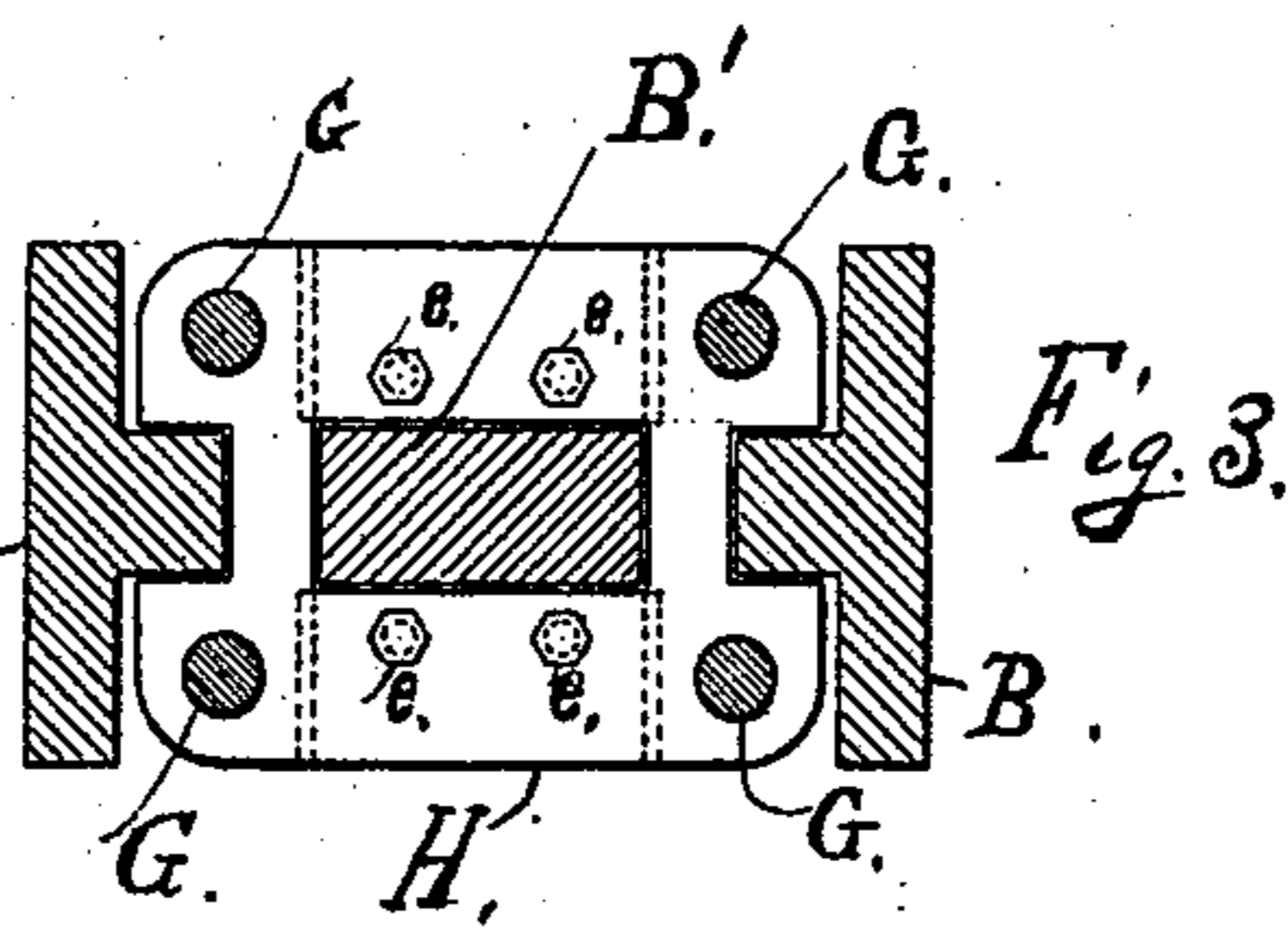
