

A. T. HAGEN & D. M. COOPER.  
IRONING MACHINE.

APPLICATION FILED SEPT. 23, 1904.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

994,512.

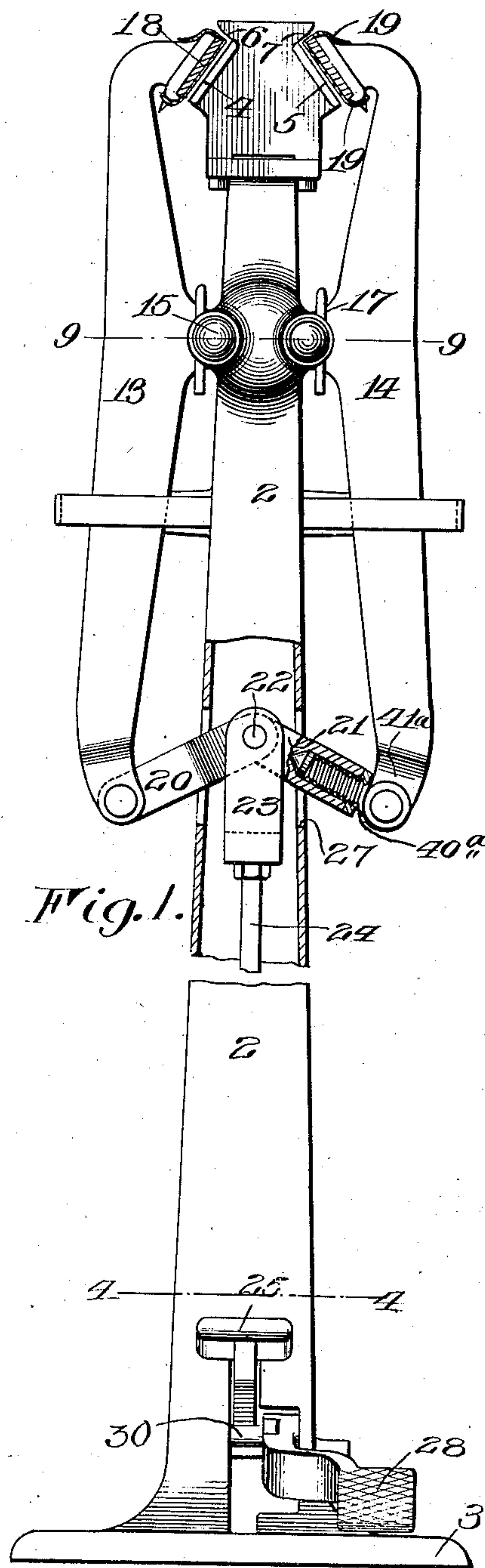


Fig. 1.

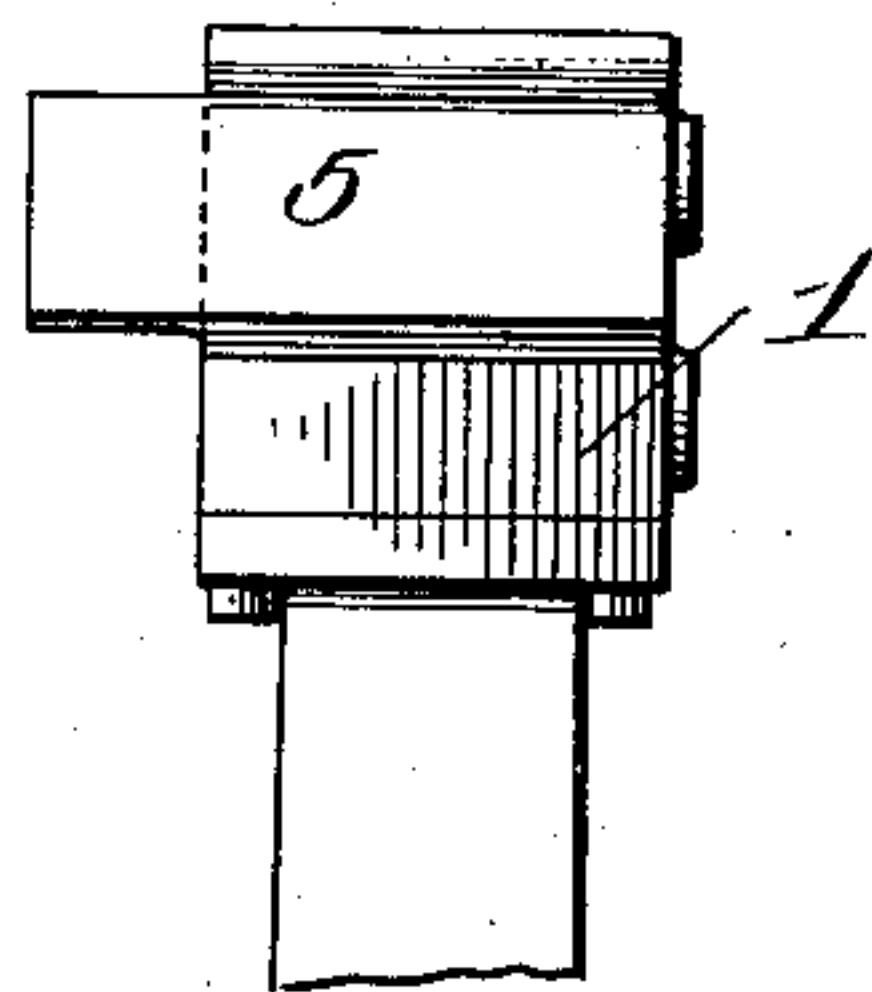


Fig. 8.

