

No. 606,957.

Patented July 5, 1898.

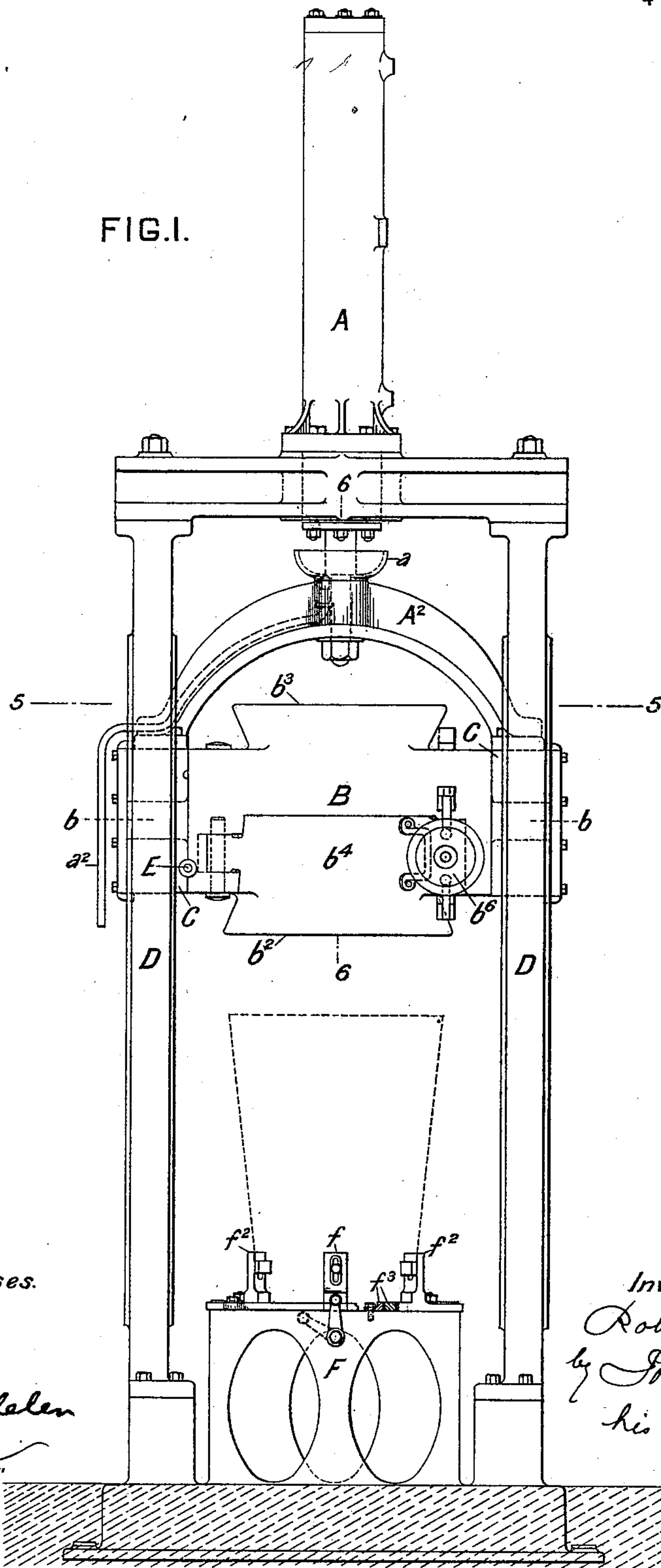
R. COLLEN.
TRUSSING MACHINE.

(Application filed Dec. 24, 1897.)

(No Model.)

4 Sheets—Sheet 1.

FIG. 1.



Witnesses.

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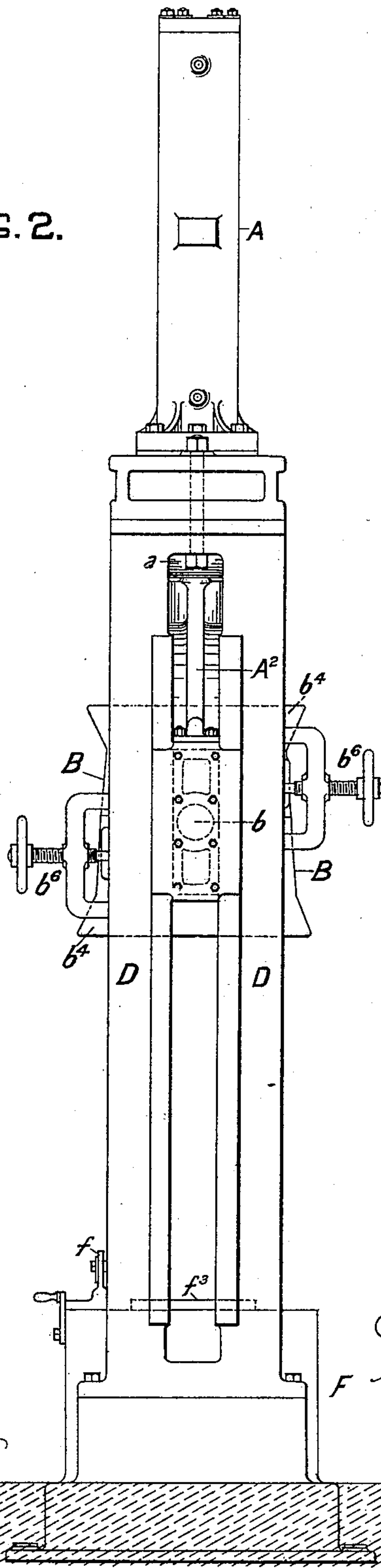
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(No Model.)