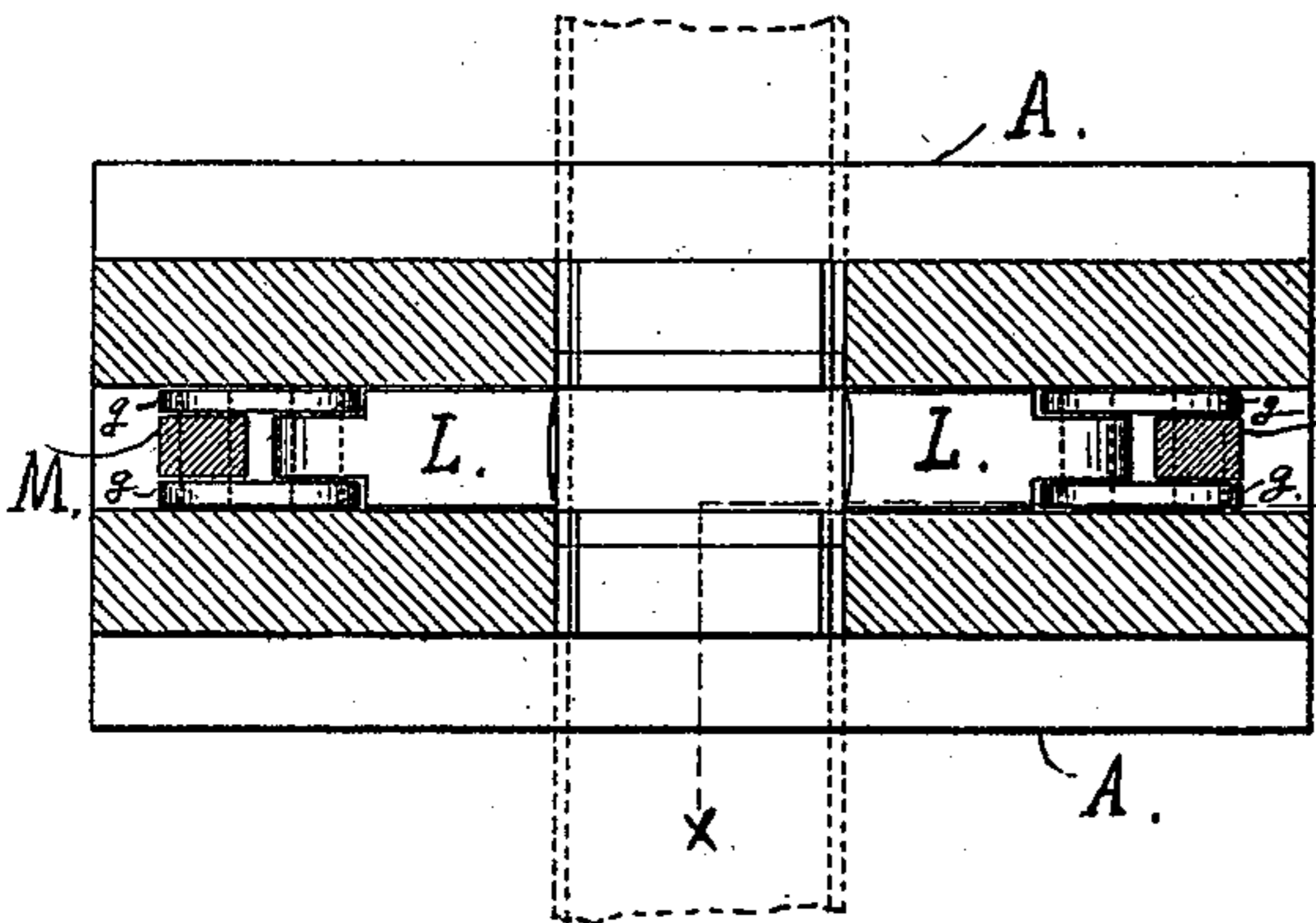
