

No. 697,786.

Patented Apr. 15, 1902.

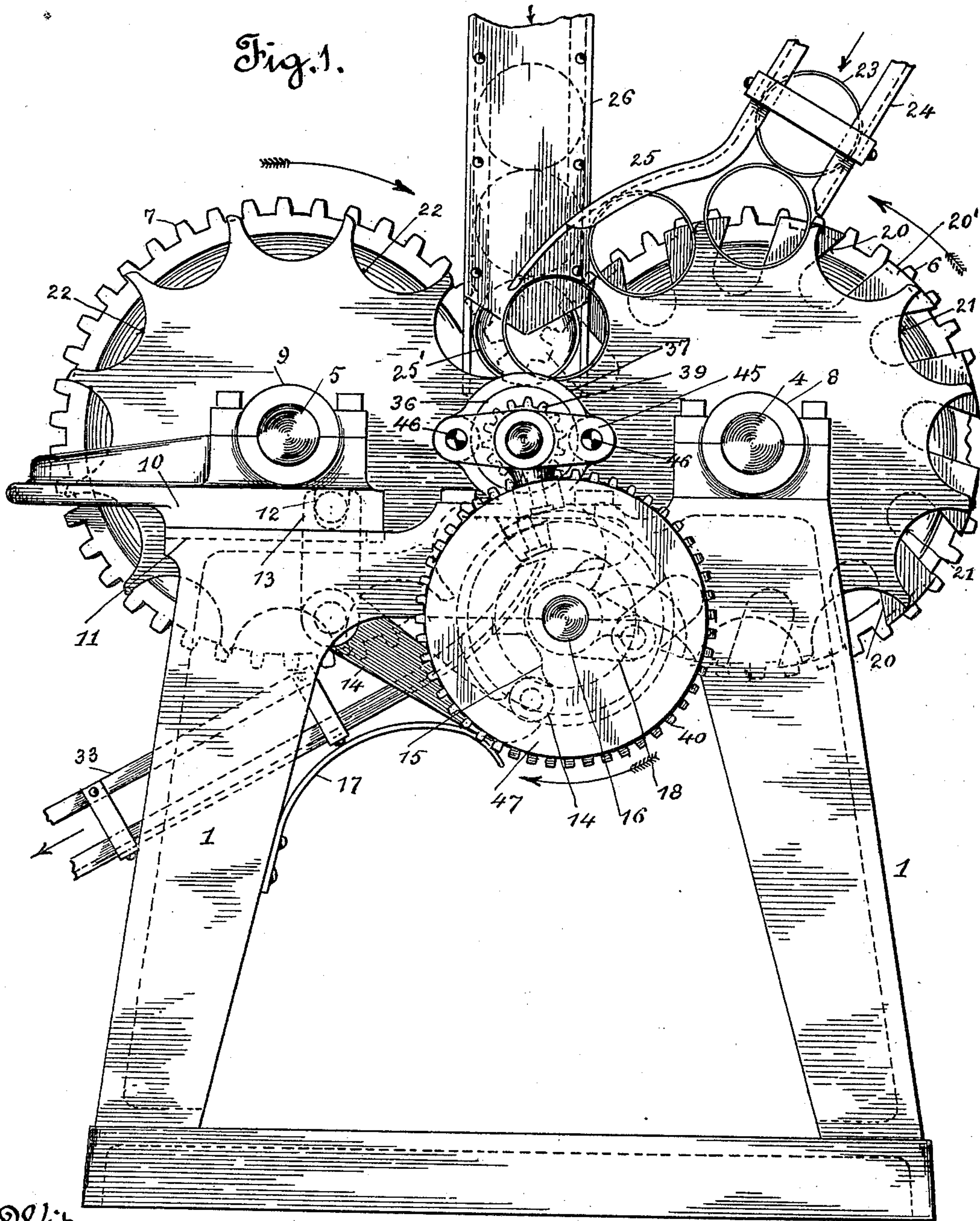
H. C. BLACK.

COMBINED BOTTOMER AND CRIMPER FOR CAN BODIES.

(Application filed June 14, 1901.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses.

*W. H. Notwendt*  
*Walter F. Lane*

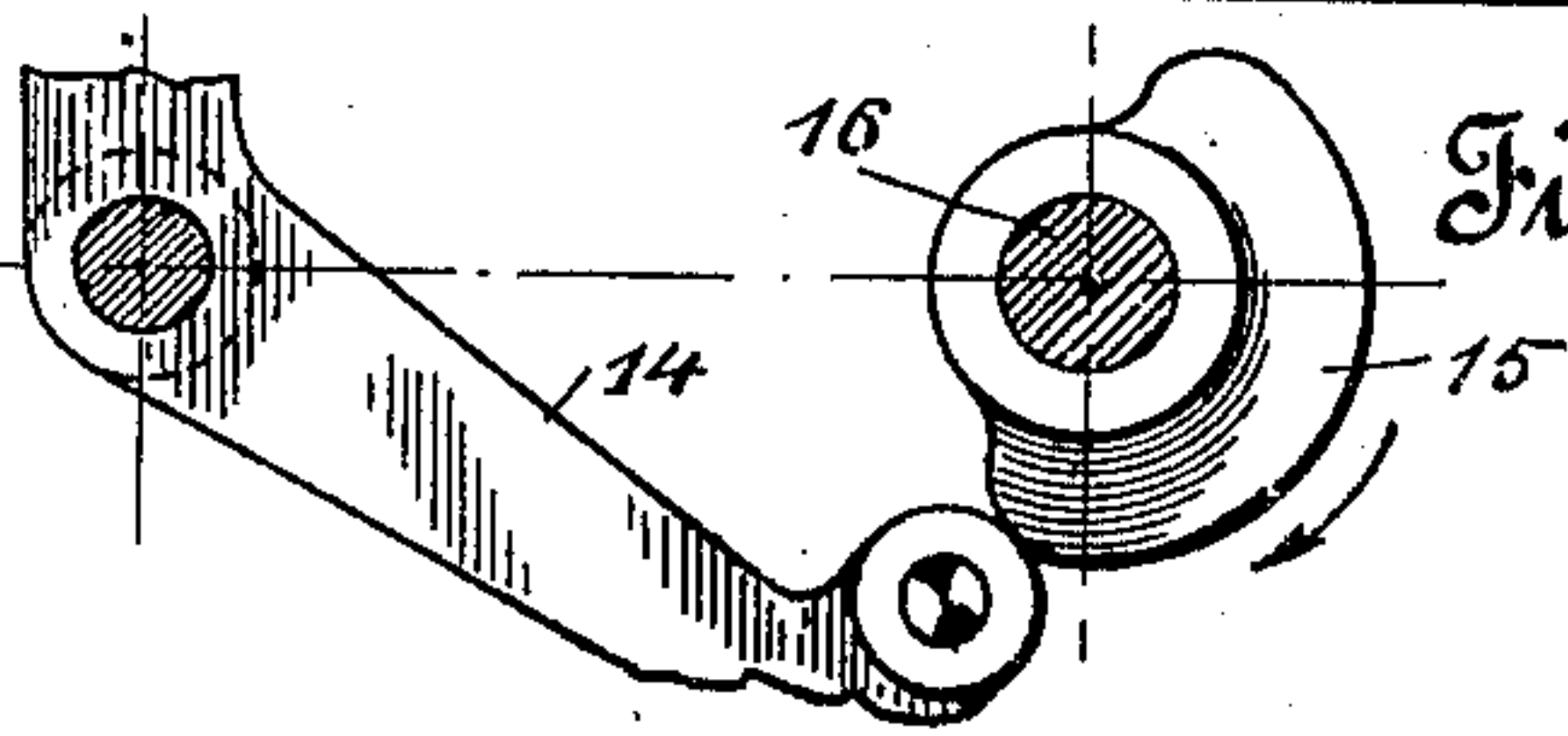


Fig. 2. *Inventor,*  
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*Att'y.*

