

(No Model.)

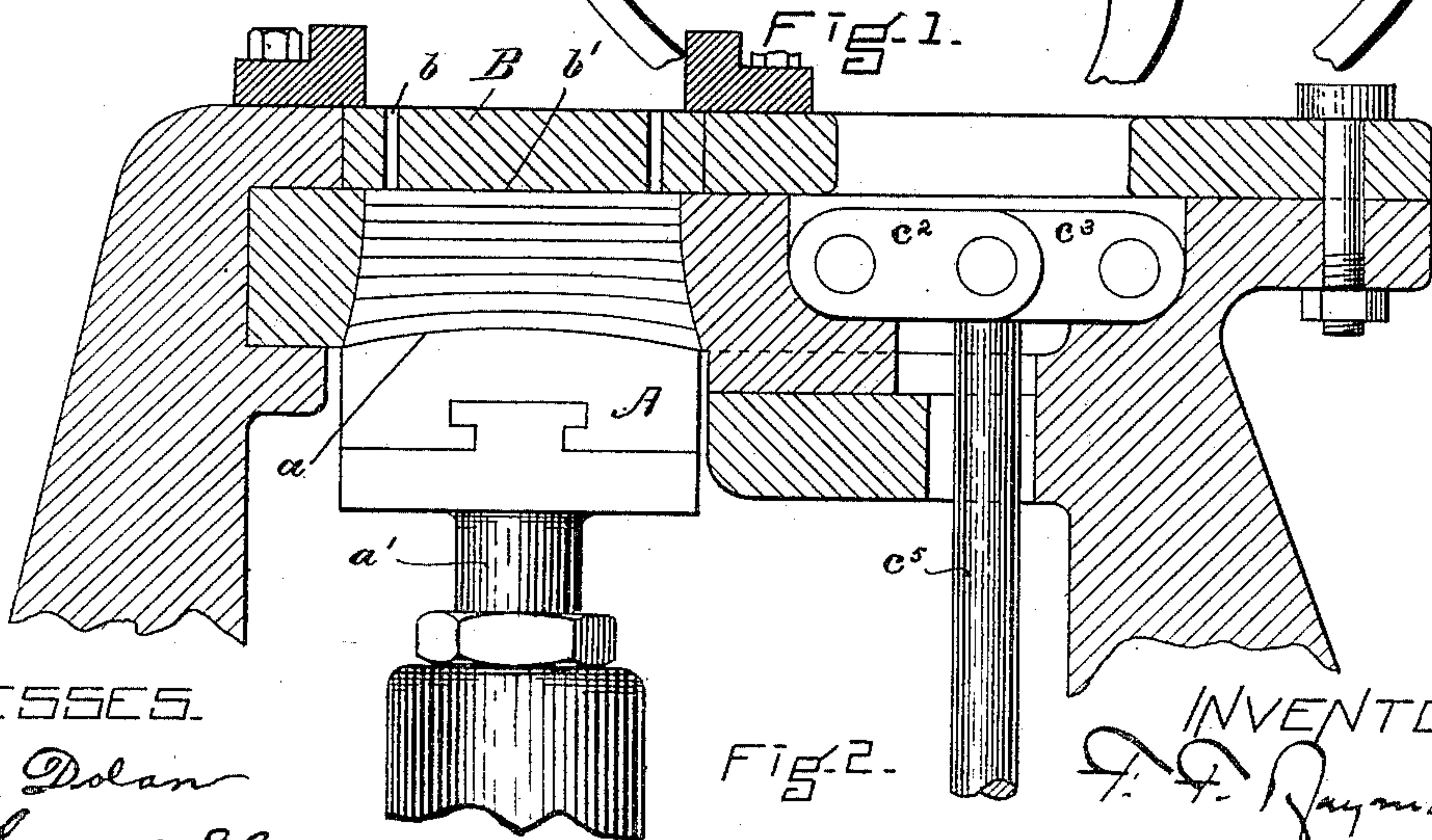
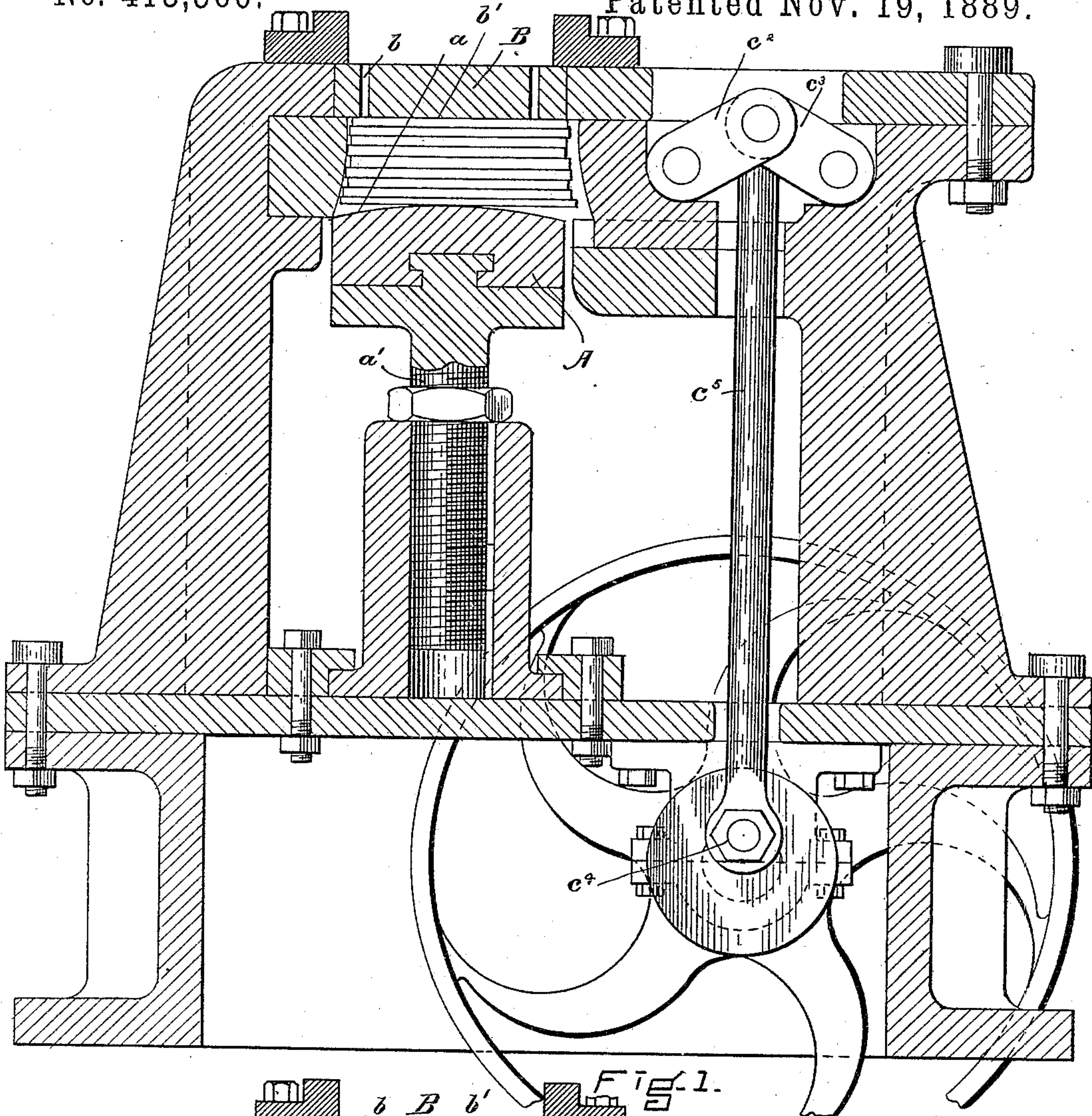
4 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