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FIG. 2.



Witnesses.

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FIG. 6.

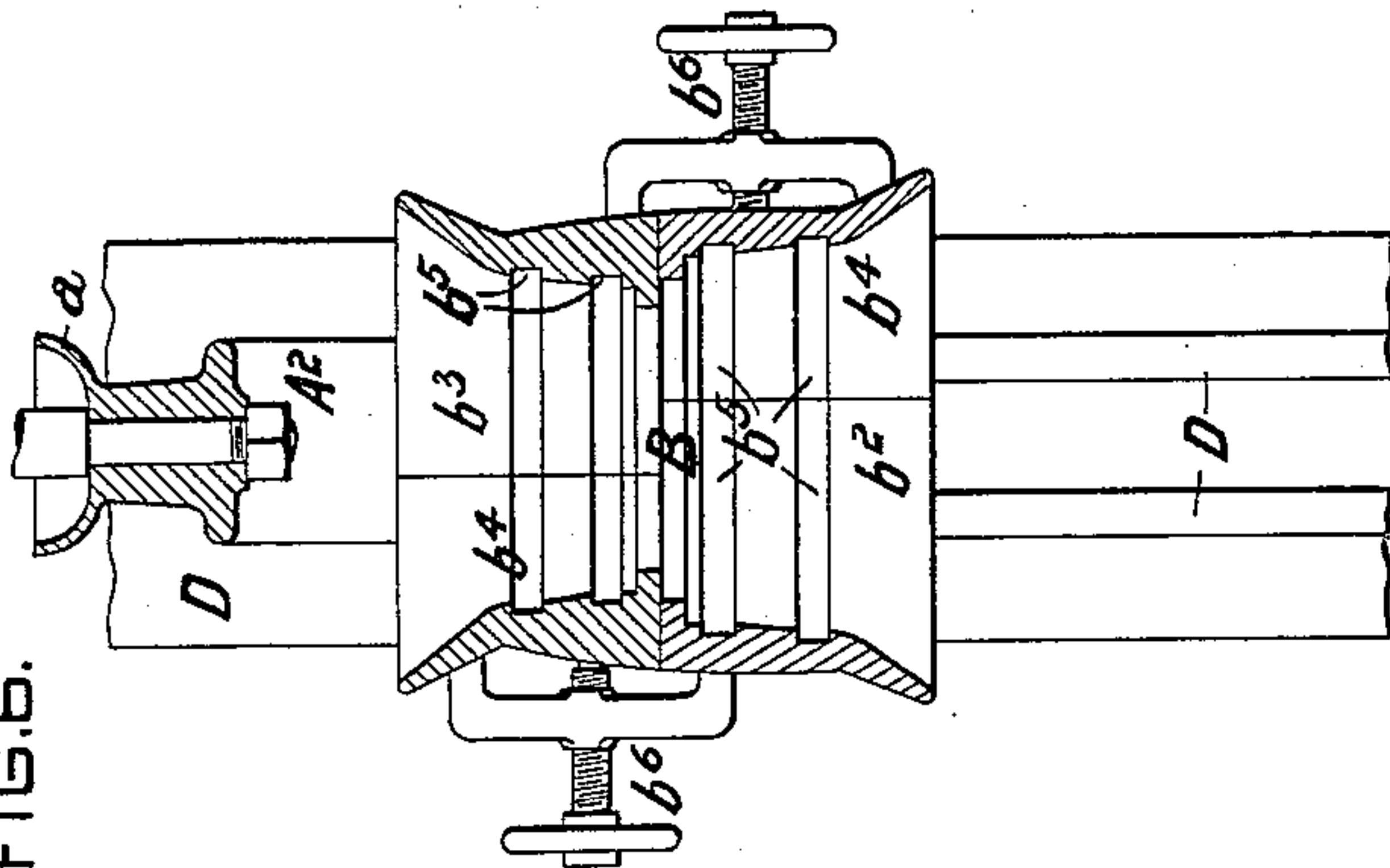


FIG. 4.