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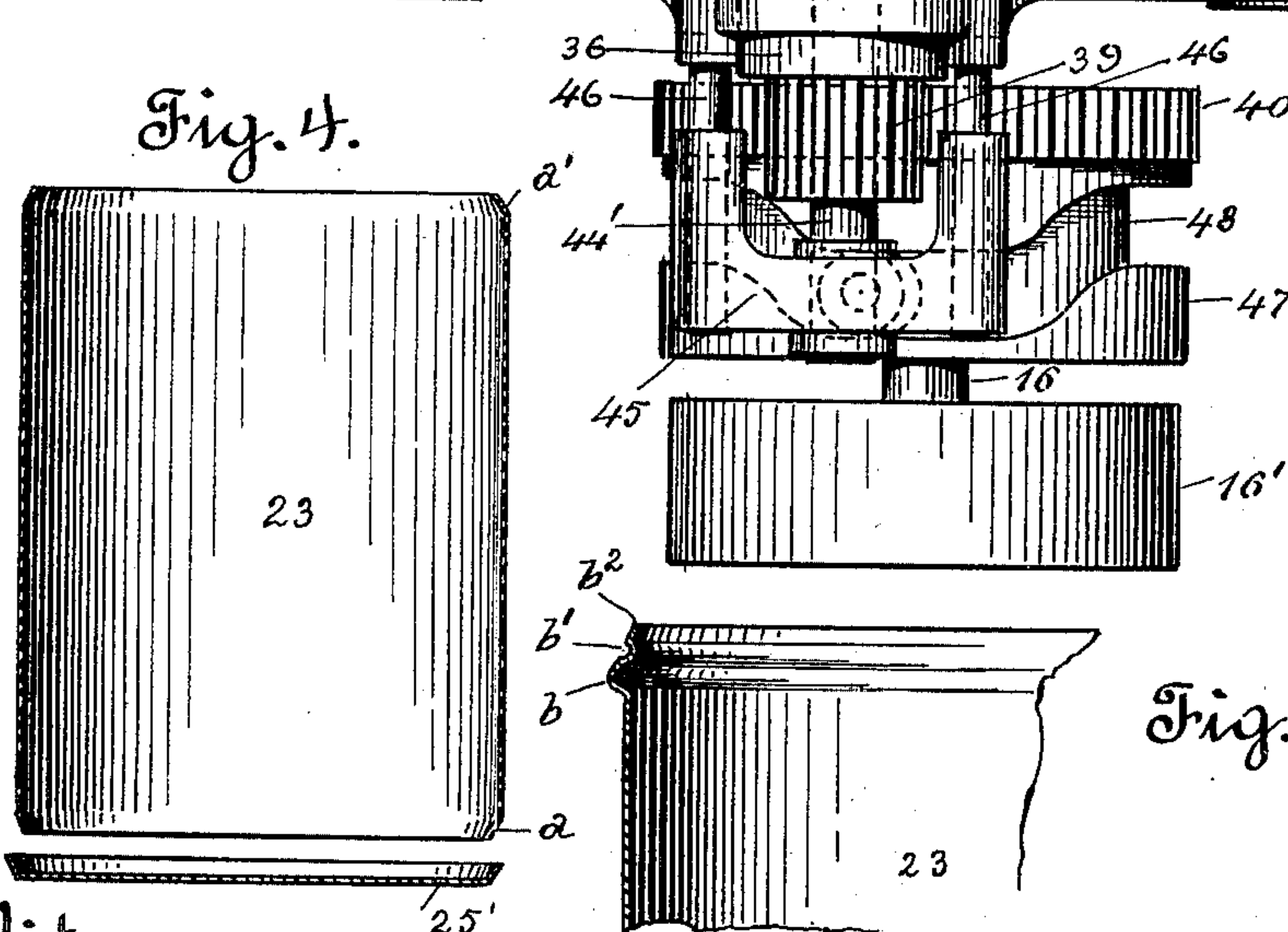
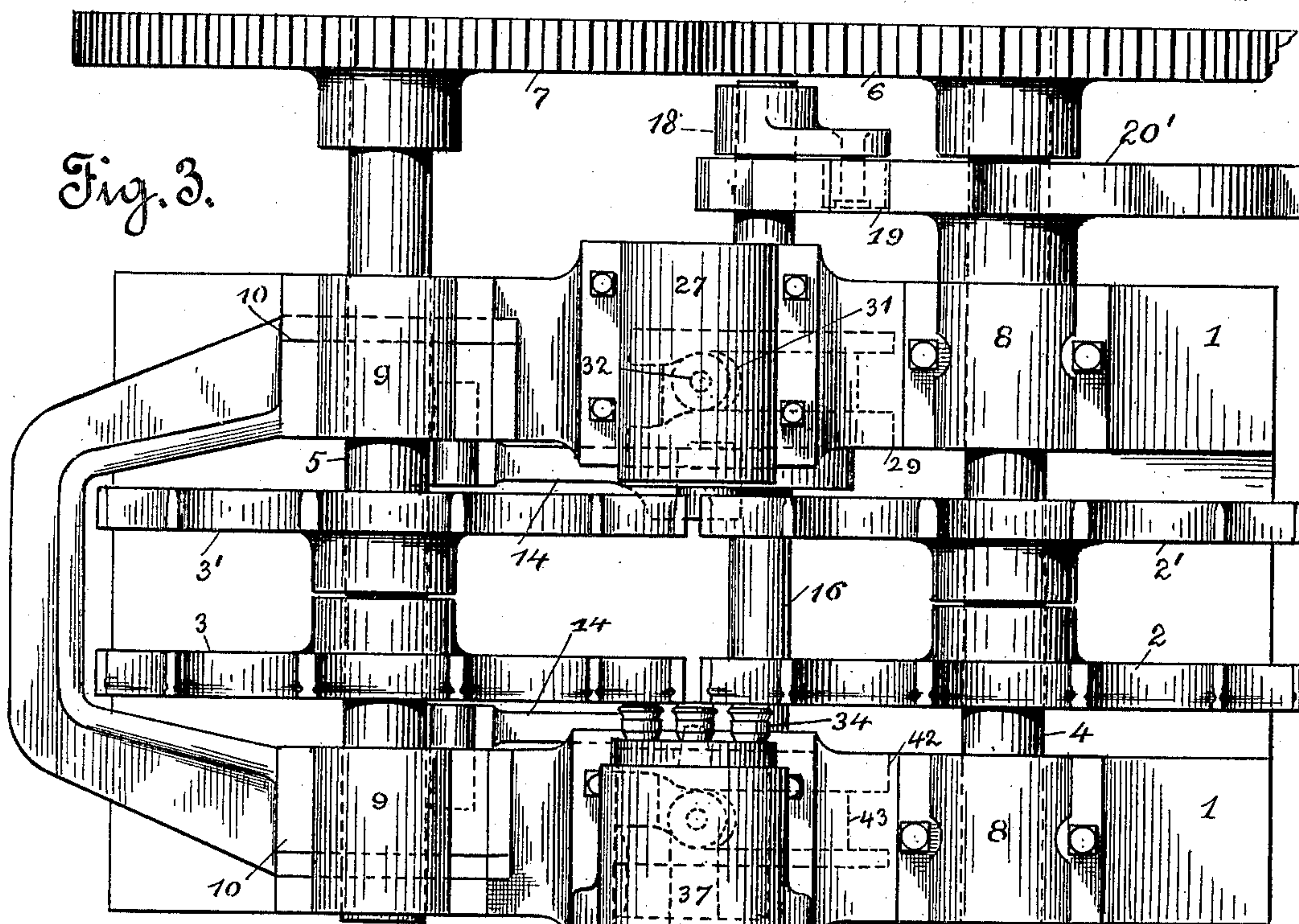
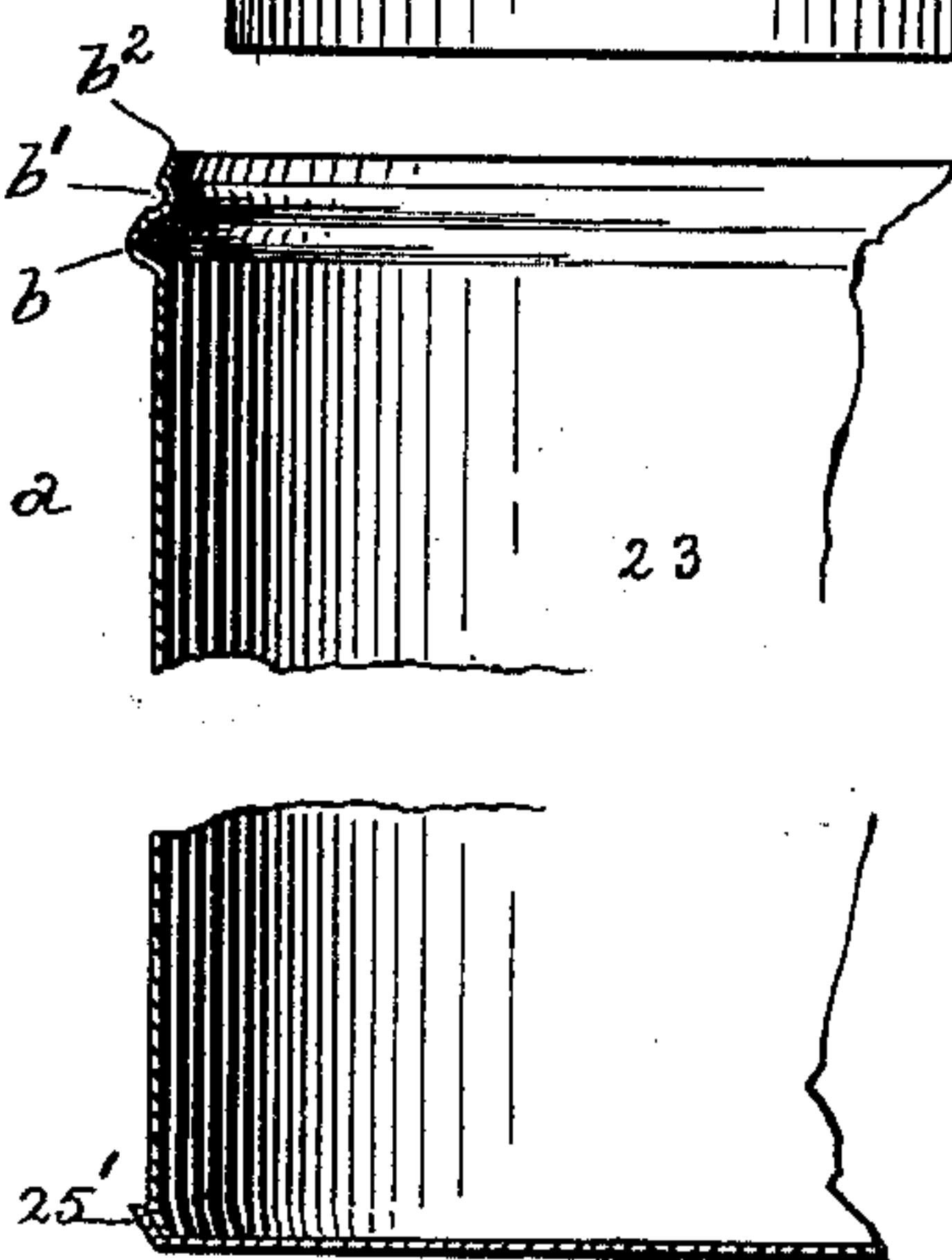


