

No. 688,622.

Patented Dec. 10, 1901.

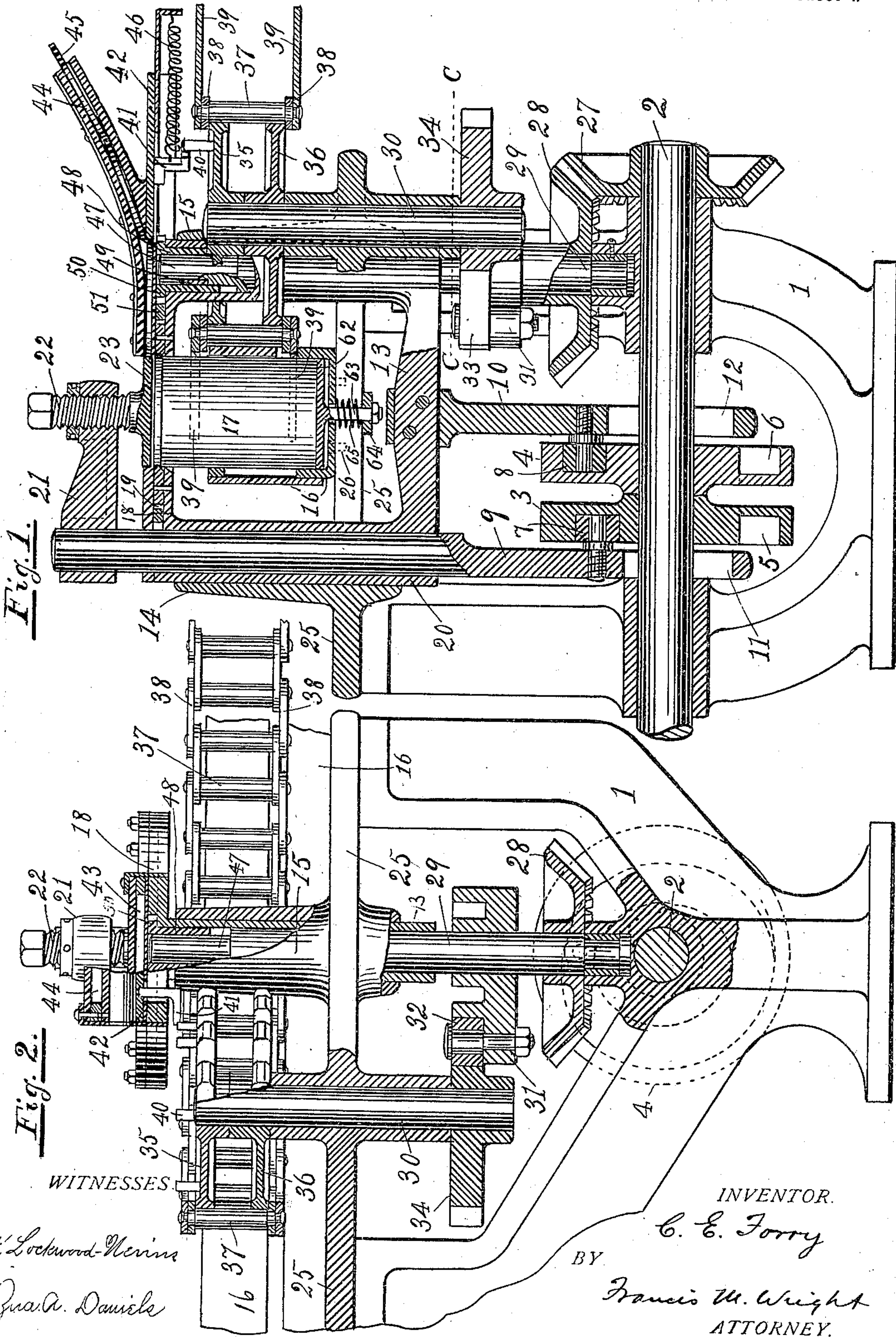
C. E. FORRY.

CAN HEADING AND CRIMPING MACHINE.

