

No. 634,938.

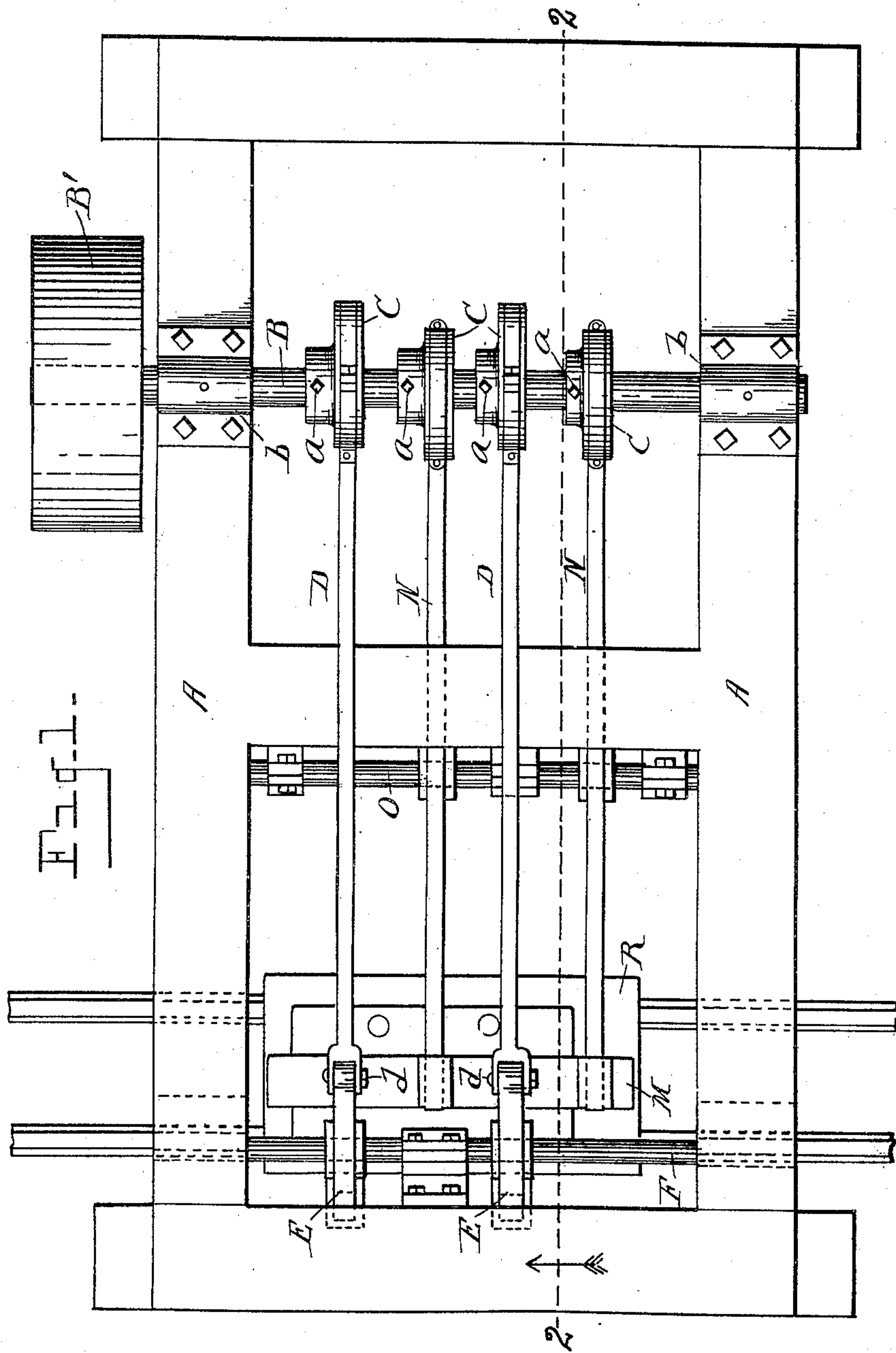
Patented Oct. 17, 1899.

T. A. CURRIE.
MACHINE FOR DRESSING STONE.

(No Model.)

