

No. 694,367.

Patented Mar. 4, 1902.

G. H. GIFFORD.

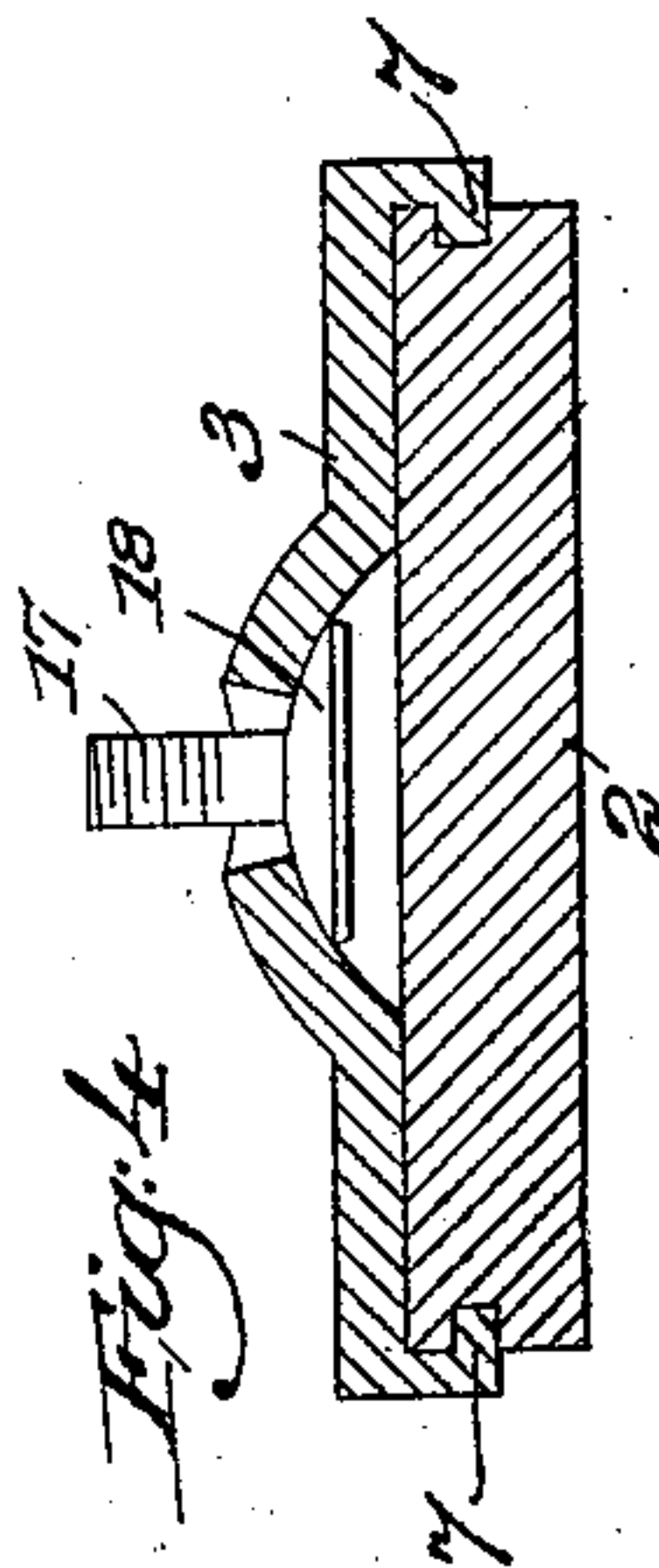
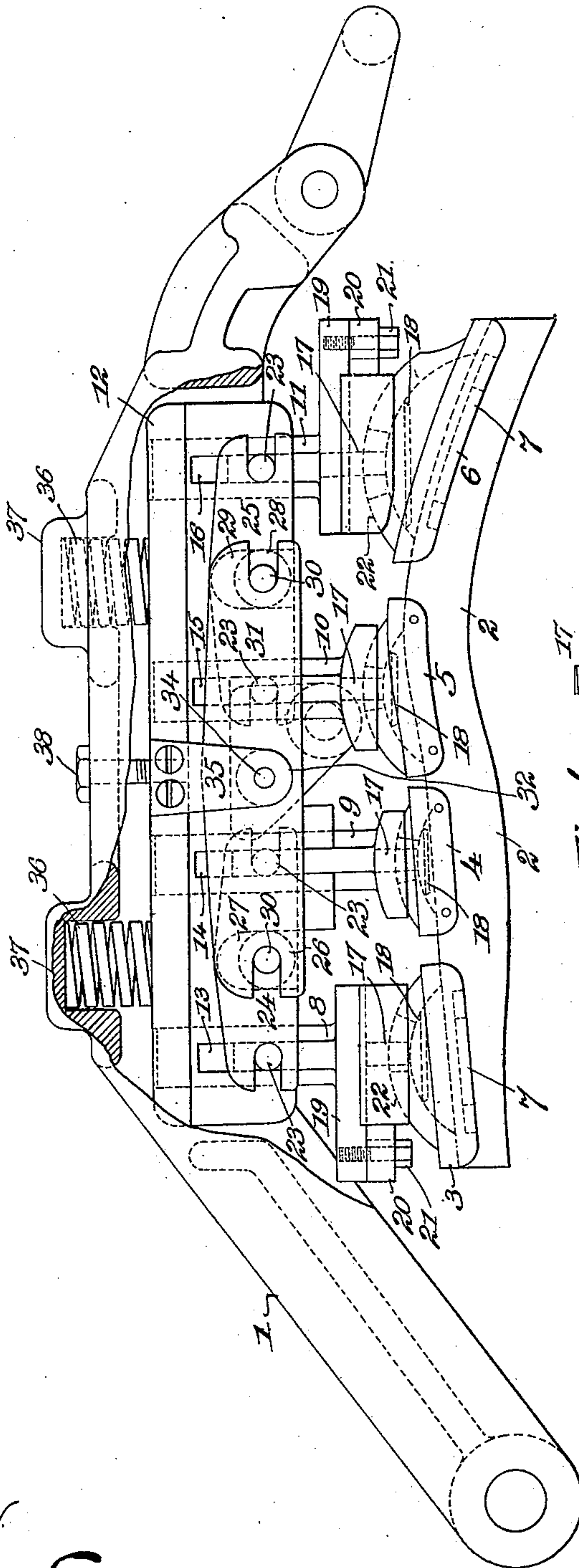
PRESSING FORM FOR SOLE LAYING MACHINES.