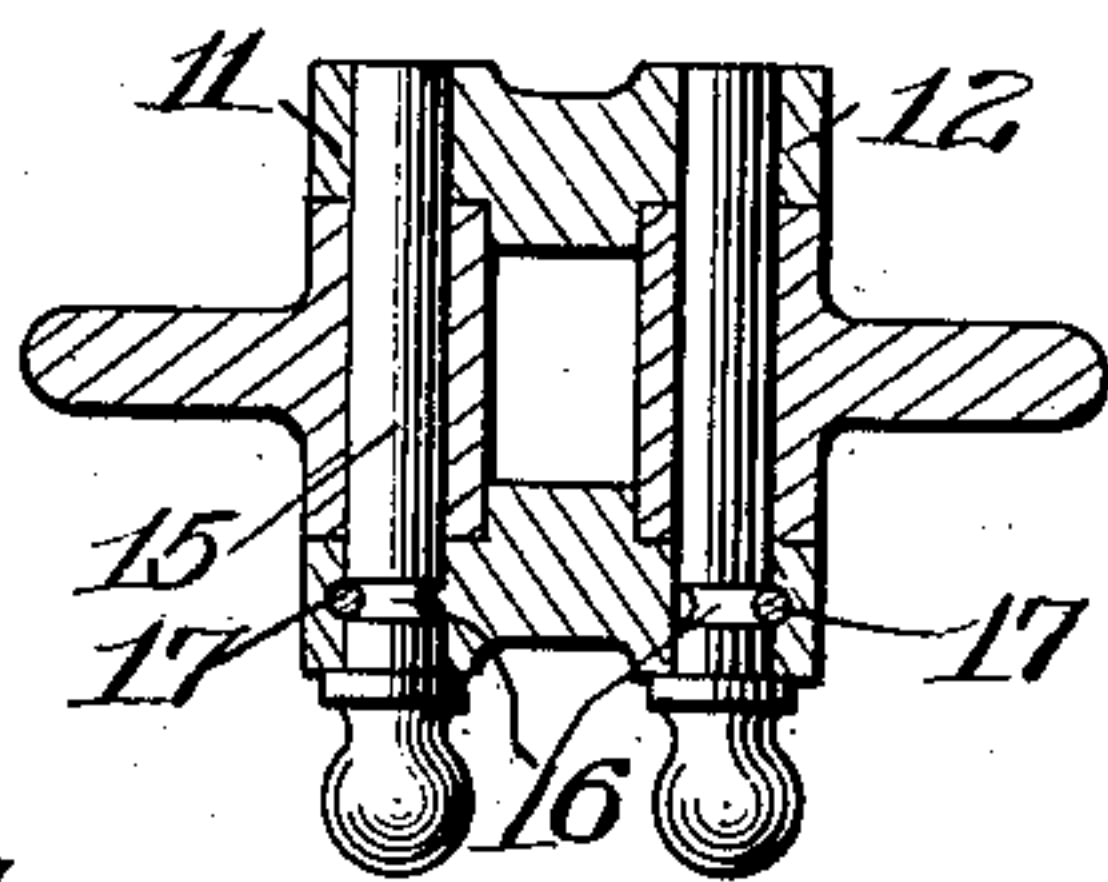


Fig. 9.

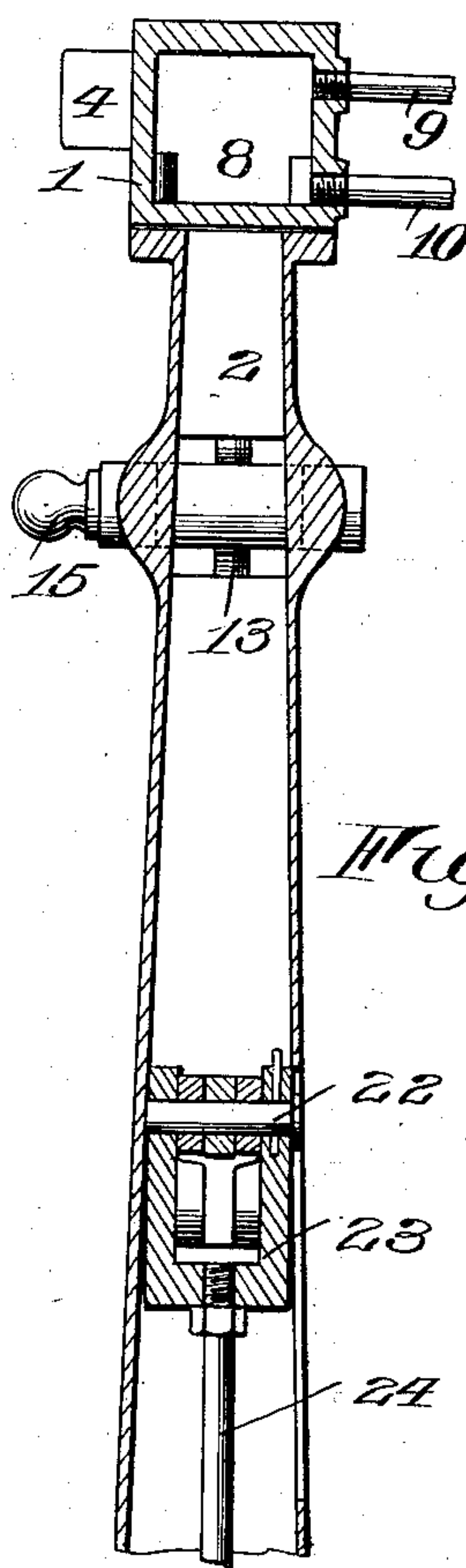
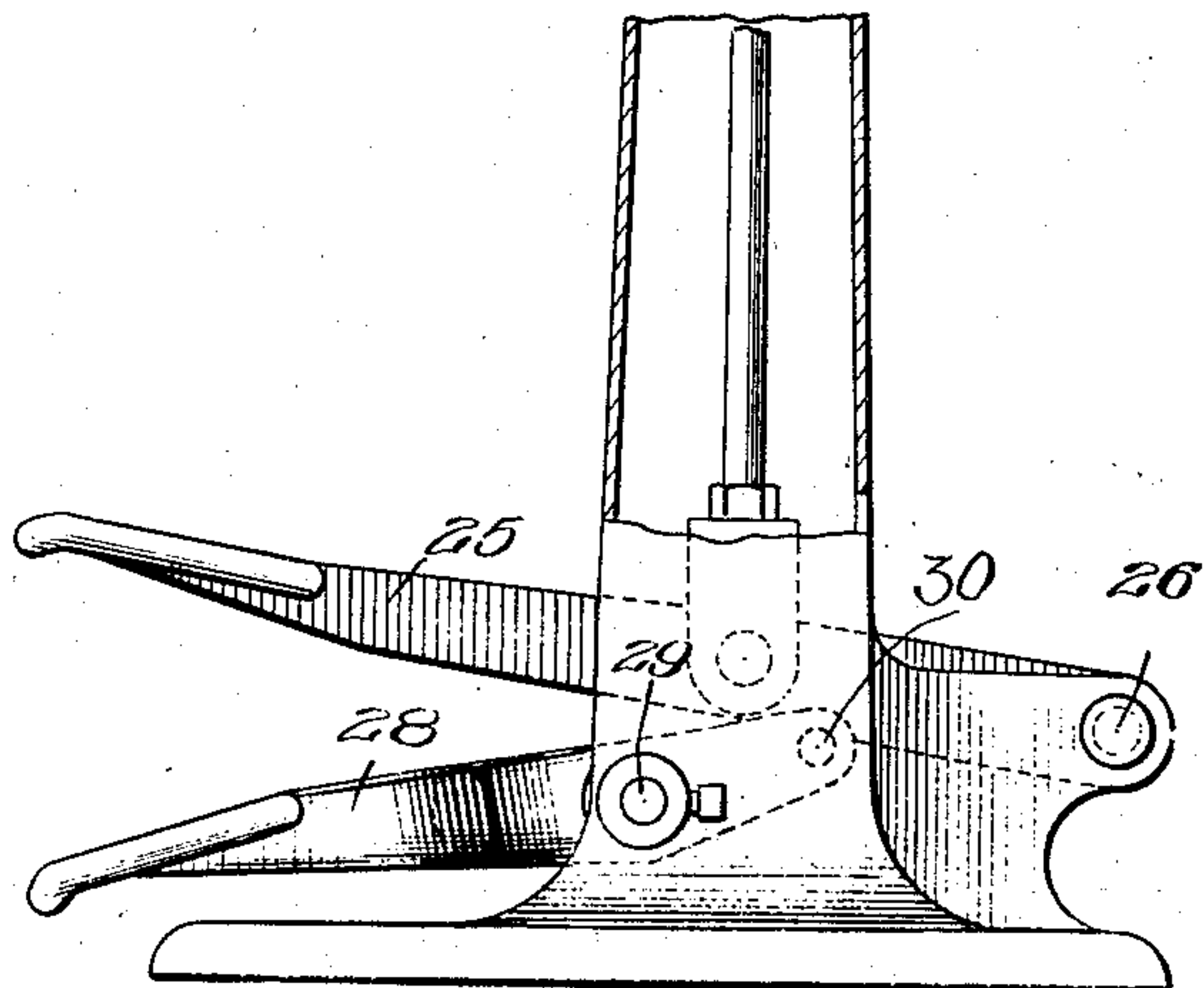


