

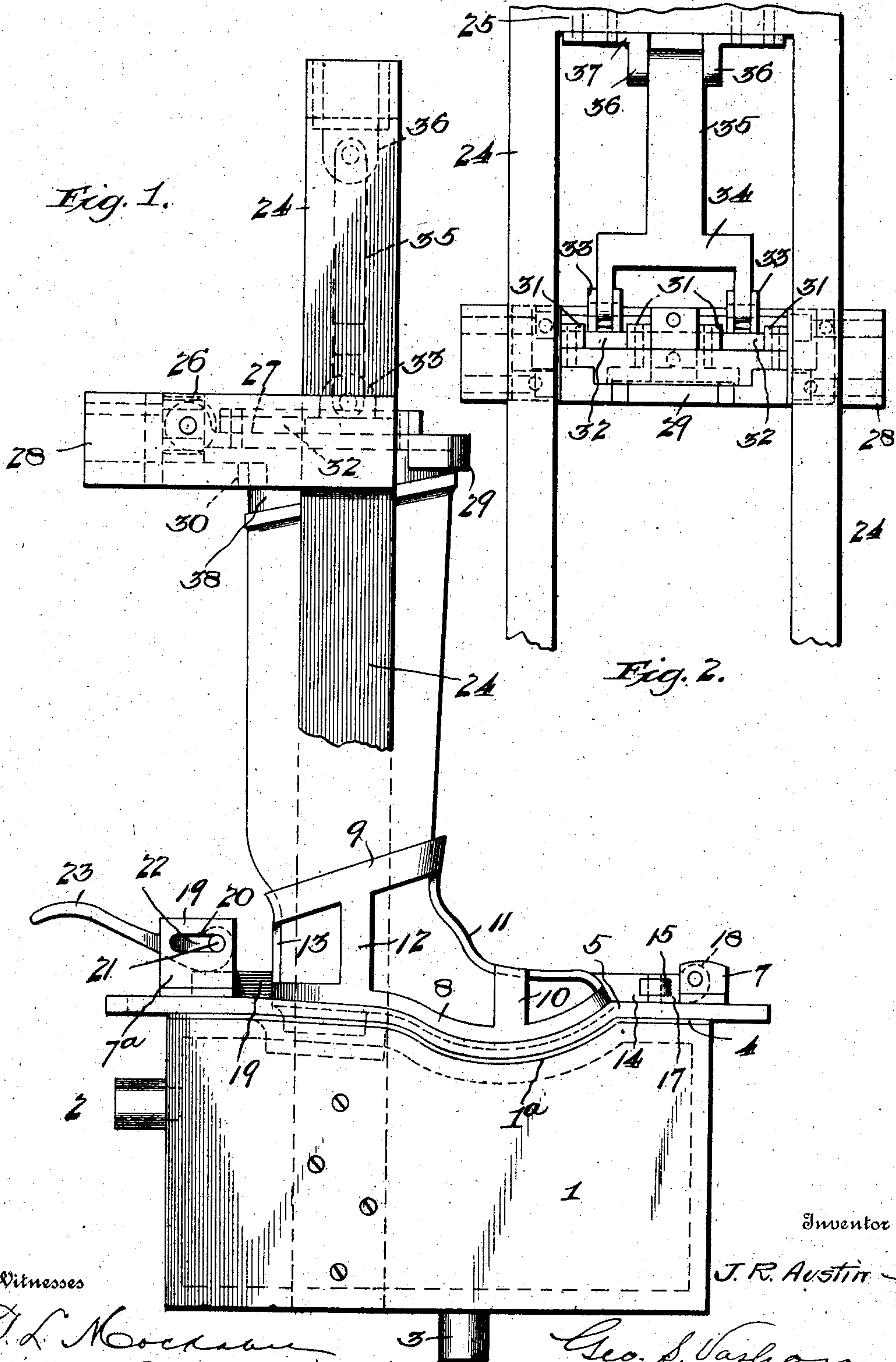
No. 834,451.

PATENTED OCT. 30, 1906.

J. R. AUSTIN.
VULCANIZING APPARATUS.

APPLICATION FILED FEB. 9, 1906.