(Application filed Apr. 20, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses

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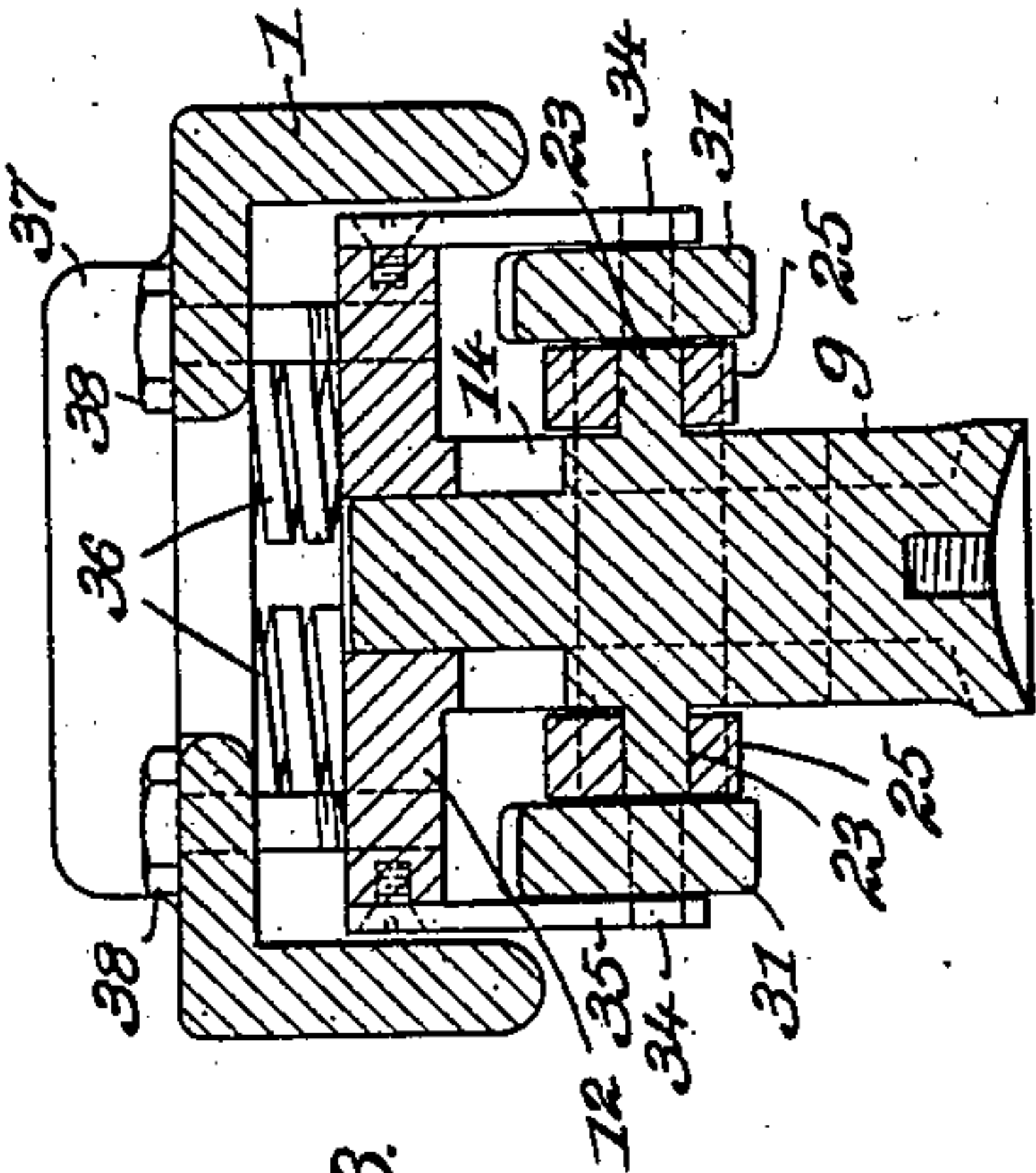