Fig. 2.



Witnesses.

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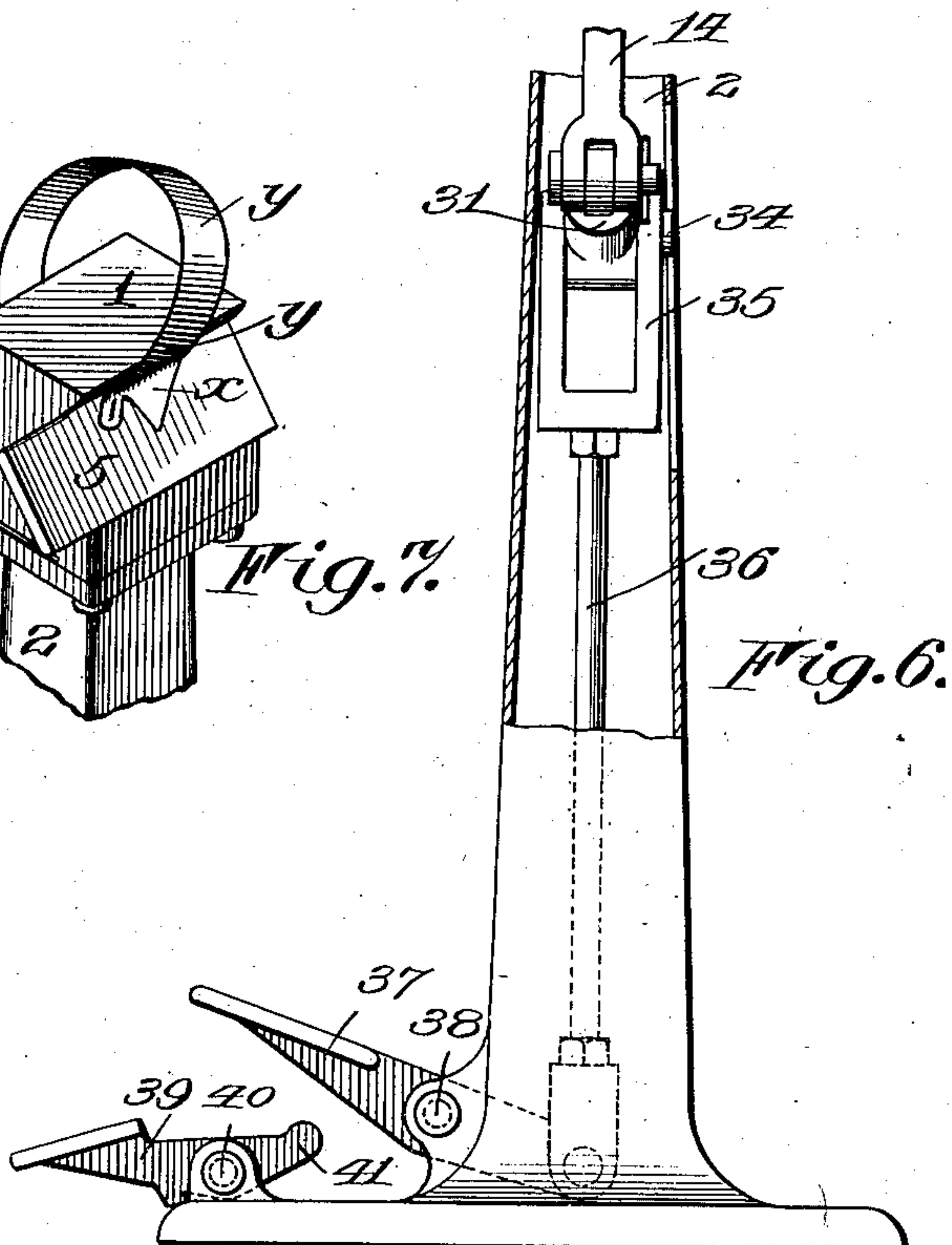
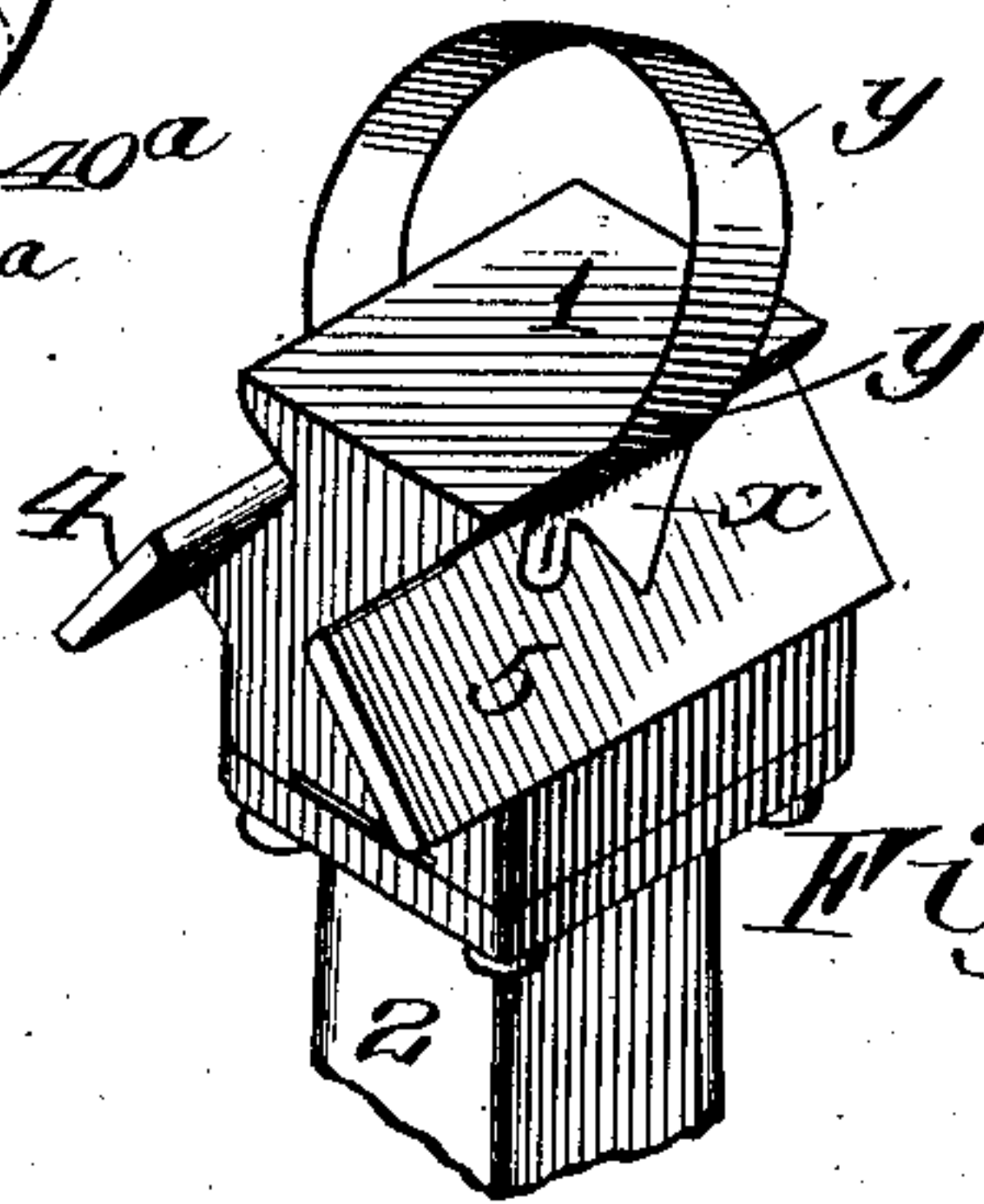