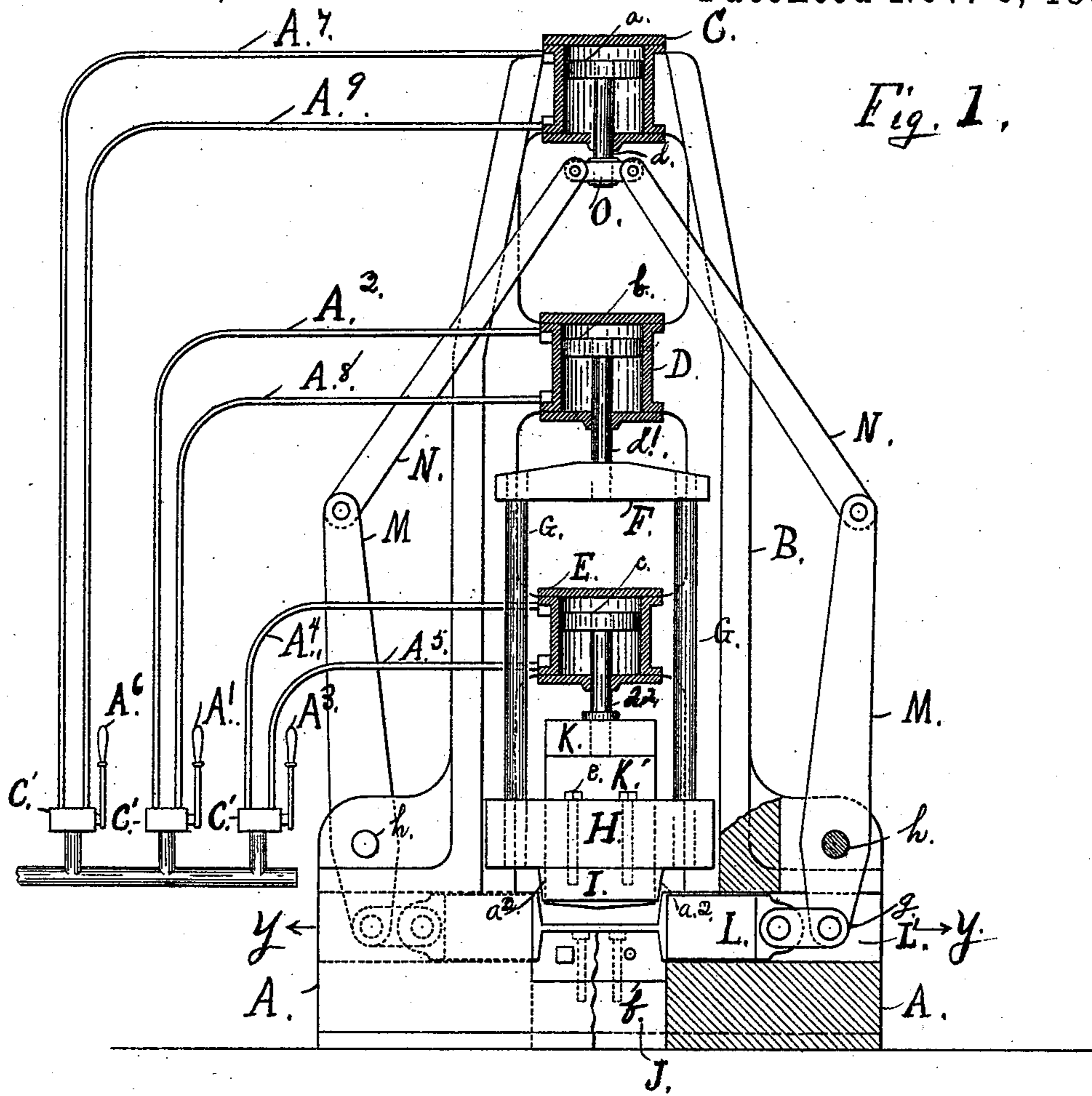