Fig. 3.

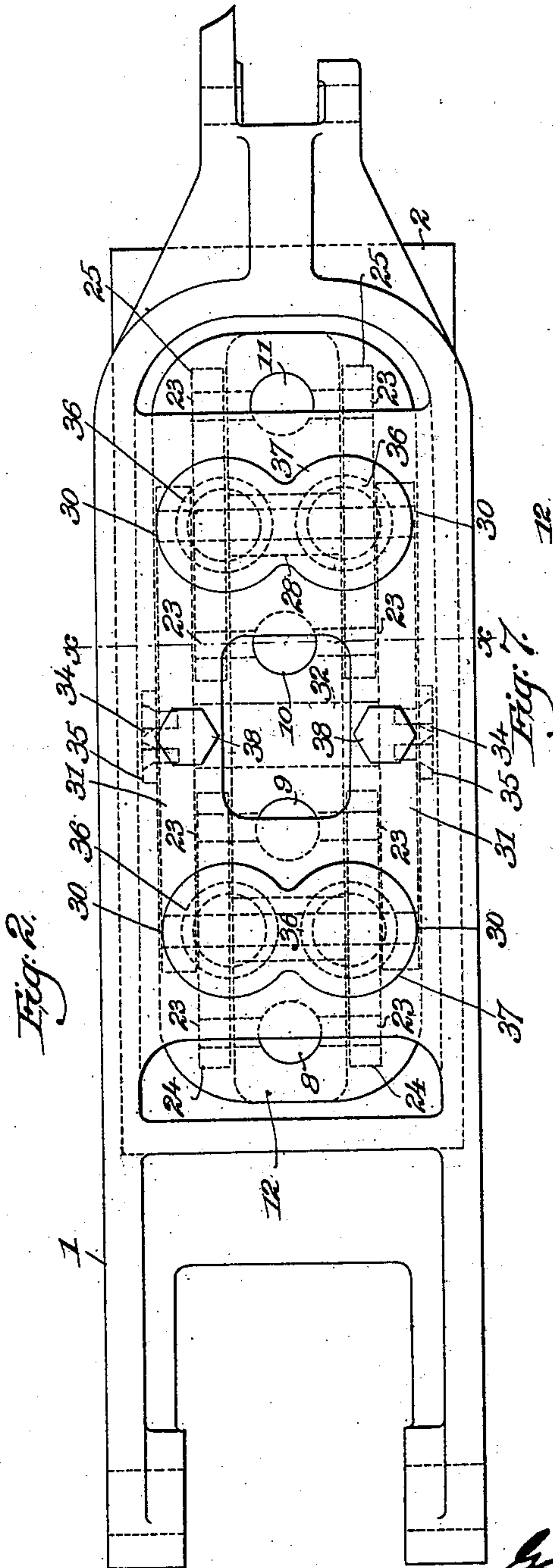


Fig. 2.

