

(No Model.)

3 Sheets—Sheet 1.

A. H. THOMPSON.  
HEEL STIFFENER MACHINE.

No. 483,184.

Patented Sept. 27, 1892.

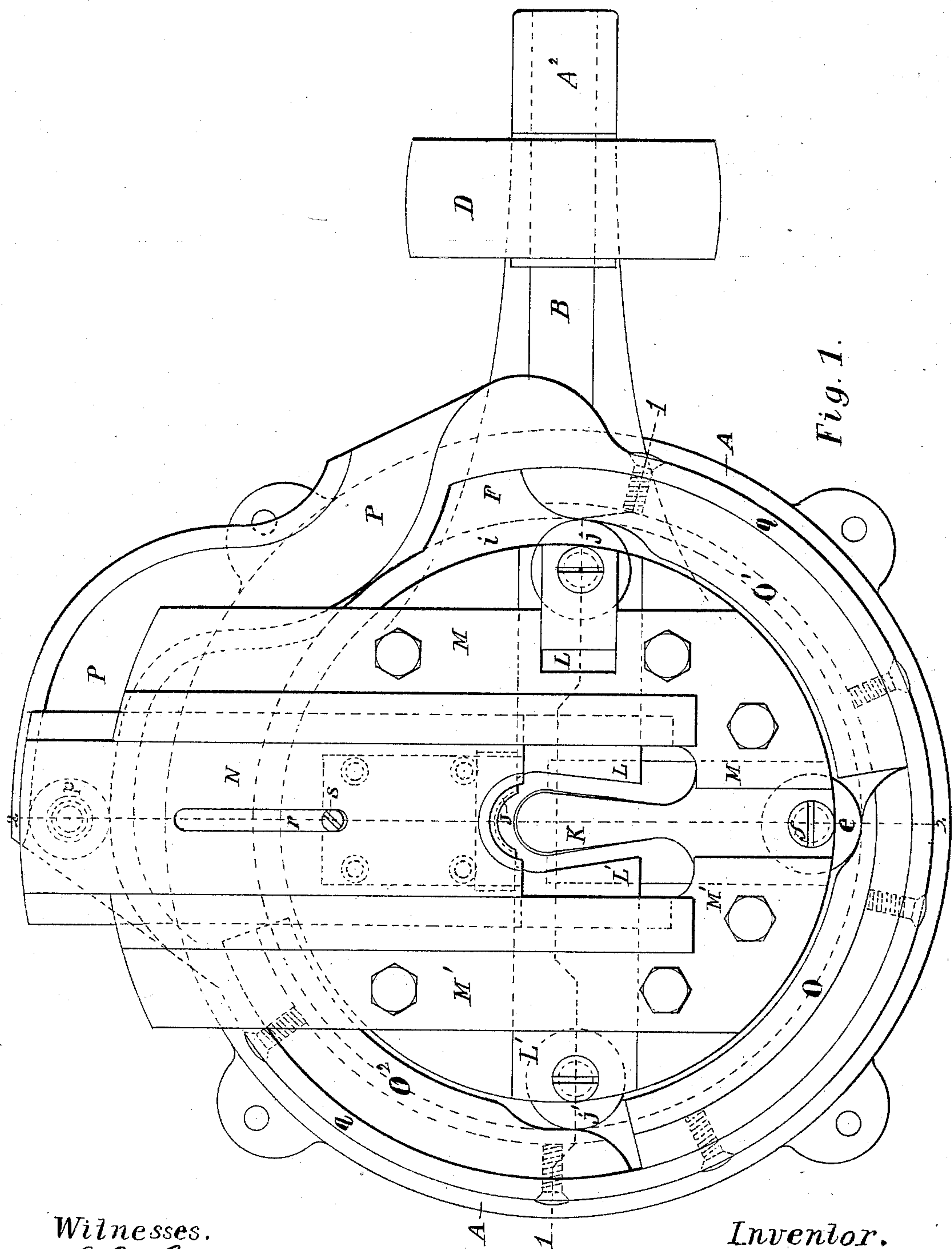


Fig. 1.

Witnesses.

*J. E. Bertrand*  
*Geo. A. Sewall*

Inventor.

*Asa H. Thompson.*  
by *N. C. Lombard*  
Attorney.

(No Model.)