3 SHEETS—SHEET 1.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

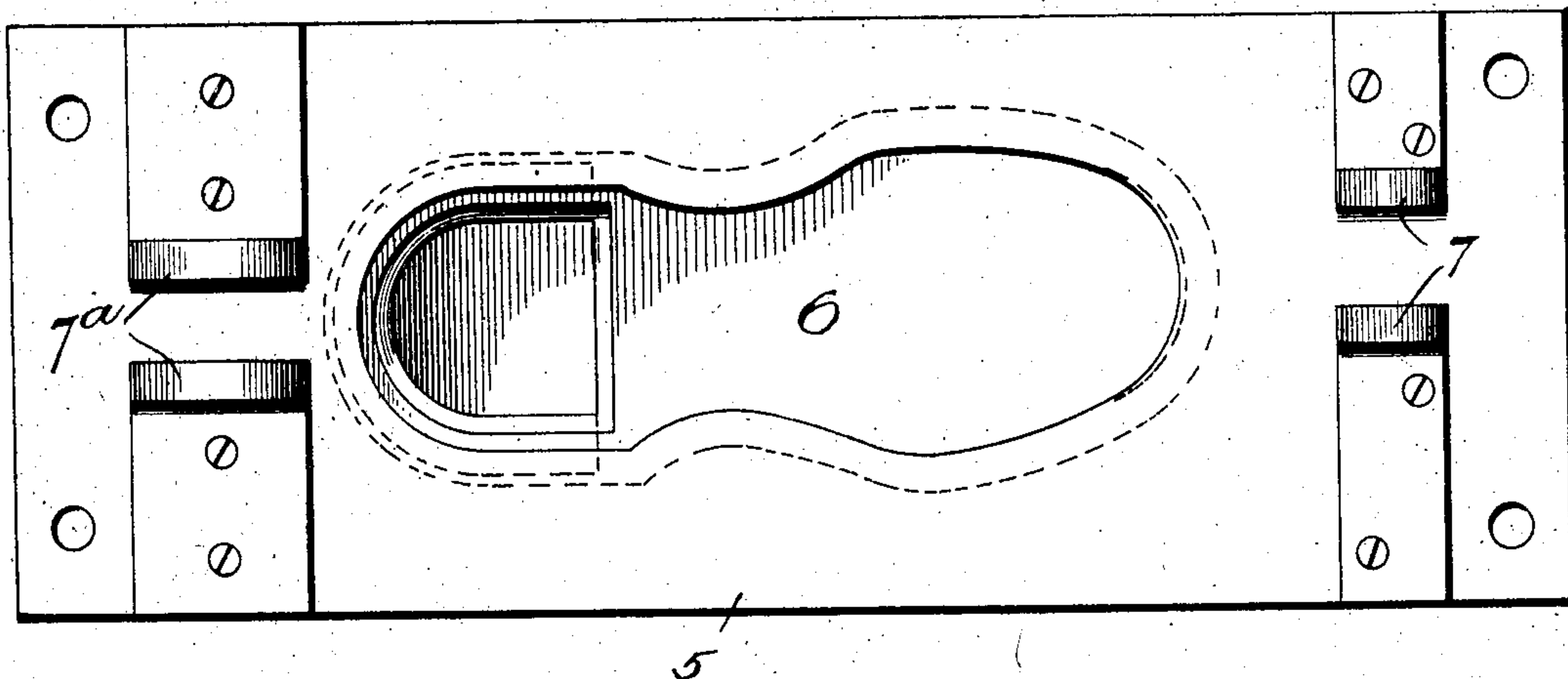


Fig. 4.