Fig. 5.



Witnesses.

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Inventor.  
*H. C. Black*  
by *W. A. Acker*  
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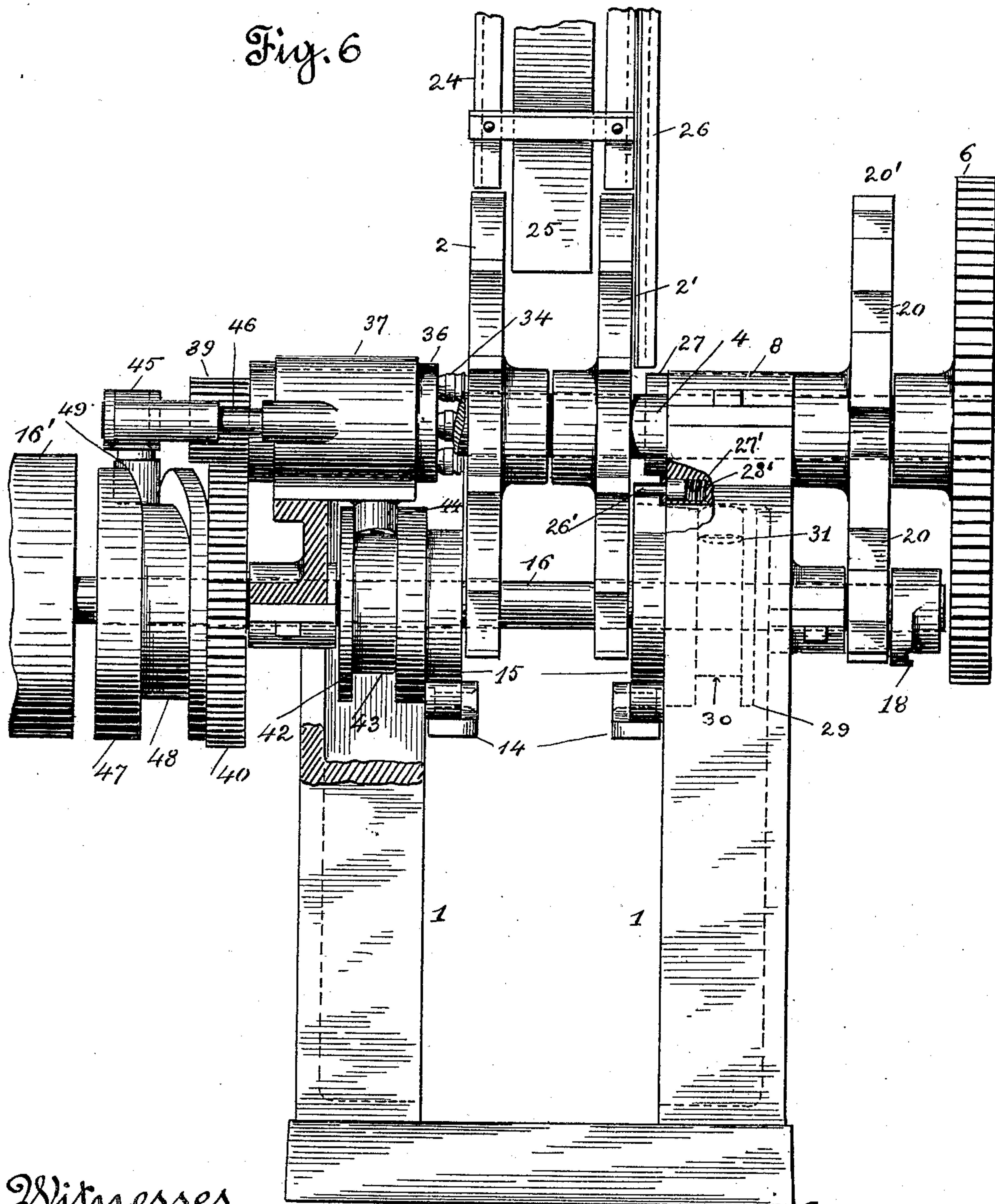
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(No Model.)

4 Sheets—Sheet 3.



Witnesses.

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No. 697,786.