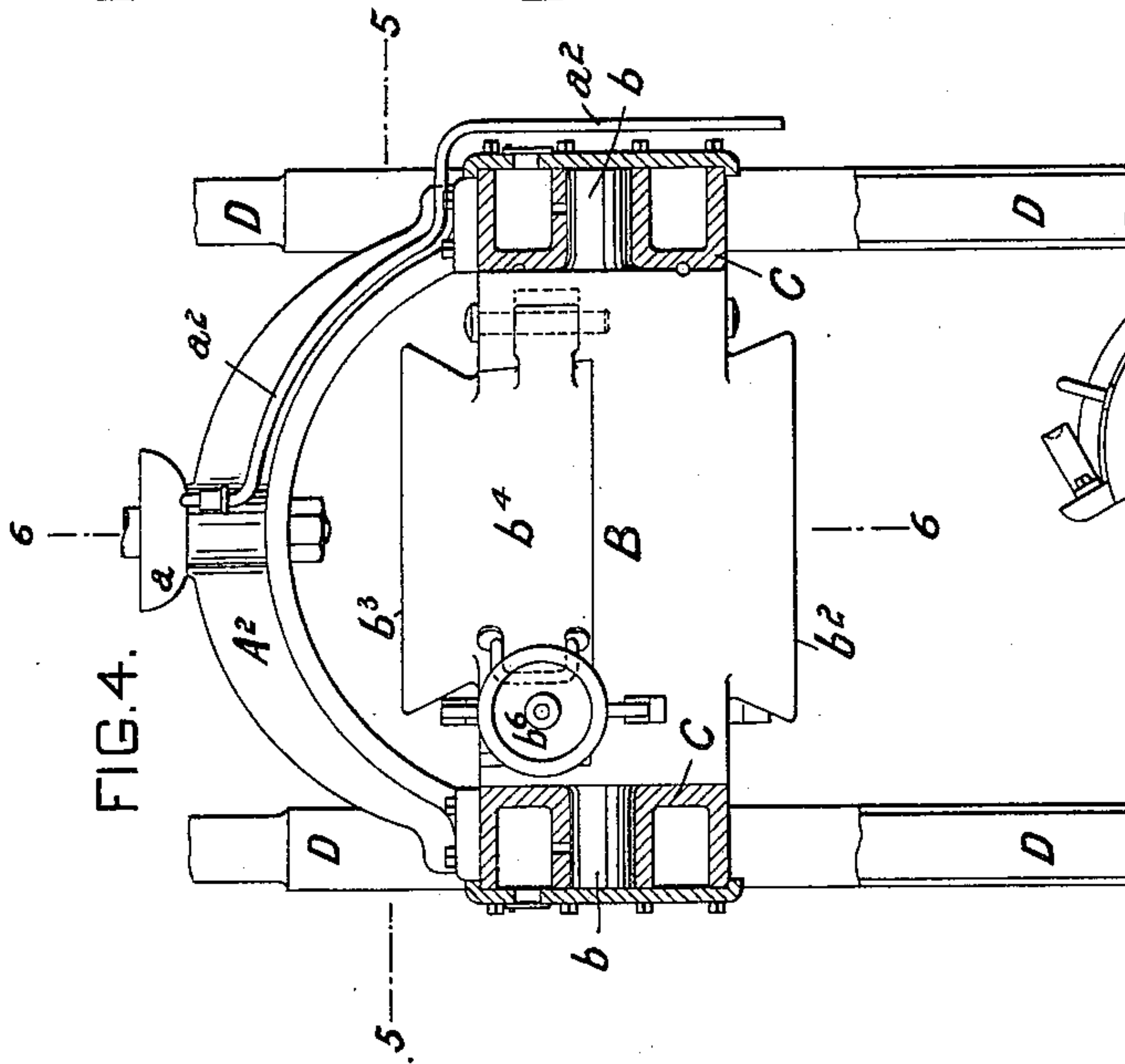


FIG. 5.