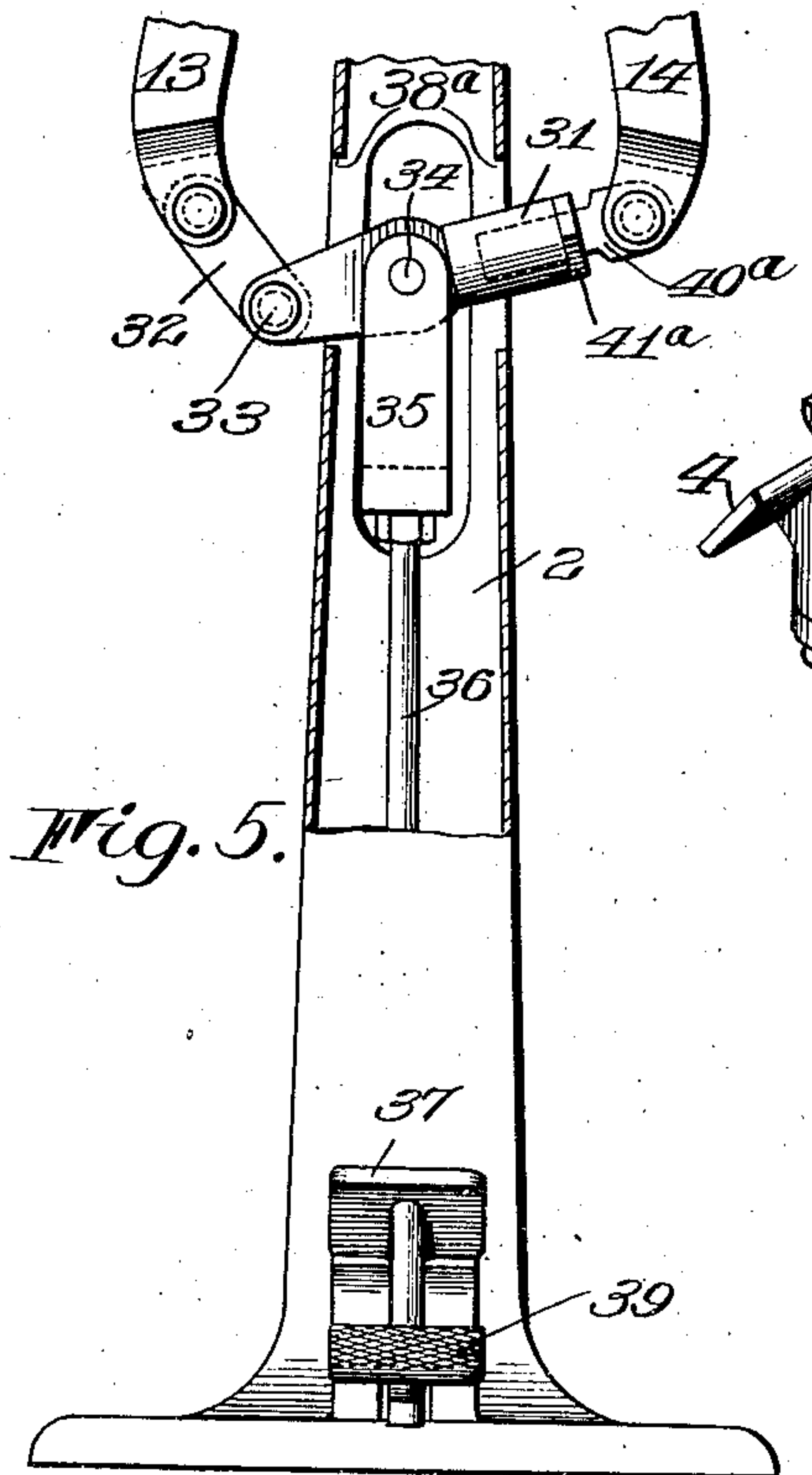
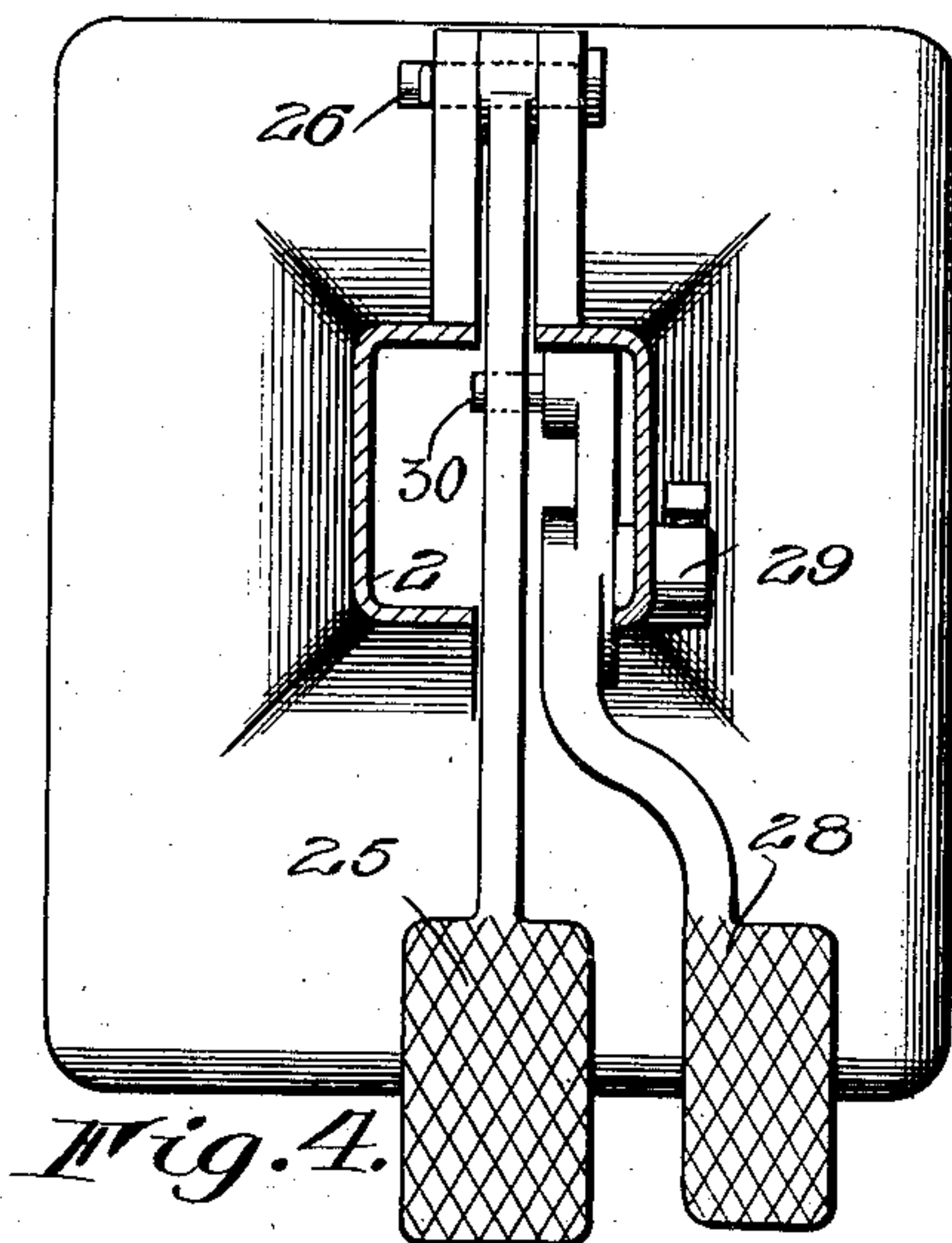
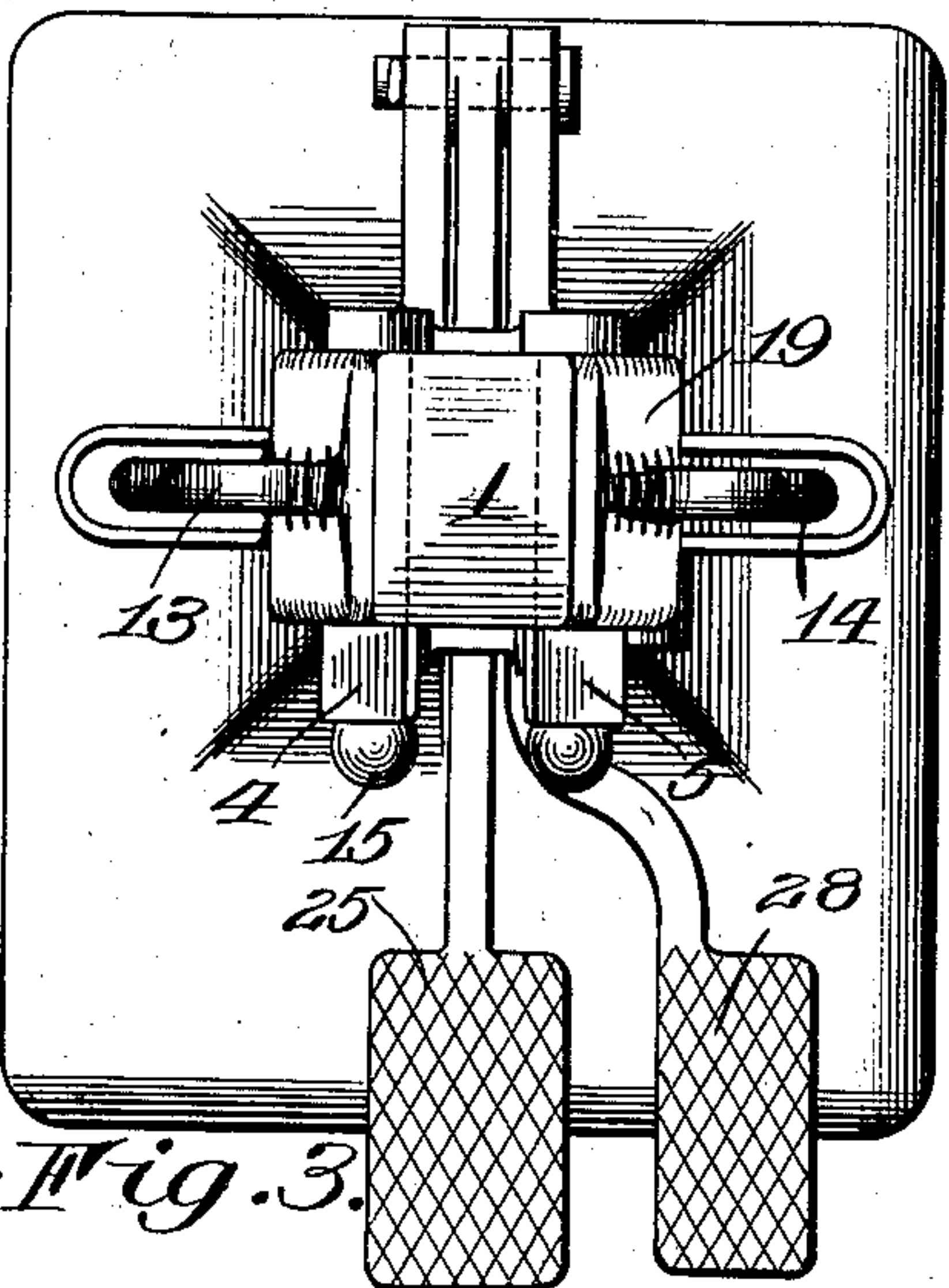
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2 SHEETS—SHEET 2.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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CINCINNATI, OHIO, A CORPORATION OF OHIO.