(Application filed Jan. 18, 1899.)

2 Sheets—Sheet 1.



WITNESSES.

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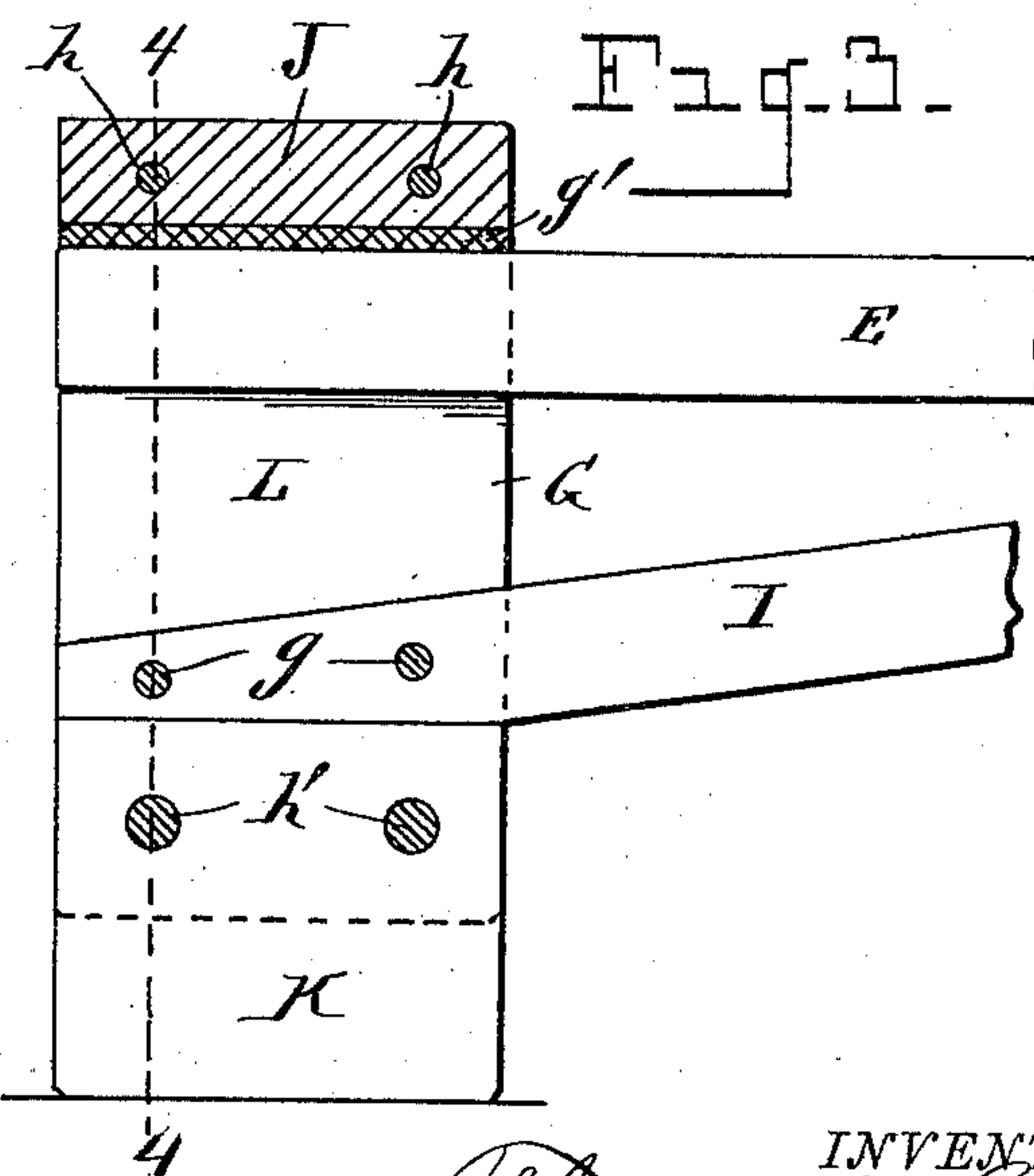
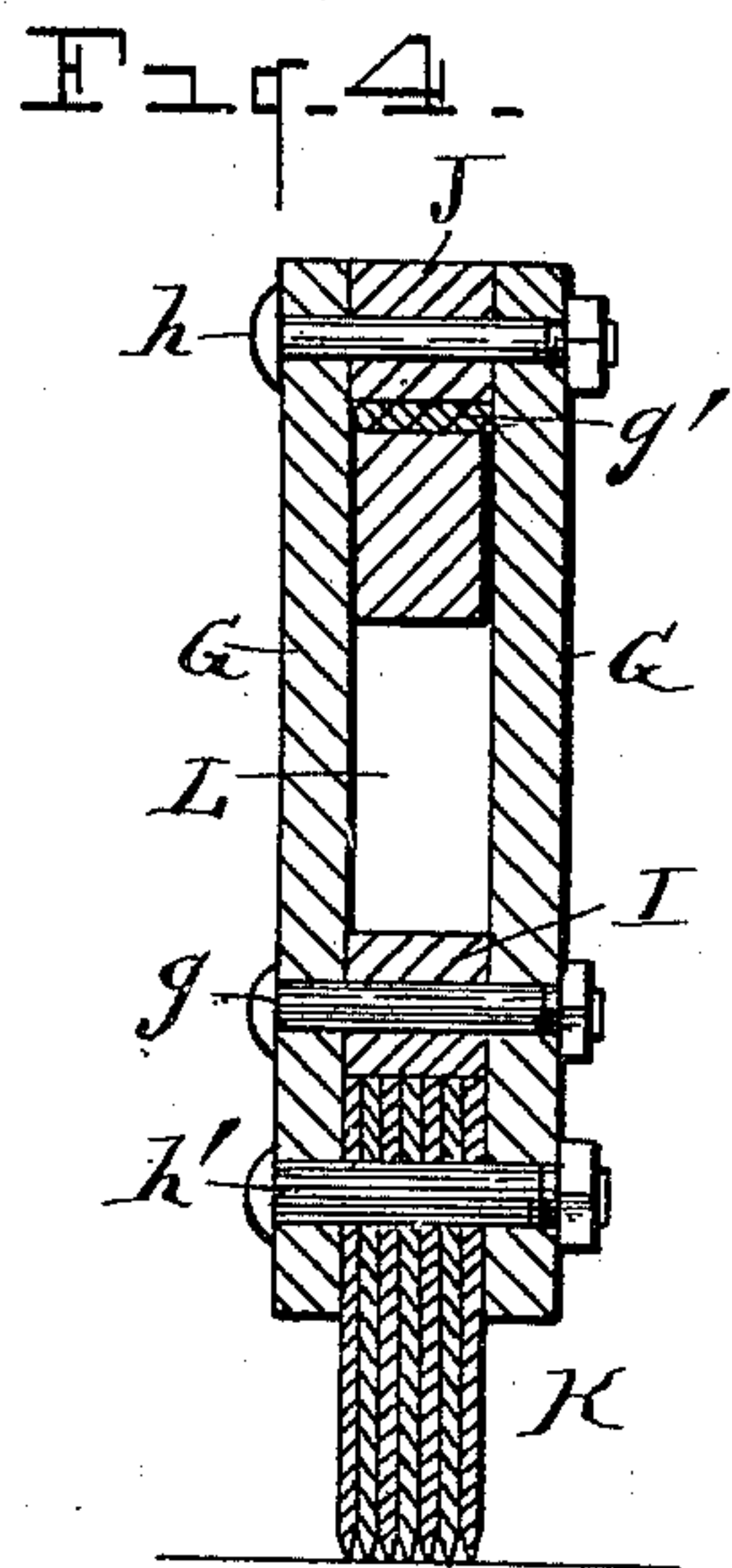