METHOD OF COMPRESSING AND ATTACHING HEELS.

No. 415,560.

Patented Nov. 19, 1889.



WITNESSES.

J. W. Dolan  
E. P. Small

FIG. 2.

INVENTOR.

F. F. Raymond



(No Model.)

4 Sheets—Sheet 2.

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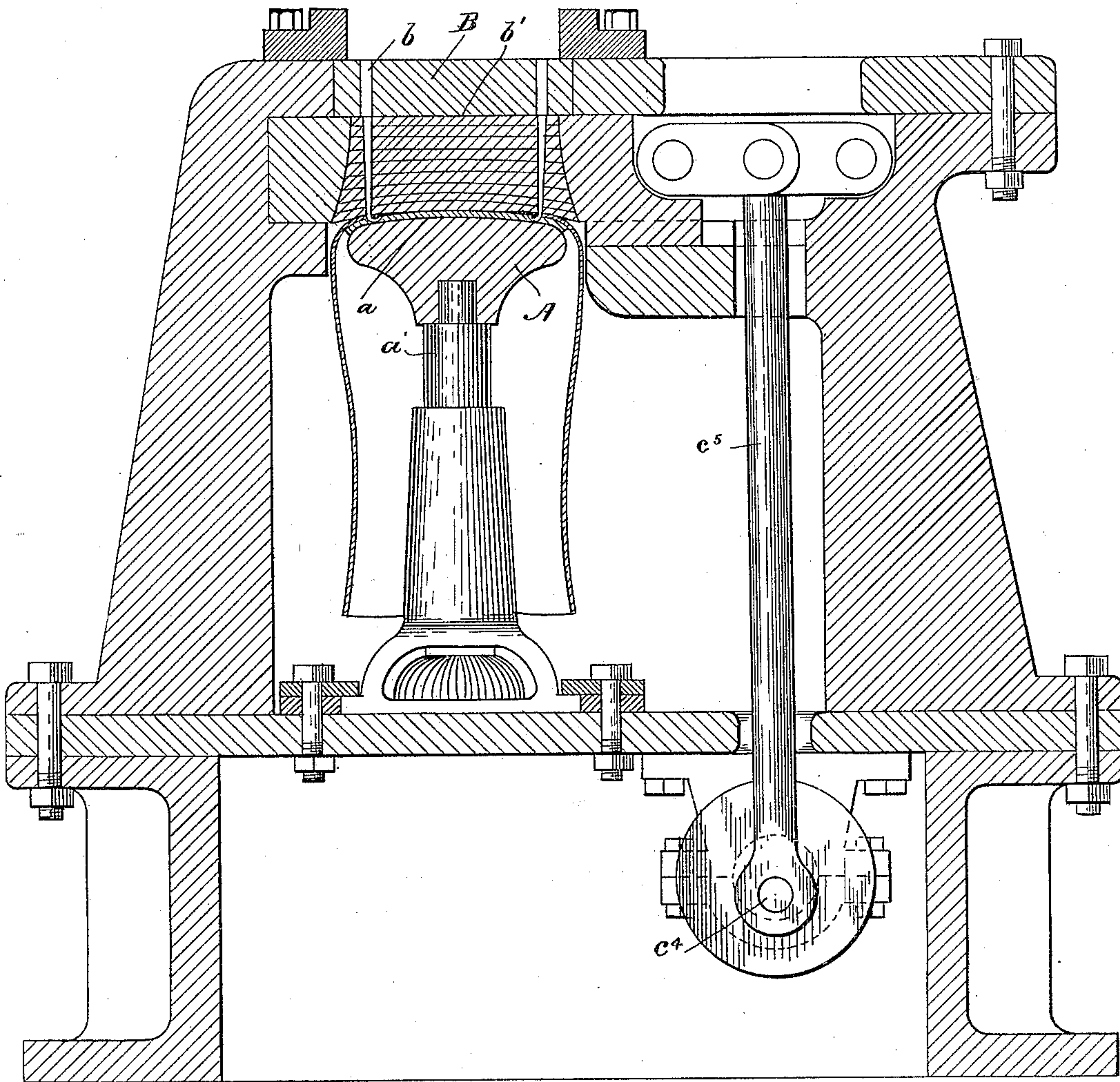


FIG. 3.

WITNESSES.

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(No Model.)