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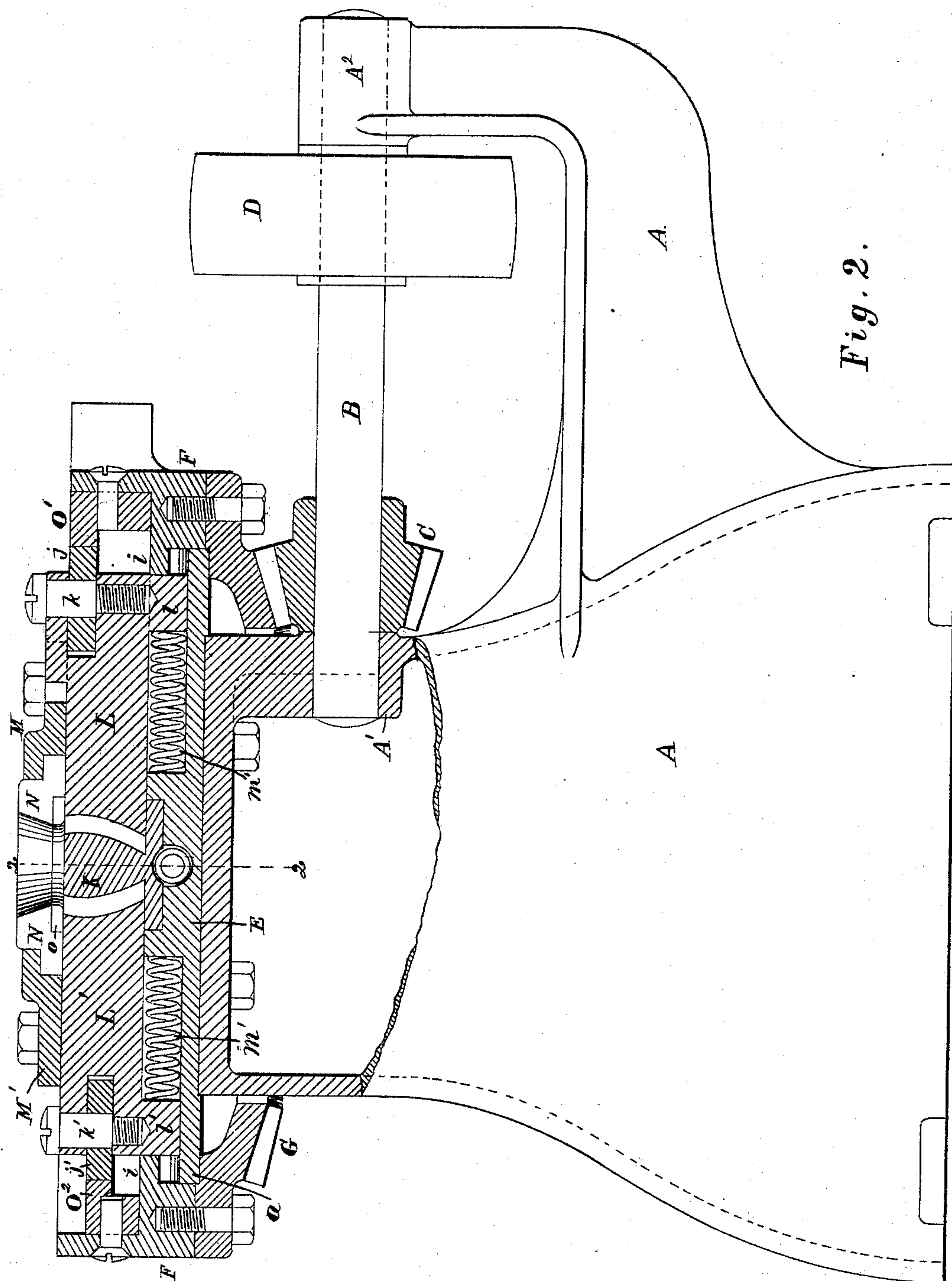


Fig. 2.

Witnesses.

J. J. Bertrand  
Geo. A. Sewall

Inventor.

Asa H. Thompson  
by N. C. Lombard  
Attorney.



(No Model.)