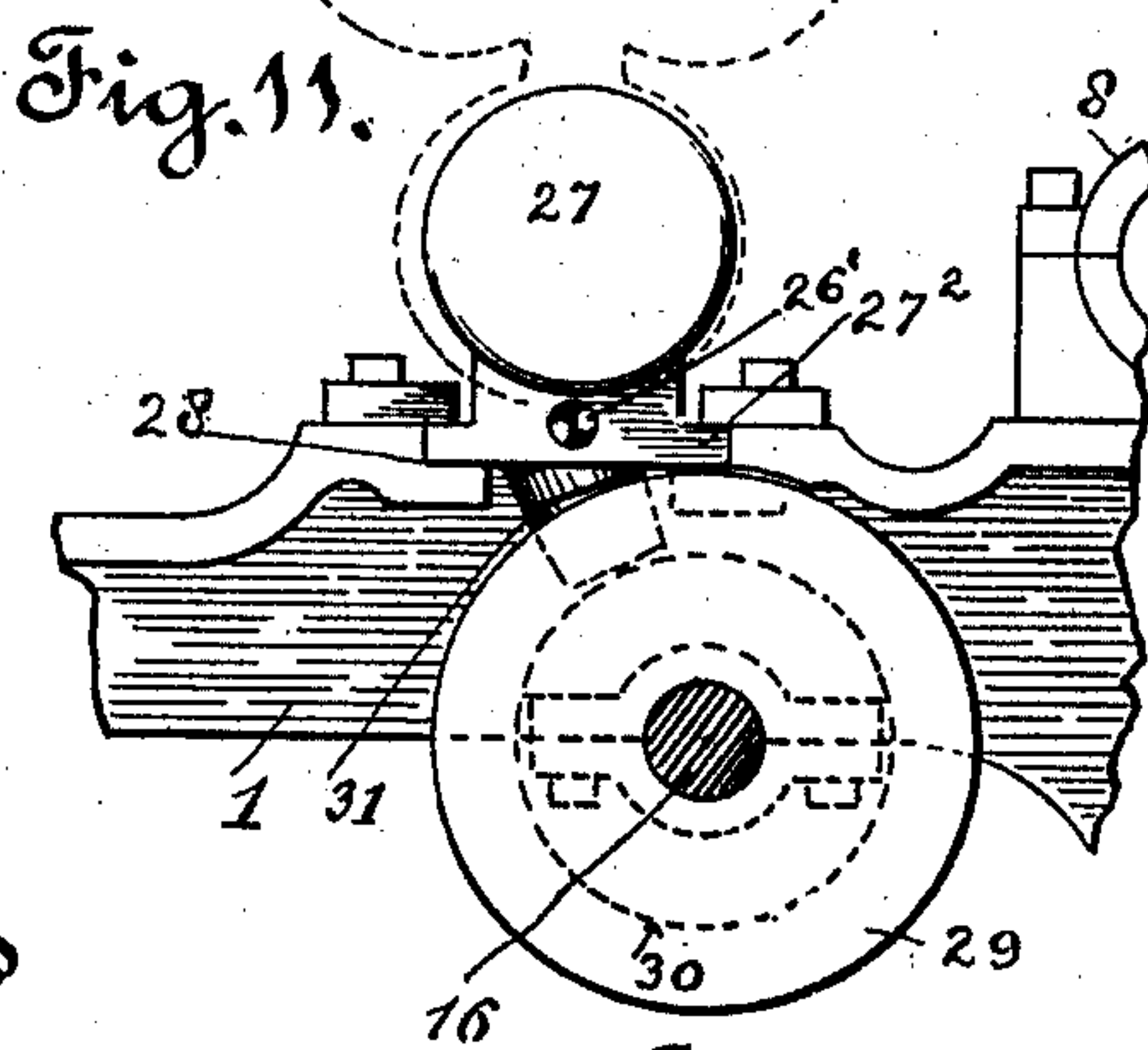
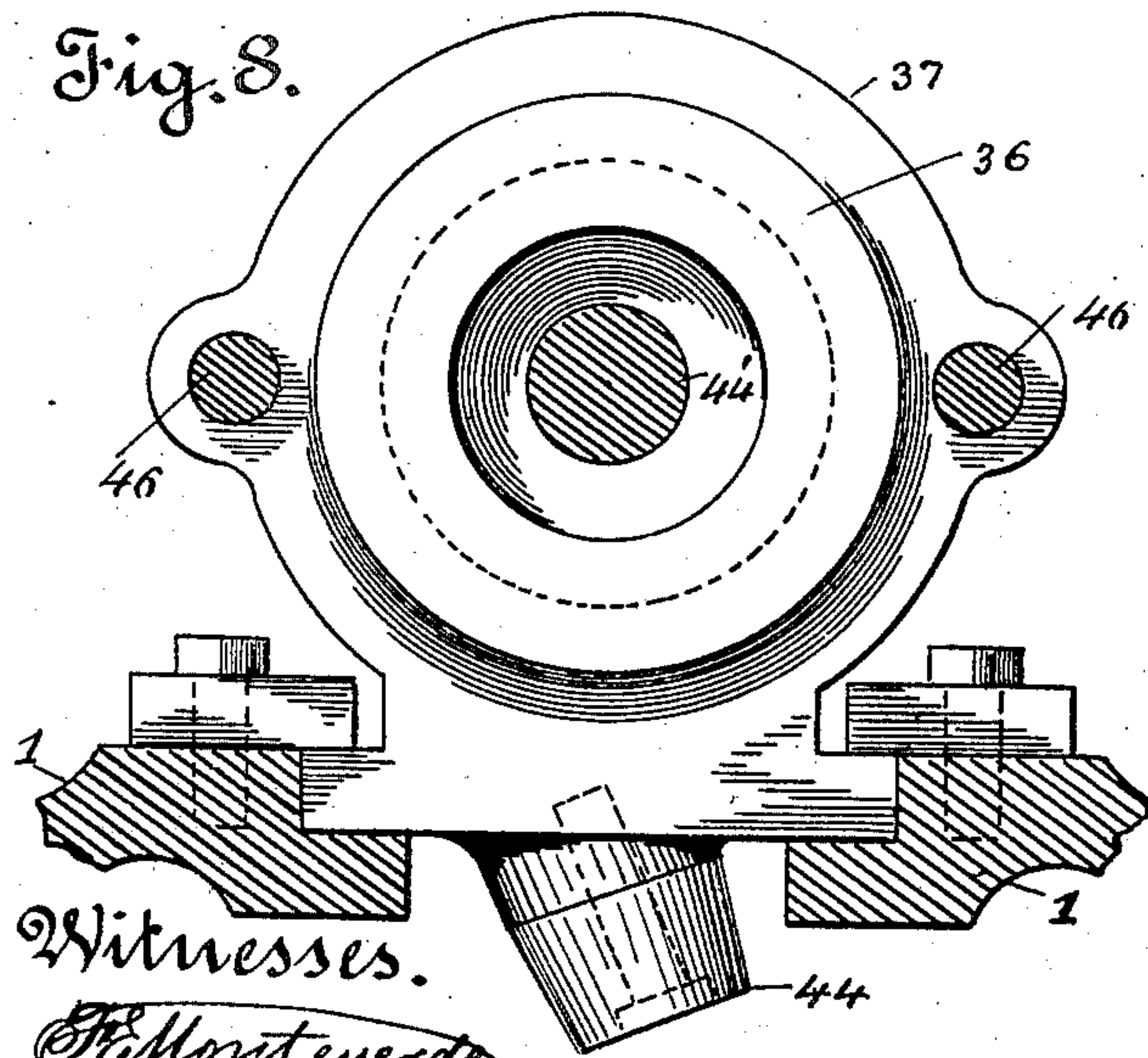
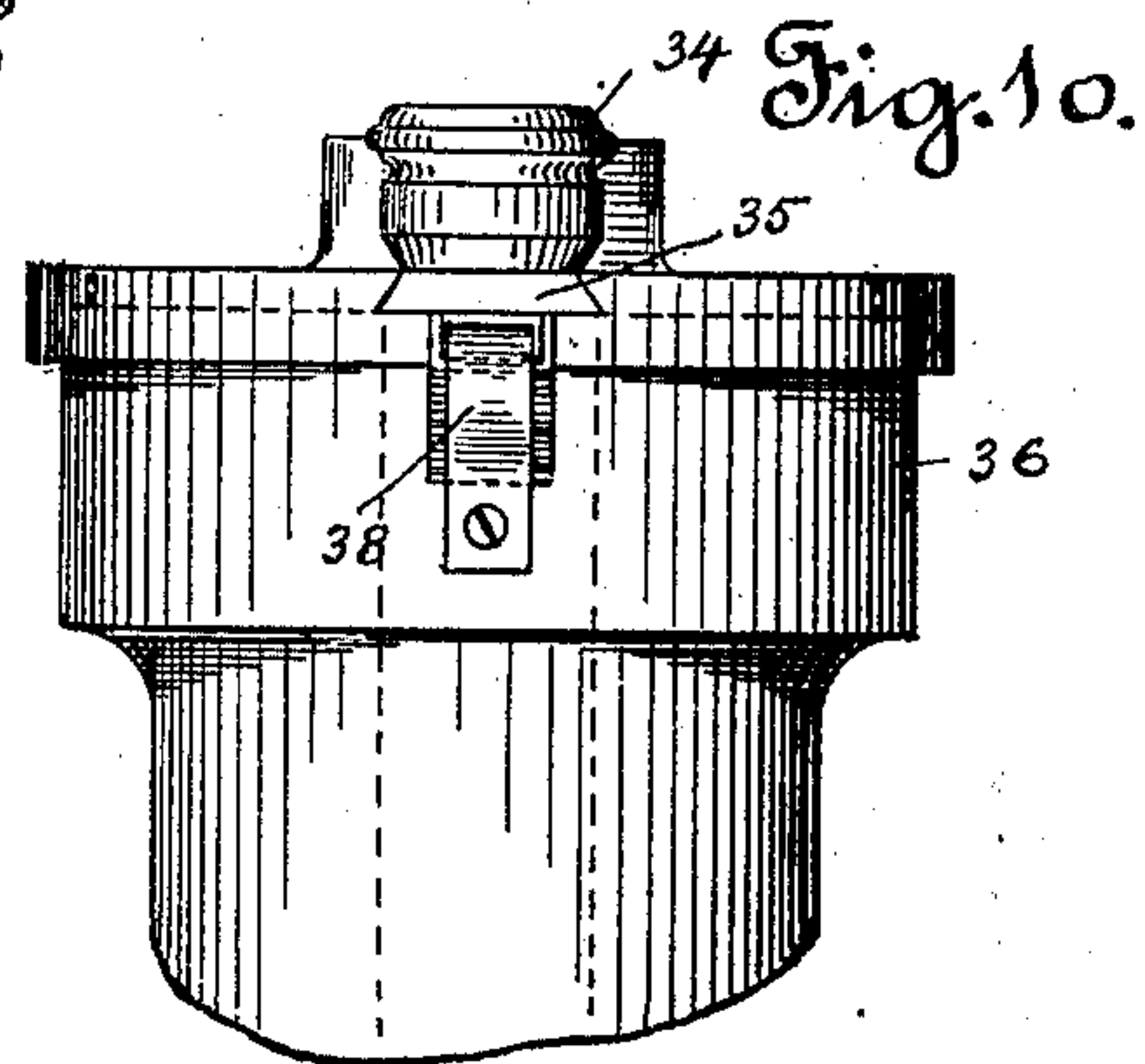
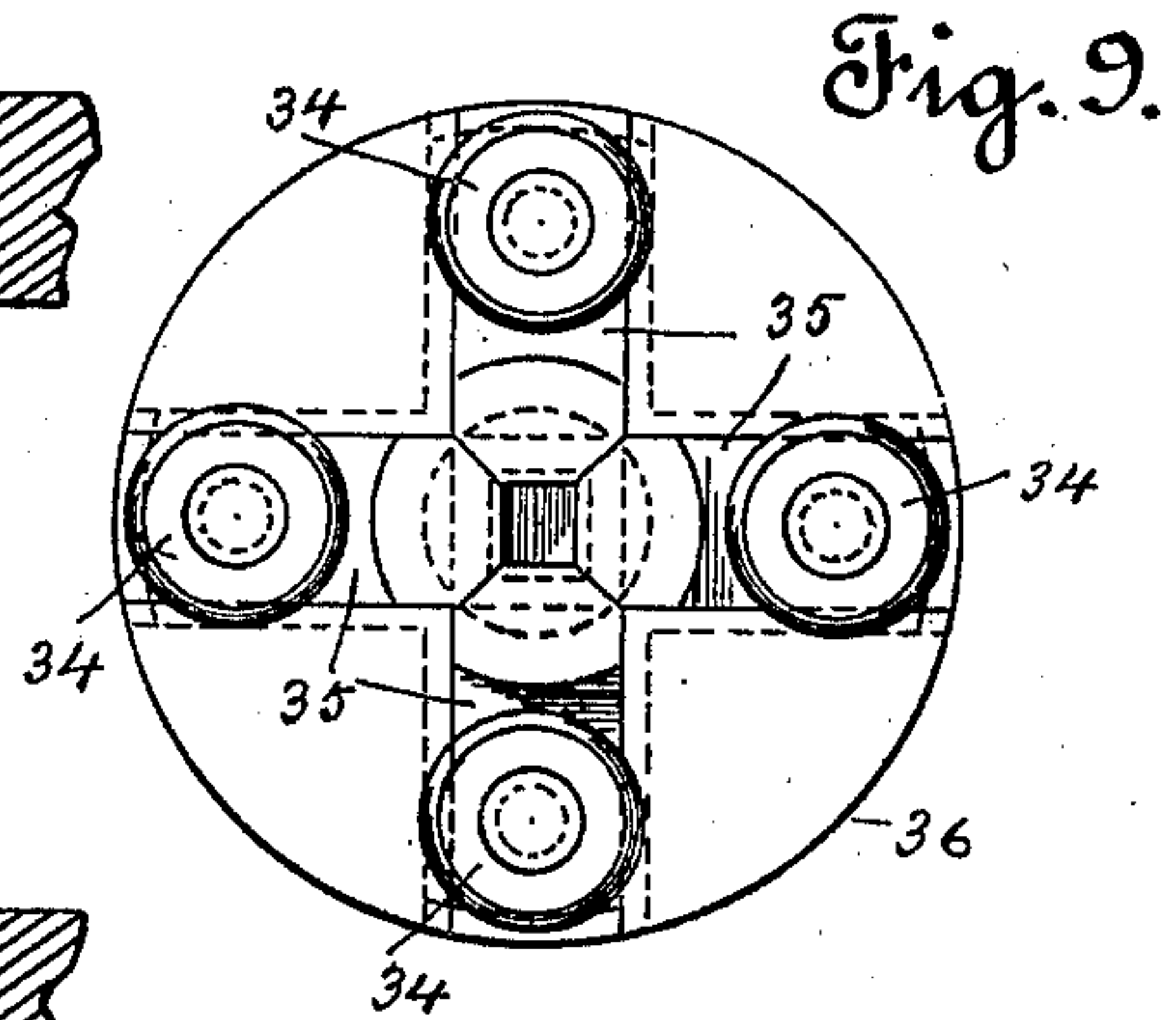
