

No. 731,269.

PATENTED JUNE 16, 1903.

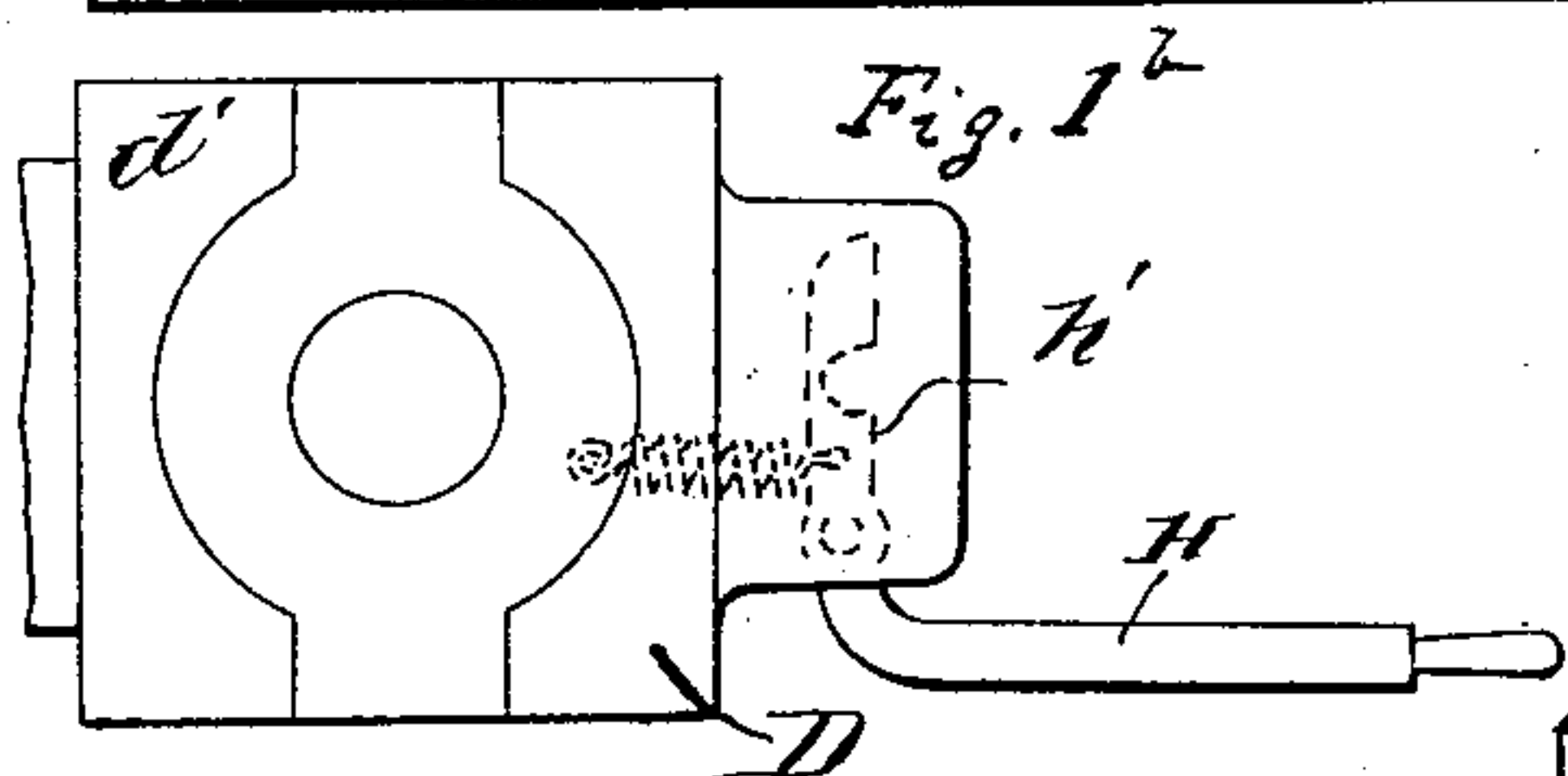
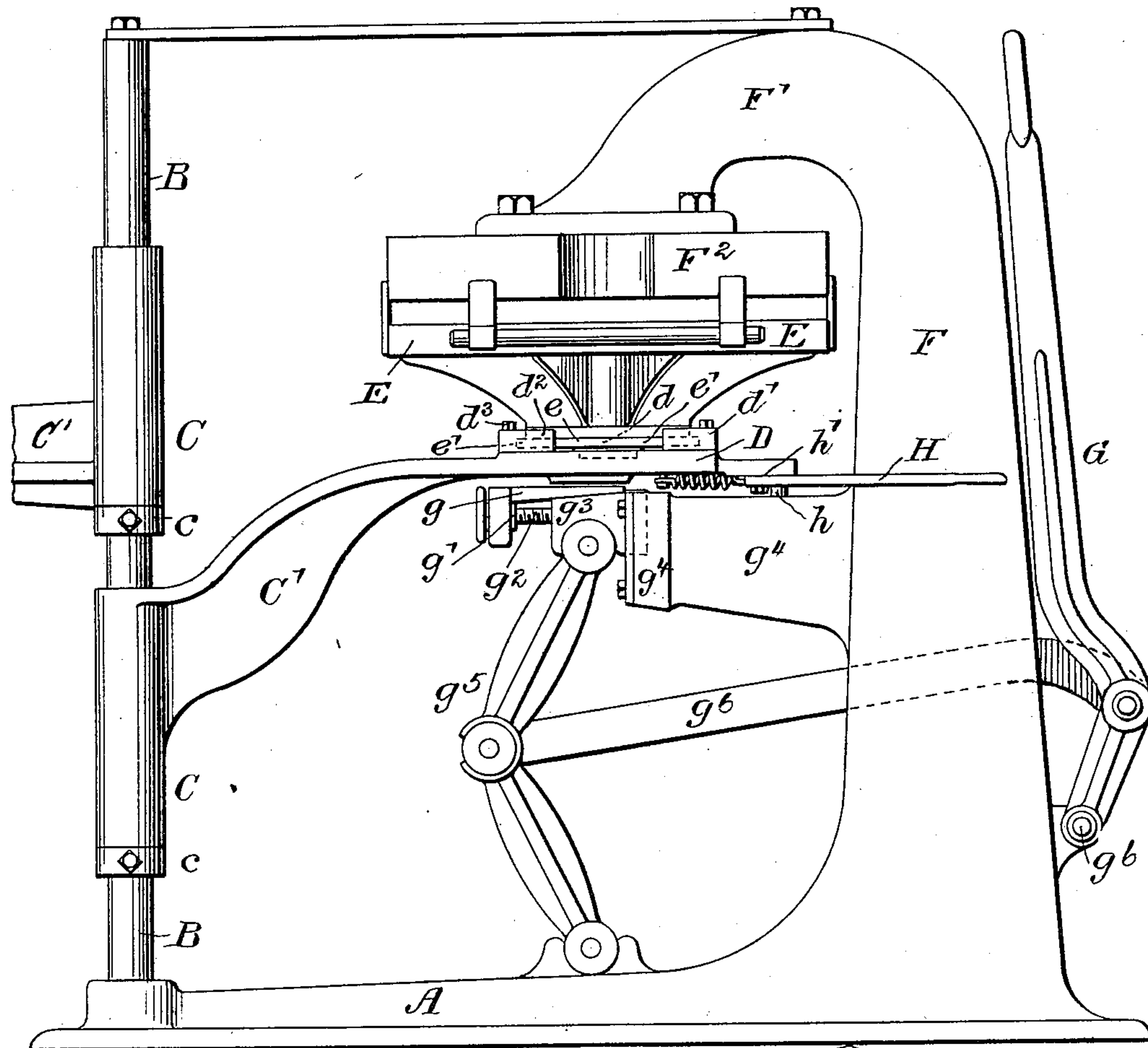
D. H. BENJAMIN.  
IRONING MACHINE.