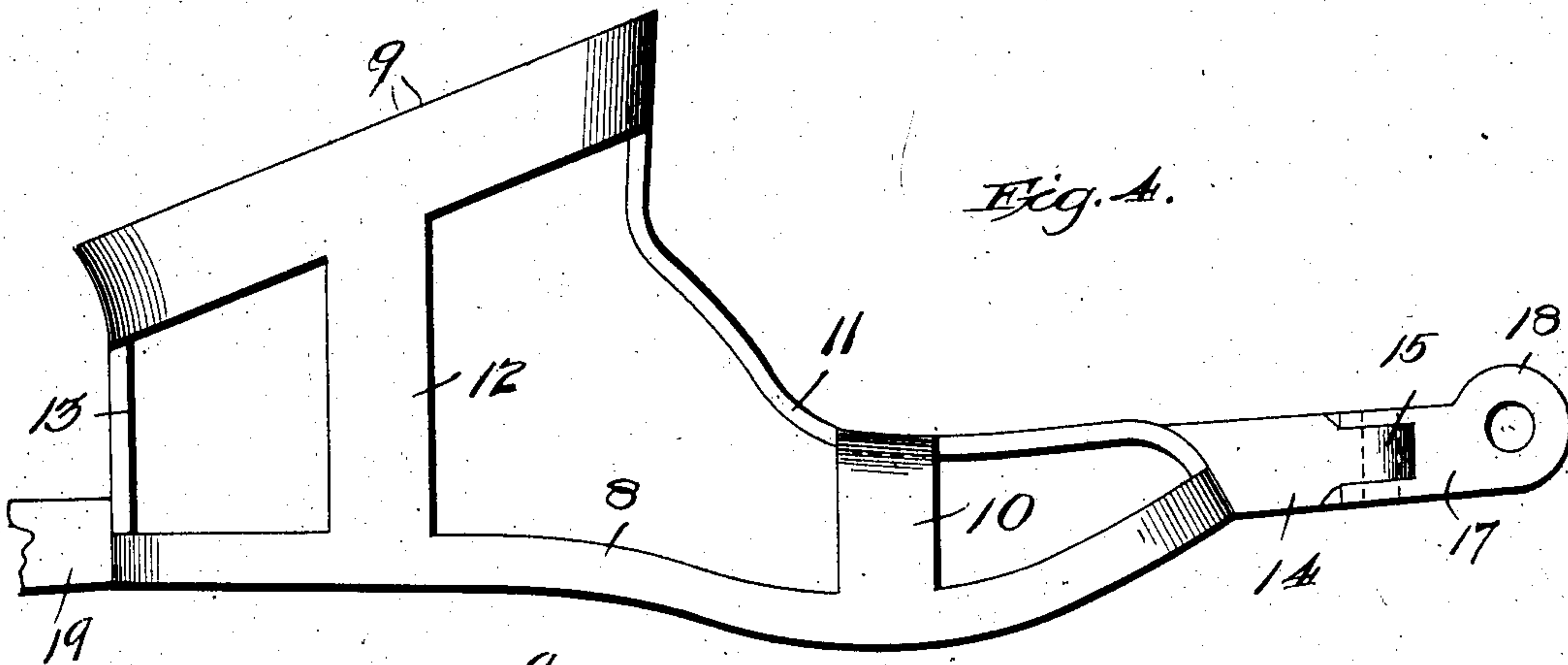
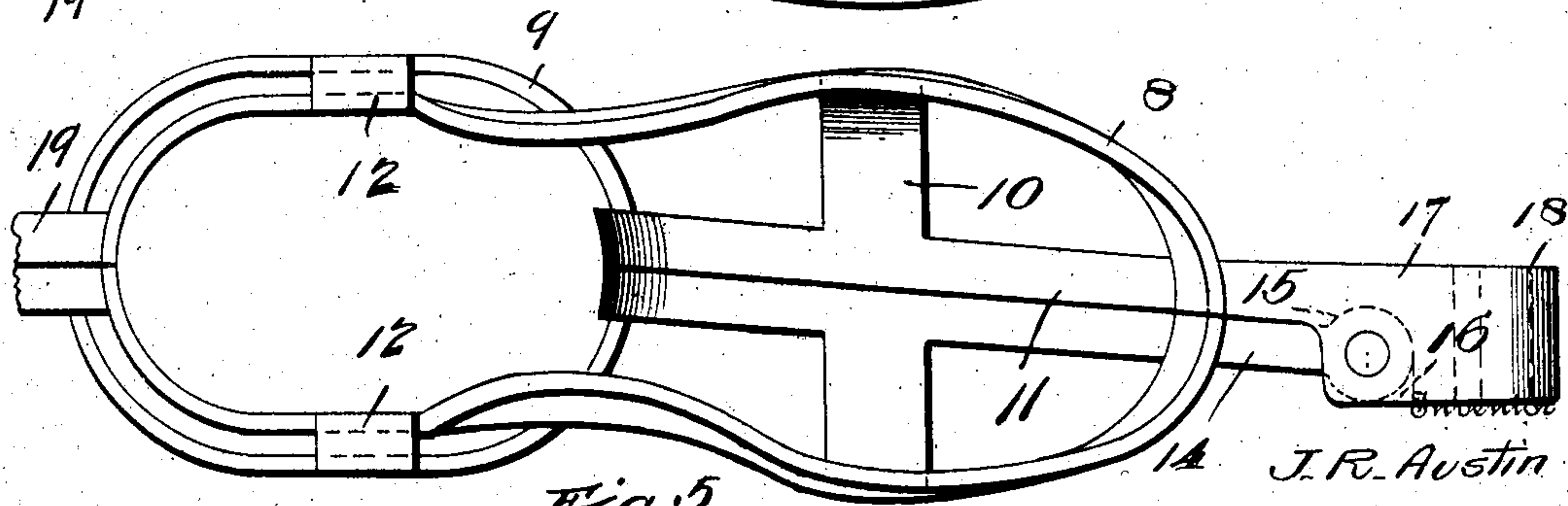