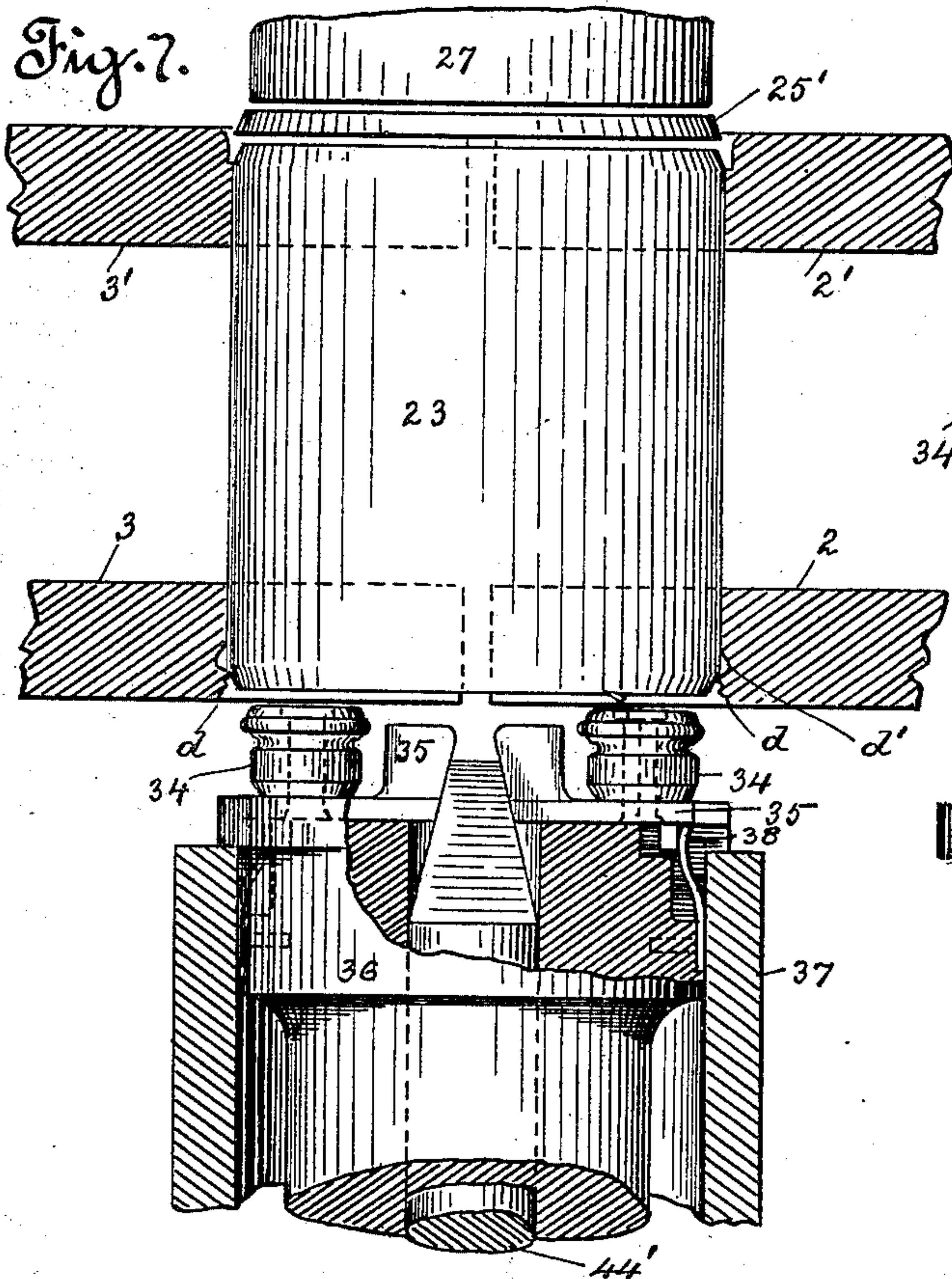
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(Application filed June 14, 1901.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses.  
*E. Monteverde*  
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Inventor  
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his atty.