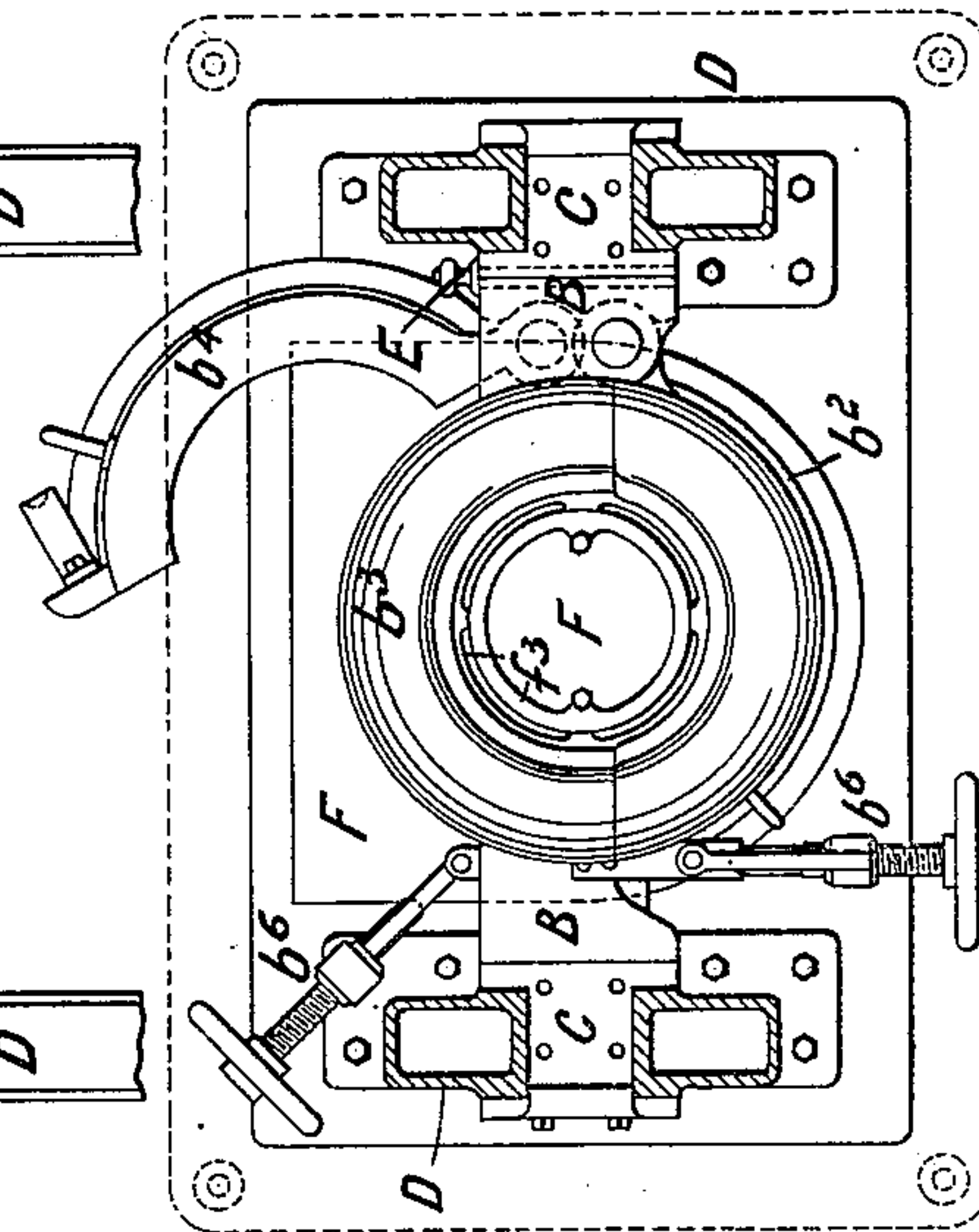
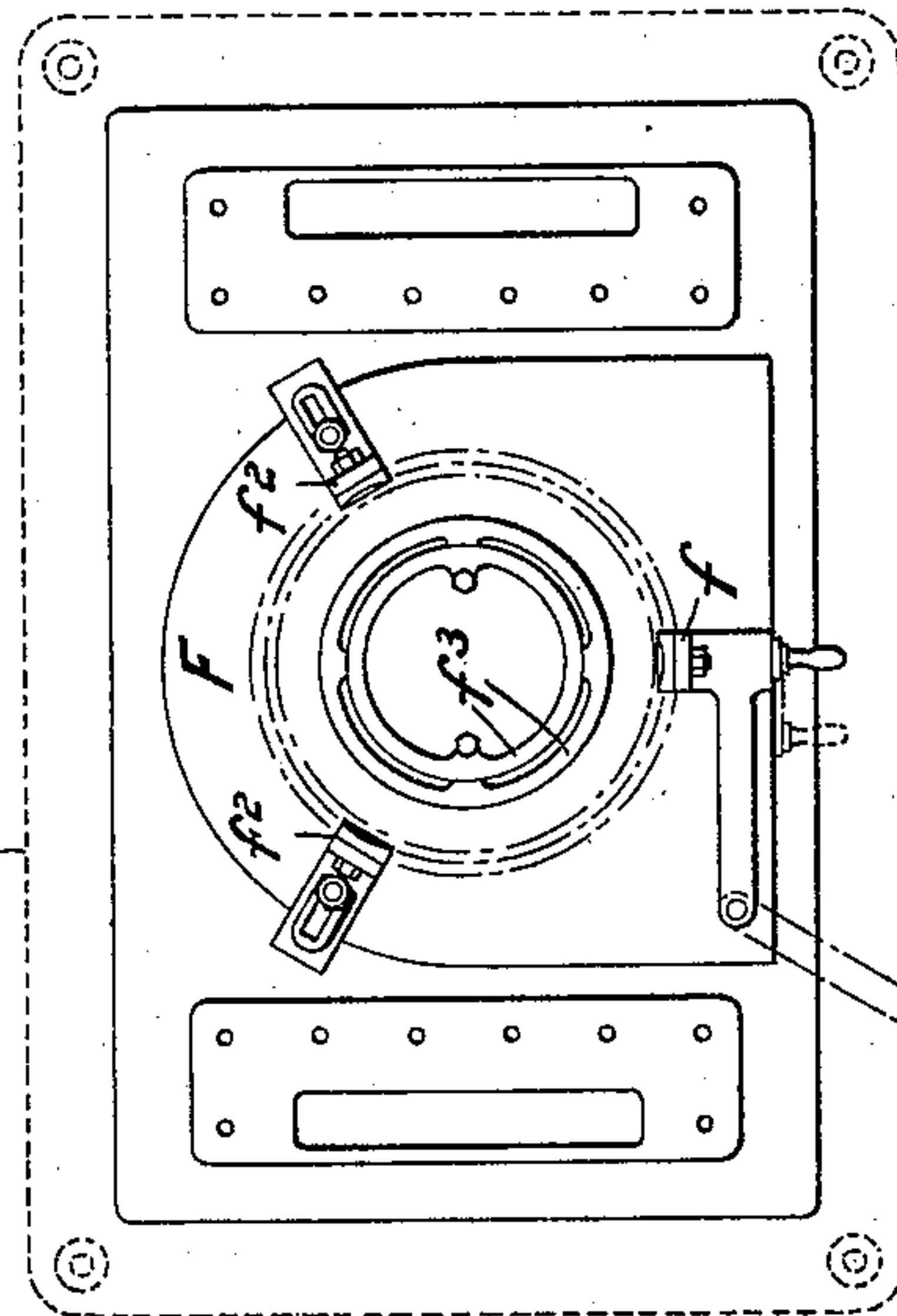