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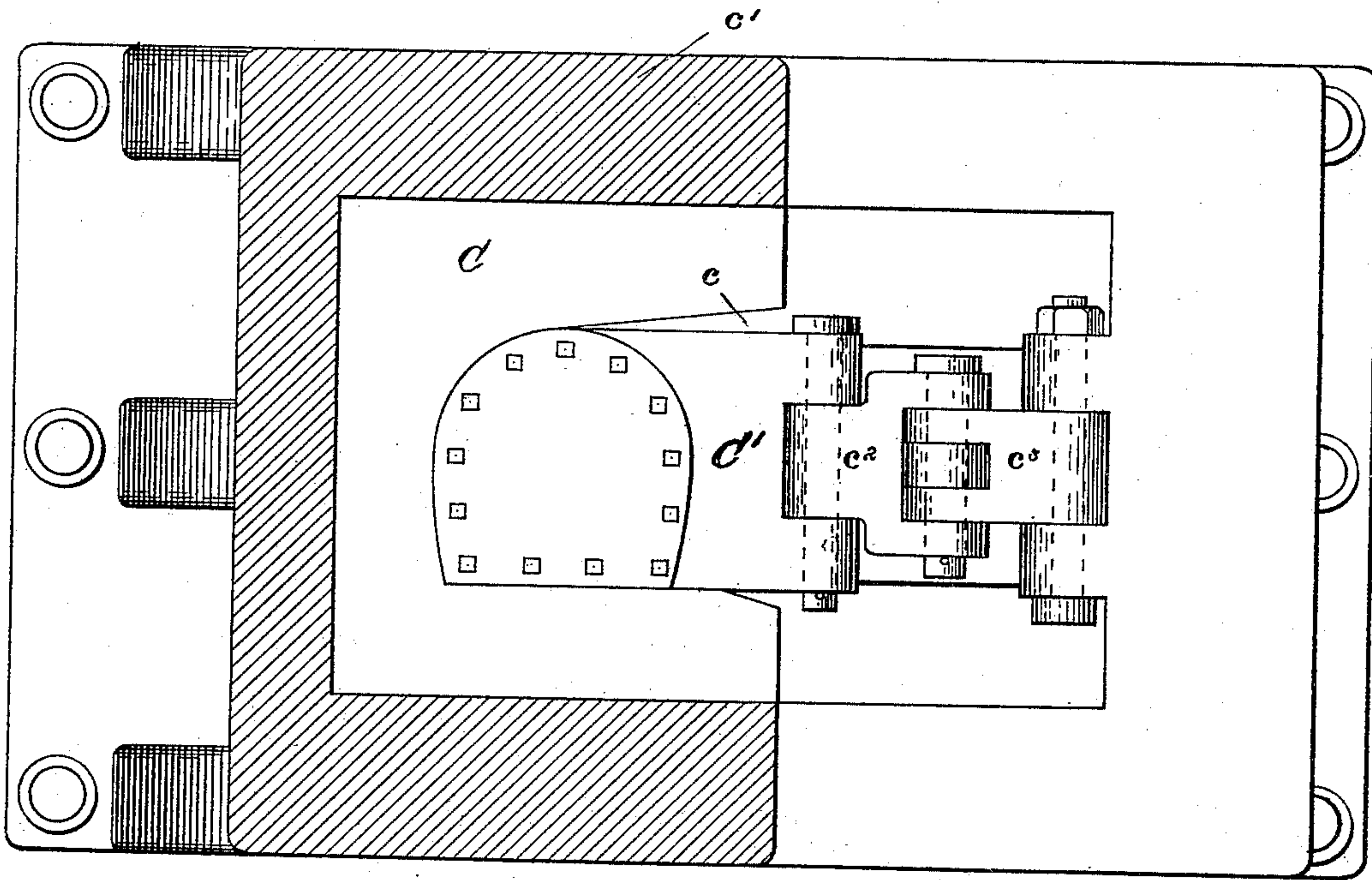


Fig. 4.

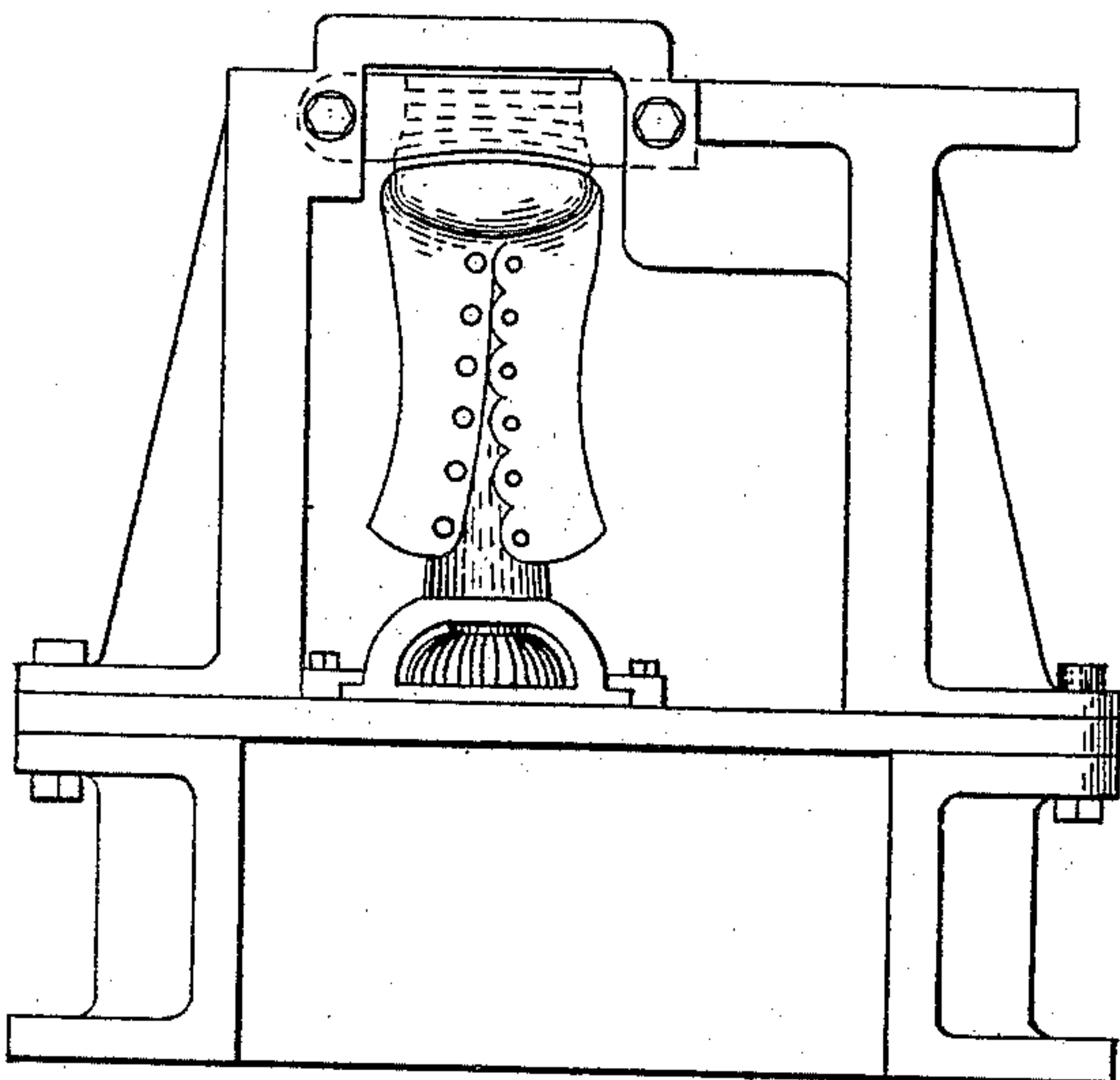


Fig. 5.