(Application filed Feb. 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



No. 688,622.

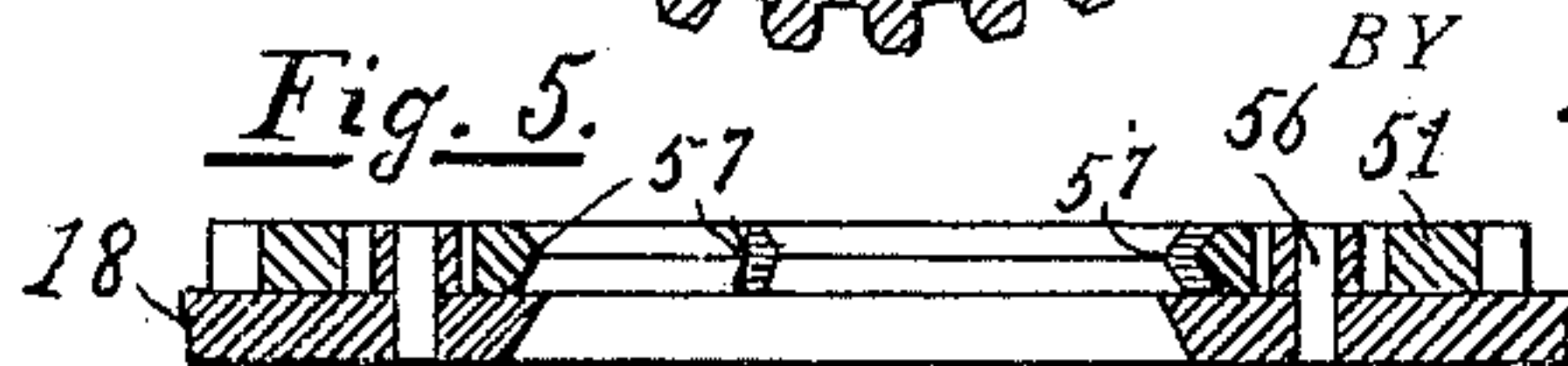
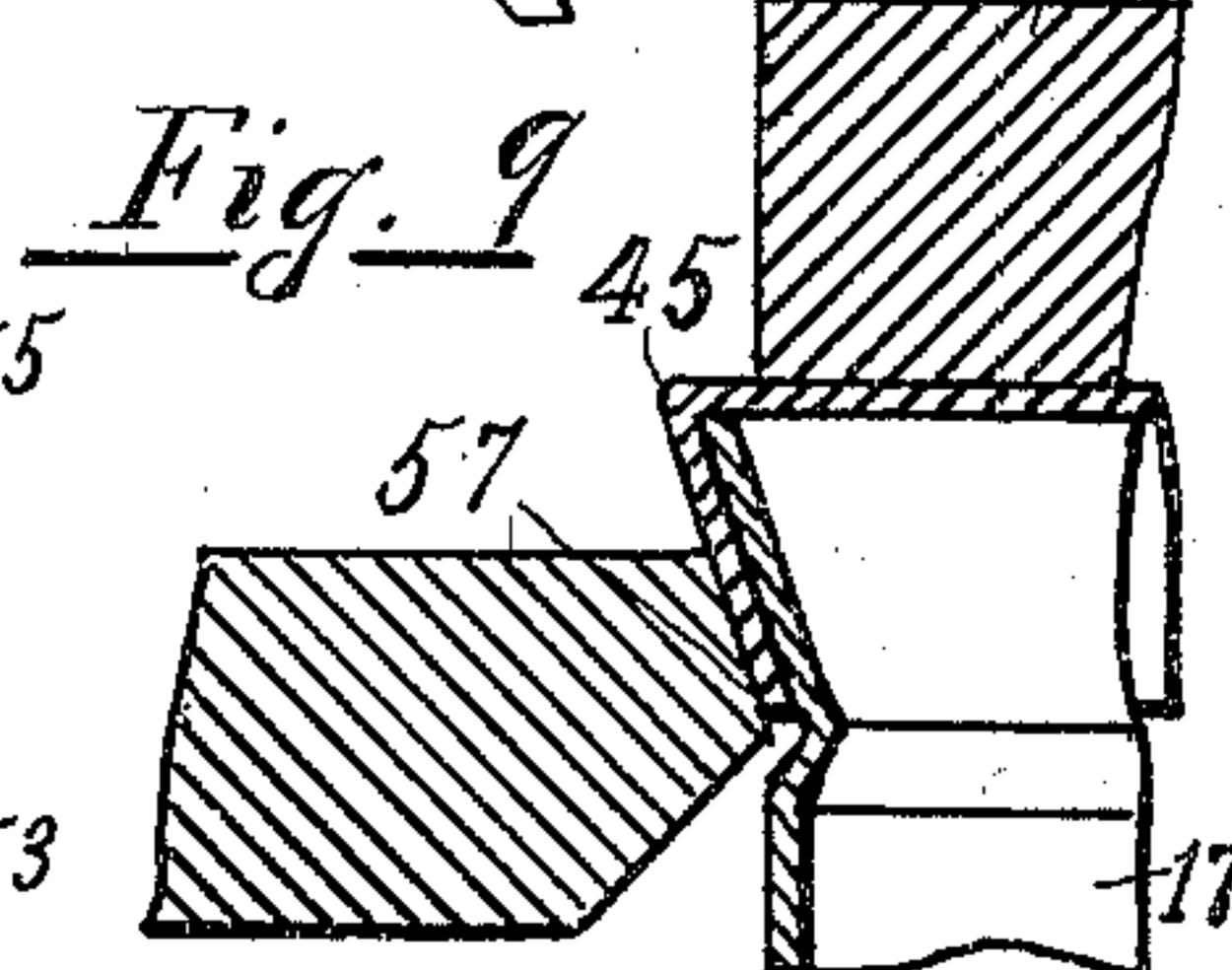
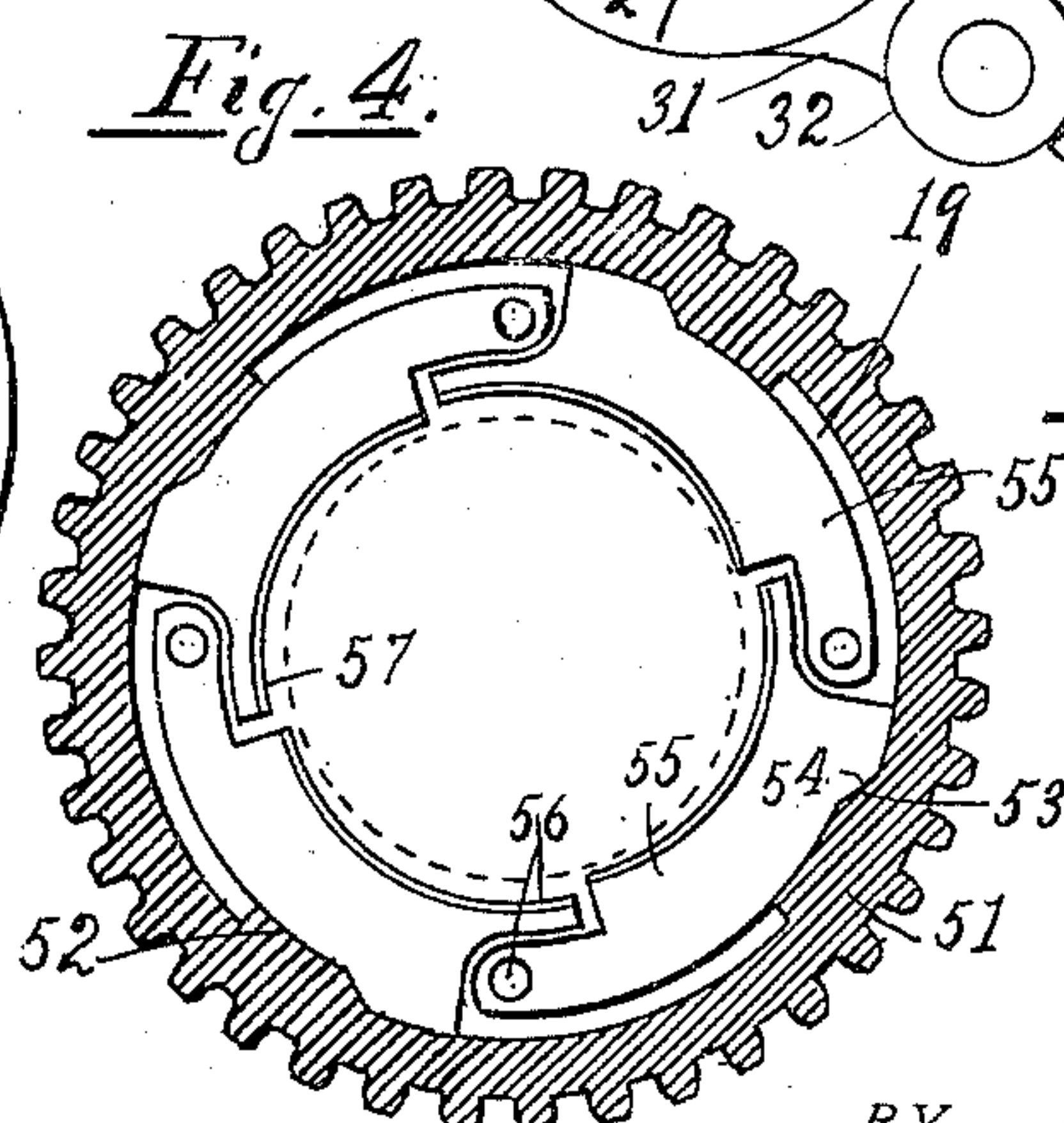
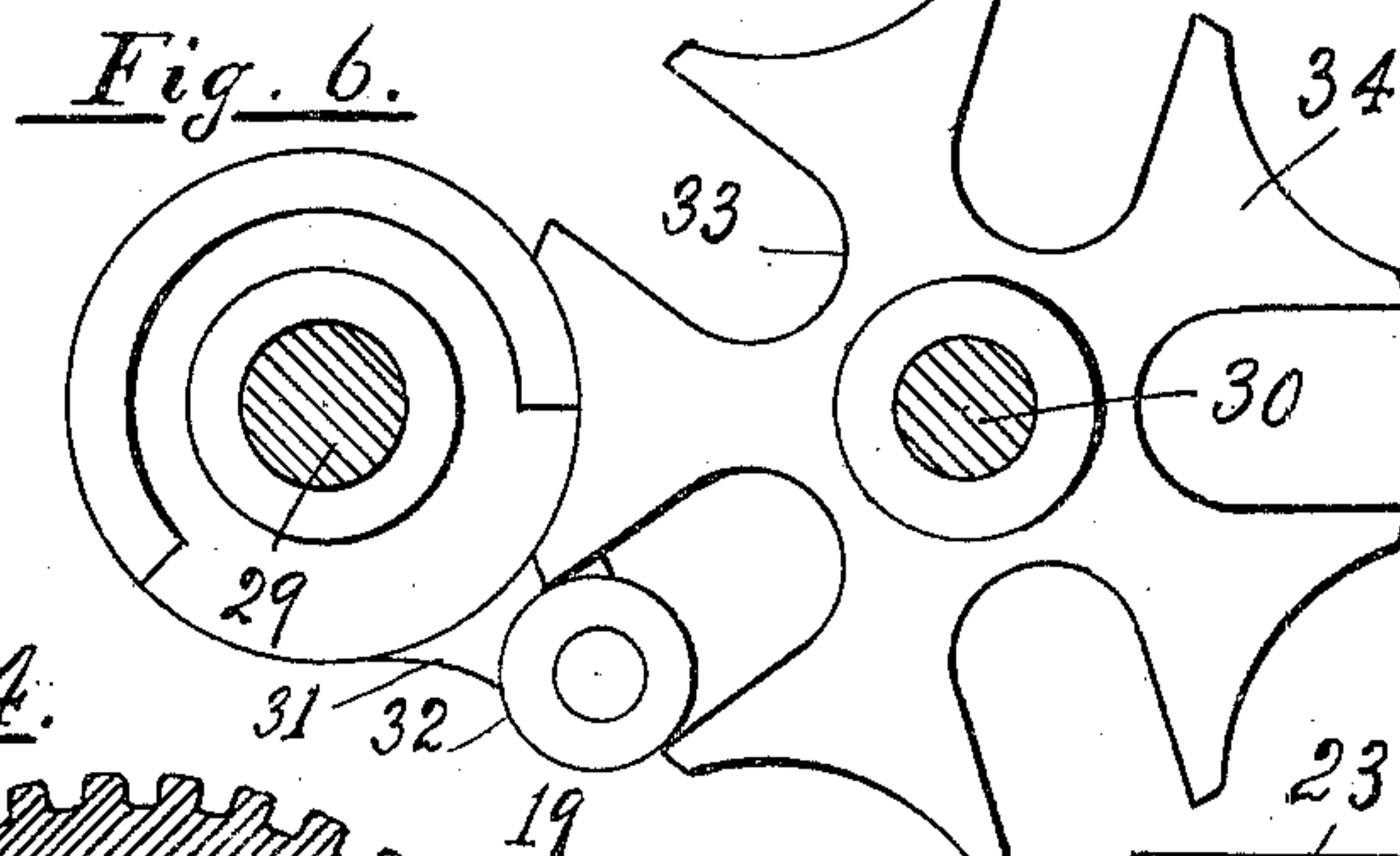
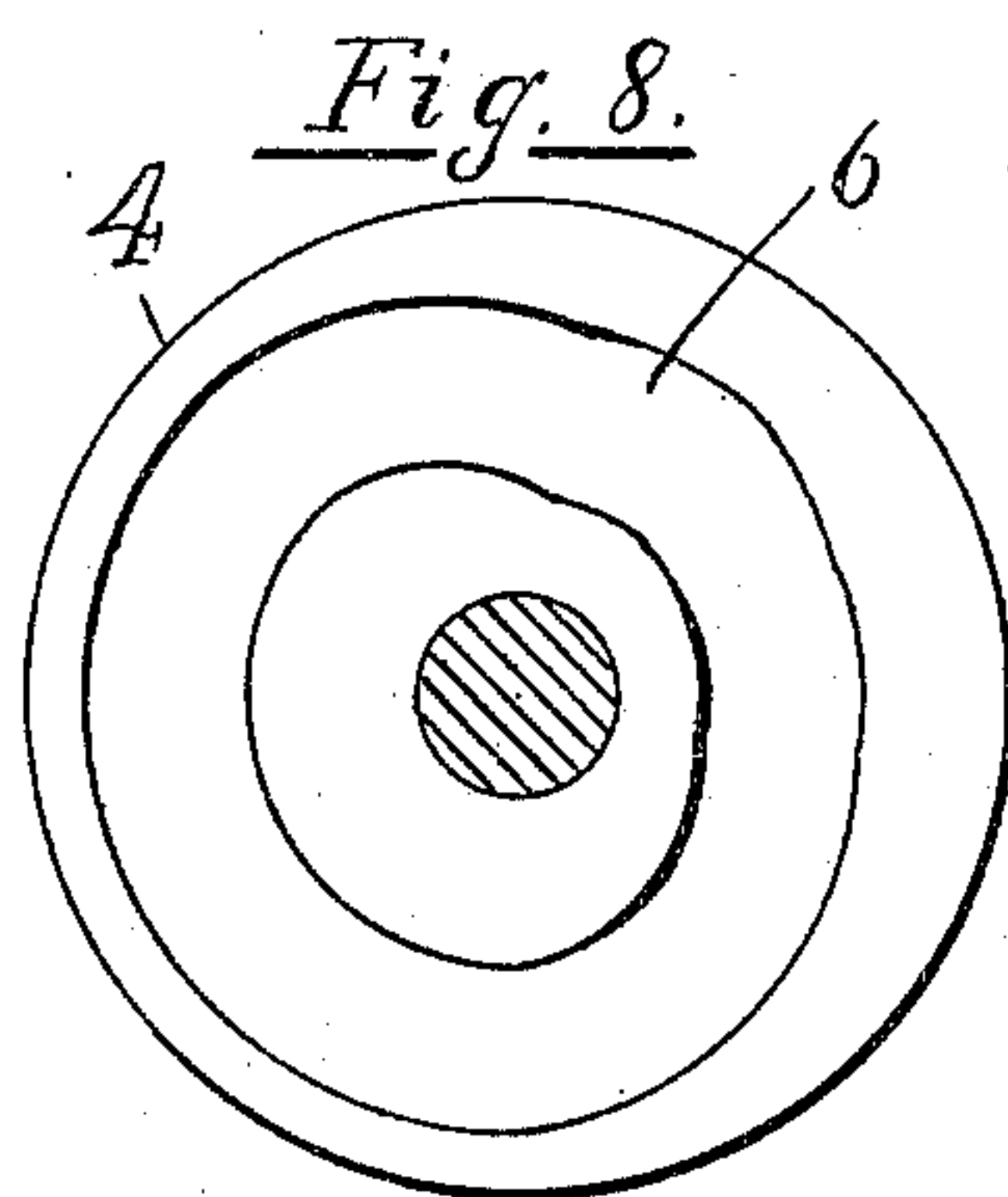
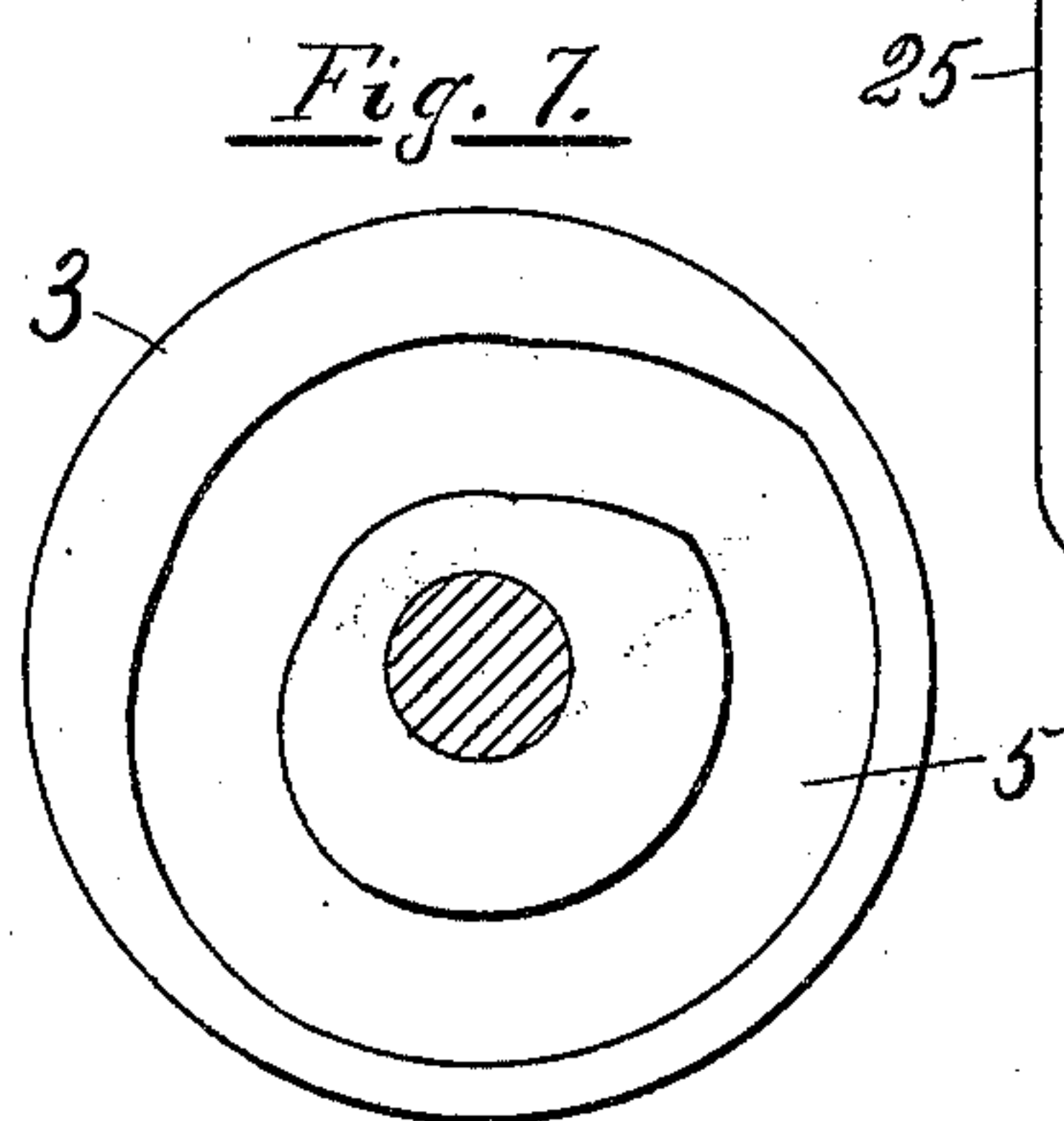
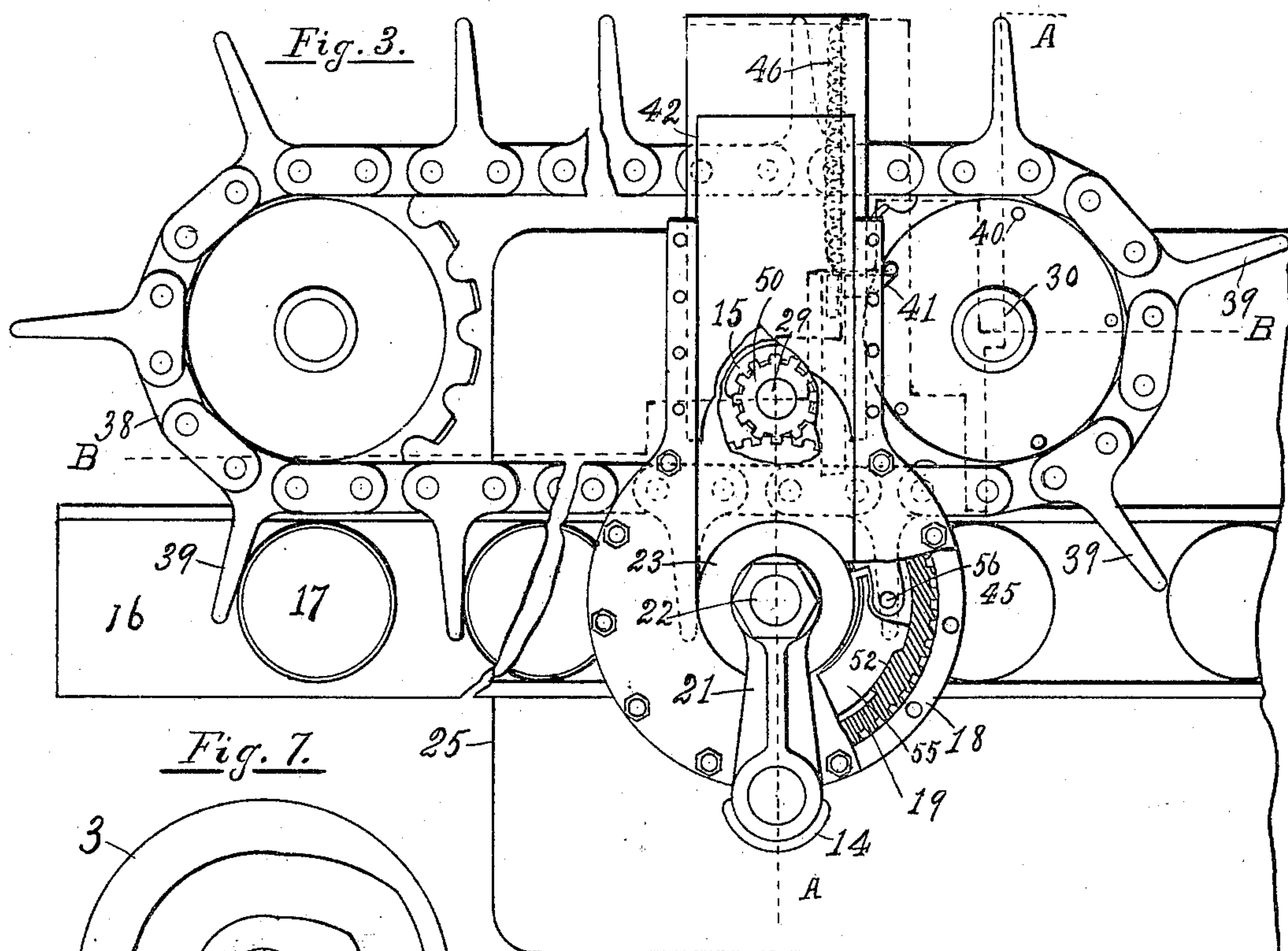