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

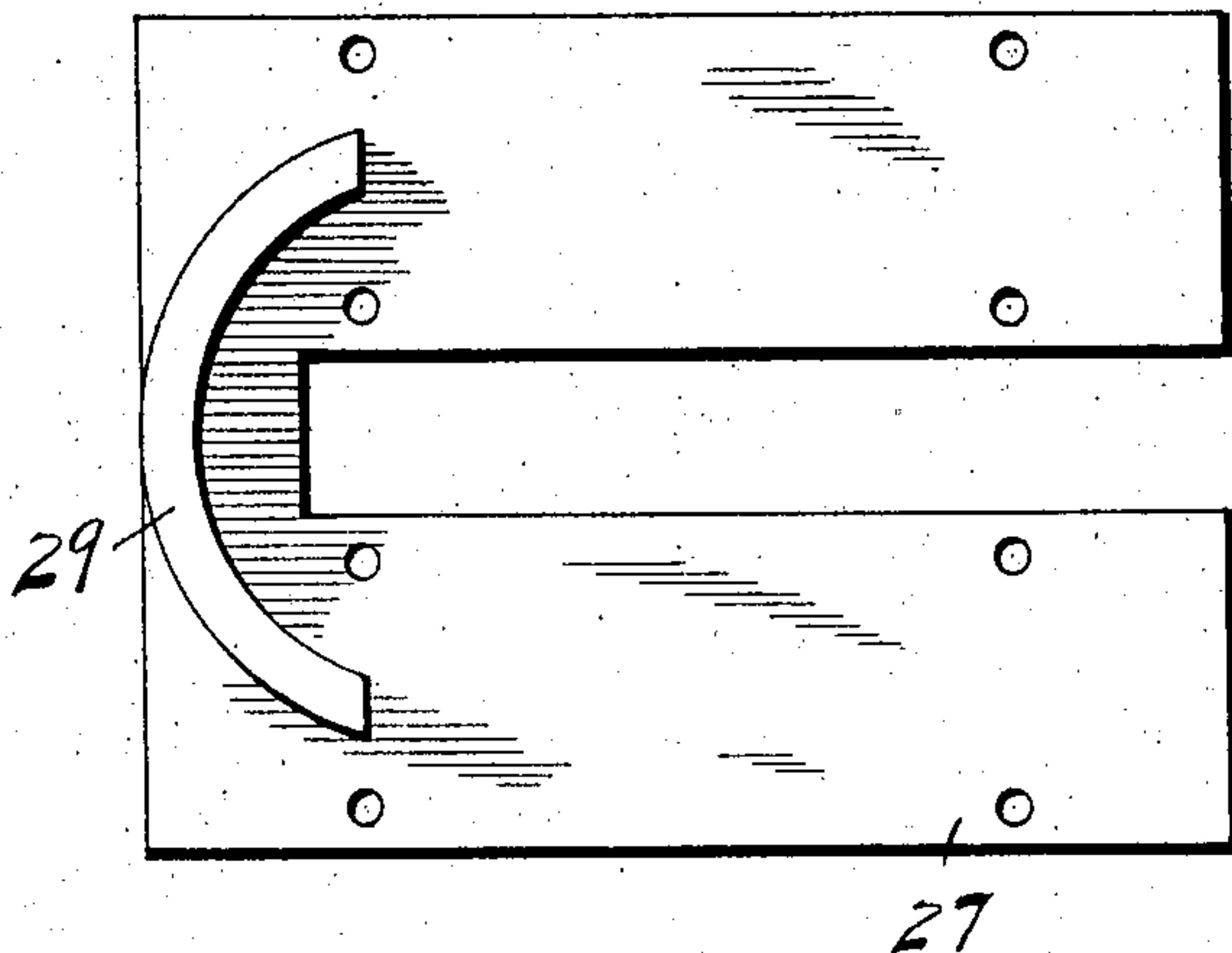


Fig. 7.

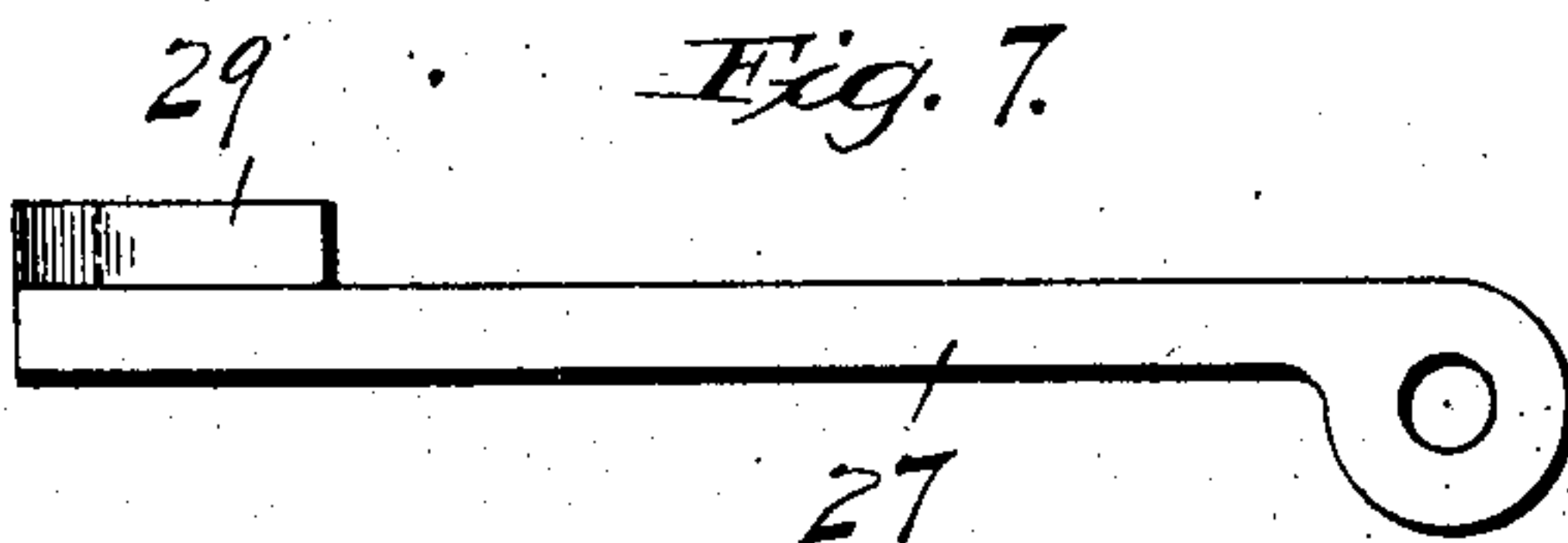


Fig. 8.