APPLICATION FILED JAN. 15, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

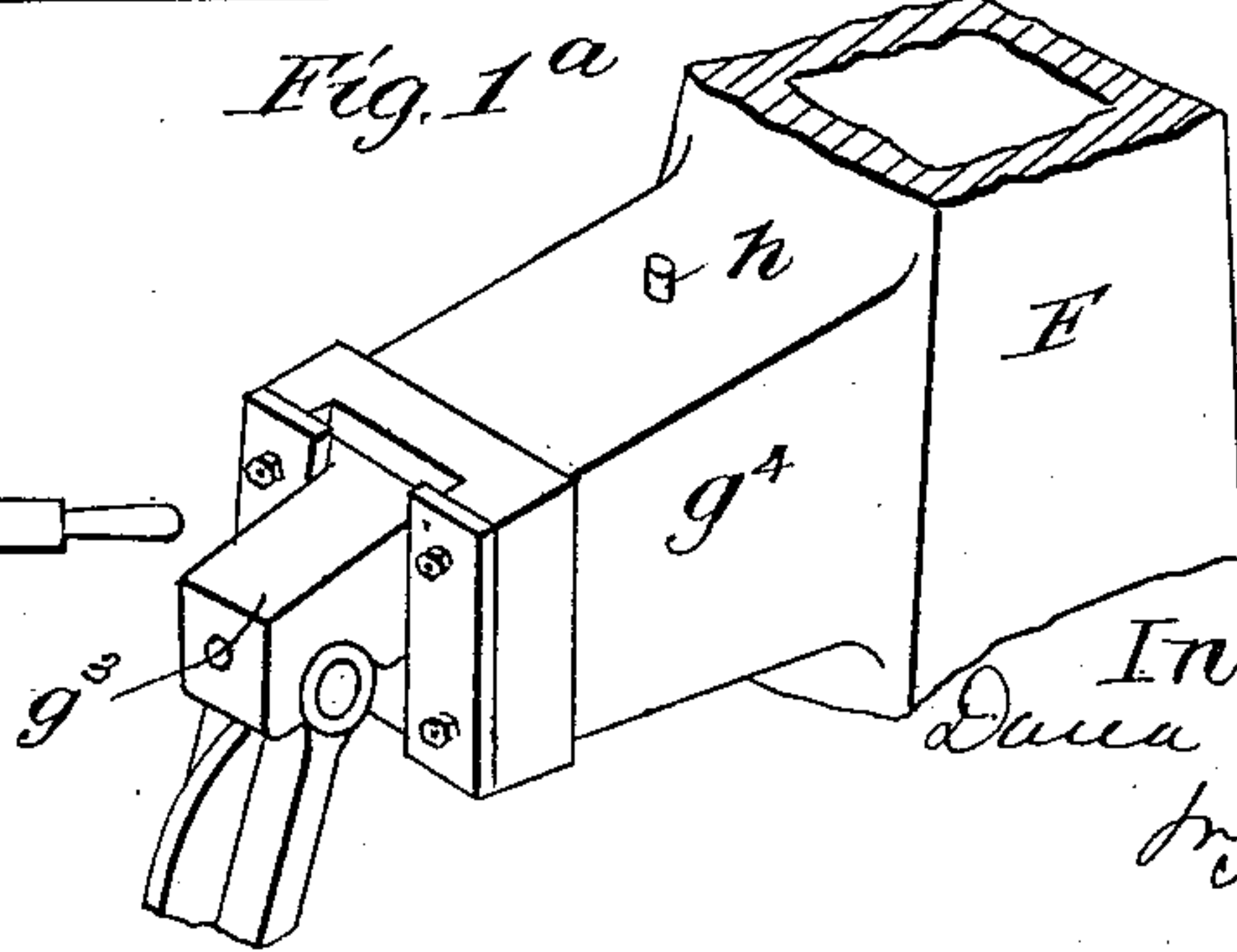
*FIG. 1.*



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Mr. Hendricks.

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3 SHEETS—SHEET 2.

FIG. 2.