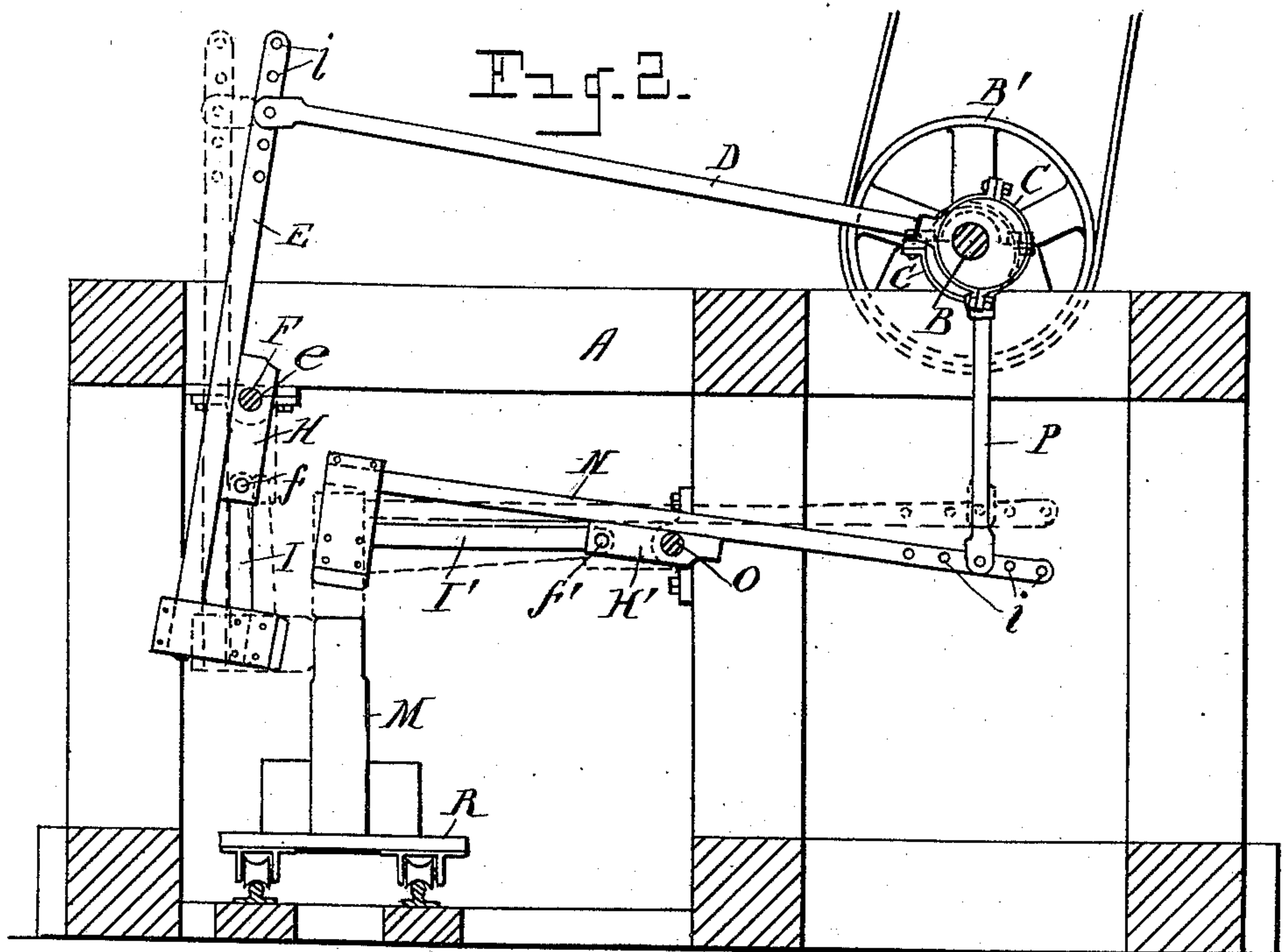
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UNITED STATES PATENT OFFICE.