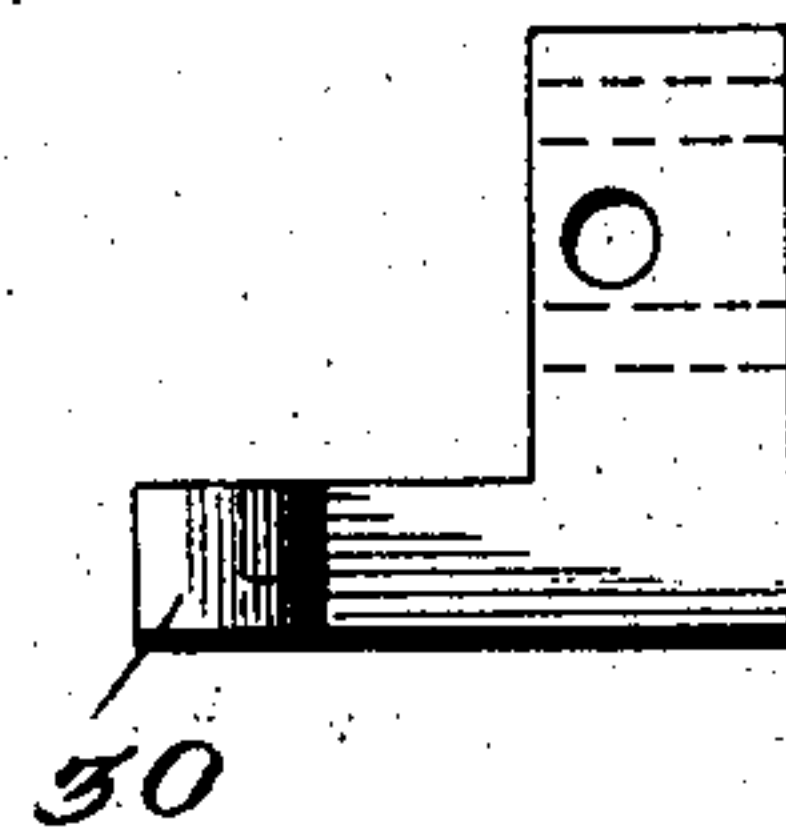
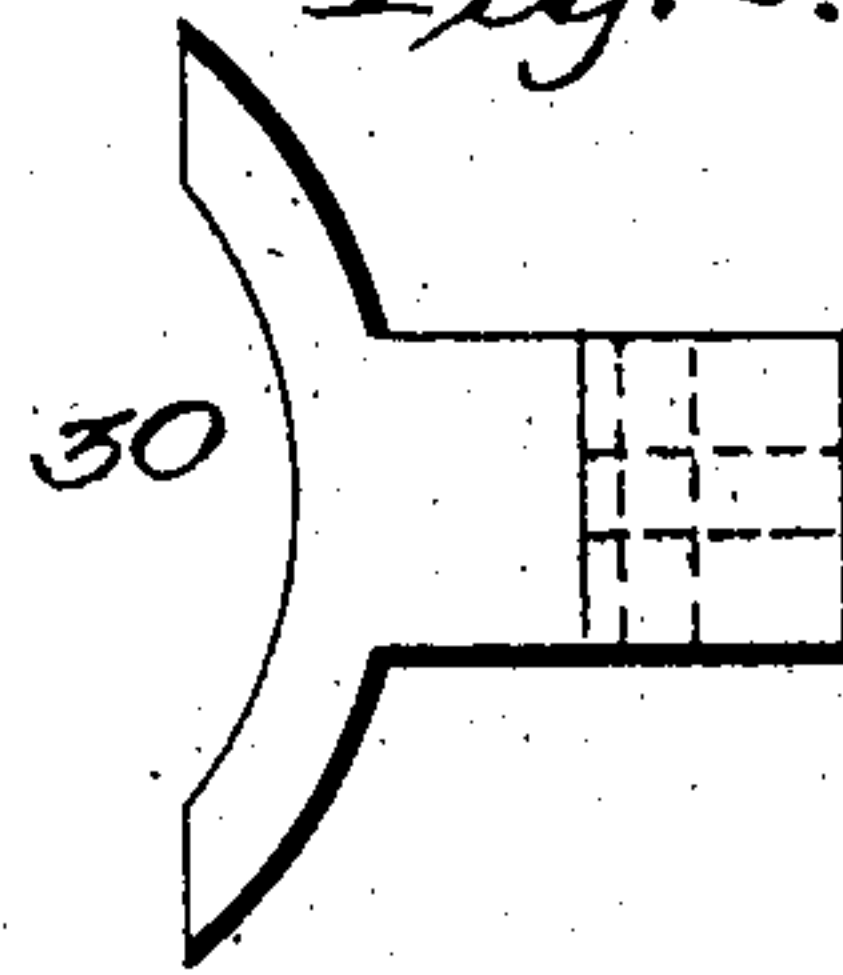