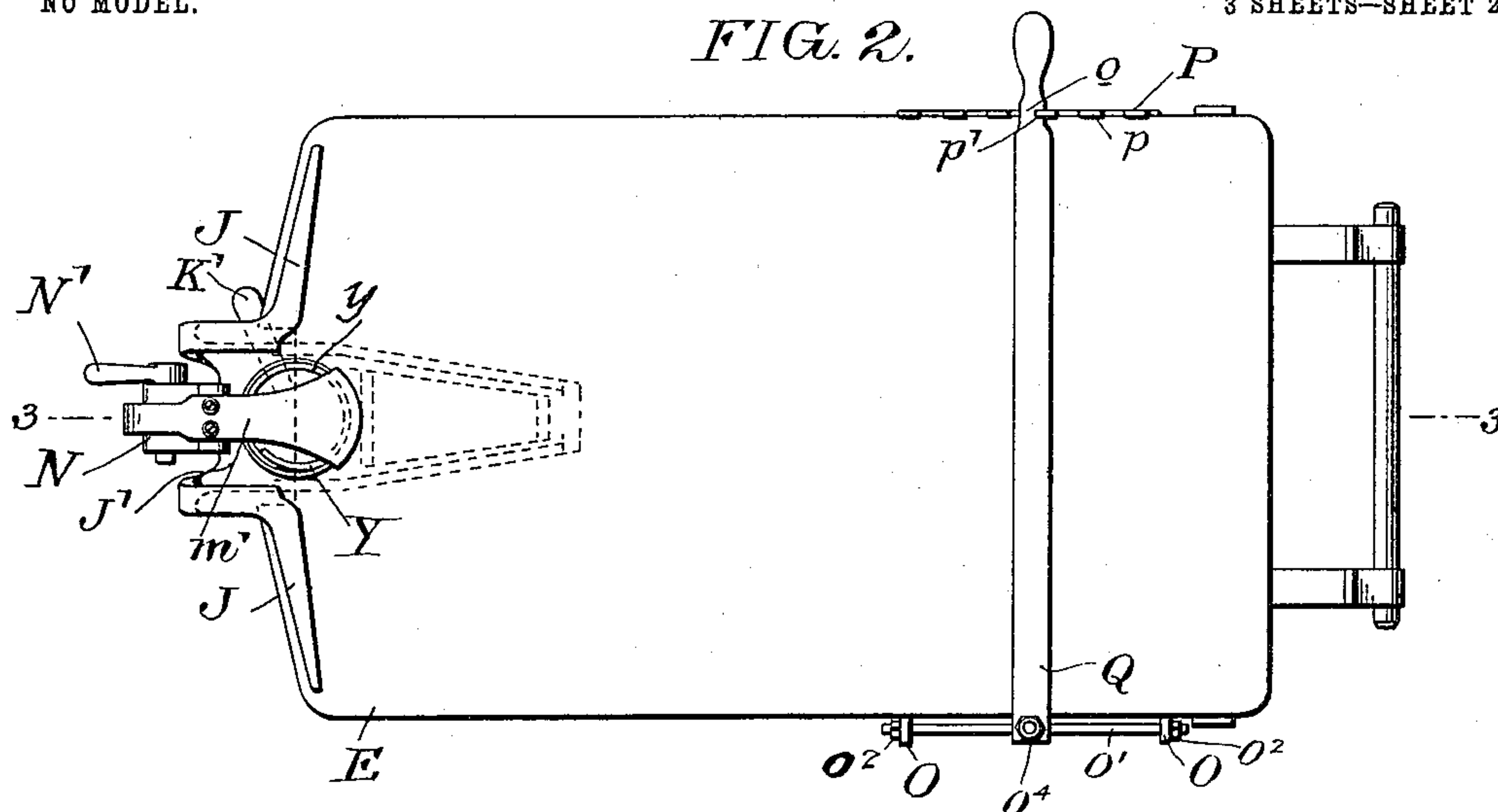


FIG. 3.