THOMAS A. CURRIE, OF DETROIT, MICHIGAN, ASSIGNOR TO GEORGE E. CURRIE, OF SAME PLACE.

MACHINE FOR DRESSING STONE.

SPECIFICATION forming part of Letters Patent No. 634,938, dated October 17, 1899.

Application filed January 18, 1899. Serial No. 702,495. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. CURRIE, a citizen of Canada, residing at Detroit, in the county of Wayne, State of Michigan, have
5 invented certain new and useful Improvements in Machines for Dressing Stone; and I do declare the following to be a full, clear, and exact description of the invention, such as
10 it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

15 This invention relates to new and useful improvements in stone-dressing machines; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

20 The objects of the invention are to provide simple and efficient means for surfacing and dressing stone in which the arrangement is such as to enable a series of hammers or dressing-tools to operate on different surfaces
25 of the stone at various angles, to provide for dressing the stone down to a given line, to obviate the breaking or cracking of the stone by undue force or pressure from the hammer or dressing-tool, and to provide for the re-
30 bound or recoil of the hammer and the swinging of the hammer against the stone by its own momentum. These objects are attained by the mechanism illustrated in the accompanying drawings, in which—

35 Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a vertical longitudinal section through the machine, as on line 2 2 of Fig. 1. Fig. 3 is an enlarged longitudinal section through one of the ham-
40 mers containing the blades or cuts which dress the surface of the stone. Fig. 4 is a transverse section, as on line 4 4 of Fig. 3.

Referring to the letters of reference, A designates the frame of the machine, which may
45 be of any construction suitable for mounting the operative mechanism. Crossing the upper portion of the frame, at one end, and journaled in suitable boxes *b* thereon is the main shaft B, carrying at one end the driving-
50 pulley B', which may be connected by a belt to any suitable source of power, or, if de-

sired, said shaft may be driven by cranks attached directly thereto.

Mounted upon the shaft B is a series of eccentrics C, which are adjustably secured to
55 said shaft by means of set-screws *a* passing through the hubs thereof. These eccentrics are preferably set on the quarter with respect to one another, so that no two of the levers driven thereby operate in unison; but instead
60 all of the levers will be moved in reciprocal succession. Two of the eccentrics are connected through suitable eccentric-straps with the upper horizontal connecting-rods D, which extend rearwardly and whose rear ends
65 are pivoted at *d* to the upper ends of the vertical levers E, which are fulcrumed at *e* upon the transverse shaft F, which is mounted in the frame. The fulcrum *e* of said vertical levers is in a block H, attached to each of said
70 levers, through which the shaft F passes. Pivoted at *f* in said block is a handle I, upon which the hammer is hung. The hammer consists of the opposed plates G, between which the handle I is secured by means of the
75 transverse bolts *g*. The rear ends of the side plates G of the hammer are separated and held approximately parallel by means of the interposed block J, secured in place by the
80 bolts *h* passing therethrough and through said plates, while between the forward ends of said plates are secured the cuts or tool-blades K by the bolts *h'* passing therethrough, whereby
85 said cuts are removably held in place, enabling them to be readily exchanged for coarser or finer cuts, according to the character of the work. The formation of hammer de-
scribed and shown leaves an open slot L be-
90 tween the hammer-handle I and the rear block J, into which the end of the lever E extends, permitting the hammer to swing upon the pivot *f* of its handle to the limit of said slot in both directions, said hammer being arrested in its forward movement by contact of
95 the buffer, of rubber or other resilient material *g'*, mounted upon the inner face of the block J, with the edge of the lever E, and in its backward movement said hammer is arrested by the handle I thereof swinging
100 against the opposite edge of said lever.

The hammers operated by the levers just described are adapted to work against the

vertical face of the stone M, as shown in Fig. 2, while the hammers carried by the horizontal levers N are adapted to work upon the horizontal face or edge of the stone, as also shown in said figure. These levers N are pivoted on a transverse shaft O, crossing the frame of the machine, there being a fulcrumed block H' attached to each of said levers, through which said shaft passes and to which the handles I' of said hammers are pivoted, as at f'. The hammers operated by the lever N are in every respect like the hammers operated by the levers E and will need no separate description. The movement of the levers N is effected through the medium of the connecting-rods P, which are strapped to their respective eccentrics C, as shown in Figs. 1 and 2.

As illustrated in Fig. 1, the two sets of hammers are so set as to engage the face and top of the stone, respectively, said stone being mounted on a suitable carriage R, so as to be passed before said hammers to cause them to operate upon the surface of said stone, enabling the dressing and cutting of more than one face of the stone at a time.