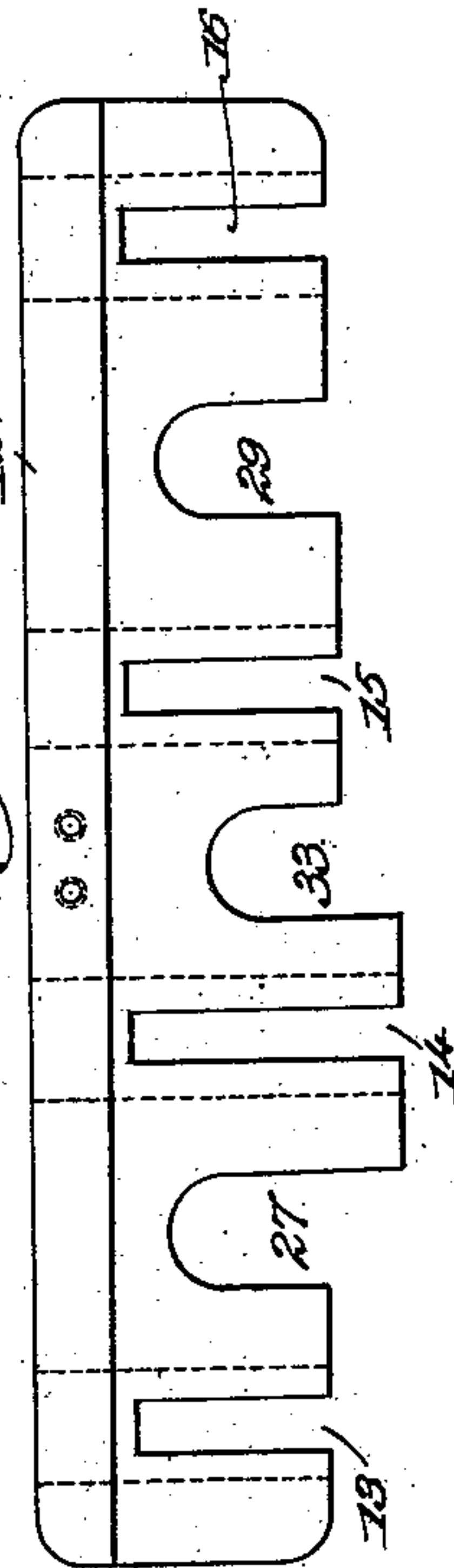


Fig. 1.

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Fig. 5.