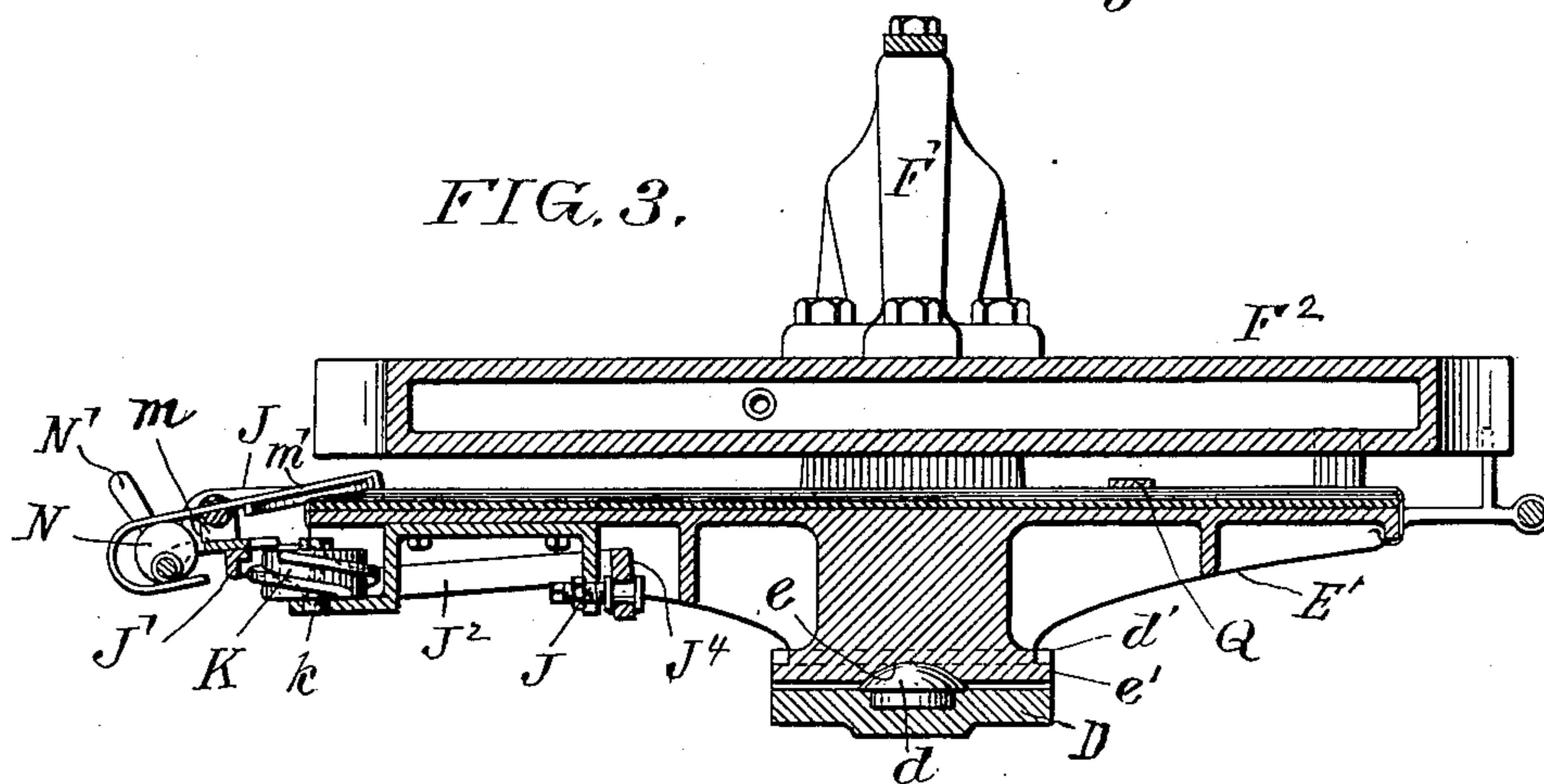
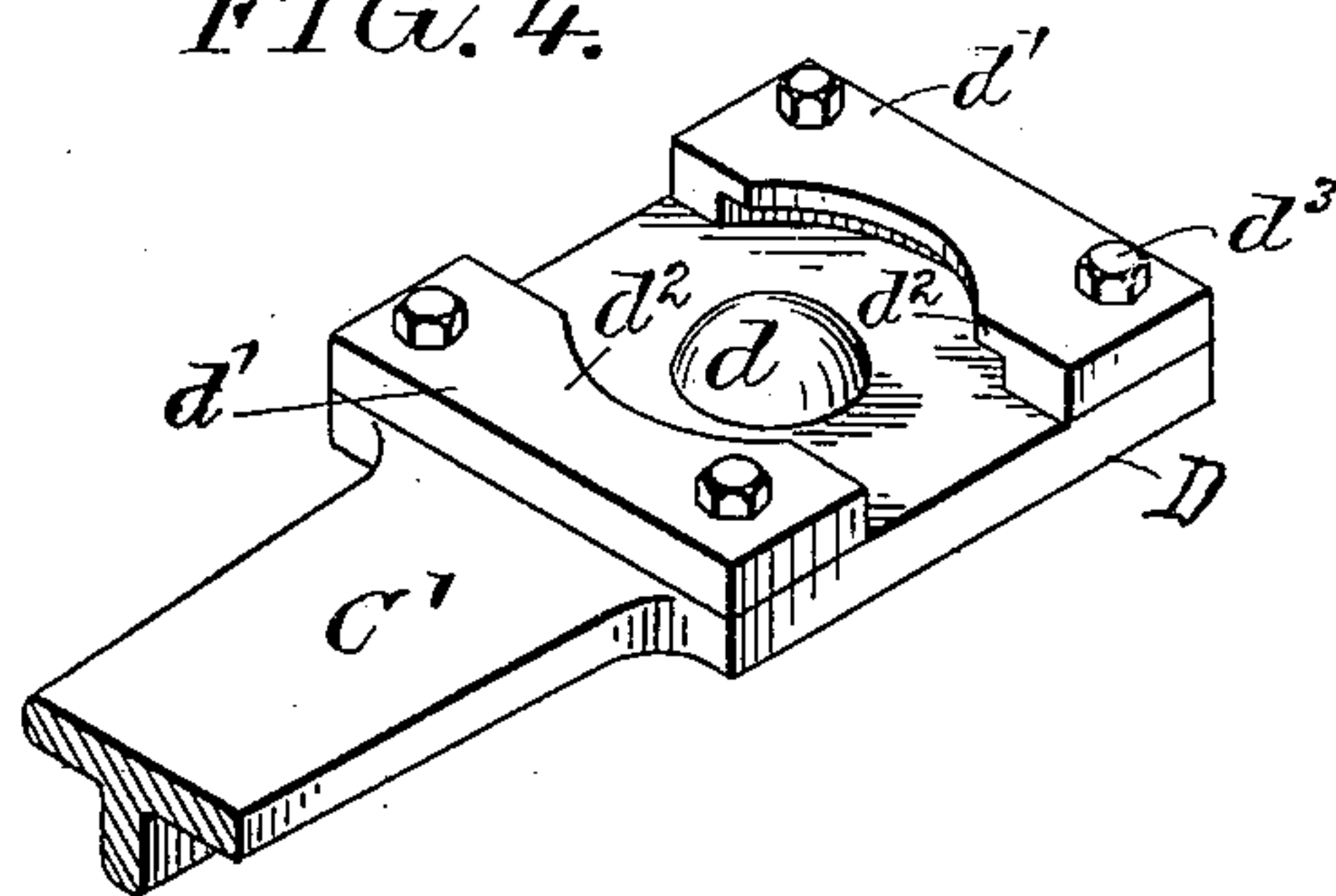


FIG. 4.