## IRONING-MACHINE.

994,512.

Specification of Letters Patent.

Patented June 6, 1911.

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*To all whom it may concern:*

Be it known that we, ARTHUR T. HAGEN and DANIEL M. COOPER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Ironing-Machines; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

Our present invention relates to improvements in machinery for ironing collars and similar articles, and it is the purpose of our invention to provide a machine of this character which is especially adapted for ironing the wings or tips which usually extend outwardly in opposite directions and angularly relatively to the body of the collar, whereby the above operation may be performed in the most convenient and best manner, and without the slightest injury to the collars.

To these and other ends our invention consists in certain improvements and combinations of parts that will be hereinafter more fully described, the novel features being pointed out in the claims hereunto annexed.

In the drawing: Figure 1 is an elevation partly in section of an ironing machine embodying our invention. Fig. 2 is a similar view, the upper portion of the machine being in central vertical section. Figs. 3 and 4 are top plan views of the machine, Fig. 4 being taken on the line 4—4, Fig. 1. Figs. 5 and 6 are fragmentary views showing a modified form of toggle and operating mechanism. Fig. 7 is a perspective view of the ironing jaws. Fig. 8 is a side elevation of the same, and Fig. 9 is a transverse sectional view on the line 9—9, Fig. 1.

The purpose of our present invention is to provide an ironing machine which is capable of operating upon the well-known winged or point collars which are such as to require the projecting wings or points to be subjected to a separate ironing action from the remainder of the collar, and this purpose we accomplish in the present embodiment of our invention by providing a pair of oppositely arranged ironing surfaces which are disposed at suitable angles and adapted to iron or support the proper surfaces of the wings of the collar while the

latter is being pressed evenly and smoothly thereon by a pair of coöperatively-arranged pressing members or jaws which are controlled by suitable operating mechanism.

In the present embodiment of our invention the relatively fixed iron or support 1 is suitably mounted upon the top of a standard 2, the latter being of any suitable design and provided with a base 3, the iron or support 1 being formed at its opposite sides with the relatively inclined surfaces 4 and 5 respectively, the upper edge of the latter being adjacent to the relatively divergent surfaces 6 and 7 respectively, the relatively angular relation of the surfaces 6 and 7 at the upper portion of the iron or support 1 forming apices with the corresponding adjacent surfaces 4 and 5. This iron or support 1 is preferably formed hollow in order to provide a chamber 8 having the pipes 9 and 10 communicating therewith to enable steam or other suitable heating medium to be supplied to the said chamber to maintain the inclined surfaces 4 and 5 at the required temperature.