In the operation of this machine the stone to be dressed or cut is placed in position upon the carriage, so as to be properly operated upon by the hammers. The shaft B is then driven through the medium of the pulley B', causing the eccentrics thereon to actuate their respective connecting-rods and impart a vibratory movement to the levers E and N, thereby causing the hammers carried by said levers to successively strike a blow upon the surface of the stone, which is moved slowly along under said hammers and is dressed as required. The levers which operate the hammers working against the vertical face of the stone are so actuated as to arrest their lower ends in their movement toward the stone before the hammers have engaged the stone's surface, thereby causing the hammers to swing, by the force of their own momentum, against the stone, the end of the operating-levers lying freely in the slot L of said hammers permitting this movement. The hammer swinging freely upon the pivot of its handle after delivering its blow may rebound from the stone, obviating the chipping and possible cracking of the stone, as would result were the hammers driven with unyielding force against the stone's surface to a given or definite line. The pivoting of the hammer-handle in the manner described and the providing of the slot in the hammer to receive the end of the actuating-lever enables a blow to be struck against the surface of the stone which resembles in force and character a blow delivered by a hand-hammer.

Because of the fact that the forward movement of the hammers or their movement in the direction of the stone is arrested by engagement of the buffer upon the rear block J of said hammer with the edge of the lever

said hammers may be made to work to a certain line, thereby insuring a perfect surfacing of the stone or enabling it to be cut down to any desired thickness by the operation of the hammers. In like manner the hammers working upon the upper surface of the stone are operated and controlled, the hammers dropping upon the surface of the stone by the force of their own momentum and being free to rebound therefrom.

By confining the operating-levers in the slot between the opposed sides of the hammers said hammers are prevented from twisting or turning sidewise and are directed truly and perfectly to their work.

It will be understood that by moving the point of fulcrum of the operating-levers and changing the point of attachment of the connecting-rods thereto the hammers may be made to work upon the corners of the stone as well as upon the flat surfaces thereof.

The ends of the operating-levers are provided with a series of apertures i to enable the connecting-rods to be attached at different points thereto, whereby the force of the blow delivered by the hammers may be regulated, as desired.

While I have shown a series of eccentrics upon the main shaft for operating the levers carrying the hammers, I do not wish to limit myself to the use of eccentrics for this purpose, as it is evident that a series of cranks formed in said shaft will accomplish the same result.

Having thus fully set forth my invention, what I claim is—

1. In a machine for dressing stone, the combination of the oscillatory lever, the cutter-hammer having a handle, said handle of said hammer hinged at its opposite end to said lever to move therewith, the free end of said lever having a movable engagement with said hammer.

2. In a machine for dressing stone, the combination of the oscillatory arm, the hammer moving with said arm and having its handle hinged thereto to allow a free movement of the hammer concentric to its axis of oscillation and in the path of said arm but independent of the movement thereof, stops carried by said hammer engaging the free end of said arm for limiting the free movement of said hammer with respect to and in the path of said arm.

3. In a stone-dressing machine, the combination of the pivoted levers, the driving-shaft, connecting-rods operated by said shaft attached to said levers, the hammers carrying cuts or blades the handles of said hammers pivoted to said levers and standing approximately parallel thereto, said hammers having a slotted opening in the head thereof, the free ends of said levers extending into said slotted openings in said hammer-heads whereby said hammers permit a limited movement independent of said levers.

4. In a machine for dressing stone, the com-

5 bination with the driving mechanism, of the reciprocatory arm or lever operated thereby, the hammer carrying the working cuts or blades having a handle pivoted to said lever, said hammer having a slotted opening in the head thereof, the free end of said lever extending into said opening of the hammer-head, and a buffer or cushion within said slot-

ted opening adapted to encounter said lever to arrest the movement of said hammer. 10

In testimony whereof I sign this specification in the presence of two witnesses.

THOMAS A. CURRIE.

Witnesses:

GEORGE E. CURRIE,
E. S. WHEELER.