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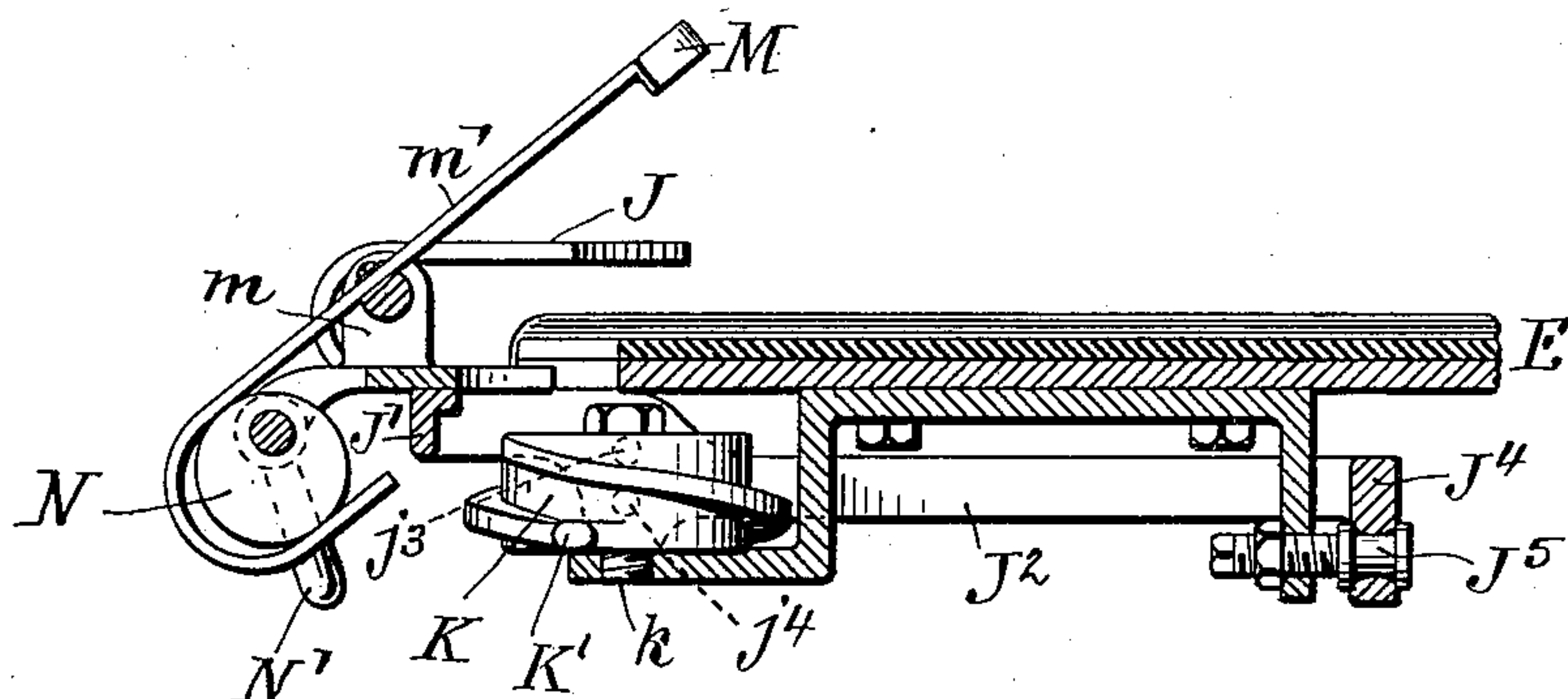
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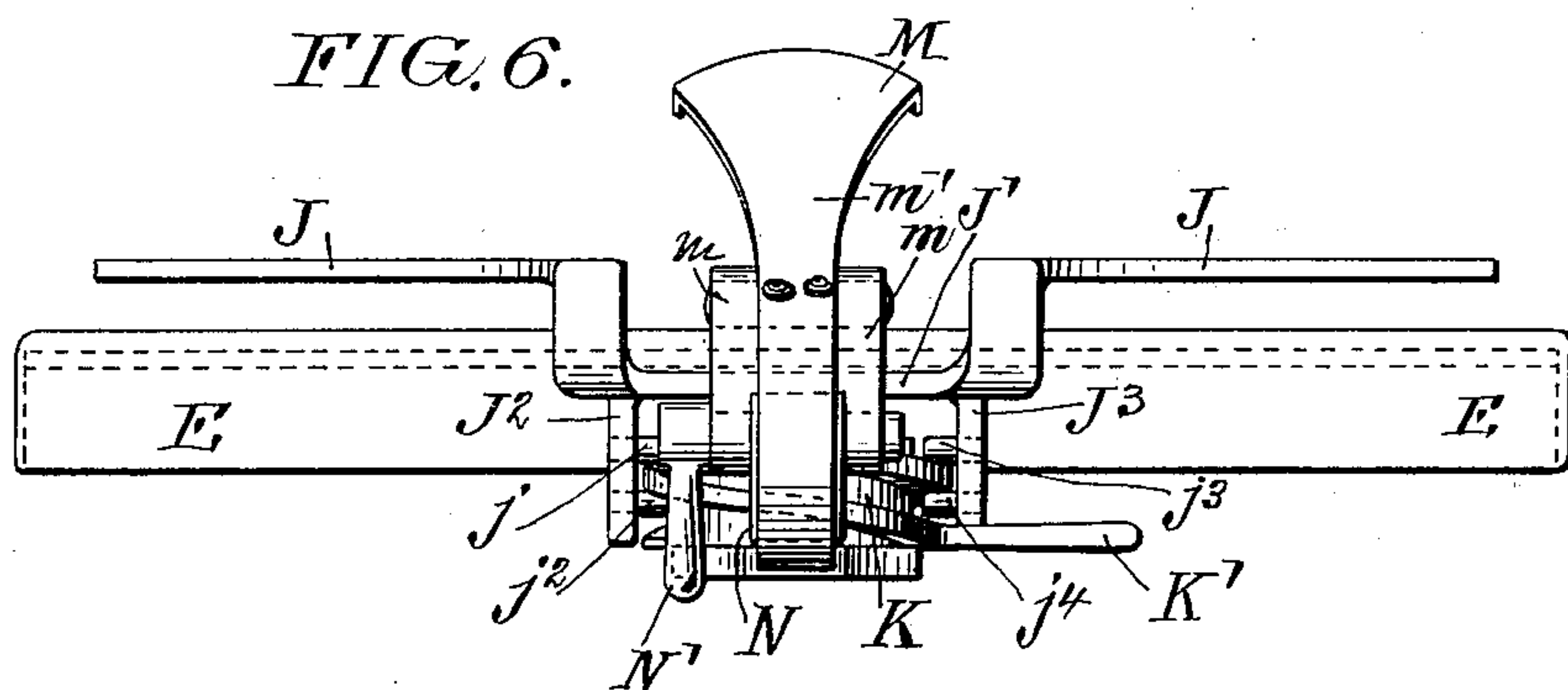
NO MODEL.