Near the top of the standard 2 are provided the bearings 11 and 12 respectively for the coöperating pressing members or jaws 13 and 14, these bearings in the present instance receiving the pins 15 which extend through opposite sides of the standard and through intermediate points of the jaws, circumferentially-arranged grooves 16 being formed in these pins and arranged to coöperate with the removable pins 17—17 for the purpose of normally retaining the said bearing pins in operative position but enabling them to be readily removed when the said retaining pins 17 have been displaced, thereby permitting the impression jaws 13 and 14 to be removed and others substituted in lieu thereof. The upper portions of these jaws are formed with padded pressing surfaces movable relatively to each other and to the iron, their surfaces being at such an angle as to coöperate with the correspondingly-arranged surfaces 4 and 5 of the iron or support, the relatively inclined surfaces of the jaws being fitted with the backings or padding 18 which are composed of felt rubber or some other suitable yieldable material, the entire backing and face of the jaw being inclosed and protected by the covering 19, the latter being secured in posi-



tion in the present instance by hooking or fastening one edge thereof upon the pins or projections 19<sup>a</sup> at the lower side of the jaw, while the upper edge of the covering extends over and behind the jaw, the lateral edges of the covering being brought together behind the face of the jaw and laced, stitched or otherwise secured together, so that the wings of the collar when interposed between the rigid supporting surfaces 4 and 5 and the padded pressing surfaces of the jaws will receive a firm but uniform pressure.

The lower ends of the operating jaws are connected by the toggle links 20 and 21, these links being pivotally connected at their inner ends by the pin 22 which, in that form of the invention shown in Figs. 1-4 inclusive, also serves to connect the said links with the attaching yoke 23 of the upright operating rod 24, which is capable of being reciprocated by the foot lever or treadle 25, the latter being pivoted at 26 to the lower portion of the standard, the arrangement being such that a downward motion of the free end of the foot lever will cause a similar motion of the operating rod 24, and as the point of attachment of the latter and the pivoted links 20 and 21 is normally above the points where the said links are pivoted to the jaws while the operating faces thereof are separated, this downward motion of the said lever and rod will obviously cause the links 20 and 21 to move downwardly between their points of attachment to the jaws until their motion is arrested by the relatively fixed abutments 27, at which time the upper portions of the jaws will be firmly pressed against the corresponding faces of the support 1 and the links will occupy such positions that the reaction of the jaws will tend to retain them in locked position. For the purpose of releasing these links, we provide a releasing treadle 28 which is pivoted at 29 to the base of the standard and provided with an offset pin or projection 30 which is arranged to rest beneath the operating lever or treadle 25, such a construction causing the free end of the releasing lever 28 to rise when the corresponding portion of the operating lever is lowered or depressed, this motion being arrested by the engagement of the links 20 and 21 with the relatively fixed abutments 27-27, at which time the central attached portions of the links will be past the central point, and the reaction of the jaws will tend to retain the operating lever 25 in a depressed position. However, this lever may be readily released by depression of the releasing treadle 28 through the cooperation of the offset projection 30 of the said treadle with the underside of the operating lever 25, and as the said operating lever is lifted the motion thereof will be transmitted to the actuating

rod 24 which latter will cause the raising of the links and in turn the separation of the padded pressing surfaces of the members or jaws 13 and 14.

Instead of using the operating mechanism, shown in Figs. 1 to 4 inclusive wherein the operating member 25 is depressed to cause a corresponding motion of the links, the mechanism shown in Figs. 5 and 6 may be employed which embodies the relatively long and short links 31 and 32 respectively which are pivotally connected at their adjacent ends by the pivot pin 33 and are pivotally connected at their opposite ends to the arms of the jaws 13 and 14, a pivot 34 being located intermediately of the link 31 to form a pivotal attachment for the yoke 35 which is attached to the actuating rod 36, the latter being in turn connected at its lower end to the operating member or treadle 37 which is pivotally connected at an intermediate point 38 with the base of the standard. By such a construction, depression of the forward end of the operating member 37 will cause an upward motion of the actuating rod 36 which in turn will cause the links 31 and 32 to move upwardly between their pivotal points of attachment to the arms of the jaws 13 and 14, producing a separating motion of the latter at their lower ends which will cause the cooperating forces of upper portions of the jaws to engage the correspondingly-arranged surfaces of support 1, at which time the said links will engage the relatively fixed portions 38<sup>a</sup> of the standard as abutments and the links will be past the central position between their points of attachment to the jaws, and will consequently have a tendency to remain in locked position.

In order to release the operating mechanism at the proper time from such a position as above described, the releasing treadle or member 39 may be employed which is preferably located immediately below the forward end of the operating member 37, being pivoted at 40 to the base of the standard and provided with a projection 41 arranged to cooperate with the under side of the said operating member when the latter occupies a depressed position, in that manner causing the said member 37 to be raised at its forward end and depressed at its rear end, causing the actuating rod 36 to be lowered which in turn will cause the links to move downwardly past their central position and thus release the pressing surfaces of the members or jaws 13 and 14.

For the purpose of permitting an adjustment of the operating mechanism to compensate for wear and to enable the relative pressures exerted by the jaws upon the wings of the collars to be adjusted or varied, it is preferable to employ an adjusting device which in the present instance embodies a stem 40<sup>a</sup> which forms part of one of the



links having one end thereof threaded into the link and provided with the locking nut 41<sup>a</sup> for retaining it in adjusted position, the opposite end of the stem being perforated to form a pivotal connection with the pivot pin of the adjacent jaw 14, such a construction obviously permitting the length of one of the operating links to be varied as may be desired, the resultant effect being to correspondingly increase and diminish the effective pressure of the operating jaws upon the wings of the collar.