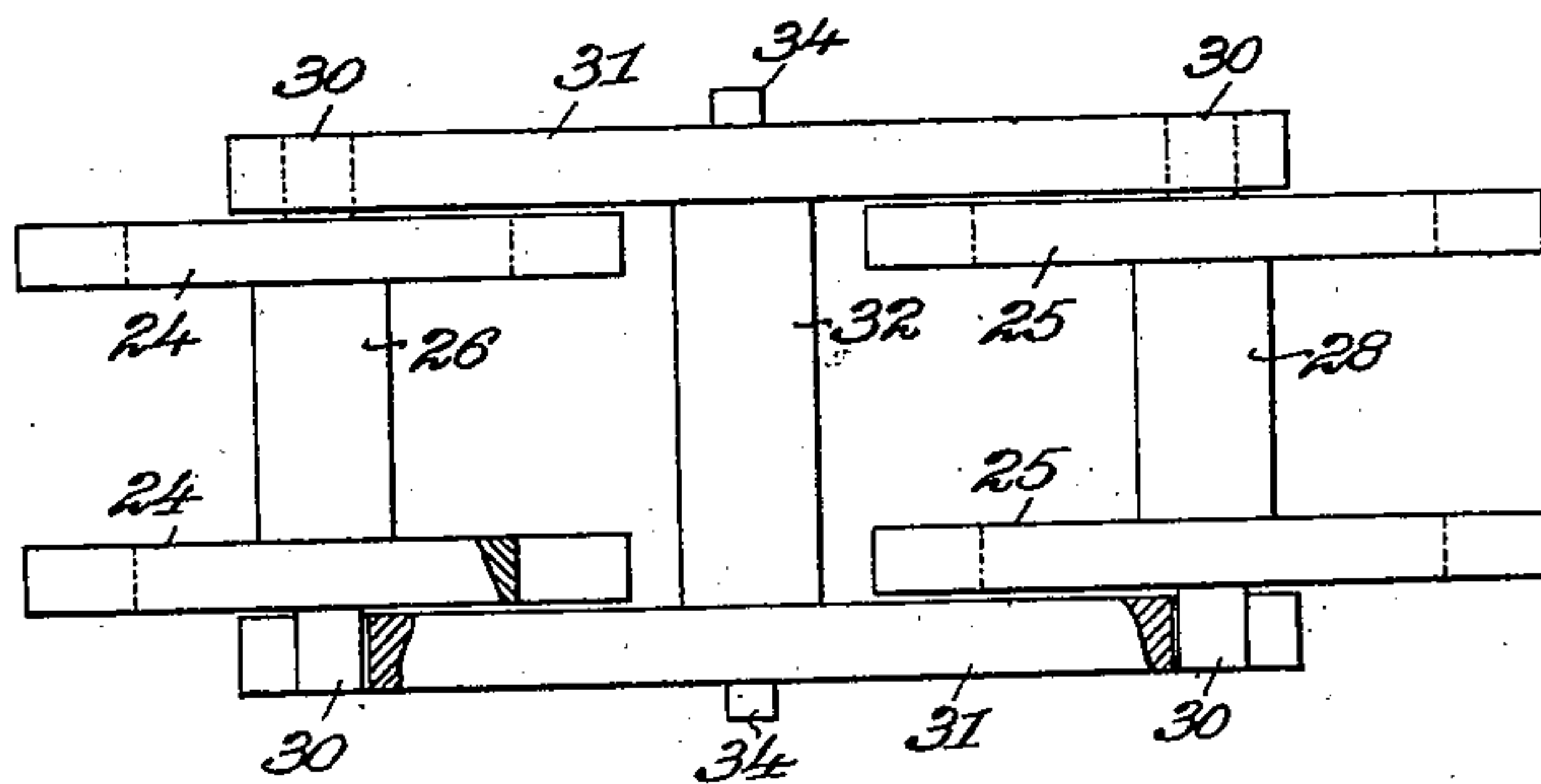
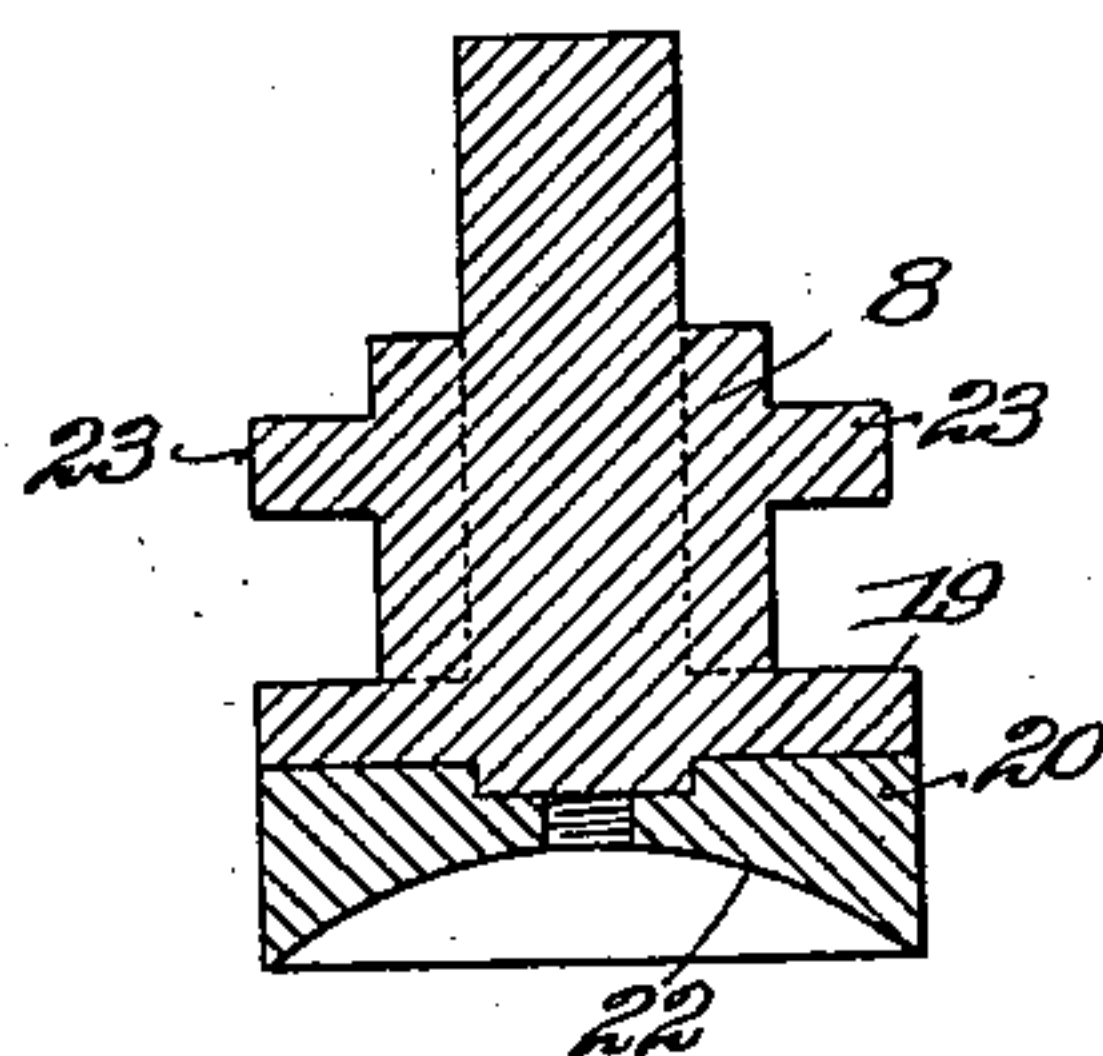