FIG. 3.



Witnesses.

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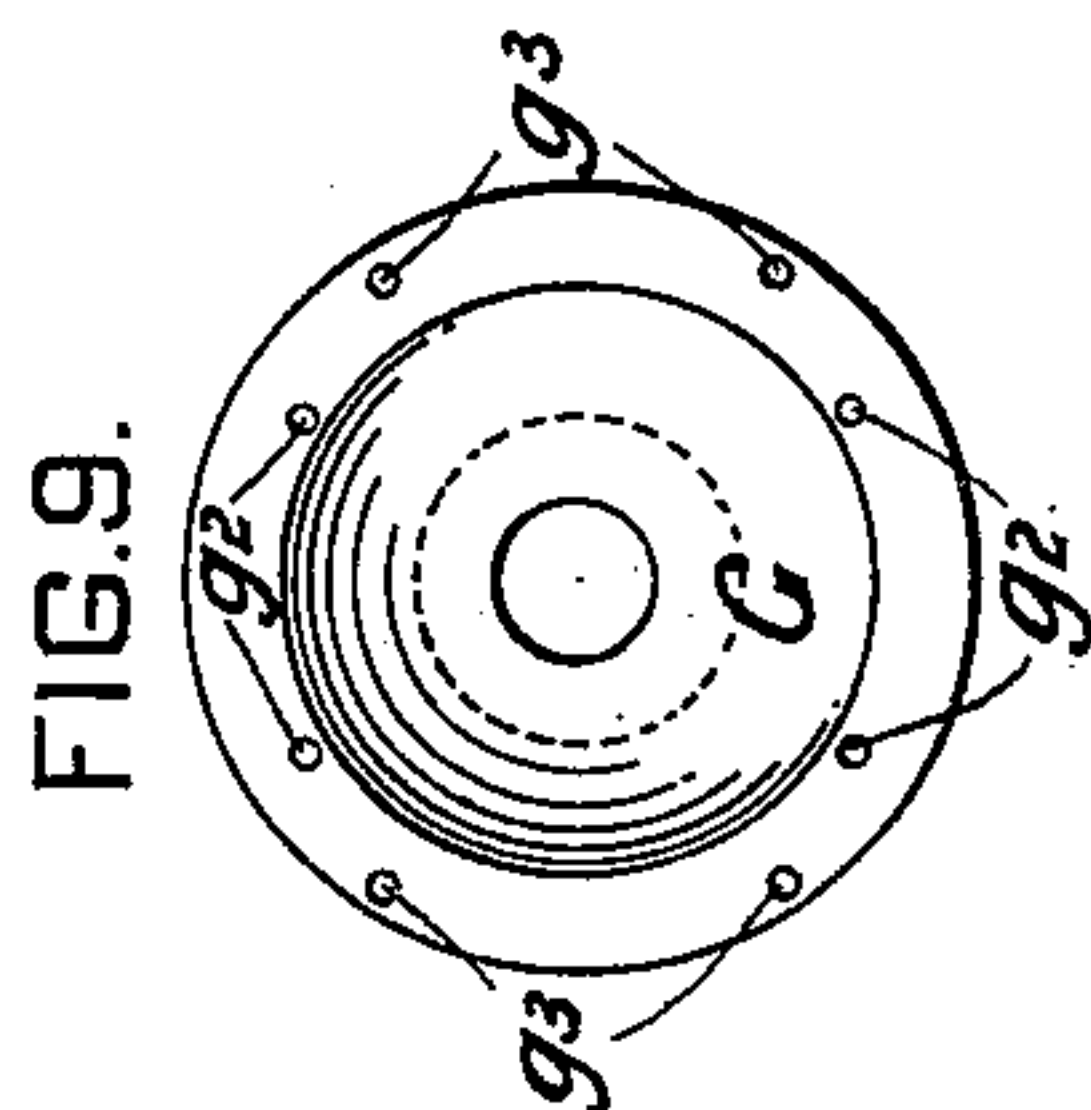