WITNESSES.

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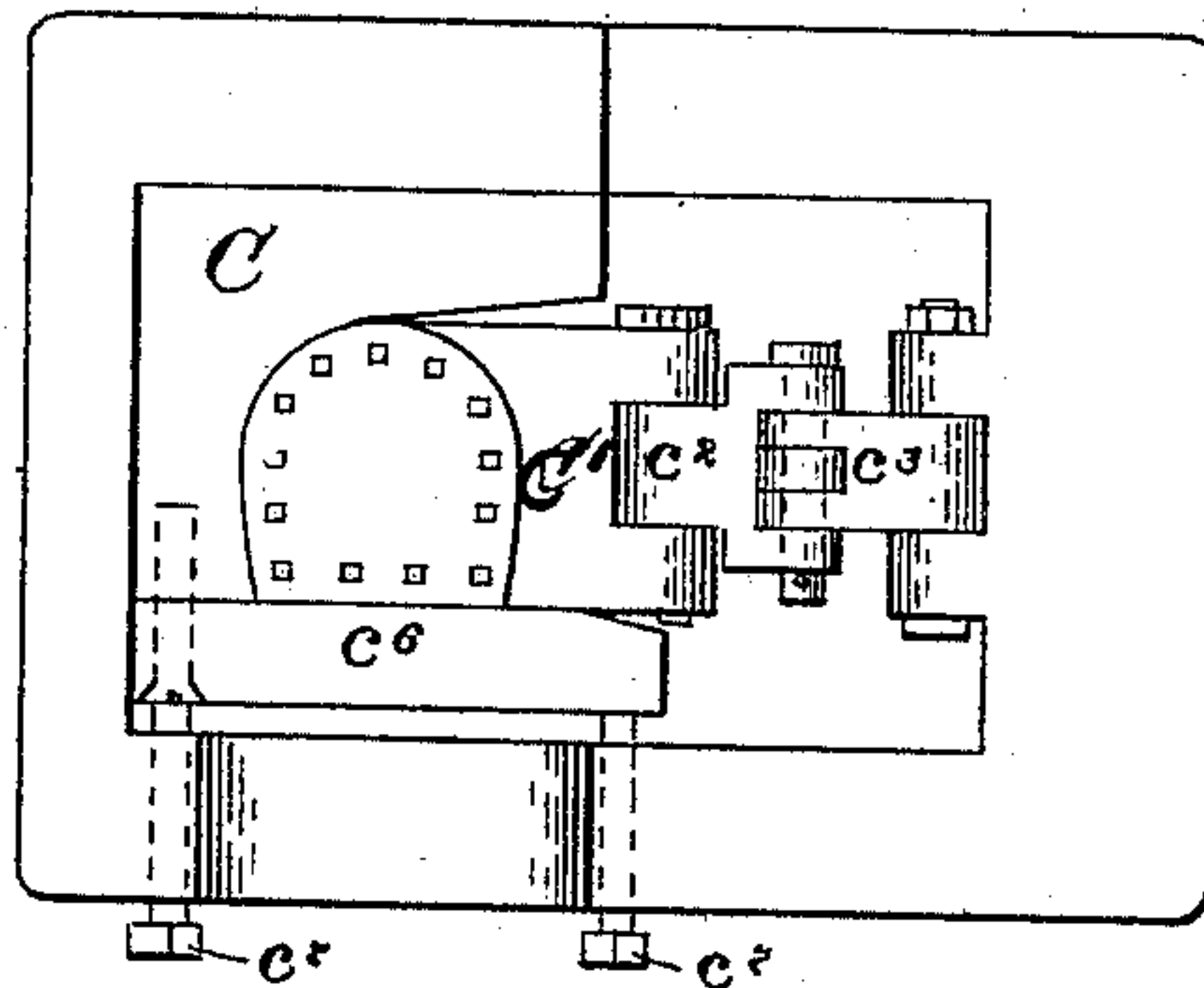


Fig. 6.

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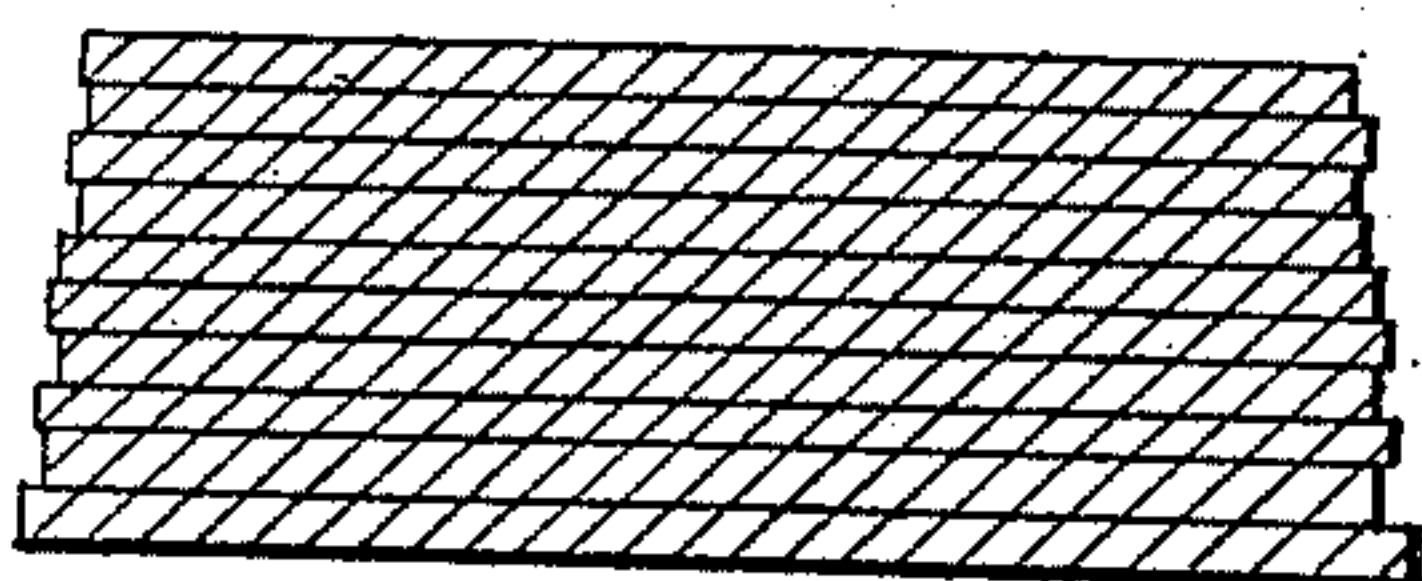


Fig. 7.