Fig. 6.



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Inventor:  
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# UNITED STATES PATENT OFFICE.

GEORGE H. GIFFORD, OF LYNN, MASSACHUSETTS.

## PRESSING-FORM FOR SOLE-LAYING MACHINES.

SPECIFICATION forming part of Letters Patent No. 694,367, dated March 4, 1902.

Application filed April 20, 1900. Serial No. 13,578. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. GIFFORD, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Pressing-Forms for Sole-Laying Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improvement in pressing-forms, and more particularly in sole-pressing forms for sole-laying machines.

In sole-laying machines it is common to provide the pressing-form with a yielding or elastic pad which conforms under pressure to the general contour of the bottom of the last; but owing to the irregular shape of the last and to the variation in shape of sizes and styles of last great difficulty has been experienced in properly proportioning the pressure exerted by the different parts of the pad on the shoe-sole, such pads being commonly deficient in that they apply too much pressure at the ball and heel of the last, which portions are commonly first brought in contact with the pad, and too little at the toe and shank.

The present invention has for its object to provide means whereby the pressure exerted upon the different parts of the sole may be properly proportioned, so that no part shall be subjected to excessive pressure and each part properly laid.

To the above ends the present invention consists in the devices and combinations of devices hereinafter described and claimed.

In the accompanying drawings, illustrating the preferred form of my invention, Figure 1 is a side elevation, and Fig. 2 is a plan, of my improved pressing-form. Fig. 3 is a section on line  $\alpha\alpha$ , Fig. 2, with parts removed. Fig. 4 is a transverse section of one of the pad-holders. Fig. 5 is a plan of the pressure-distributing levers. Fig. 6 is a transverse section showing details of construction hereinafter described, and Fig. 7 is a side elevation of the pad-supports holder.

In the drawings the form-carrier lever 1 for the sole-pressing form corresponds to the

form-lever F of the patent to Winkley, No. 557,744, April 7, 1896; but it is to be understood that my pressing-form may be used on any sole-laying machine, as the same is not limited to use in the machine of the patent above referred to.