(No Model.)

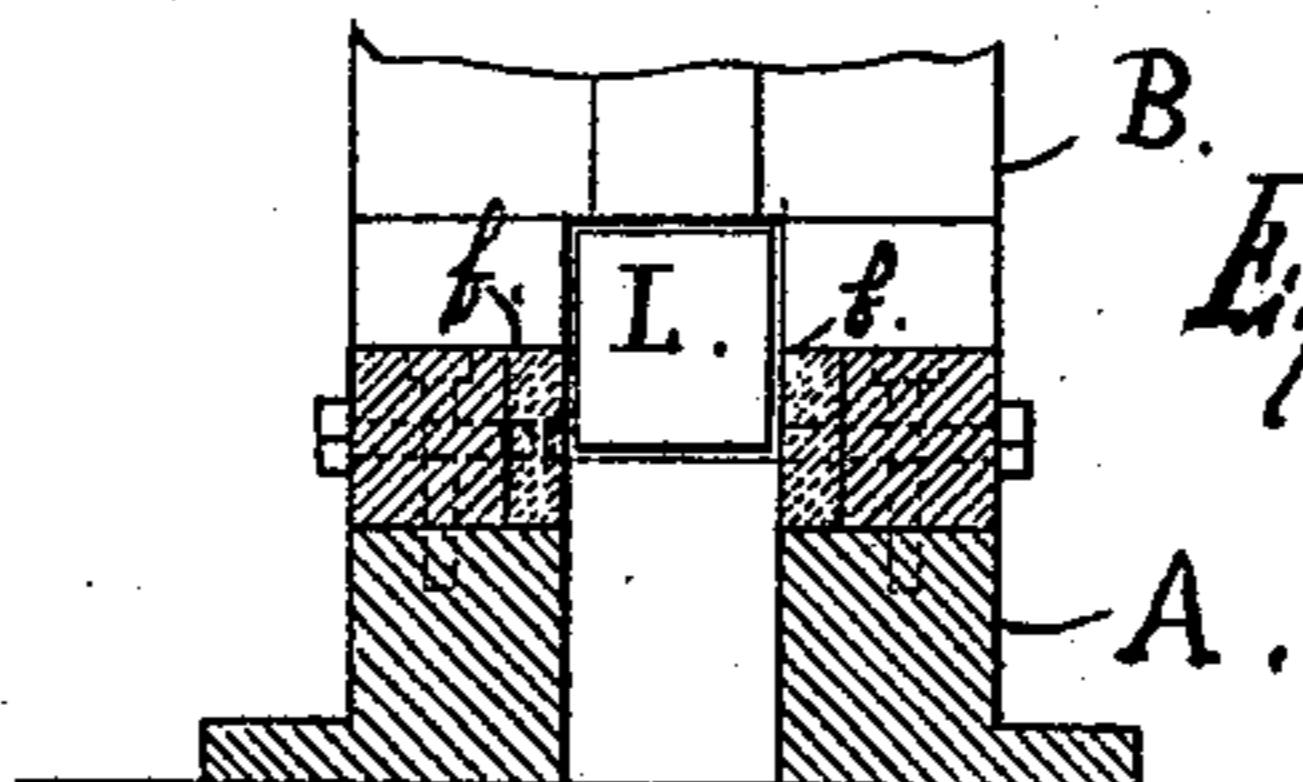
L. S. PFOUTS.
SHAPE METAL CUTTING MACHINE.