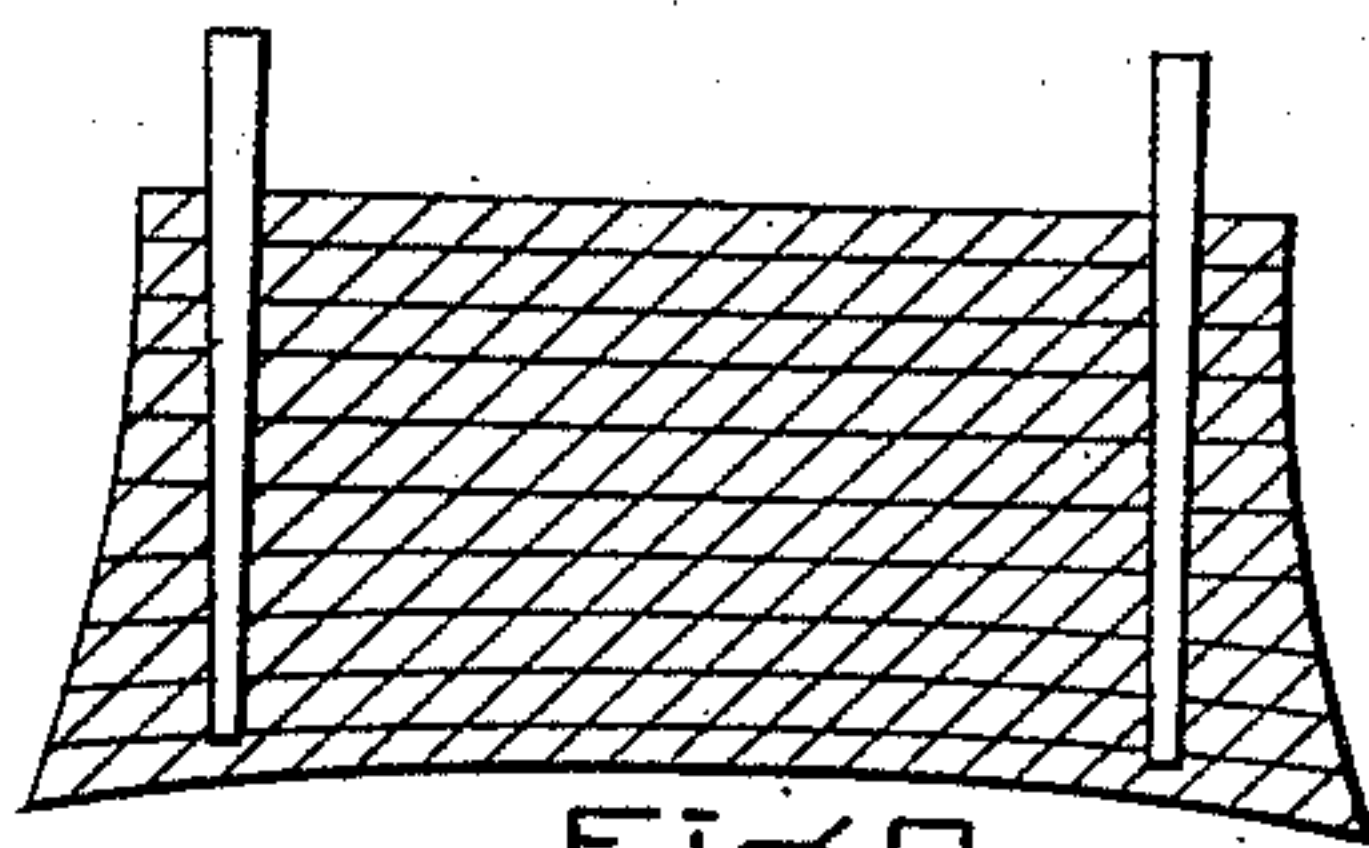


Fig. 9.