The pressing-pad is shown at 2 and is a continuous elastic pad made of rubber or other suitable material and mounted upon a series of relatively movable supports 3, 4, 5, and 6, which support the heel, shank, ball, and toe portions of the pad, respectively. The pressing-pad is attached to its supports in any suitable manner, conveniently by the inwardly-projected lips 7, provided upon the end supports 3 and 6, which engage the pad 2 and hold it thereon. The supports 3, 4, 5, and 6 are respectively carried upon the slides 8, 9, 10, and 11, which are mounted in bearings in the block 12, so as to slide therein. Each slide is provided with flanges, which engage the grooves 13, 14, 15, and 16 of the block and by means of which the slides are held from rotation in their bearings in said block. The slides 9 and 10 for the shank and ball of the pressing-pad carry the supports 4 and 5, respectively, directly, the said supports being attached to the said slides in the following manner: Each support is provided with a spherical surface, which fits a corresponding spherical projection on the slide. A hole is made in the center of the spherical projection on the support, and a bolt 17, passing through the washer 18, which engages the inside of the spherical projection, is screwed into the slide to hold the support on the slide.

The above-described arrangement is such that the support may tip in all directions with relation to the slide.

The slides 8 and 11, being the end slides for the heel and toe portions of the pressing-pad, respectively, are provided with adjustable connections, upon which are carried their pad-supports 3 and 6, respectively. The slide 8 is provided with a foot 19, to which the adjustable block 20 is secured by means of the bolt 21. The foot 19 and block 20 are provided with a tongue-and-groove connections, so that the block may be adjusted upon the foot and set and held in any desired position thereon. The block 20 is slotted to receive the bolt 21. The block 20 is provided with



the concave spherical surface 22, which receives the spherical projection on the support 3, which support is attached to the block in the same manner as are the other supports 5 attached to their slides, as above described.

The support 6 is mounted upon the slide 11 in a manner similar in all respects to the manner in which the support 3 is mounted on its slide 8 and so needs no repeated description here.

The block 12 and the slides 8, 9, and 10 constitute a carrier for the pad-supports, and wherever in the claims I have used the word "carrier" I intended thereby to describe a device which carries the pad-supports.

The slides are provided on opposite sides with lugs 23, which are received in the forked ends of levers 24 and 25. The levers 24 are preferably secured together or made integral by means of the connecting-piece 26, which is made cylindrical in shape and is adapted to fit the groove 27 in the block 12. The levers 25 are similarly secured together by means of the connecting-piece 28, which is received in the groove 29 on the block.

The above-described arrangement is such that the pressure applied to the supports 3 and 4 is equally distributed between them or distributed between them in such proportion as the length of the arms of the levers 24 compels. This is also true of the pressure distributed between the supports 5 and 6.

The levers 24 and 25 are provided with outwardly-projected lugs 30, which are received in the forked ends of the levers 31, which latter are preferably secured together, as by the connecting-piece 32, which is received in the slot 33 of the block 12. The connecting-piece 32 is cylindrical in form and rests against the bottom of the slot 33, and the pressure applied to the supports is transmitted through the connecting-piece 32, the levers 31, 24, and 25. It is to be understood that in the ordinary use of the machine the connecting-pieces 26 and 28 do not bottom in the grooves 27 and 29, which grooves, however, act only as guides, within which the connecting-pieces 26 and 28 move and are held from accidental displacement. The levers 31, 25, and 24 and their connecting devices constitute pressure-distributing mechanism, which distributes pressure between the several supports for the pressing-pad in accordance with the desired proportions. It is to be noted in this connection that the amount of pressure to be applied to the several parts of the last can be regulated as desired by properly proportioning the lengths of the arms of the levers. If, for example, it is desired to apply a heavier pressure to the shank than to the other parts of the sole, the right-hand ends of the levers 24 would be made shorter than the left-hand ends of these levers. In this manner, it will be seen, the pressure may be distributed between the several supports in any desired manner.

In order to prevent the levers 31 and the

levers 24 and 25, carried thereby, from becoming separated from the block 12, I have provided the levers 31 with outwardly-projected lugs 34, which are received by holes in two connecting-pieces 35, secured to the sides of the block 12. The holes in the connecting-piece 35, which receive the lugs 34, are made loose, so that the connecting-piece 35 shall not be required to transmit any pressure. The block may be supported in any desired way in a sole-laying machine. In the machine of the drawing, however, in which it is shown as mounted on the form-carrier lever 1, it is supported upon four springs 36, through which the pressure is transmitted to the form-carrier lever 1. The springs are received in spring-cups 37 in the form-carrier lever. Two bolts 38 pass loosely through holes in the form-carrier lever 1 and are screwed into the block 12 to hold the block from separating from the lever. The block 12 may tip with relation to the form-carrier lever 1, and the bolts 38, passing loosely through the slots in the carrier-lever, do not impede such movement, the bolts merely holding the structure together.