No. 528,738.

Patented Nov. 6, 1894.



WITNESSES:
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UNITED STATES PATENT OFFICE.

LEROY S. PFOUTS, OF CANTON, OHIO.

SHAPE-METAL-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,738, dated November 6, 1894.

Application filed March 5, 1894. Serial No. 502,314. (No model.)

To all whom it may concern:

Be it known that I, LEROY S. PFOUTS, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have
5 invented certain new and useful Improvements in Shape-Metal-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings,
10 making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1, is a side elevation, showing parts broken away for the purpose of illustrating
15 the various parts of the device in full lines, the parts taken or broken away being indicated by the dotted line X X, Fig. 2. Fig. 2, is a horizontal section through line *y y*, Fig. 1. Fig. 3, is a transverse section of the guides
20 and a top view of the presser block, showing transverse section of the presser block, connecting and operating bars. Fig. 4, is a transverse section of the bed, showing the lower dies placed in proper position.

25 The present invention has relation to shape metal cutting machines, and it consists in the different parts and combination of parts, hereinafter described and particularly pointed out in the claims.

30 Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

In the accompanying drawings A, represents the bed or base of the machine proper,
35 which is preferably formed of a single piece of casting, and of sufficient size and weight to give to the machine the desired amount of strength and rigidity for the purpose designed. Upon the top or upper portion of
40 the bed A are located the upright guides B, which upright guides may be substantially of the form shown in Fig. 3 in cross section.

The upright guides B, may if desired be cast with the bed A, or if desired, said upright
45 guides may be formed separate and securely attached to the bed, in any convenient and well known manner. To the upright guides B are securely attached in any convenient and well known manner, the piston cylinders
50 C, D and E, which piston cylinders are preferably located in a true vertical line, as illustrated in Fig. 1.

Within the piston cylinders C, D and E, are located the pistons *a b*, and *c*, to which pistons are attached the piston rods *d*, *d'* and
55 *d''*. To the bottom or lower end of the piston rod *d'* is securely attached the sliding head F, to which sliding head are securely attached the connecting rods G, which connecting rods extend downward, as illustrated in Fig. 1, and
60 to their bottom or lower ends is securely attached in any convenient and well known manner the presser block H. To the bottom or under side of said presser block is securely attached the head I, which head is held in
65 proper position by means of the lug bolts *e* or their equivalents.

The object and purpose of holding the head I to the presser block H, by the lug bolts *e*, is to provide for easily removing the head I, so
70 as to substitute various sized and shaped heads, so as to conform to various sized and shaped I beams or channel bars.

Directly below the presser block H and its head I are located the lower dies *f*, which
75 dies are securely fastened to the bed A, by means of suitable lug bolts or their equivalents. For the purpose hereinafter described the opening J is provided, which opening is located between the inner faces of the dies *f*.
80

To the bottom or lower end of the piston rod *d''* is securely attached the head K, to which head is securely and rigidly attached the web cutting blade K', which cutting blade extends
85 downward through the presser block H, and the head I, substantially as illustrated in Fig. 1.

The flange cutting blades L, are located in the grooves L', which grooves L' are so located with reference to the flanges of an I beam or channel bar, when said I beam or channel
90 bar is placed in the position illustrated in Fig. 1, that the cutting blades L, will come directly opposite the flanges of the I beam or channel bar.

To the outer ends of the flange cutting blades
95 L, are pivotally connected the links *g*, to which links are pivotally connected the bottom or lower ends of the levers M, said levers M being pivotally attached to the bed A, or its equivalent by means of the cross-bolts or bars
100 *h*, or their equivalents. The levers M extend upward, substantially as shown in Fig. 1, and to their top or upper ends, are pivotally connected the bars N; the top or upper ends of

said bars being pivotally connected to the head O, which head is securely attached to the bottom or lower end of the piston rod d .

In use the bar or beam designed to be cut 5 is placed in the position illustrated in Fig. 1, which position brings the bar directly over the dies f , after which the lever A' is turned or moved, so as to open the pipe A^2 , and thereby allow water to enter the top or upper 10 end of the cylinder D, which in turn forces the piston d' downward, and firmly clamps the bar designed to be cut between the head I, and the top or upper edges of the bed A or blocks placed by the side of the dies f . After 15 the I beam or channel-bar is clamped as above described, the lever A^3 is turned or moved so as to open the pipe A^4 , thereby allowing the water to enter the cylinder E above the piston c , which forces the head K, 20 together with the cutting blade K' downward, and through the web of an I beam or channel-bar. After the cutting blade K' has been forced downward and made its cut, the lever A^3 is moved in the opposite direc- 25 tion, which opens the pipe A^5 , thereby allowing water to enter the cylinder E below the piston c , which elevates the cutting blade. After this is done, (that is to say, the cutting blade K' is elevated) the lever A^6 is moved so 30 as to open the pipe A^7 ; thereby allowing water to enter the top or upper end of the cylinder C, which forces the piston rod d , together with its head O downward, thereby forcing the top or upper ends of the levers M outward, by 35 means of the bars N, which in turn forces the bottom or lower ends of the levers M inward, or toward each other; causing the cutting blades L, to be moved horizontally toward each other and against the flanges of the 40 beam designed to be cut.