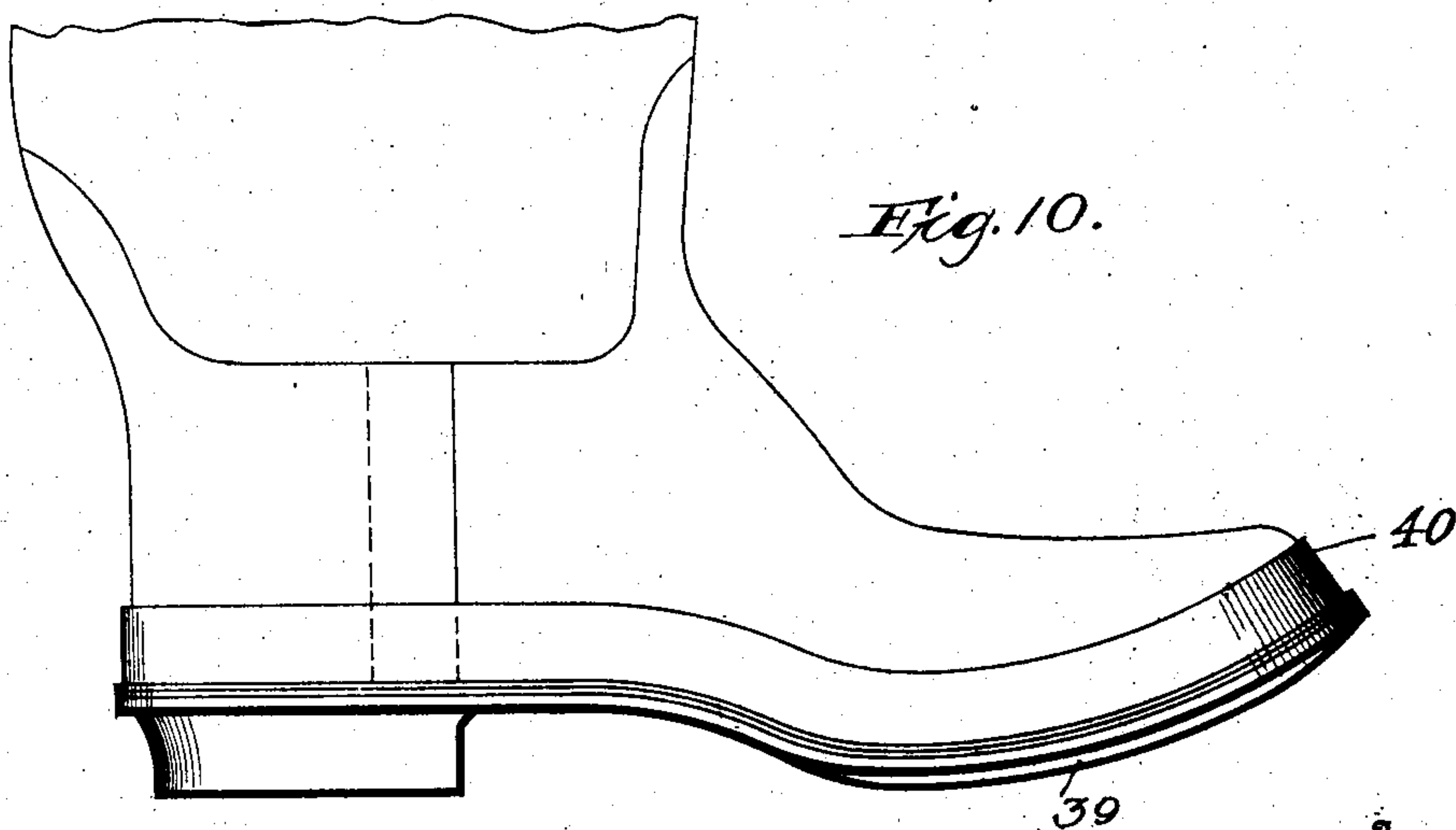