3 Sheets—Sheet 3.

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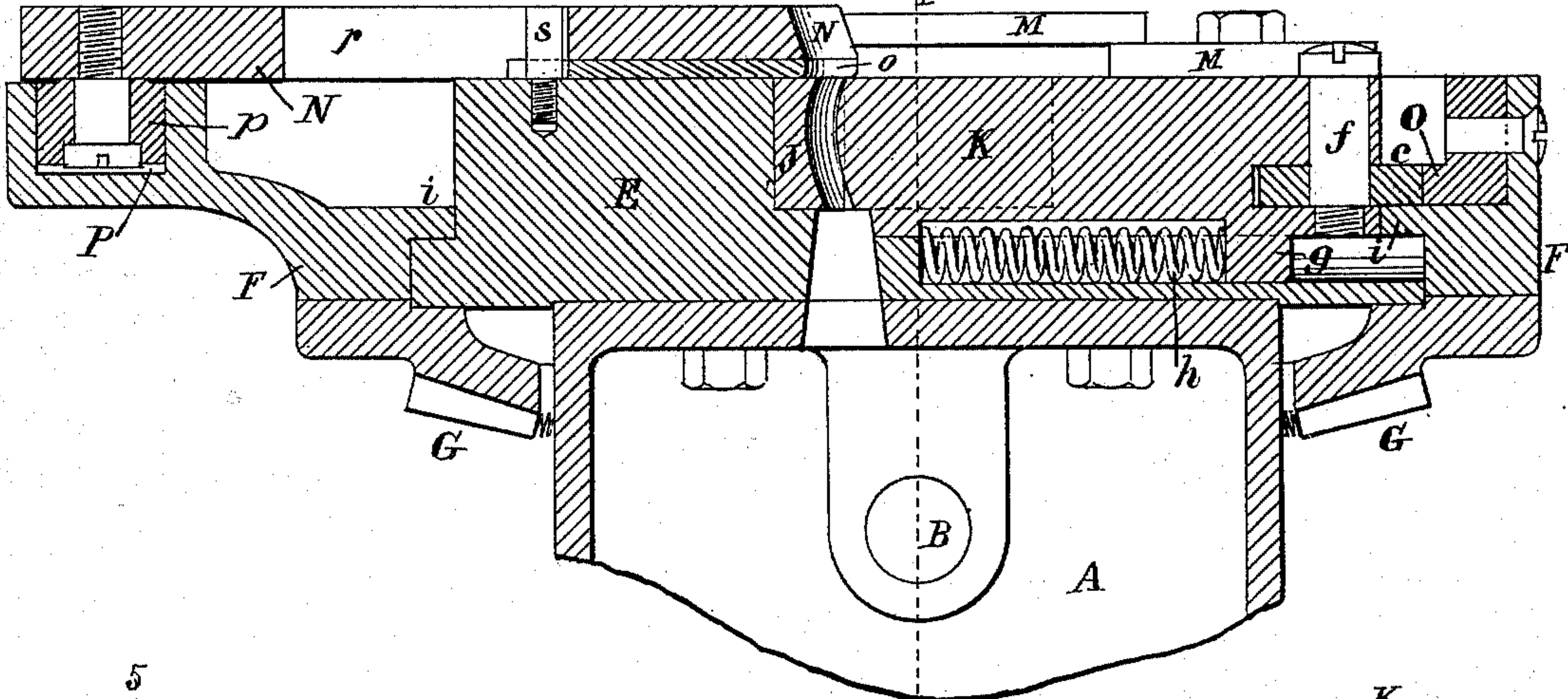


Fig. 3.