When it is desired to elevate the presser block H, together with the head I, the lever A' is turned so as to open the pipe A^8 , thereby allowing water to enter the cylinder B, below 45 the piston, and elevate said piston, and the different parts attached thereto, thereby releasing the I beam or channel-bar after a complete cut has been made.

It will be understood that the dies f , are to 50 be tapered at their ends so as to allow the flanges of the beam to be placed against the ends of said dies. It will also be understood that notches are to be formed in the bed A, or blocks for the purpose of receiving the 55 lower flanges of the beam designed to be cut.

It will be understood that the presser block H, should be formed with the opening B' , which opening allows a reciprocating move- 60 ment to be given to the cutting blade K' independent of the movement of the presser block H.

The head I is preferably formed in two pieces, and the pieces set a short distance 65 apart so as to allow the cutting blade K' to move up and down between the head; but it will be understood that the head I, may be formed of a single piece, and the ends a^2 sepa-

rated or grooved for the purpose hereinafter described.

It will be understood that the ends a^2 of the 70 head I, are to act as dies, for the purpose of cutting the upper flanges of the I beam or channel-bar, and that the ends of the dies f act as dies for cutting the lower flanges of the I beam or channel-bar. 75

The object and purpose of setting the ends a^2 of the head I a short distance apart, or in 80 other words forming a space or groove upon the end of the head I, is to allow the cutting blades L to be moved horizontally through the flanges of an I beam, without allowing the 85 cutting end of the blades L to come in contact with the ends of the head I.

It will be understood that when it is de- 85 sired to move the cutting blades L from each other, or away from the flanges of an I beam or channel-bar, the lever A^6 , is to be moved or turned so as to open the pipe A^9 , thereby al- 90 lowing water to enter under the piston a , which elevates said piston, and draws the top or up- per ends of the levers M toward each other, and the bottom or lower ends of said levers 95 away from each other.

It will be understood that the valve cham- 95 bers C' are each to be provided with two way cocks so located that one movement of the different levers A' , A^3 , and A^6 , will open and close the respective pipes, attached to the dif- 100 ferent valve chambers. The construction of the valve chambers C' may be varied, as their only object is to supply water to the different 105 cylinders as above described.

It will be understood that hydraulic press- 105 ure is to be brought about in the usual manner, which is common and well known.

It will be understood that I do not desire to 110 be confined to water pressure alone, as it will be understood, that my machine can be operated with any kind of pressure brought to bear against the various pistons within the 115 cylinders.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a shape metal cutting machine, a bed 115 and fixed dies, a vertically reciprocating cutting blade, a presser block provided at its bottom or under side with a head, horizontally moving cutting blades, and means for operat- 120 ing the horizontally moving cutting blades, substantially as and for the purpose specified.

2. The combination of the bed A, provided 125 with uprights or guides, a presser block, and a vertically reciprocating cutting blade, located through the presser block, dies located below the presser block, and horizontally mov- 130 ing cutting blades, and means for operating the vertically reciprocating cutting blade, and the horizontally reciprocating cutting blades.

3. The combination of a series of cylinders 130 having fixed thereto supply and return pipes, a reciprocating presser block, having attached thereto a head, having end dies, the vertically moving cutting blade extended downward

through the presser block and head, the dies *f* and the horizontally moving cutting blades, and means for operating the horizontally moving cutting blades, substantially as and for the purpose specified.

4. In a machine for cutting **I** beams and channel bars, a presser block, and a vertically reciprocating cutting blade, extended through the presser block, horizontally moving cutting blades located to the sides of the path of the vertically reciprocating cutting blade, and means for operating the vertically moving cutting blade, and the horizontally moving cutting blades.

5. The combination of a bed, provided with

horizontally moving cutting blades, the levers **M** pivoted to the bed, and pivotally connected at their bottom ends to the horizontally moving cutting blades, the bars **N** pivoted to the top or upper ends of the levers **M**, and the cylinder **C** and dies *f*, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LEROY S. PFOUTS.

Witnesses:

F. W. BOND,

E. A. C. SMITH.