Fig. 9.

Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHNATHAN RAY AUSTIN, OF MISHAWAKA, INDIANA.

VULCANIZING APPARATUS.

No. 834,451.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed February 9, 1906. Serial No. 300,251.

To all whom it may concern:

Be it known that I, JOHNATHAN RAY AUSTIN, a citizen of the United States, residing at Mishawaka, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Vulcanizing Apparatus, of which the following is a specification.

This invention relates to an apparatus for vulcanizing hard-rubber soles on boots and shoes before the latter are cured.

The primary object of the invention is to provide means for producing a boot or shoe having a hard-rubber sole for the use of miners or others requiring a boot or shoe of a strong and durable nature and which will outwear the ordinary rubber boot or shoe.

The invention consists in the preferred construction and arrangement of the several parts, which will be more fully hereinafter set forth.

In the drawings, Figure 1 is a side elevation, partially broken away, of an apparatus embodying the features of the invention. Fig. 2 is a front elevation of a portion of the apparatus. Fig. 3 is a top plan view of the vulcanizing sole-mold. Fig. 4 is a side elevation of the frame or holder for the boot or shoe. Fig. 5 is a bottom plan view of the holder. Figs. 6, 7, 8, and 9 are detail views of parts of the apparatus. Fig. 10 is a side elevation of a portion of a rubber boot, showing the strengthening and wearing devices applied thereto.

Similar numerals of reference refer to like parts throughout the several views.

The sole-mold consists of a steam-box 1, having steam inlet and outlet pipes 2 and 3 and provided with suitable edge packing 4 over the top thereof. The box 1 has a top cavity 1^a, conforming in contour to the sole and heel portions of a boot or shoe and longitudinally disposed with relation to the box. On the box 1 and engaging the packing 4 is secured a top plate 5, having a sole-mold 6. Arranged on the top plate 5 are front and rear pairs of upwardly-projecting ears 7 and 7^a, which are so disposed as to accommodate the application of a movable frame or holder for the boot or shoe to be treated. This holder or frame comprises a sole-engaging strip or member 8, formed of polished metal and operating to hold the sole in place, an upper band 9 to embrace the lower portion of a boot-leg or the upper part of a shoe, a forward cross reinforcing-strap 10, a longitudi-

nal front center brace 11, terminally connected to the member 8, and vertical side and end braces 12 and 13, terminally connected to the member 8 and band 9. The longitudinal front center brace 11 connects with the toe strip or member 8 and the upper band 9.

The holder or frame is separable or composed of two sections, the division being through the forward central portion of the member 8, longitudinally through the brace 11 and front and rear portions of the upper band, and through the end brace 13. Continued from one section of the holder or frame is a hinge projection 14, terminating at its front end in a horizontal eye 15, movably held in the rear portion of a lateral offset 16 of a hinge projection 17, extending forward from the remaining section. The projection 17 is considerably longer than the projection 14 and has a vertical eye 18 at its front end, the said eye being disposed between and movably attached to the front pair of ears 7 of the plate 5.

The sectional formation of the holder or frame provides for a ready insertion in and withdrawal of a boot or shoe therefrom. The front hinged connection to the plate 5, through the medium of the projection 17 and front ears 7, permits the holder or frame to be bodily raised and lowered with respect to the mold 6. From the central rear portion of strip or member 8 and the end brace 13 a longitudinally-divided retaining projection 19 extends and is adapted to be removably received between the rear pair of ears 7 of the plate 5, the latter ears having elongated longitudinally-arranged slots 20 in their upper portions, in which opposite trunnions 21 on the cam-head 22 of a locking-lever 23 have pivotal and sliding movements. By pushing the locking-lever 23 forwardly over the projection 19 and pressing the head 22 down in contact with the said projection the holder or frame will be held in close engagement with the plate 5, and if a boot or shoe be mounted therein the sole portion thereof will be firmly projected into the mold 6. If the lever 23 be drawn rearwardly after releasing the cam-head 22, the projection 19 will be cleared, and the holder or frame may be readily raised and lowered.

Secured to opposite sides of the box 1 are uprights 24, connected at their upper ends by a cross strip or head 25 and provided with a horizontal frame 26 at a distance above the

box 1 slightly greater than the length of an ordinary rubber boot and supporting a hinged plate 27, hinged to the rear cross-piece or end 28 of the frame 26 and provided with front and rear depending flanges or abutments 29 and 30, which are suitably curved to engage corresponding portions of the upper extremity of a boot-tree. Slidably bearing on the upper side of the hinge-plate 27 and movable in guides 31 at opposite sides of the longitudinal center of said plate is a clamping member or block 32, having upwardly-projecting hinge ears or lugs 33, to which the free terminals of a yoke 34 are pivotally attached, the said yoke being provided with a shank 35, extending upwardly and hinged between lugs or ears 36 of a plate 37, secured to the under side of the cross strip or head 25. The yoke 34 and shank 35 constitute a clamping-lever and control the depression of the hinge-plate 27. This hinge-plate 27 may be properly termed a "keeper," and the purpose thereof is to snugly bear on the upper end of the tree 38 of the boot-last, said tree being preferably formed of two parts and held together by a suitable fastening and well known in the art of lasting.