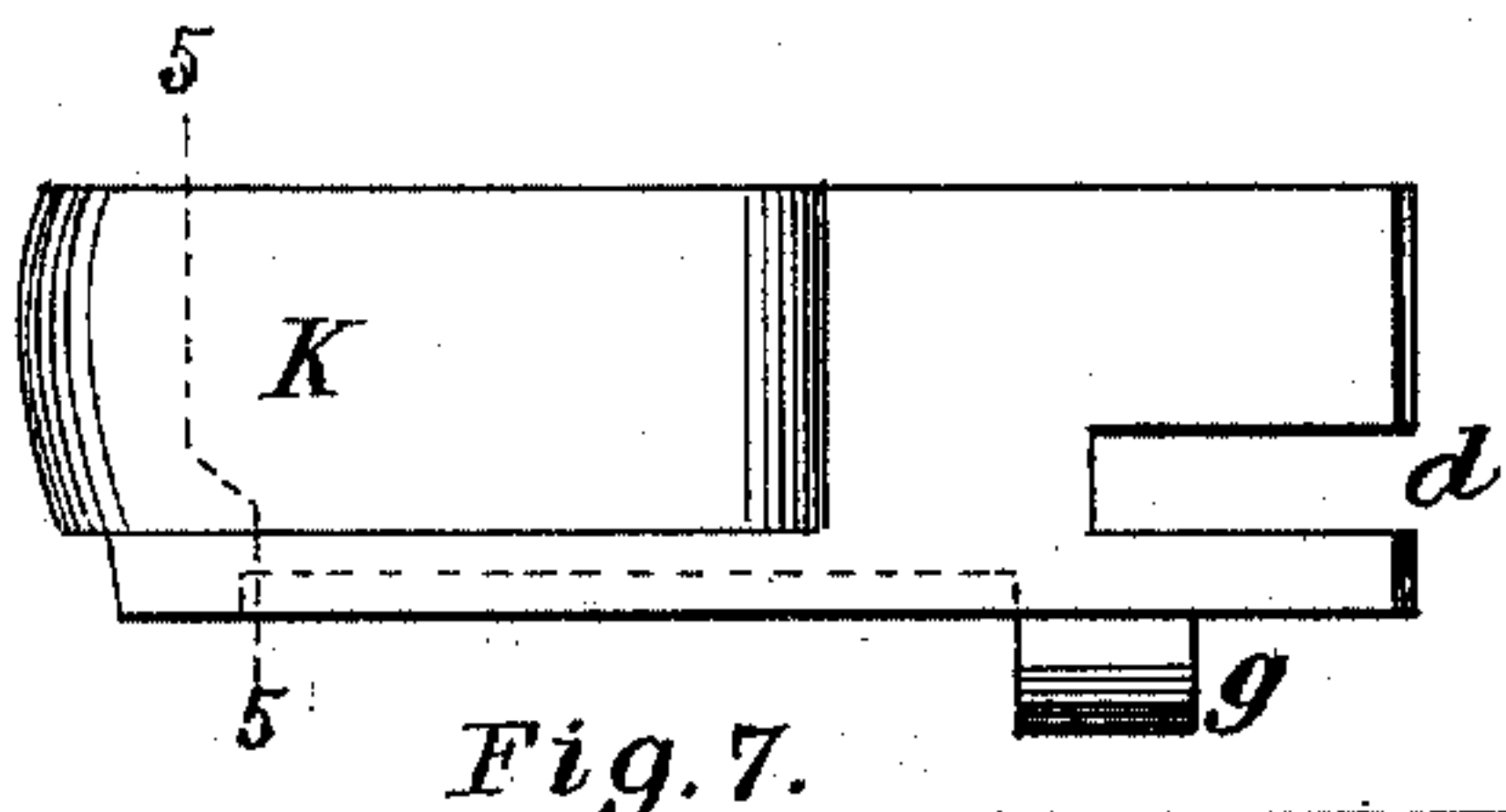


Fig. 7.

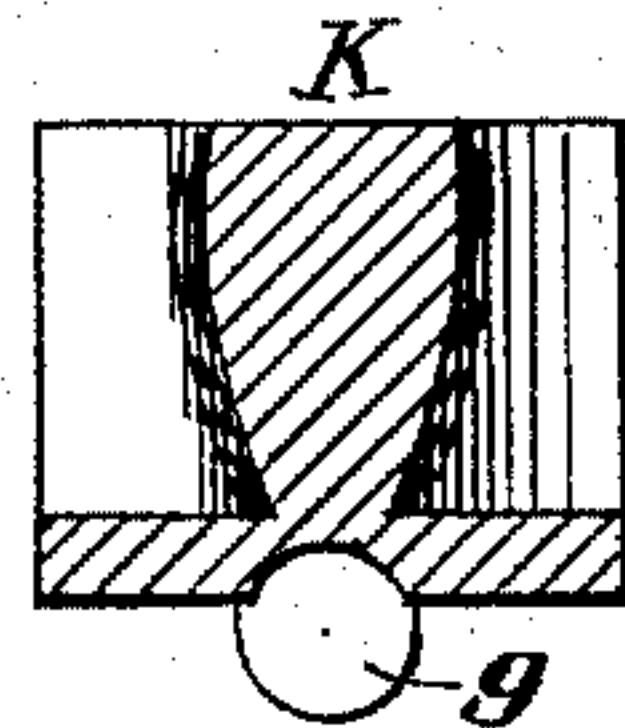


Fig. 8.