3. SHEETS—SHEET 3.

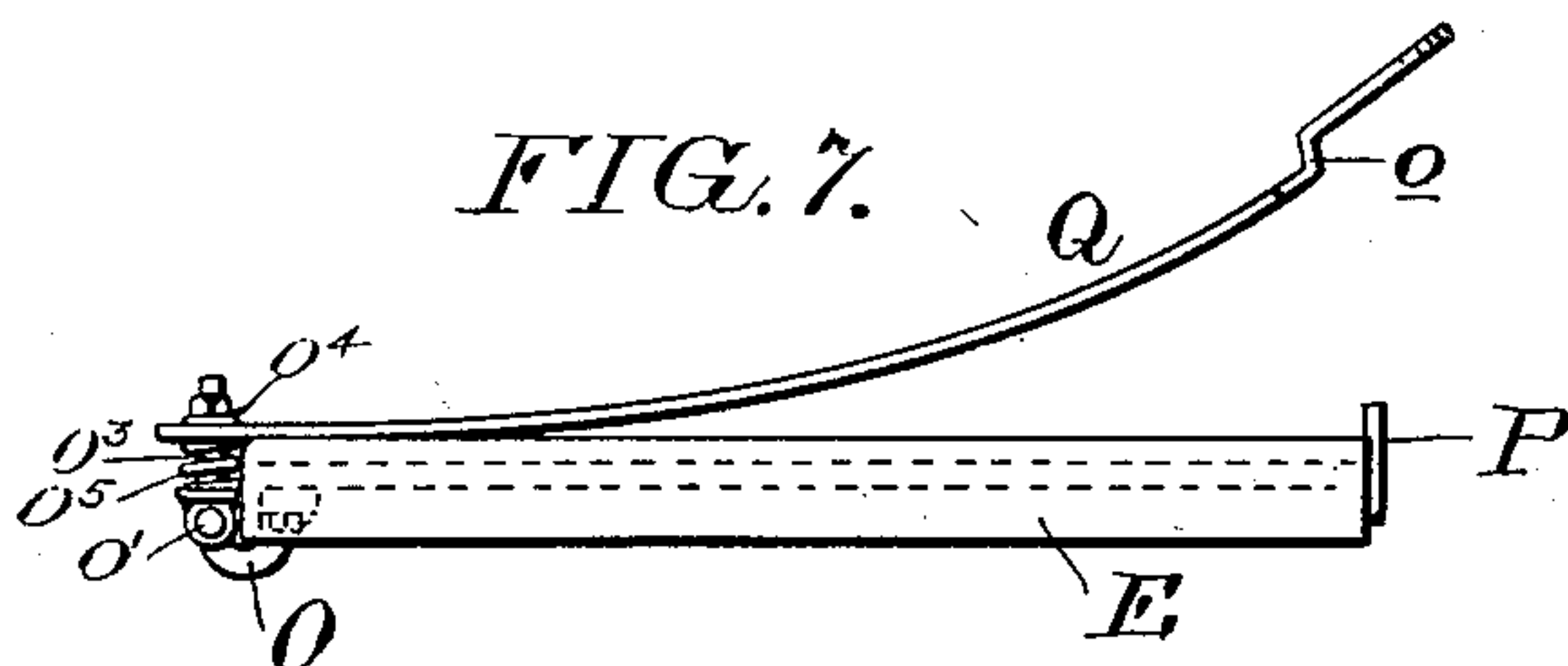
FIG. 5.



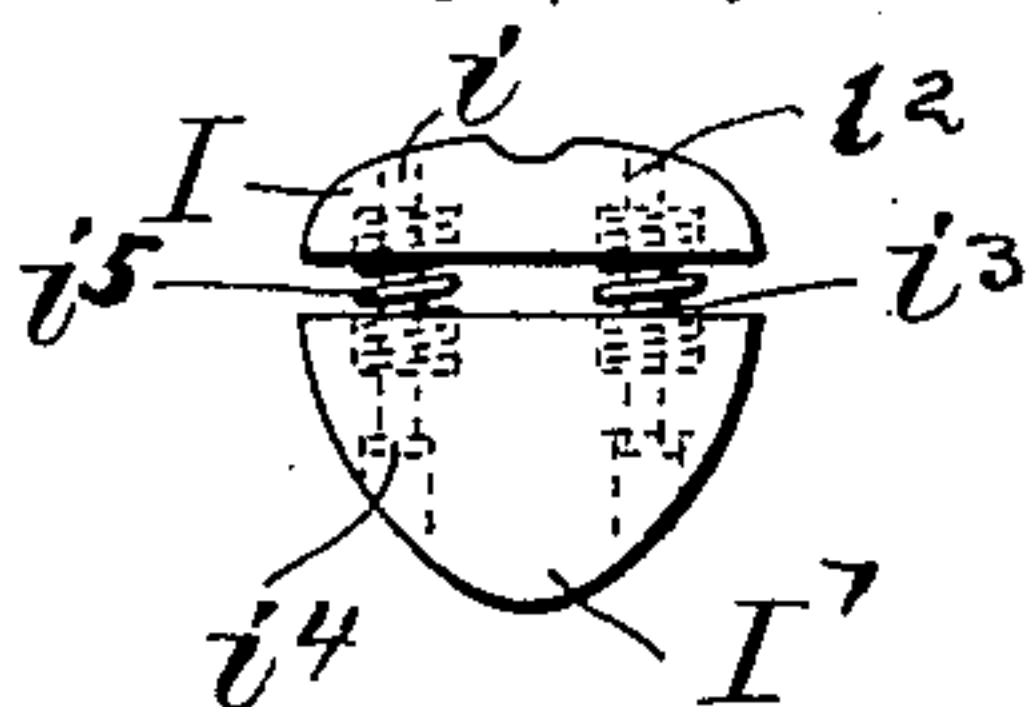
*FIG. 6.*



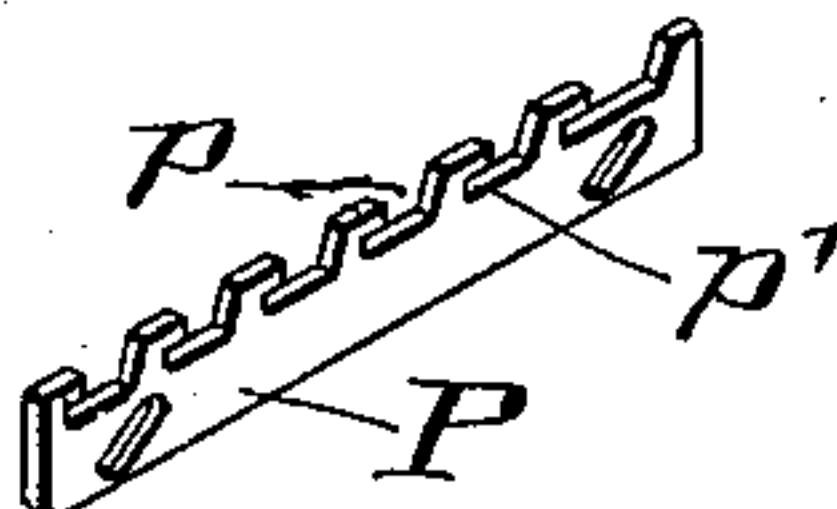
*FIG. 7.*



*FIG. 9.*



*FIG. 8.*



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# UNITED STATES PATENT OFFICE.

DANA HOWARD BENJAMIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR  
TO BARNES AND ERB COMPANY, A CORPORATION OF WEST VIRGINIA.

## IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 731,269, dated June 16, 1903.

Application filed January 16, 1902. Serial No. 89,805. (No model.)