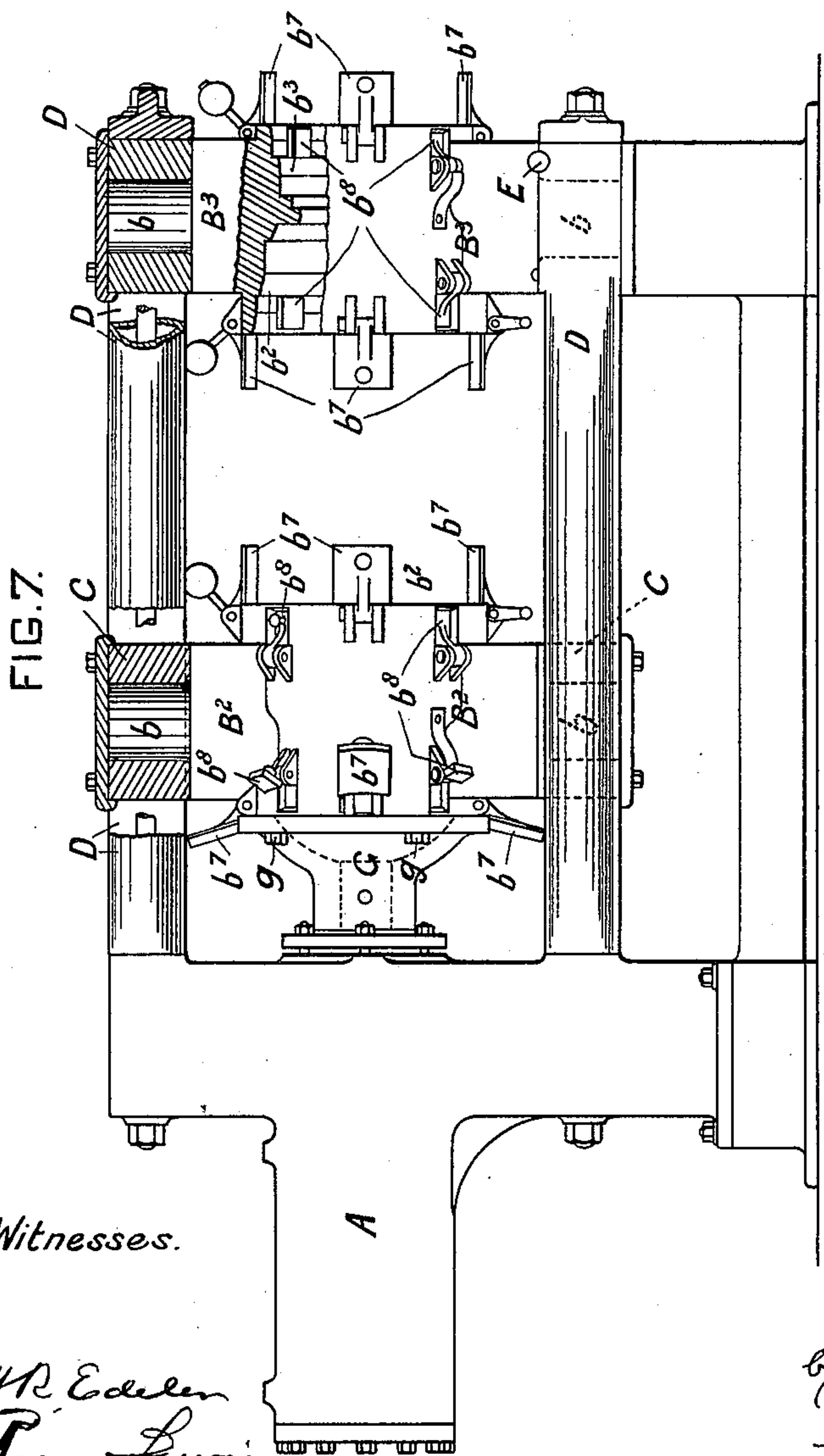
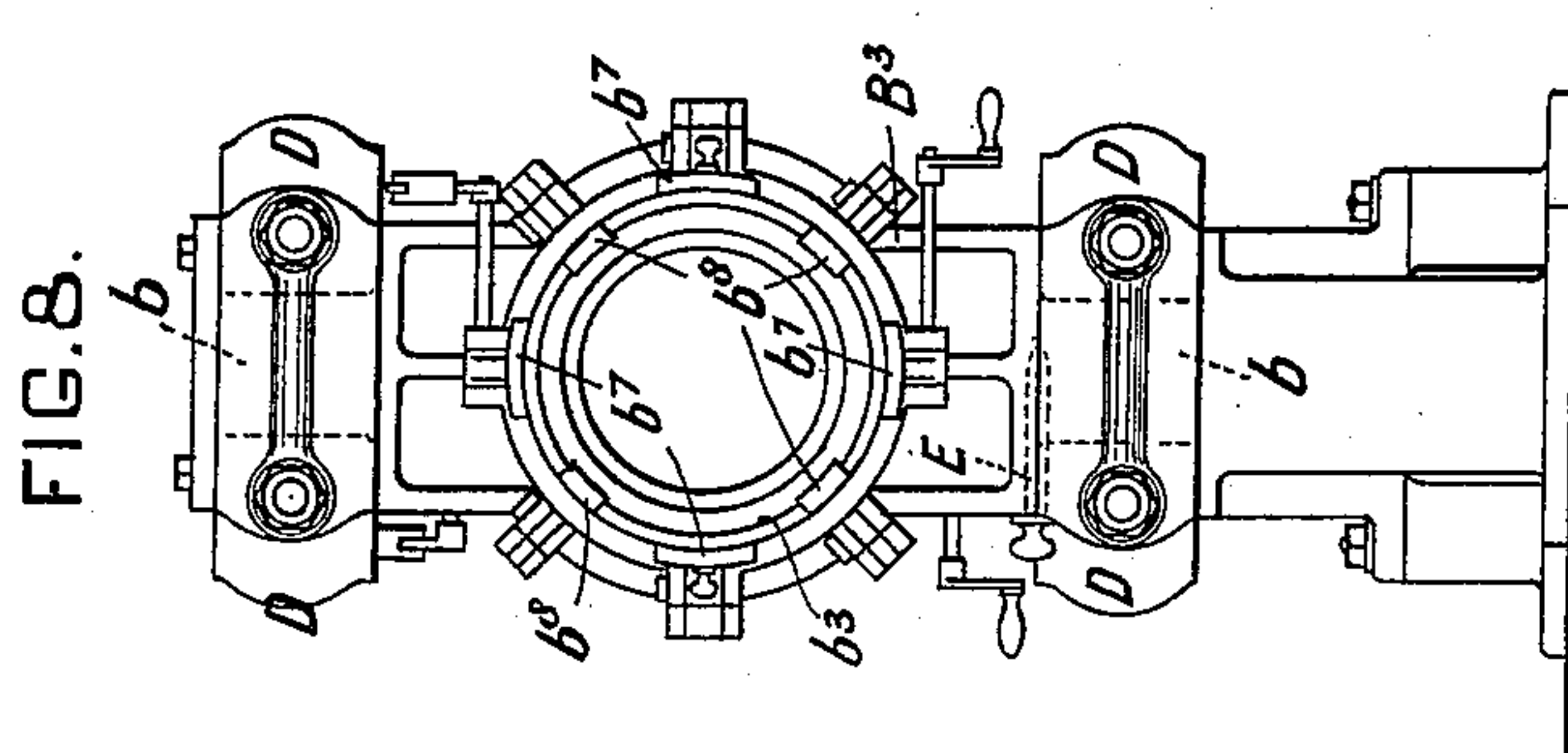
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(No Model.)