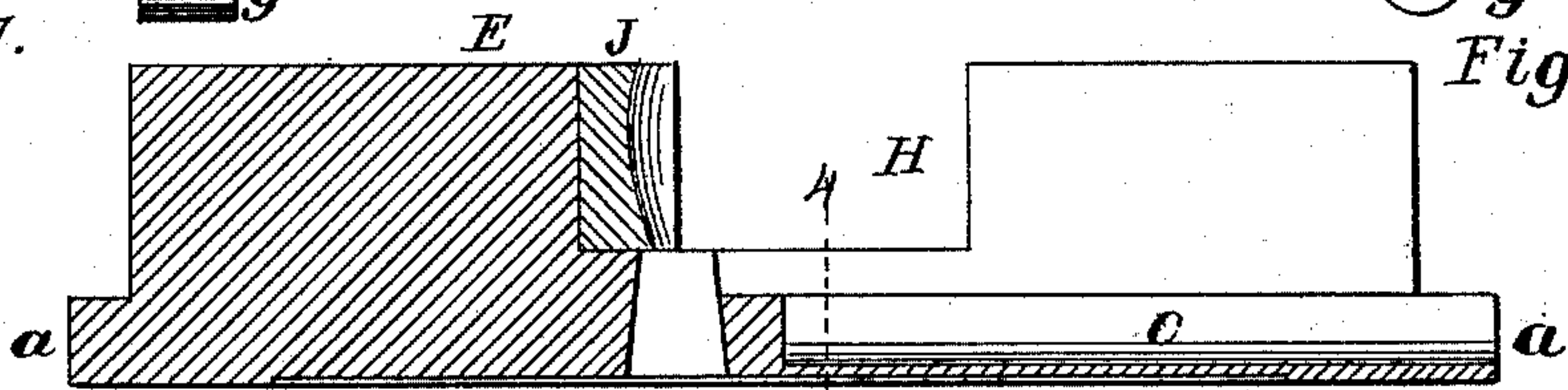


Fig. 5.

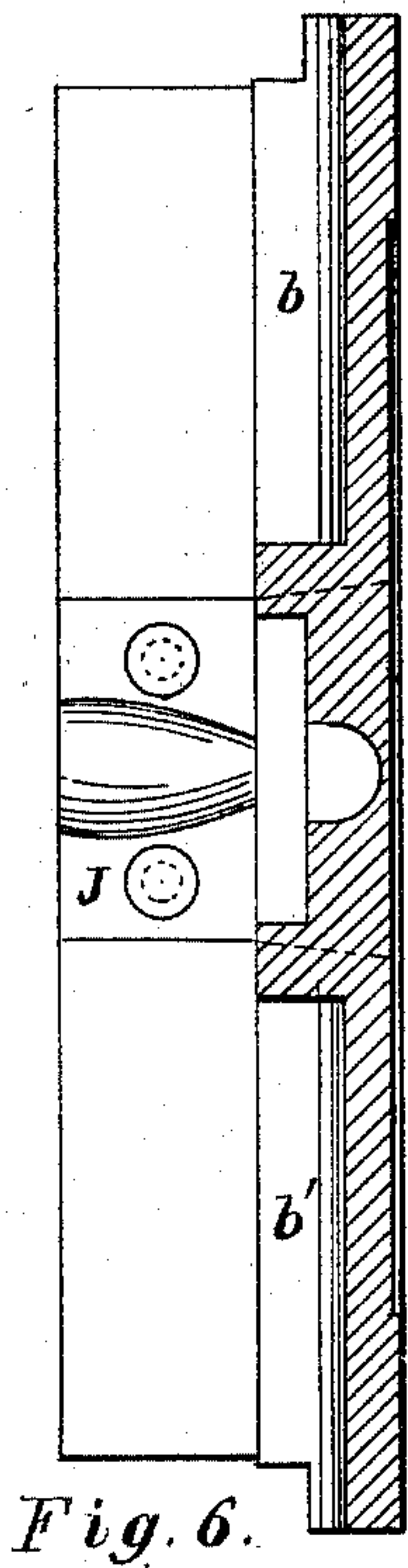


Fig. 6.

