letters Patent No. 133,238, dated November 19, 1872.

*To all whom it may concern:*

Be it known that I, WILLIAM P. MAXSON, of Elmira, in the county of Chemung and State of New York, have invented a new Improvement in Machines for Dressing the Lips and Points of Auger-Bits; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a side view; Fig. 2, an end view; Fig. 3, a longitudinal section on line  $xx$ , enlarged; Fig. 4, a longitudinal section on line  $zz$ ; and in Fig. 5, a front view of the head; Fig. 6, a side view; and Fig. 7, an end view of an auger, to illustrate the operation.

This invention relates to the construction of an apparatus for finishing the cutting ends of augers—that is to say, the point or screw, the under side of the floor-lip, and the edge of the floor-lip. The floor-lip is at the cutting-point a little larger in diameter than the body of the auger, the edge of the lip receding from this point back to the regular diameter a short distance from the cutting-point; hence in the common grinding-machine for sizing the pod or body the edge of the lip cannot be finished. The under side of the floor-lip has usually been filed. The object of this invention is to automatically turn or finish the floor-lip, the edge and under side of the floor-lip, and the point; and it consists in the arrangement of a pair of cutters, stationary in a revolving head, to form the point, combined with one or more cutters which have an automatic movement imparted to them in a line parallel, or nearly so, to the axis of the said revolving head, and also one or more cutters having an automatic transverse movement on the said head.

A is the bed of the machine, supporting, in suitable bearings B, the shaft C with its driving-pulleys. This shaft carries a revolving head, D, within a case, E E', which is fixed to the bed so that the said head D revolves within the said case; this case formed in two parts, E E'. On the face of the head D two stationary cutters, F F, are arranged, as seen in Figs. 2 and 4, whose cutting ends at the center are formed so that, as the heads revolve, they will dress the point of the auger

presented thereto between them. H H are two other cutters, which are arranged radially on the said head and revolve therewith, and are pivoted at their outer ends to the head, as can be seen at  $h$ , Fig. 2. The inner ends of these cutters nearly meet at the center, or distant from each other about the largest diameter of the point to be made; the inner ends, however, do no work. Near the center of the head and under each cutter H an arm,  $n$ , extends to a cam, L, which is made stationary in the support N; the shape of this cam being, as seen in Fig. 3, so that as the head D is revolved these arms will be carried around with it and traverse the surface of the cam, their reciprocations causing the inner ends of the cutters to be thrown from the head, as denoted in broken lines, Fig. 2. The cutters H have cutting-edges only along the side  $a$  to dress the under side of the floor-lip. The ends do not operate on the metal. They commence their cutting at the time when thrown out, as denoted in Fig. 3, and pass down the cam, dressing the under side of the floor-lip on the incline indicated by this movement—that is, as seen in Fig. 6, commencing to cut at 1, the cutter recedes to the point 2, which is the edge of the lip. Springs  $f$  are applied to hold the cutters in place when the auger is not applied to force them back. P P are two slides arranged in the head D so as to move radially therein and revolve with the head. Each carries a cutter,  $d$ . The outer ends of these slides rest against the inner surface of the case E E', as seen in Fig. 5. The perpendicular diameter of this case is less than the horizontal diameter by so much as the increase required for the diameter of the lip over the diameter of the pod. These slides and their cutters project from the head, as denoted in Fig. 1, so that the point rests between the cutters F and the lips of the auger to be finished pass in between the cutters  $d$  so that these cutters can act on the lips. Starting, then, to cut at the diameter of the pod of the auger, as in Fig. 5, and denoted at 3, Fig. 7, the head revolving, the slides with their cutters are forced outward to the horizontal position denoted in broken lines, at which point they have reached the extreme of the cutting-lip, or point 4, Fig. 7. Then they are again drawn in until arrived opposite their first position; there they will again commence



to cut, as before, upon the opposite lips, and so continue until the edge is dressed.

The device for holding the auger may be any of the devices now in use, it being only necessary that a clamp or crimp be applied to fit the twisted part of the auger and support it in a position axially central with the revolving head, and provided with any suitable means for carrying the auger up to the cutters. The auger must be presented to the revolving head so that the extreme or edge of the lips will be in a horizontal line or corresponding to the position of the head, so that when the side cutters are thrown out to their greatest distance they will have arrived at the extreme ends of the lips; then the auger is gradually forced up to the head, or the head to the auger, cutting away the metal until the end of the auger is finished.

If preferred, the floor-lip cutters H H may be used independent of the others, or the side cutters *d* may be used independent of the others.

I claim as my invention—

1. The cutters H, one or more, and revolv-

ing head D, combined with the stationary cam L to impart to the said cutters a movement in line or nearly so with the axis of the revolving head.

2. In combination with the subject-matter of the first clause of claim, I claim the cutters F, one or more, as and for the purpose specified.

3. In combination with the cutters *d*, one or more, arranged upon the revolving head D, and with a case, E, to impart to the said cutters a radial movement, I claim the cutters F, one or more, as and for the purpose specified.

4. In combination with the cutters H, one or more, arranged in the revolving head D, the stationary cam L and cutters F, one or more, I claim the cutters *d*, one or more, arranged upon the revolving head D, and combined with a case, E, to impart to the said cutters a radial movement during their revolution, substantially as set forth.

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Witnesses:

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