# UNITED STATES PATENT OFFICE.

HENRY C. BLACK, OF OAKLAND, CALIFORNIA, ASSIGNOR TO AXEL JOHNSON,  
OF OAKLAND, CALIFORNIA.

## COMBINED BOTTOMER AND CRIMPER FOR CAN-BODIES.

SPECIFICATION forming part of Letters Patent No. 697,786, dated April 15, 1902.

Application filed June 14, 1901. Serial No. 64,550. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. BLACK, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have  
5 invented certain new and useful Improvements in a Combined Bottomer and Crimper for Can-Bodies; and I do hereby declare the following to be a full, clear, and exact description of the same.

10 The present machine is more especially adapted for use in the manufacture of cans to be used in connection with the vacuum process of sealing fruit, vegetables, or other articles; and the object of the invention is to  
15 provide a machine whereby bottoms may be forced onto can-bodies, while at the same time the open or head end of the can-body is crimped, so as to form a circumferential groove for the reception of a rubber washer  
20 or ring. However, the invention is adapted for use in connection with any class of cans and is not confined to those used in connection with the vacuum process of sealing.

In order to comprehend the invention, reference should be had to the accompanying  
25 sheets of drawings, wherein—

Figure 1 is a side view in elevation of the machine; Fig. 2, a detail view of the lever and actuating-cam for imparting reciprocating movement to the retaining-disks; Fig. 3,  
30 a top plan view of the mechanism disclosed in Fig. 1 of the drawings, the chutes for the can-body and ends being removed; Fig. 4, an enlarged detail view of the can-body prior to being crimped and the bottom applied thereto; Fig. 5, a broken enlarged detail view of the  
35 can-body with its bottom applied thereto and head end crimped; Fig. 6, an end view of the mechanism disclosed in Fig. 1 of the drawings; Fig. 7, an enlarged sectional part-broken  
40 plan view of the crimping mechanism, the can-body being illustrated held within the slots of the receiving and retaining disks and in position for being crimped and having its  
45 bottom applied thereto; Fig. 8, an enlarged detail view of the outer end of the crimper mechanism; Fig. 9, a similar view of the inner end thereof; Fig. 10, a detail view of the piston carrying the crimping-rollers; and Fig.  
50 11, a detail end view in elevation of the piston and its actuating means for applying the bottoms to the can-bodies, the receiving and

retaining disks being illustrated by dotted lines.

Referring to the drawings, the numeral 1 55 is used to indicate the frame of the machine, within which work the can-body-receiving disks 2 2' and the retaining-disks 3 3'. These disks are secured, respectively, to cross-shafts 4 5, to the outer ends of which shafts are attached the intermeshing gear-wheels 6 7, Figs. 1 and 3 of the drawings. Cross-shaft 4 works in bearings 8 of the frame, while cross-shaft 5 works in bearings 9 of the slide-blocks 10. Said blocks work in ways 11 of the said frame. 65 From each slide-block projects a stud 12, which is engaged by the bifurcated end 13 of the levers 14, which levers are fulcrumed to the frame 1. The fulcrumed levers are actuated by the wiper-wheels 15, secured to the drive-shaft 16, which shaft works through the frame of the machine and is driven by a drive-belt (not shown) working over belt-wheel 16'. During the rotary movement of the drive-shaft the wiper-wheels 15 are carried there- 70 with and during a portion of their travel bear upon the lower ends of the fulcrumed levers 14 and force the same downward or outward. The upper ends of the said levers are thrown inward and move therewith the slide-blocks 10, so as to move the retaining-disks slightly toward the receiving-disks. The reason for such inward movement of the said disks will be hereinafter explained. As the wiper-wheel 15 moves out of engagement with fulcrumed 85 levers 14 the slide-blocks are drawn outward by the pressure of springs 17.

To the free end of the drive-shaft 16 is secured the crank-arm 18, which carries the roll 19. This roll works in and out of the inclined slots 20, cut in the periphery of the drive-disk 20', which disk is attached to cross-shaft 4. By means of the crank-arm 18 an intermittent or step rotation is imparted to the disk 20' and its shaft 4 from the continuously-rotary movement of the drive-shaft. 95 As the motion of cross-shaft 4 is transmitted to shaft 5 through the medium of the intermeshing gear-wheels 6 7, a step rotation is given to the receiving and retaining disks. 100

In the periphery of the receiving-disks is formed a series of semicircular seats or sockets 21 and in the periphery of the retaining-disks a series of similar seats or sockets 22.



These seats or sockets register during the movement of the receiving and retaining disks or the oppositely-operating mechanisms and hold the can-bodies 23 therein during the operation of placing the bottom thereon and crimping the head end thereof.

The can-bodies 23 are delivered one at a time to the receiving-disks by the chute 24, being held within the semicircular seat thereof until the retaining-disks engage therewith by means of the curved guard-plate 25. At the same time the bottoms 25' are supplied to the machine by runway 26, the lowermost bottom resting immediately in advance of piston 27, being supported by pin 26', secured in socket 27' of the piston-slide 27<sup>2</sup>, forced outwardly by springs 28'. This piston works in ways 28 of the frame, Fig. 11 of the drawings, and is moved inward and outward or reciprocated transversely of the machine by means of the cam-wheel 29, secured to the drive-shaft 16. In the periphery of cam-wheel 29 is cut the cam-groove 30, within which rests the roll 31, attached to stud 32, depending from the slide of piston 27. Being thus united, the piston is forced inward and outward during the rotary movement of the cam-wheel 29. As moved inward the piston removes the bottom 25' from its seat and forces the same onto end *a* of the can-body 23. While the bottom is being applied the can-body is held by the receiving and retaining disks within the seats 21 22 of the said disks. Inasmuch as the head end *a'* of the can-body 23 is crimped during the operation of applying the bottom thereto it is required that the said body be firmly held between the receiving and retaining disks. Ordinarily a slight distance exists between the periphery of these disks, which is immaterial so far as applying bottoms onto the can-bodies is concerned. However, in order to properly crimp the can-body it is required that the receiving and retaining disks be held firmly together, so as to completely close the can-body seats in order that the inner wall thereof may bear upon the can-body at all points. This closure of the can-body seats of the receiving and retaining disks is caused by a slight inward movement being permitted to the slide-bearing blocks 10, which are forced inward by contact of the wiper-wheels 15 with the lower end of the fulcrumed levers 14, as before explained. The inward movement of the slide-blocks takes place while the disks are at rest or during the step rotation thereof. The retaining-disks are held pressed against the receiving-disks sufficiently long to enable the bottom to be applied to the retained can-body and the head end to be crimped. After the head end has been crimped the wiper-wheels move from off the fulcrumed levers and by the pressure of springs 17 the slide-block returns to its normal position, so as to place the retaining-disks a slight distance away from the receiving-disks, thus giving clearance for rotation of

the said disks. The disks are then given a step rotation in order to gradually open or separate the seats within which rests the crimped and bottomed can-body and permit its discharge into chute or runway 33.