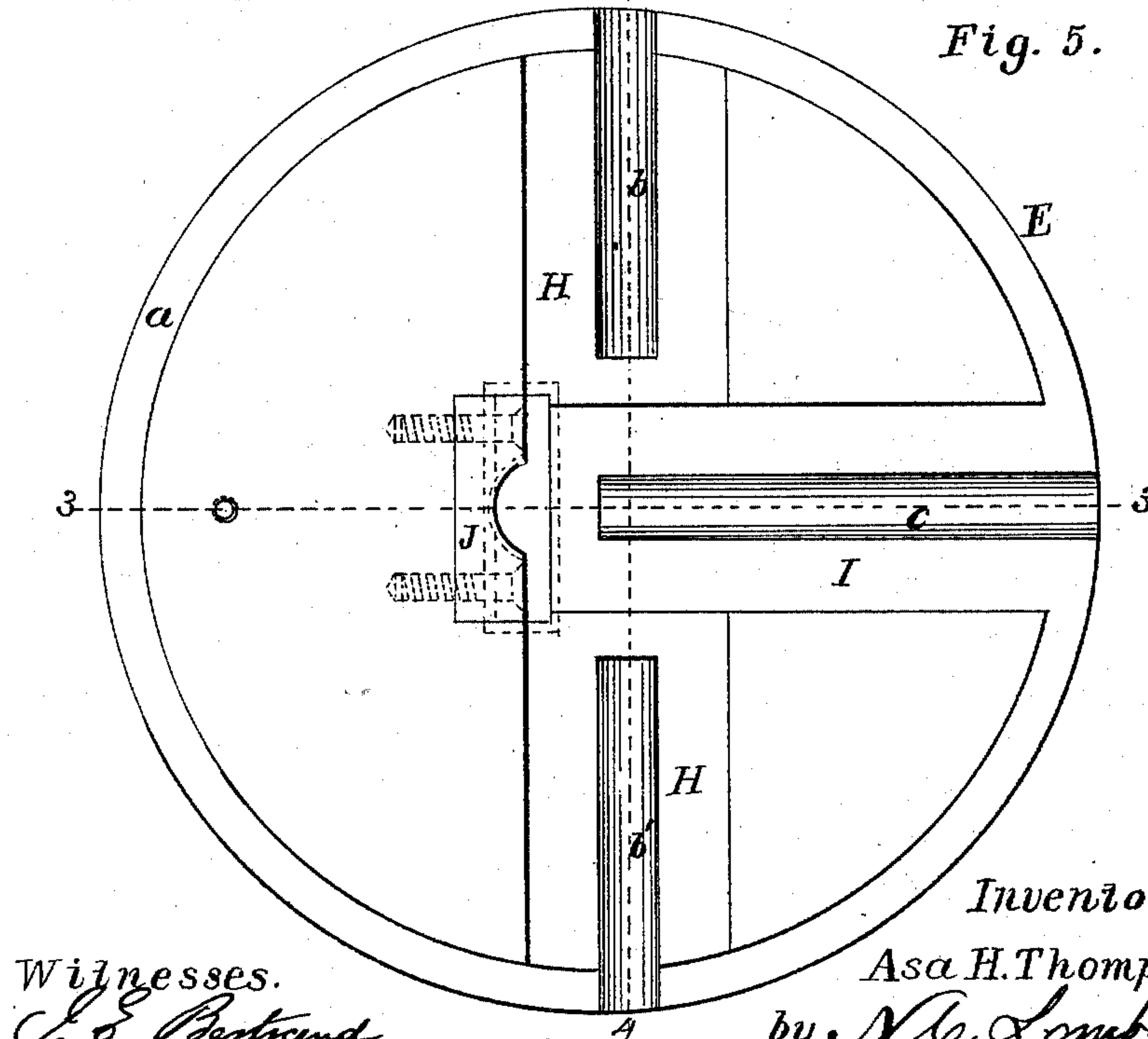


Fig. 4.