4 Sheets—Sheet 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

ROBERT COLLEN, OF LONDON, ENGLAND.

TRUSSING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,957, dated July 5, 1898.

Application filed December 24, 1897. Serial No. 663,368. (No model.)

To all whom it may concern:

Be it known that I, ROBERT COLLEN, engineer, a subject of the Queen of Great Britain and Ireland, residing at 30 Pigott street, Limehouse, London, England, have invented certain Improvements in Trussing-Machines, of which the following is a specification.

This invention relates to trussing-machines for use in making casks or the like, and has for its object to construct a machine which shall be capable of trussing casks of different sizes.

In a machine constructed according to this invention the hydraulic or other pressure device for forcing the trussing-hoops onto the staves is provided with a reversible head or double cone, each side or cone of which operates on a cask of a size differing from that on which the other side or cone operates.

I will describe the invention by reference to the accompanying drawings, in which two different examples of its application are shown, Figures 1 to 6, inclusive, showing it applied to a vertical or what is herein termed an "open" trussing-machine, and Figs. 7 to 9, inclusive, showing it applied to a horizontal or what is herein termed a "close" trussing-machine.

In the drawings, Figs. 1 and 2 are respectively a front and a side elevation of the open trussing-machine, of which the base is shown in plan in Fig. 3. Fig. 4 is a view of a portion of the apparatus, shown partly in vertical section and partly in back elevation. Fig. 5 is a horizontal section on the lines 5 5 of Figs. 1 and 4, with the yoke omitted. Fig. 6 is a transverse vertical section on the lines 6 6 of Figs. 1 and 4. Fig. 7 is a view of the close trussing-machine, shown partly in front elevation and partly in longitudinal section. Fig. 8 is an end elevation of the last-named machine, and Fig. 9 is an elevation of a detached portion of the said machine.

Like letters of reference represent like or corresponding parts throughout the drawings.

The two trussing-machines shown in the drawings are both represented as operated by hydraulic power; but it is to be understood that my improvements may be applied to machines operated by any other power, the term "pressure device" used herein being in-

tended to apply to any means which may conveniently be used for supplying the necessary pressure.

In the open trussing-machine shown in Figs. 1 to 6, wherein the pressure device A, in accordance with a separate application for Letters Patent of even date herewith, is situated at the upper part of the apparatus, the reversible head or double cone B is pivoted by its trunnions b in blocks C, secured to a fork or yoke A^2 , operated by the pressure device A. The standards or guides D restrict the movement of the blocks C to a vertical path.