In manipulating an ironing machine of the character above described, the collar is fitted over the iron or support by the operator in such a manner that the front or exposed faces of the wings  $x-x$  thereof will lie flat upon the relatively-inclined surfaces 4 and 5 of the support and the adjacent portions of the collar  $y-y$  will rest against the divergently-disposed walls 6 and 7 adjacent thereto, the body of the collar being held at such an angle that the dividing line between the surfaces 4 and 6 upon one side and the surfaces 5 and 7 at the opposite side of the support will extend in the direction that the crease should be made in the collar by the folding backwardly of the wings or ends of the collar, and with the collar in this position, the free end of the operating member 25 or 37 as the case may be, is depressed either by the foot of the operator or otherwise, which will cause the padded or yielding operating faces of the jaws to proximate until portions of the collar are pressed into the apexes formed by the relative angular surfaces to form and iron the angular bends or corners of the collar, the wings or ends of the collars are firmly and evenly pressed against the corresponding heated ironing surfaces 4 and 5 of the support 1, and as the latter is constantly maintained at a suitable temperature, the wings or tips of the collar which are pressed between the relatively inclined ironing surfaces of the support and the correspondingly formed jaws will be subjected to the ironing action by the heated ironing surfaces, the padded or yielding surfaces of the jaws serving to press the material of the wings which varies in thickness at different points, evenly and smoothly against the ironing surfaces to produce a smooth, flat, ironed surface for those surfaces of the wings which, when the collar is in use, are exposed and visible from the front for any desired period, the jaws being immediately released by depression of the releasing member 28 or 29 as the case may be, which will release the links from their locked position in a manner above described. When the collar is removed, the wings will be so ironed as to stand outwardly from the body of the collar at the proper angle, and by reason of the fact that these wings are pressed against the angular ironing sur-

faces, by the padded or yielding pressing jaws or surfaces, and are not folded down and then ironed, the collar is not cracked or otherwise injured.

An ironing machine embodying our invention renders the operation of ironing the well known winged collars extremely simple and efficient, and is capable of performing the operation upon collars of various styles or shapes with extreme accuracy and uniformity, and as the entire operation is performed by the machine, requiring the services of the operator only to apply and remove the collar and to apply the pressure, the machine is capable of being operated at great rapidity.

We claim as our invention:

1. In a collar tipping machine, the combination with an iron having on opposite outer sides ironing surfaces extending in planes corresponding substantially to the relative angle to be given the collar wings when ironed and ironing surfaces arranged on opposite outer sides at angles to the first named surfaces to receive the portions of the collar in proximity to the wings, of pressing members for pressing the collar wings against the ironing surfaces for ironing the wings and setting them at the proper angle relatively to each other and to the body of the collar.

2. In a machine for tipping wing-point collars, the combination with an iron having suitably-arranged ironing surfaces on opposite outer sides thereof to set the wings, and also ironing surfaces on opposite outer sides arranged in proximity to the first mentioned surfaces to receive portions of the collar, of means operating to press the collar wings into engagement with the ironing surfaces and to produce a pressing action on the corners formed between the body of the collar and the laterally-turned wings.

3. In a machine of the character described, the combination with the support having the angularly-arranged surfaces on opposite outer sides thereof for receiving the ends of a collar, and the oppositely-inclined surfaces adjacent thereto on opposite outer sides of the support for receiving the adjacent portions of the collar, of the co-operating jaws having the correspondingly arranged surfaces formed to coöperate with those of the support for producing a pressure upon those portions of the collar interposed between them.

4. An ironing machine having two pairs of ironing surfaces, the members of each pair merging at one end to form an apex and the apexes of the two pairs being directed toward each other.

5. In a collar tipping machine, the combination with an iron having ironing surfaces on opposite outer sides thereof extending in planes corresponding substantially to



the relative angle to be given the collar wings when ironed, of pressing members movable in opposite directions toward and from the iron to press the collar wings against the ironing surfaces.

6. In a machine for ironing wing-point collars, the combination with an iron having a pair of angularly-arranged ironing surfaces for engaging the front or exposed faces of the laterally turned wings of the collar, and the divergent surfaces thereon to engage those portions of the collar adjacent to the wings, of relatively movable pressing members having padded pressing surfaces arranged to press the collar ends into engagement with the adjacent angular surfaces to form an angular bend in the collar between the wings and the body thereof, and serving to press the exposed faces of the wings smoothly and evenly on the ironing surfaces.

7. In a machine for tipping wing-point collars, the combination with an iron having the relatively inclined ironing surfaces arranged to correspond substantially to the relative angular positions to be given the collar wings, of members having padded pressing surfaces arranged to cooperate with the reverse surfaces of the collar wings to press the exposed surfaces thereof evenly against the inclined ironing surfaces, and means for operating said members relatively to the iron.

8. In an ironing machine, the combination with an iron having suitable ironing surfaces thereon adapted to engage the faces of the laterally-turned collar wings, of a pair of pressing members movable relatively to each other and to the iron, and having pressing surfaces adapted to engage the collar wings to press them against their corresponding ironing surfaces, and means for operating the pressing members relatively to the iron and to each other.

9. In a machine of the character described, the combination with the support having the surfaces thereon to receive the collar, of the relatively movable jaws mounted pivotally at intermediate points and having at one end the pressing surfaces corresponding to those of the support for pressing the collar between them, the pivotal links connecting the opposite ends of the jaws, and operating devices connected to said links for operating them to proximate and separate said jaws.

10. In a machine of the character described, the combination with the support having the surfaces thereon to receive portions of the collar, of the relatively movable jaws mounted pivotally at intermediate points and having at one end the pressing surfaces corresponding to those of the support, the pivoted links connecting the opposite ends of the jaws, and an operating member connected to the links for operating them to proximate the jaws, an abutment or stop for retaining the links in a predetermined position, and a releasing device operating said member to release the links.

11. In a machine of the character described, the combination with a standard having the support thereon provided with the ironing surfaces formed upon opposite sides thereof, of the oppositely arranged jaws mounted pivotally upon the standard and having the pressing surfaces corresponding to those of the support, the pivoted toggle links connecting the opposite ends of the jaws and capable of proximating and separating them by relative motion of the links, and means for adjusting the links to vary the pressure produced by the jaws through the operation of the links.

12. In a machine of the character described, the combination with a standard having the support thereon provided with the ironing surfaces formed upon the opposite sides thereof, of the oppositely-arranged jaws mounted pivotally upon the standard and having the ironing surfaces corresponding to those of the support, the pivotal links connecting the opposite ends of the jaws and capable of proximating and separating them by relative motion of the links, an actuating rod connected to the links for producing relative motion thereof, a stop for arresting the motion of the link in a predetermined position, an operating member connected to the actuating rod, and a releasing device cooperating with said member for releasing the links.

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