Witnesses.  
*J. S. Peckham*  
*Geo. A. Sewall*

Inventor.  
Asa H. Thompson  
by *N. C. Lombard*  
Attorney.



# UNITED STATES PATENT OFFICE.

ASA H. THOMPSON, OF GROTON, MASSACHUSETTS.

## HEEL-STIFFENER MACHINE.

SPECIFICATION forming part of Letters Patent No. 483,184, dated September 27, 1892.

Application filed June 3, 1892. Serial No. 435,386. (No model.)

*To all whom it may concern:*

Be it known that I, ASA H. THOMPSON, of Groton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Forming Heel-Stiffeners, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to machines for forming heel-stiffeners and to that particular class of such machines as are used for reshaping the stiffeners after they have been partially formed by a previous operation; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the drawings, and to the claims at the end of this specification, and in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of a machine, illustrating my invention. Fig. 2 is a sectional elevation of the same, the cutting-plane being on line 1 1 on Figs. 1 and 3. Fig. 3 is a partial vertical section on line 2 2 on Figs. 1 and 2. Fig. 4 is a plan of the former and mold carrying bed-plate. Fig. 5 is a vertical section of the same on line 3 3 on Fig. 4. Fig. 6 is a similar section on line 4 4 on Fig. 4. Fig. 7 is a side elevation of the former, and Fig. 8 is a transverse section of the same on line 5 5 on Fig. 7.

In the drawings, A is the main frame or support of the working parts of the machine, provided with the bearings A' and A<sup>2</sup>, in which is mounted so as to be revoluble therein the shaft B, having firmly secured thereon the bevel-pinion C and the driving-pulley D. A circular bed-plate E is bolted to the top of the frame or support A in a fixed position and is provided with an annular lip or flange *a*, upon which is fitted so as to be revoluble thereon the cam-ring F, to the under side of which is bolted the annular bevel-gear G, as shown in Figs. 2 and 3. The circular bed-plate E has formed in its upper side the rectangular groove H, which extends entirely across said bed near its center, and the groove I, arranged at right angles to the groove H and extending from one side of said bed-plate to a point slightly beyond the center of said disk and preferably cut to a somewhat greater depth than the groove H, as clearly

shown in Figs. 4, 5, and 6. In the bottom of the groove H is formed two smaller grooves *b b'*, having semicircular bottoms, and a similar groove *c* is formed in the bottom of the groove I, as shown in Figs. 4, 5, and 6. The side wall of the groove H opposite the groove I has set therein the steel block J, which has formed in its face a section of the mold shaped to fit the heel end of the former K, which is fitted to and movable endwise in the groove I. The former K has formed in its outer end the slot *d* to receive the truck *e*, which is mounted upon the pin *f*, as shown in Figs. 1 and 3. The former K has formed on its under side the lug *g*, which projects into the groove *c*, and against the inner face of which the spring *h*, placed between it and the inner end of the groove *c*, acts to force said former outward and maintain it normally in contact with the inner edge of the inner flange *i* of the cam-ring F, as shown in Figs. 1 and 3. The groove H has fitted therein so as to be movable endwise thereof the two blocks L and L', the inner ends of which are shaped to fit the sides of the former K, and thus constitute the side sections of the mold, and their outer ends are slotted to receive the trucks *j* and *j'*, respectively, mounted upon pins *k* and *k'*, respectively, as shown in Figs. 1 and 2. The blocks L and L' have formed on their under sides the lugs *l* and *l'*, which project into the grooves *b* and *b'*, respectively, and abut against the springs *m* and *m'*, placed in said grooves between said lugs and the inner ends of said grooves, and serve to press said blocks outward and maintain them normally in contact with the inner edge of the flange *i* of the cam-ring F, as shown in Figs. 1 and 2. The former K and the blocks L and L' are held in their respective grooves by the cap-plates M and M', which are firmly bolted to the bed-plate E and have formed in their inner edges rabbets or guideways for the flange-turning plate N, the under side of the front portion of which has set therein a steel plate *o* and is provided at its rear end with a truck *p*, mounted on a pin set in the under side of said plate N, as shown in Fig. 3. The ring F is provided with the upwardly-projecting rib *q*, to the inner face of which is secured the three cam-segments O, O', and O<sup>2</sup> at different levels, said cam-segments acting, respect-