The reversible head B is internally conical at its upper and lower parts, these two cones b^2 b^3 being of different size, as shown most clearly in Fig. 6. Each of the cones b^2 b^3 , as in other existing trussing-machines, is divided vertically, so that one of its parts may form a hinged door b^4 , which when opened, as shown, for example, in Fig. 5, gives ready access to the interior of the cone for the insertion into or removal from its grooves b^5 of the trussing-hoops. The two doors b^4 are hinged to opposite sides of the head B, so that each of the said doors may be presented toward the front of the machine when the particular cone to which it appertains is presented downward—that is to say, when it is in its operative position.

The doors b^4 are retained in their closed positions by screw-bail devices b^6 , which may be turned inward against the cones to enable them to clear the yoke A^2 when the head B is being reversed. The head may be locked in either of its two operative positions by means of a pin or bolt E, which fits into a hole formed half in one of the guide-blocks C and half in the adjacent surface of the head B.

On the base-plate F are provided adjustable brackets f^2 for supporting the trussing-hoops which are to be fitted onto the lower ends of the staves, and adjustable rings f^3 , against which the lower ends of the staves rest, so that the said staves may be supported in position for insuring that their upper ends will be properly engaged by the cone b^2 or b^3 when the head B is lowered. By the last-named operation the upper ends of the staves are contracted or drawn together, and the two

trussing-hoops in the grooves b^5 are passed over them to hold them in that position. When the head is in its lowered position, the door b^4 of the cone b^2 or b^3 then in operation is opened and the bracket f on the base-plate F is swung forward, as indicated in dotted lines in Fig. 3, so as to allow the cask to be removed, after which other trussing-hoops are placed in position, the door b^4 is closed, the head B is raised, and a fresh batch of staves is placed in position ready for a repetition of the before-described operation.

The cask after being partly trussed, as previously described, has the trussing completed in the close trussing-machine shown in Figs. 7 and 8, which comprises two reversible heads $B^2 B^3$, each of substantially similar construction to the head B previously described, excepting that in this machine the doors b^4 are not provided. The head B^2 is caused to travel horizontally along the machine by the pressure device A ; but the head B^3 has no such motion, this head being pivoted in the ends of the two rigid guide-frames D .

The heads $B^2 B^3$ are each provided with a number of hinged thrust-pieces $b^7 b^8$, which when in their operative positions project the thrust-pieces b^7 beyond the edges of the cones $b^2 b^3$ and the thrust-pieces b^8 through openings in the said cones. In the interior of the heads are recesses for the reception of hoops or rings to be forced onto the opposite ends of the cask being made. The partly-trussed cask when introduced into the machine is placed between the two heads $B^2 B^3$ (in which have been previously inserted two head-hoops) and supported on the lowermost of the thrust-pieces b^7 , which may themselves then be supported by blocks. All the other thrust-pieces b^7 are then placed in their operative positions, and afterward the head B^2 is advanced, so that the front ends of the said thrust-pieces press against the bulge-hoops (previously applied to the cask in the open trussing-machine) and force them into position along the staves. The head B^2 is then withdrawn slightly and the thrust-pieces b^7 of both of the heads $B^2 B^3$ are moved outward into their inoperative positions and the thrust-pieces b^8 are turned into their operative positions, so as to cause them to engage with the quarter-hoops and force the said hoops into position when the head B^2 is next moved forward. After this the head B^2 is again withdrawn and the thrust-pieces b^8 are moved into their inoperative positions. The staves are thus contracted or drawn close together at their ends, so that by the next forward movement of the head B^2 the ends of the staves will enter the head-hoops placed in the

heads $B^2 B^3$, which hoops being thus forced onto the ends of the staves the trussing is completed. The head B^2 is then withdrawn and the trussed cask removed from the machine.

The head B^2 is connected to the pressure device by means of a cupped disk G and bolts g , and when it is desired to reverse the said head the latter is moved slightly forward by the pressure device A and then brought to rest. The bolts g are then removed and the pressure device moved slightly backward, so as to leave room for the turning of the head B^2 . After this latter operation has been effected the pressure device is again moved up to the head B^2 and the said head is secured to the disk G by the bolts g , the disk G , as shown in Fig. 9, being provided with two sets of bolt-holes $g^2 g^3$, respectively, to correspond with the two different sizes of the cones $b^2 b^3$.

The reversal of the head B , Figs. 1 to 6, and of the head B^3 , Figs. 7 and 8, may be readily effected by withdrawing the pin or bolt E and then turning the head and afterward replacing the pin or bolt E .

When the reversible head B is operated by a hydraulic pressure device, as shown in Figs. 1 and 2, I prefer to provide the yoke A^2 with a cup a for receiving any water which may leak through the stuffing-box of the hydraulic cylinder, this water being conducted to the side of the machine by a pipe a^2 .

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a trussing-machine the combination with a pressure device of a reversible head, pivots on the head connecting it to the pressure device, cones of different size at opposite sides of the head for operating on casks of different diameters, and lock devices for the head substantially as set forth.

2. The combination with a trussing-machine of reversible cones of different size for operating on casks of different diameters substantially as set forth.

3. In a trussing-machine the combination with a pressure device of reversible cones of different size and pivots connecting the cones to the pressure device substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

R. COLLEN.

Witnesses:

WILLIAM FREDERICK UPTON,
JOHN EDWARD NEWTON.