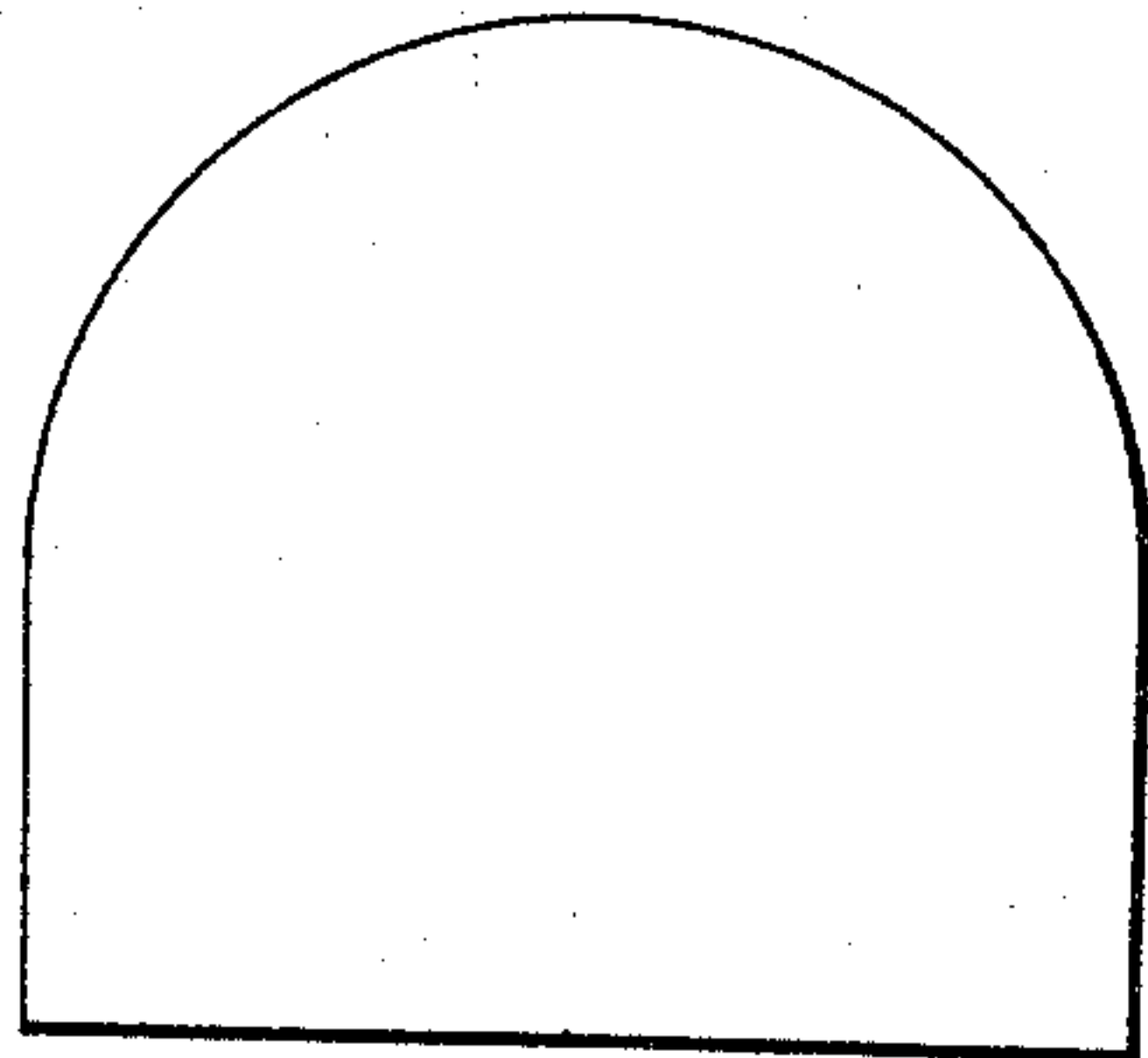


Fig. 8.

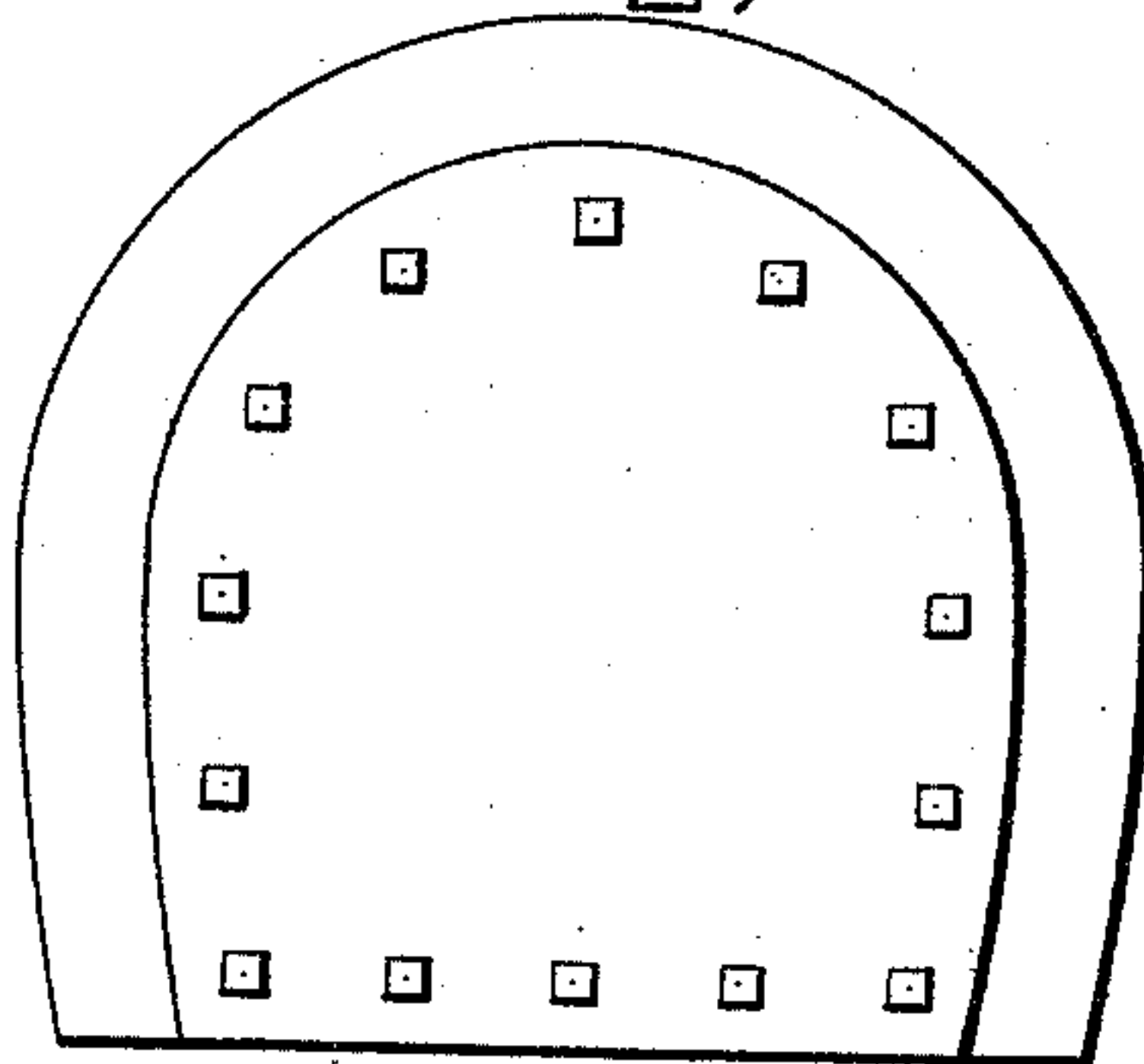


Fig. 10.