*To all whom it may concern:*

Be it known that I, DANA HOWARD BENJAMIN, a citizen of the United States, formerly residing at the city of Ionia, county of Ionia, and State of Michigan, but now of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Ironing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of a machine which will properly iron what are known as "negligée" shirts—shirts having buttons upon the front. With this class of shirts when ironed by hand or in the ordinary ironing-machine are apt to have their buttons broken, which is exceedingly annoying to the wearer. I have found that if the shirt be supported upon a yielding bed or table and lifted against a heated plate the shirt will be properly ironed without breakage of the buttons. While my improved machine is particularly adapted for the before-described purpose, it can be used for ironing other kinds of shirts and garments.

I will first describe the machine illustrated in the accompanying drawings embodying my invention and then specifically point out the invention in the claims.

In the drawings, Figure 1 is a side elevation of an ironing-machine embodying my invention. Fig. 1<sup>a</sup> is a perspective view of projection from upright, showing guide for lifting-plate. Fig. 1<sup>b</sup> is a detail view of mechanism for locking-table. Fig. 2 is a plan view of one of the tables. Fig. 3 is a sectional view, as on line 3 3, Fig. 2, showing also the ironing-plate. Fig. 4 is a perspective view of a portion of the arm on which the table is pivoted. Fig. 5 is a partial sectional view of the table as shown in Fig. 3, showing the clamps open. Fig. 6 is an end view of Fig. 5. Fig. 7 is an end view of the table, showing the means for clamping the garment to said table. Fig. 8 is a perspective view of the locking device for holding the clamp shown in Fig. 7. Fig. 9 is a former for shaping the neckband of the garment.

A is the base of the machine; B, a standard

supported upon said base. C C are sleeves upon said standard capable of moving around said standard and up and down said standard within the limit of the collars c. Projecting from either of these sleeves C C are arms C', having at their outer end the supporting-plate D, having the curved projection d.

E is the ironing-table or ironing-bed, upon which the garment to be ironed is supported. The upper surface of this table or bed is preferably covered with yielding material—such, for instance, as rubber on the bottom and felt or paper on the top. This bed is supported by the frame E', having at its lower end the socket e and the projecting curved flange portion e'. The socket e rests upon the spherical projection d, while the flange portion e' is slightly above the plate D. The frame and plate are held in operative connection by means of the holding-plates d', having the flanges d<sup>2</sup>, said holding-plates d' being secured to the plate D by means of the bolts d<sup>3</sup>, the flange portion e' being held beneath the flanges of the plates d'.

F is an upright from the base A, having the overhanging portion F' secured to and sustaining the heating-plate F<sup>2</sup>, which is heated in any desired manner. The ironing-table can be swung around the standard B in line with the heating-plate and can be adjusted in proper position thereunder by the ball-and-socket connection between the ironing-table and the supporting-plate upon the arm. The ironing-table is also capable of yielding in all directions. The ironing-table is lifted into contact with the heated plate by mechanism to be hereinafter described; but it may be seen that the ironing-table may yield in all directions.

I elevate the ironing-table by the following mechanism: Beneath the plate D when in the position shown in Fig. 1 is the wedge g, operated by a screw g<sup>2</sup>, mounted in the depending end g' of the wedge, the free end of the screw entering a threaded aperture in the sliding block g<sup>3</sup>, vertically slidably mounted in a projection g<sup>4</sup> from the upright F, the wedge overlying the block g<sup>3</sup>. Connected to the block is the toggle-joint g<sup>5</sup>, connected by the link g<sup>6</sup> with the elevating-lever G, pivoted to the upright F at g<sup>6</sup>.



The ironing-table is locked from rotary movement by the following mechanism:  $h$  is a pin upon the projection  $g^4$ .  $h'$  is a notched plate integral with lever H, pivoted to the plate D on the sleeved arm. When the ironing-table is being carried beneath the heated plate, the lever H is operated to move the notched plate away from the pin  $h$ , after which the spring forces the plate so that its notch engages the pin  $h$ , and thus lateral movement of the sleeved arm is prevented. Speaking now of the ironing-table and the mechanism for securing the garment thereto, which is a negligée shirt having buttons, with negligée shirts the neckband has been ironed before being brought to this machine. In order to preserve this neckband, dependent upon whether it is desired to have a circular or elongated neckband in the ultimate ironed shirt, I insert within the neckband a neckband-holder. If it is desired to have a circular neckband, a circular form of neckband-holder Y, Fig. 2, is inserted within the collar-band and to which by buttoning the collar together at the back the collar-band is secured. If the elongated or heart-shaped neckband is desired, I use the construction shown in Fig 9. In that case the collar-band support is made of two parts. The part I, which is curved on its outer face, has the sockets  $i$ , in which are secured rods  $i^2$ , projecting from its inner face. These rods  $i^2$  pass through orifices  $i^3$  in the second member I' and have the heads  $i^4$ , which prevent them from escaping at the inner ends of said orifices and yet allow movement. Surrounding these rods are the coiled springs  $i^5$ . This expansible collar-band support is surrounded by the neckband and which is buttoned together at the back. The shirt is stretched flat upon the ironing-table, the neckband-support inserted. The shirt is secured or clamped below the neckband and at the yoke by the following mechanism: J J are two clamps adapted to hold the yoke of the shirt, connected by the cross-bar J'. Connected to this cross-bar are the arms J<sup>2</sup> J<sup>3</sup>, connected together by the rod J<sup>4</sup>, which is pivoted at J<sup>5</sup> to the under side of the bed of the machine. Projecting from the arm J<sup>2</sup> are the pins  $j$   $j^2$  and from the arm J<sup>3</sup> the pins  $j^3$   $j^4$ . Between these pins is the spiral cam K on the shaft  $k$ , operated by the handle K'. By turning the handle in one direction the clamps are lifted from the ironing-table and in the other direction they are forced upon the ironing-table. Connected to the cross-bar J' are the projections  $m$ , to which is pivoted the arm  $m'$  of the neckband-clamp M. This neckband-clamp M, as shown in the drawings, is made curved to conform to the outer surface of the neckband. The arm  $m'$  extends beyond the pivot-point and around and secured to the eccentric N, operated by the handle N'. When the eccentric N is turned, it either brings the neckband-clamp M onto or free from the shirt at the outer surface of the neckband. The operation of these two clamps is