ively, upon the trucks  $e$ ,  $j$ , and  $j'$  to move the former K and side sections of the mold L and L' inward to press and shape the heel-stiffener placed between the former and the three mold-sections J, L, and L'. The cam-segments O, O', and O<sup>2</sup> occupy nearly three-fourths of the circumference of the ring F, and in the remaining portion of said circumference said ring is expanded outward and has formed in its upper surface the cam path P to act upon the truck  $p$  to reciprocate the flange-turning plate N. The plate N is provided with the longitudinal slot  $r$ , into which the pin  $s$ , set in the bed E, projects to serve as a stop to limit the movement of said plate and prevent its being accidentally displaced while the truck  $p$  is disengaged from the cam P. It will be seen that the cam-segment O is placed at the same level as the truck  $e$ , the segment O' at the same level as the truck  $j$ , and the segment O<sup>2</sup> at the same level as the truck  $j'$ , and that neither segment occupies such a position as to come in contact with or interfere with either truck other than the one it is designed to act upon.

The operation of my invention is as follows: The several parts being in the positions shown in the drawings, the operator places a partially-formed heel-stiffener in the space between the former and the three-part mold, with the flange edge upward, when if the shaft B be revolved the cam-segment O moves the former inward and clamps the stiffener by its center, and as soon as that is accomplished the cam-segments O' and O<sup>2</sup>, acting upon the trucks  $j$  and  $j'$  simultaneously, move the side mold-sections L and L' inward and clamp the side portions of the stiffener to the former. As soon as the stiffener is firmly clamped to the former and while it is held in said clamped position the flange-turning plate N is moved toward the front of the machine by the action of the cam-path P upon the truck  $p$  to turn the heel seat or flange of the stiffener down upon the upper surface of the former, when said plate is moved back to its normal position by the action of the inner wall of the path P upon the truck  $p$ , and at the same time, the segments O, O', and O<sup>2</sup> having passed their respective trucks, the springs  $h$ ,  $m$ , and  $m'$  move the former K and side mold-sections L and L' outward, thus releasing the molded stiffener, which is removed, and another partially-formed stiffener is placed in position preparatory to being molded by the next passage of the cam-segments. The whole work of reshaping the stiffener is done in a little more than one-quarter of a revolution of the cam-ring, leav-

ing nearly three-quarters of said revolution within which to remove the shaped stiffener and insert another partially-formed one. This makes a very effective machine, simple in construction and durable and much less liable to get out of order or require repairs on account of the cams acting directly upon the former and side mold-sections without the intervention of levers and rods, as is commonly practiced. Another advantage is that it is very compact and occupies comparatively little room.

I claim—

1. A machine for shaping heel-stiffeners, comprising the following elements, viz: a fixed circular bed-plate, a former and a three-part mold carried by said bed-plate, the heel-section of said mold being secured in a fixed position to said bed-plate and the two side sections of said mold and the former being fitted to and movable in bearings in said bed-plate, toward and from the center of said bed-plate, a reciprocating flange-turning plate, and a cam-ring mounted upon and revoluble about said fixed bed-plate and having formed thereon or secured thereto four separate and distinct cams constructed and arranged to act, respectively and in proper order, directly upon said former, the two side mold-sections, and the flange-turning plate to move them toward each other and compress a heel-stiffener at each revolution of said cam-ring.

2. In a machine for shaping heel-stiffeners, the combination of the circular bed-plate E, the heel mold-section J, secured in a fixed position in said bed-plate, the side mold-sections L and L', fitted to and movable toward and from each other in bearings in said bed-plate, the former K, fitted to and movable endwise in a bearing in said bed-plate, the cam-ring F, mounted upon and revoluble about said bed-plate, the cam-segments O, O', and O<sup>2</sup> for moving said former and side mold-sections toward the center of said bed-plate, springs for moving said former and side mold-sections outward, the flange-turning plate N, provided with the truck  $p$ , the path-cam P, formed in or secured to said cam-ring F, the annular bevel-gear G, secured to said ring F, the bevel-pinion C, and any suitable means for imparting rotary motion to said pinion.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 1st day of June, A. D. 1892.

ASA H. THOMPSON.

Witnesses:

N. C. LOMBARD,  
GEO. A. SEWALL.