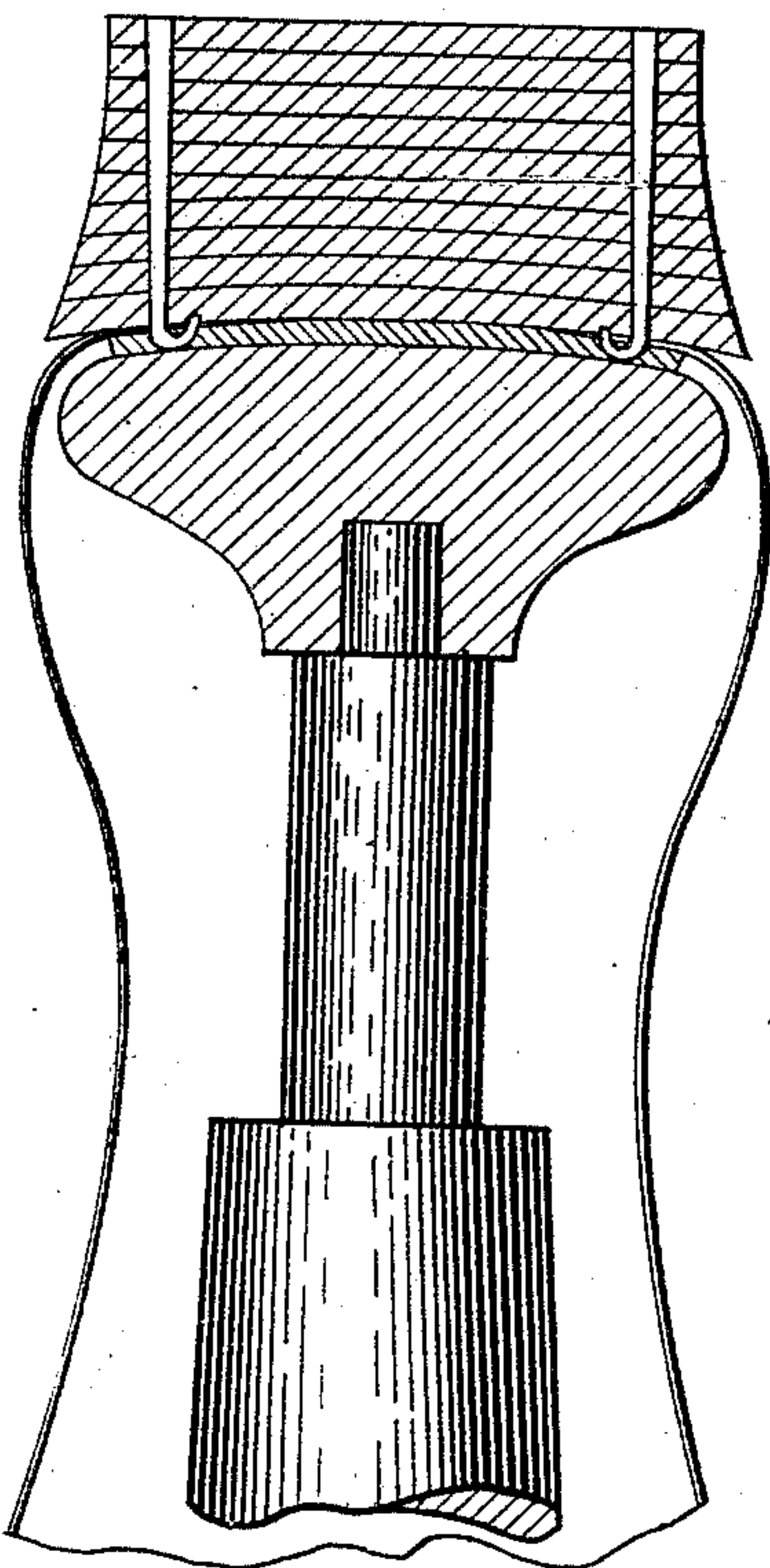


Fig. 11.

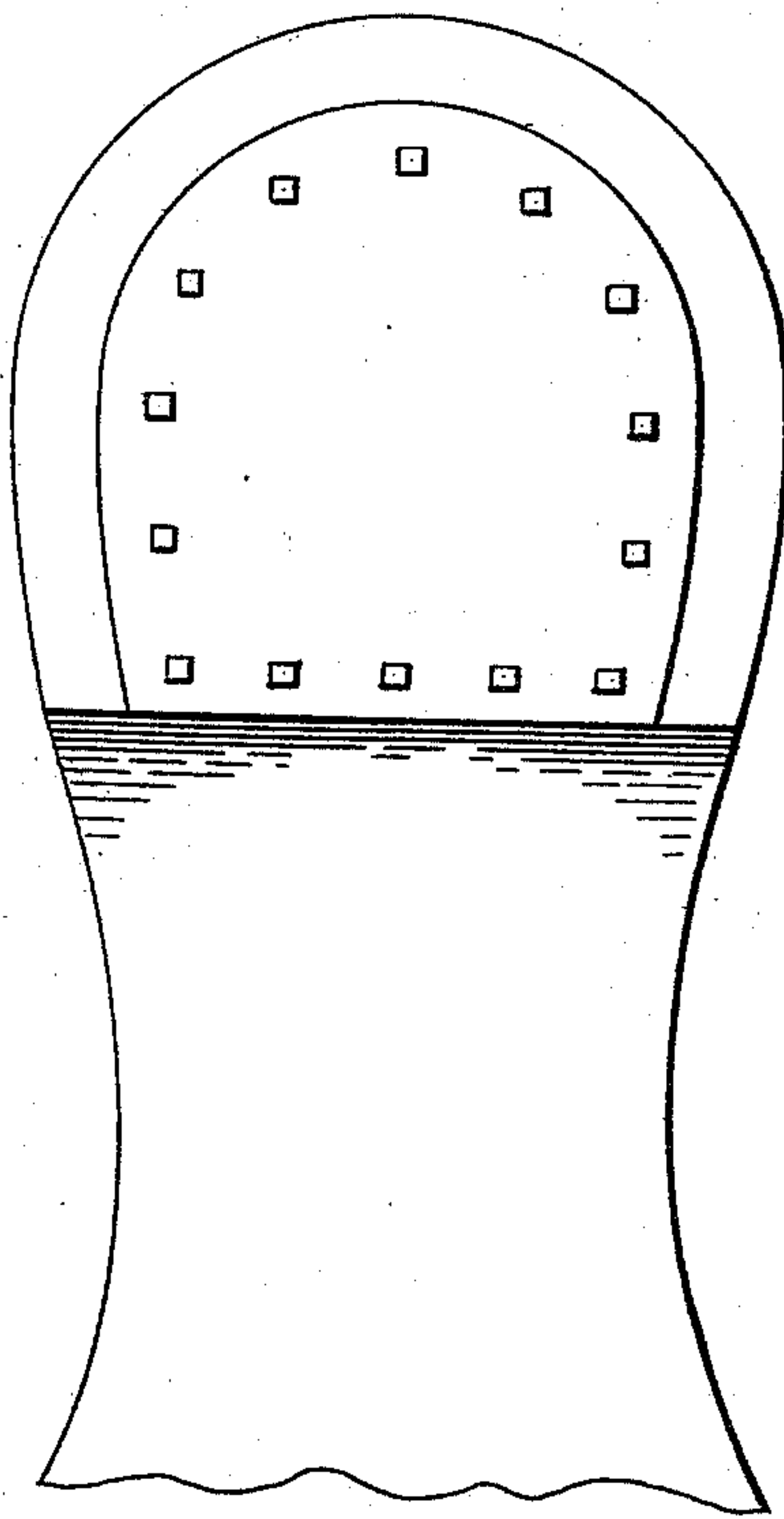


Fig. 12.