The head end *a'* of the can-body is crimped within the machine for the purpose of providing a circumferential shoulder *b* and an annular groove *b'*, which groove terminates in an upright flange *b*<sup>2</sup>, Fig. 5 of the drawings. To enable the can-body to be thus crimped, the outer edge of the semicircular seats 21 22 of disks 2 3 is chamfered, as shown at *d*, Fig. 7 of the drawings, and formed with the groove *d'*. When the disks are held together to clamp the can-body, this portion of the seats serves as a male die for the crimping-rolls 34. There are preferably four of these crimping-rolls, each being secured to a slide-block 35, fitted to move within the grooved end of the piston 36, Fig. 9 of the drawings. The piston 36 works within the casing 37, and the crimping-roll blocks are held normally pressed inward by means of the springs 38, interposed between the said blocks and the inner wall of the casing 37, Fig. 7 of the drawings.

To the outer end portion of piston 36 is secured the pinion 39, which pinion meshes with gear 40, secured to the drive-shaft 16. The rotary motion of said drive-shaft is thus transmitted to the piston 36. Said piston is held within its casing by a suitable collar. The casing is reciprocated transversely by means of the cam-wheel 42, secured to the drive-shaft 16, Fig. 6 of the drawings, which wheel is formed with a peripheral cam-groove 43, within which works the roll 44, secured to a stud depending from the casing. Cam-wheel 42 works in unison with cam-wheel 29. Consequently the crimper-piston 36 is moved inward, so as to place the crimper-rolls 34 within the open head end of the can-body at the same time piston 27 is forced inward to apply the bottom thereto.

Through the crimper-piston 36 works the expander-rod 44', which rod when moved inwardly gradually forces the slide-blocks 35 apart or away from each other, so as to cause the crimping-rolls 34 to bear against the inner wall of the can-body and crimp the head end thereof, as desired. It will be understood that the periphery of each crimping-roll 34 corresponds with the shape of the male die portion of the can-body seats. The outer end of the expander 44' is loosely fitted within cross-head 45, so as to rotate with the crimper-piston when moved inward to expand the slide-blocks 35, being held to the cross-head by collars on either side thereof. Said expander is moved inward and outward by means of roll 49, secured to a stud depending from cross-head 45. This roll works within cam-groove 48, cut in the periphery of wheel 47, which wheel is attached to drive-shaft 16 and rotates therewith. The crimper-piston being driven from the drive-shaft by the



intermeshing gears is a continuously-rotating one.

In operation the various parts are so arranged or timed as to movements that the can-body is first received and held between the receiving and retaining disks, after which the retaining-disks are forced firmly against the receiving-disks while the disks are at rest. The piston 27 is then moved inward in order to force the can-bottom from within its seat 26' onto the held can-body, while at the same time the crimper-piston is moved inward, so as to place the crimper-rolls within the head end of the can. The moment the crimper-rolls enter the can-body expander-rod 44 is carried inward within its piston and the slide-blocks 35 forced outward laterally, causing the crimper-rolls to bear upon the inner wall of the held can-body and crimp the same against the male die. The parts then, through the medium of the respective devices, are restored to their normal positions and a step movement imparted to the receiving and retaining disks. The can-body being released by the movement of said disks falls into the discharge-chute

Having thus described the invention, what is claimed as new, and desired to be protected by Letters Patent, is—

1. The combination with the receiving and retaining disks which receive and hold the can-bodies, of devices for imparting movement thereto, means whereby a bottom is applied to the can-body while held by the said disks, and mechanism by means of which the open head end of the can-body is crimped.

2. The combination with the receiving and retaining disks which receive and hold the can-bodies, each disk being provided with a series of seats in the periphery, of devices for imparting a step rotation to the said disks, means whereby slight longitudinal movement is given to the retaining-disks, means whereby bottoms are applied to the can-bodies held between the disks, and mechanism whereby the open head end of the can-body is crimped while the bottom is forced thereon.

3. The combination with the carrier-disks which receive and hold the can-bodies, of means for imparting a step rotation to the carrier-disks, crimper-rolls, devices whereby the crimper-rolls are moved in and out of the can-body to be crimped, means for imparting rotation to the said rolls, devices whereby the crimping-rolls are expanded after insertion within the can-body, and means whereby bottoms are applied to the can-bodies while the open head end thereof is being crimped.

4. The combination with the carrier-disks which receive and hold the can-bodies, of devices for imparting a step rotation to said disks, of means whereby bottoms are forced onto the held can-bodies, the crimper-rolls by means of which the head end of the can-bodies are crimped while held by the carrier-disks, a rotating piston by which the rolls are carried, devices whereby reciprocating move-

ment is imparted to the said piston, an expander working through the piston and by means of which the crimping-rolls are forced against the inner wall of the can-body, and means whereby the expander is moved in and out of the piston of the crimper-rolls.

5. The combination with the receiving-disks, of the retaining-disks, the slide bearing-blocks within which the shaft of the retaining-disks work, devices whereby the slide bearing-boxes are forced inward and the retaining-disks moved against the receiving-disks during the operation of crimping the can-bodies and away from said disks after the bodies have been crimped, means for imparting a step rotation to the receiving and retaining disks, mechanism whereby the head end of the can-body is crimped, and devices for moving the crimping mechanism in and out of the can-bodies.

6. The combination with the receiving and retaining disks which receive and hold can-bodies during the operation of applying bottoms thereto, of the feed-chutes for the can bodies and bottoms, a series of seats for the can-bodies cut in the periphery of each disk, means for imparting a step rotation to the said disks, a piston by means of which the bottoms are forced onto the can-bodies, and devices actuated by the drive-shaft of the machine by which the piston for applying the bottoms is moved inward and outward.

7. The combination with the receiving-disks, of the retaining-disks which cooperate therewith, of devices for imparting a step rotation to the receiving and retaining disks, and mechanism whereby the retaining-disks are moved horizontally toward and from the receiving-disks.

8. The combination with the receiving-disks, of the retaining-disks which cooperate therewith, a series of can-body seats cut or formed in the periphery of each disk, of devices for imparting a step rotation to the receiving and retaining disks, mechanism whereby the retaining-disks are moved horizontally toward and from the receiving-disks, the crimping-rolls which work within the head end of the can-body held within the seats of the said disks, devices whereby the crimping-rolls are moved in and out of the can-body.

9. The combination with carrying mechanism for the can-bodies, of crimper-rolls for crimping the end of the can-bodies, a rotary piston to which the crimping-rolls are slidably attached, means whereby the piston is moved inward and outward during its rotation so as to place the crimping-rolls in or out of the can-bodies, and means for expanding the crimping-rolls when moved within the open end of the can-bodies.

In witness whereof I have hereunto set my hand.

HENRY C. BLACK.

Witnesses:

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D. B. RICHARDS.