as follows: When the shirt, with the ring within the neckband, is placed upon the ironing-table, the eccentric is first operated, which brings the neckband-clamp M upon the table. After this the spiral cam is operated, which brings the clamps J J onto the yoke upon the table and also forces the neckband-clamp down upon the shirt at the outer edge of the neckband. To secure the lower portion of the shirt in position, I use a curved spring-band Q. (Shown out of operation in Fig. 7.) One end is secured in the following manner: O O are hangers secured to the table, having orifices through which pass the rod  $o'$ , having threaded ends and secured by the nuts  $o^2$ . Through an orifice in the band Q passes the bolt  $o^3$ . This bolt  $o^3$  has one end threaded above the band, and a nut  $o^4$  works on this threaded end. A spring  $o^5$  surrounds the bolt  $o^3$  beneath the band. The lower end of the bolt  $o^3$  is enlarged and is provided with an orifice through which passes the rod  $o'$ , thus permitting the bolt to slide on said rod. The other end has the raised portion  $o$ , which is adapted to enter the notches  $p$  in the notched plate P and be moved under the flange or undercut portion  $p'$  at the side of each notch. A number of notches are used in order that the spring-band may be used with shirts of varying lengths. With this construction of machine a negligée shirt with buttons is adapted to be secured with the full front exposed upon the table, and the whole front may be ironed without any danger of breakage of the buttons. The ball-and-socket or universal-movement connection between the ironing-table and supporting-arm enables not only the ironing-table to yield if there is a tendency to unequal pressure, but enables the large ironing-table necessary for such shirts to be readily guided to proper positions under the ironing-plate without taking up too great a space for the machine.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a machine of the character described, in combination with an ironing-plate, of a standard and an arm sleeved thereon so as to move vertically and laterally, and an ironing-table secured to said arm so as to have a rotary movement whereby the ironing-table may be adjusted so that its position as a whole will register with that of the ironing-plate as a whole, whereby in the vertical movement of the ironing-table the plate will act simultaneously upon the entire table.

2. In a machine of the character described, in combination with a standard and an arm sleeved thereon so as to move vertically and laterally, a supporting-plate at the outer end of said arm having a spherical projection, an ironing-table having a socket adapted to rest upon said spherical projection, there also being a flange portion surrounding said socket and above its lower extremity, and locking and flanged holding-plates secured to the



supporting-plate for limiting the movement of the ironing-table upon the arm.

3. In combination, an ironing-plate, an ironing-table supported so as to be adapted to have an angular movement upon its support, and means to bring the ironing-plate and ironing-table in contact with each other.

4. In combination, an ironing-plate, an ironing-table supported so as to have an angular movement upon its support, said table being provided with a yielding or soft covering, and means to bring the ironing-plate and ironing-table in contact with each other.

5. In a machine of the character described, a curved metallic band secured at one end to one side of the ironing-table so as to be movable longitudinally of the table, and adapted at its different positions to be removably secured at the opposite side thereof.

6. In a machine of the character described, a curved metallic band secured at one end to one side of the ironing-table so as to be movable longitudinally of the table, a device upon the opposite sides of the ironing-table, to which said band in its different positions is adapted to be removably secured.

7. In a machine of the character described, a curved metallic band secured at one end to one side of the ironing-table so as to be movable longitudinally of the table, a notched plate, on the opposite side of the table, having undercuts in the bottom of the walls of the notches in which the other end of the band is adapted to be placed.

8. In a machine of the character described, in combination with a standard, an arm sleeved thereon, of an ironing-table supported upon said arm so as to have an angular movement upon said arm.

9. In a machine of the character described, an ironing-plate and a table adapted to contact with said plate and supported as to have an angular movement in all directions upon its support when making such contacts.

10. In a machine of the character described, in combination with an ironing-table adapted to receive the entire front of a shirt, of clamps adapted to clamp the shirt on each side of the neckband, a cross-bar connecting said clamps and arms connected to said cross-bar and pivotally connected to the table, pins projecting from each of said arms, a spiral cam between said pins and means to revolve said cam.

11. In a machine of the character described, in combination with an ironing-table adapted to receive the entire front of a shirt, of clamps adapted to clamp the shirt on each side of the neckband, a cross-bar connecting said clamps and arms connected to said cross-bar and pivotally connected to the table, and means to rock said arms on their pivotal connection,

projections from the cross-bar connecting said yoke-clamps, a neckband-clamp, adapted to engage the shirt around the lower edge of the neckband, pivotally supported upon said projections and means to swing said neckband-clamp upon its pivot.

12. In a machine of the character described, in combination with an ironing-table adapted to receive the entire front of a shirt, of clamps adapted to clamp the shirt on each side of the neckband, a cross-bar connecting said clamps and arms connected to said cross-bar and pivotally connected to the table, pins projecting from each of said arms, a spiral cam between said pins and means to revolve said cam, projections from the cross-bar connecting said yoke-clamps, a neckband-clamp, adapted to engage the shirt around the lower edge of the neckband, pivotally supported upon said projections and means to swing said neckband-clamp upon its pivot.

13. In a machine of the character described, in combination with an ironing-table adapted to receive the entire front of a shirt, of clamps adapted to clamp the shirt on each side of the neckband, a cross-bar connecting said clamps and arms connected to said cross-bar pivotally connected to the table and means to rock said arms in their pivotal connection, projections from the cross-bar connecting said yoke-clamps, a neckband-clamp, adapted to engage the shirt around the lower edge of the neckband, pivotally supported upon said projections, an arm projecting from said neckband-clamp and an eccentric mounted upon an extension from said cross-bar for operating said arm.

14. In a machine of the character described, in combination with an ironing-table, adapted to receive the entire front of a shirt, of clamps adapted to clamp the shirt on each side of the neckband, a cross-bar connecting said clamps and arms connected to said cross-bar and pivotally connected to the table, pins projecting from each of said arms, a spiral cam between said pins and means to revolve said cam, projections from the cross-bar connecting said yoke-clamps, a neckband-clamp, adapted to engage the shirt around the lower edge of the neckband, pivotally supported upon said projections, an arm projecting from said neckband-clamp and an eccentric mounted upon an extension from said cross-bar for operating said arm.

In testimony of which invention I have hereunto set my hand, at Philadelphia, on this 6th day of January, 1902.

DANA HOWARD BENJAMIN.

Witnesses:

M. F. ELLIS,

M. M. HAMILTON.