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F. F. Raymond.



# UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS.

## METHOD OF COMPRESSING AND ATTACHING HEELS.

SPECIFICATION forming part of Letters Patent No. 415,560, dated November 19, 1889.

Application filed December 9, 1887. Serial No. 257,365. (No model.)

*To all whom it may concern:*

Be it known that I, FREEBORN F. RAYMOND, 2d, of Newton, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in the Method of Compressing Heel-Blanks and Attaching them to the Soles of Boots or Shoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The object of the invention is to compress the heel-blank, both upon its side and tread and seat, by means of pressure exerted against the side of the heel-blank only, the heel-blank being held during its side compression between three stationary plates or supports, one of which is at the tread end of the heel-blank, one at the side, and the other at the heel-seat end.

The invention also has for its object to shape a heel-blank between three stationary supports or plates by pressure exerted against its side, which shall thicken the blank from heel-seat to tread, and which may also lengthen the blank from its breast to its rear end, and also to attach such a blank while thus held compressed or formed to the soles of a boot or shoe.

In practicing the invention I prefer to employ as a tread a plate against which the tread end of the heel is forced into contact by the side or lateral compression of the heel, a perforated templet-plate, through the holes of which awls may be actuated and nails delivered and driven; and where a heel-blank is compressed without being attached to the soles of a boot or shoe I employ a heel-seat support or former, which is also stationary during the compression of the heel-blank. Where the heel-seat is compressed upon the soles of a boot or shoe, I use a last or work-support, which is also stationary.

I have represented in the drawings one means of carrying my invention into effect.

Figure 1 represents a view in vertical section of the device employed, the view representing the heel-blank as uncompressed. Fig. 2 is a view in section representing the heel-blank as compressed upon a heel-seat former.

Fig. 3 represents the heel-blank as compressed upon the sole of a boot or shoe. Fig. 4 is a view in plan of the heel-blank-forming devices, the templet being removed. Figs. 5 and 6 represent the devices as organized to compress the heel-blank upon the soles of a boot or shoe. Figs. 7 and 8 represent the heel-blank before compression, Figs. 9 and 10 after compression, Figs. 11 and 12 after attachment to the sole of a boot or shoe.

A is the heel-seat former, last, or work-support, and it is held stationary during compression or forming of the heel-blank, its surface *a* having any desired shape. For the purposes of adjustment the heel-seat support or last A is mounted upon a spindle or post *a'*, which is vertically adjustable.

B is a templet, which is also stationary, which, preferably, has the holes B, and the under surface *b'* forms an abutment against which the tread of the heel is forced while it is being laterally compressed.

C is a die having the lateral opening or mouth *c*, and which is held by the frame *c'*, and which is stationary.

C' is a movable section of the die, and it is moved in the opening *c* any desired extent by means of the toggle *c<sup>2</sup> c<sup>3</sup>*, the crank *c<sup>4</sup>*, and connecting-rod *c<sup>5</sup>*.

The same parts are used both for forming the detached heel-blank and for shaping it when it is formed upon the sole of the boot or shoe, the shape of the parts, however, being slightly modified, as represented in Figs. 5 and 6—that is, the die C is made in two parts, its front part *c<sup>6</sup>* being moved toward and from the remainder of the die by means of screws *c<sup>7</sup>*, and also being arranged to be turned upward upon one of the screws *c<sup>7</sup>* as a hinge to open the die and permit the attached heel to be withdrawn, with the last or work-support, horizontally from the die.

In practicing the method the heel-support or last is brought into proper relation to the under surface of the templet. A heel-blank of proper shape and size is then placed thereon in the die C and the movable section C' of the die forced against the side of the heel-blank with very considerable or even great pressure, causing it to be forced into the stationary die, its side and breast to be shaped



by the surface of the die, and the heel-blank itself to be increased in thickness to fill the space between the upper surface *a* of the stationary former or support and the under surface *b'* of the templet, which are stationary during this forming operation; and the heel-blank is, if desired, likewise changed in shape by being lengthened during this lateral compression, in which event the heel-blank is made somewhat broader and shorter than the die in which it is formed. Awl-holes are then formed in the compressed heel-blank by awls inserted through holes *b*, and nails may then be driven into the heel-blank through the said holes, and either to or very nearly to the heel-seat; or, if the heel-blank is to be attached to the soles of a boot or shoe, into the soles of said boot or shoe. It will be seen that by this method the heel-blank is caused to be compressed between three stationary abutments by lateral pressure only, and that it is decreased in width, elongated, if desired, and thickened to such an extent as to cause its heel-seat to be shaped and to tightly bear against the heel-support or against the outsole of the boot or shoe. It will also be seen that by this method the heel-blank is compressed vertically upon its heel-support, or heel of the boot or shoe, and its side edge formed without causing the pressure or templet-plate or the last or work-support to be moved vertically in relation to each other.

I am aware of Patents No. 112,702, dated March 14, 1871; No. 135,536, dated February 4, 1873; No. 125,523, dated April 9, 1872; No. 246,945, dated September 13, 1881; No. 374,536; dated December 6, 1887; No. 347,061, dated

August 10, 1886, all relating to building or compressing heel-blanks; but these machines do not embrace mechanism for carrying my method into effect, in that they do not show or describe stationary plates at the heel-seat or heel end of the outsole and at the tread end of the heel, between which plates the heel-blank is consolidated by lateral pressure only.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The method of compressing heel-blanks, consisting in placing the blank to be compressed between three stationary surfaces, one at the tread end of the heel, one at the heel-seat end and one at the side thereof, and causing said heel-blank to be tightly or forcibly clamped between said surfaces by lateral pressure exerted against the one side thereof, as and for the purposes described.

2. The method of compressing and attaching heel-blanks, consisting in placing the blank to be compressed between three stationary surfaces, one at the tread end of the heel, one at the heel-seat end and one at the side thereof, causing said heel-blank to be tightly or forcibly clamped between said surfaces by lateral pressure exerted against one side thereof, and attaching said heel-blank to the sole while thus held compressed, as and for the purposes described.

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Witnesses:

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E. P. SMALL.