The operation of the machine of the drawings is as follows: The lasted shoe is placed on the jack, the sole is placed thereon, and the jack and form are moved relatively to each other to seat the pad—that is, to bring the pad firmly in contact with the sole, but not under the full pressure required to lay the sole. During this operation the carrier tips to bring the pad into a position to conform generally to the bottom of the sole, and the pad-supports adjust themselves to support the pad in proper position with relation to the last, causing the surface of the pad to conform approximately to the surface of the bottom of the last and to bear with proper pressure on the sole. The form having thus been seated, the sole-laying pressure is applied to lay the sole on the lasted shoe, and the pressure-distributing mechanism distributes the pressure over the surface of the sole, so as to apply the pressure in proper proportions to the various parts thereof.

I am aware that it has been proposed in the prior art to provide two independent elastic pressing-pads, one for the toe, ball, and front of the shank and the other for the heel and rear of the shank of the sole, and to support such pads on longitudinally-tipping supporting-plates mounted upon vertically-movable rods pivotally supported by opposite ends of a substantially horizontal supporting-lever fulcrumed between said rods, said lever acting as a balance-beam to equalize the pressure upon the pads. The device above referred to has been found to be defective in that since the toe, ball, and front of the shank are included in the same pad the ball must be forced into the pad before any substantial pressure is brought on the toe and shank, and is thereby subjected to excessive pressure, and, further, because a portion of the shank



between the pads is not acted upon at all by the pads, and in such a machine when it was attempted to provide a continuous pad which would act upon the whole sole it was found  
 5 impractical to use the relatively movable supporting-sections owing to the strain brought on the pad by its abrupt bending between the sections, and a continuous supporting-plate was provided, which rendered the device the  
 10 substantial equivalent of the old and well-known tipping pad, in the operation of which all the difficulties heretofore referred to exist. I am not aware that a continuous elastic pad has ever been combined with pressure-  
 15 distributing mechanism to properly distribute the pressure exerted by the several parts thereof on the sole, so that the low parts will receive the requisite amount of pressure, and an undue amount of pressure upon the high  
 20 parts of the sole is prevented.

I therefore claim as novel and desire to secure by Letters Patent—

1. A pressing-form for sole-laying machines, having, in combination, a continuous  
 25 pressing-pad, relatively movable supports for the ball and shank parts of the pad and pressure-distributing mechanism connecting said supports, substantially as described.

2. A pressing-form for sole-laying machines, having, in combination, a continuous  
 30 pressing-pad, relatively movable supports for the heel, shank, ball and toe portions of the pad, and pressure-distributing mechanism connecting said supports, substantially as described.  
 35 scribed.

3. A pressing-form for sole-laying machines,

having, in combination, a continuous elastic pressing-pad, relatively movable supports for said pad, and pressure-distributing mechanism connecting said supports, substantially as described. 40

4. A pressing-form for sole-laying machines, having, in combination, a pressing-pad, relatively movable supports for the heel, shank, ball and toe parts of the pad, movable  
 45 pressure-distributing mechanisms connecting the supports for the heel and shank parts and the ball and toe parts, respectively, and pressure-distributing mechanism connecting the aforesaid pressure-distributing mechanisms, substantially as described. 50

5. A pressing-form for sole-laying machines, having, in combination, a movable carrier, a pressing-pad, tipping supports for said pad, a pressure-distributing mechanism connecting said supports, said pad, supports and  
 55 mechanism being carried by said carrier, substantially as described.

6. A pressing-form for sole-laying machines, having, in combination, a movable  
 60 carrier, yielding supports for said carrier, a pressing-pad, movable supports for said pad, and pressure-distributing mechanism connecting said supports, said pad, supports, and mechanism being carried by said carrier, substantially as described. 65

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. GIFFORD.

Witnesses:

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ALFRED H. HILDRETH.