The boot or shoe to be treated is applied to the apparatus and held firmly on the steam-box 1 after the desired parts have been applied to the sole, and as it is preferable to operate in conjunction with a boot, and, further, as the apparatus illustrated is particularly adapted for treating boots, the latter will be exclusively referred to for the purpose of illustrating the operation, though it will be understood that by a slight variation in the proportions rubber shoes might also be similarly treated to vulcanize portions thereof for specific purposes or uses. The boot has a sole 39 and also a strip 40 of rubber applied thereto to protect the side portions of the boot-upper close to the sole and projecting out on the extension of the said sole. When the boot has been so equipped, it is disposed in the apparatus, as shown by Fig. 1, and steam let into the box 1 to heat the mold 6, and consequently vulcanize the sole and rubber protecting-strip set forth. Of course the boot is treated before it is secured, so that the operation of vulcanizing may be made effective, and after the sole and protective strip are hardened the boot may be quickly removed from the apparatus and readily replaced by another similar device, owing to the facility with which the several parts can be adjusted and open and closed. After the foot portion of the boot has been inserted in the frame or holder therefor and the said holder or frame brought down into immovable relation to the mold 6 a pressure is applied on the upper end of the boot-tree through the medium of the plate 27 by shifting the block 32 forwardly or toward the front of the boot and bring the clamping-le-

ver, comprising the yoke 34 and shank 35, into vertical position, as illustrated by dotted lines in Fig. 1.

When it is desired to release the boot, the clamping-lever is moved backward, and simultaneously the block 32 is shifted in the same direction to permit the plate 27 to be raised on its hinge or pivot connection 26 and be swung upwardly, the clamping-lever during such operation swinging on its movable attachments, which comprise the upper end of the shank 35 and the terminals of the yoke 34. The frame or holder is then released from the foot portion of the boot by first drawing rearwardly on the lever 23 and releasing the retaining projection 19. The release of the retaining projection permits the holder or frame for the foot portion of the boot to be raised and the sections of said holder or frame opened, so that the boot can be readily withdrawn from the holder or frame.

The apparatus will be found exceptionally useful for the purpose for which it has been devised, and while steam has been set forth as being the preferred heating medium for the box 1 to carry on the vulcanizing operation it will be understood that any other heating medium may be adopted.

What I claim is—

1. In an apparatus of the class set forth, the combination of a heating device having a mold, a clamp or frame held in operative relation to the said mold and composed of separable sections, movable means engaging the rear portion of the holder or frame to maintain the sections of the latter in closed relation, and upper last-engaging means supported by the heating device.

2. In an apparatus of the class set forth, a heating-box having a mold in the upper portion thereof, a holder or frame held in pivotal relation to the said mold and composed of separable sections, slidable securing means engaging a rearwardly-projecting portion of the holder or frame, and upper last-engaging means supported by the heating-box.

3. In an apparatus of the class set forth, the combination of a heating-box having a mold in the upper portion thereof, a holder or frame pivotally connected at its front portion and movable downwardly toward and upwardly from said mold, means for engaging a rearwardly-projecting portion of the holder or frame, and mechanism held by the box and operative to institute a downward pressure on the last fitted in the boot or shoe treated by the apparatus.

4. In an apparatus of the class set forth, the combination of a heating-box having a top plate carrying a mold, a packing introduced between the top plate and the upper edge of the box, a holder or frame movably supported on the upper portion of the box, and mechanism held at an elevation above

the box for instituting a downward pressure on the last of the boot or shoe to be treated.

5. In an apparatus of the class set forth, the combination of a heating-box having a mold in the upper portion thereof, a holder or frame for the foot portion of a boot or shoe pivotally disposed over the mold and movable downwardly toward and upwardly from the latter, means for engaging a rear projecting portion of the holder or frame to secure the same in immovable relation to the mold, the holder or frame having a laterally-movable section, and mechanism held at an elevation above the box for instituting a downward pressure on the last of the boot or shoe to be treated.

6. In an apparatus of the class set forth, the combination with a heating-box having a mold in the upper portion thereof, means for holding the foot portion of a boot or shoe in operative relation with respect to the mold, and mechanism for instituting a downward pressure on the upper portion of the last fitted in the boot or shoe to be treated and consisting of a hinge-plate with front and rear depending abutment devices, a sliding block bearing on the plate, and a clamping-lever pivotally attached to the said sliding block to operate the latter and release or secure the hinge-plate.

7. In a vulcanizing apparatus, the combination of a heating-box provided with means

for holding the foot portion of a boot or shoe in relation thereto, a supporting-frame held by the box, a hinged plate held by a part of the frame and having depending abutments to engage a portion of the last of a boot or shoe, a block slidingly disposed on the plate, and a clamping-lever pivotally connected to the block and also to a portion of the frame above the position of the said plate.

8. In an apparatus of the class set forth, the combination of a heating-box having a mold in the upper portion thereof, a holder or frame composed of sections, each of which is provided with forward projections, the one projection being hingedly connected to the other and the remaining projection hinged to a part of the box, the rear portion of the holder or frame having retaining projections, a clamping-lever to engage the retaining projections and having both sliding and pivotal means, and mechanism supported by the box at an elevation above the latter and provided with means for instituting a downward pressure on the last of the boot or shoe to be treated.

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

JOHNATHAN RAY AUSTIN.

Witnesses:

GEO. A. AUSTIN,
BETH STIMELING.