Patented Dec. 10, 1901.

C. E. FORRY.
CAN HEADING AND CRIMPING MACHINE.

(Application filed Feb. 26, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. FORRY, OF SAN FRANCISCO, CALIFORNIA.

CAN HEADING AND CRIMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 688,622, dated December 10, 1901.

Application filed February 26, 1901. Serial No. 48,994. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. FORRY, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Can Heading and Crimping Machines, of which the following is a specification.

My invention relates to an improved can heading and crimping machine, the object of my invention being to provide an apparatus of this character which shall be simple in construction and operation, which can be worked at a high speed, so as to operate upon a large number of cans in a given time, one in which the contact of the can-head with the can-body shall extend throughout the whole depth of the can-head, one which shall be readily accessible for inspection and repairs, and one which shall provide a straight path and free from obstructions for the cans, thereby avoiding damage to filled cans incident to the constructions at present in use and reducing the expense of operation.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of my improved apparatus on the line A A of Fig. 3. Fig. 2 is a vertical section thereof on the line B B of Fig. 3. Fig. 3 is a plan view of the apparatus, the chute being removed. Fig. 4 is an enlarged horizontal section to show the crimping-jaws. Fig. 5 is a vertical section of the same. Fig. 6 is an enlarged horizontal section on the line C C of Fig. 1. Figs. 7 and 8 are vertical sections showing the contour of the cam-grooves, and Fig. 9 is an enlarged detail section showing the application of the crimping-jaws to the can-head.

Referring to the drawings, 1 represents a suitable base or support, in which is revolvably mounted the main operating-shaft 2. Upon said shaft are secured disks 3 and 4, having formed in their faces the cam-grooves 5 6, in which grooves ride the rollers 7 8, attached to the rods 9 10, having slotted extensions 11 12 to pass over said shaft 2 and guide said rods in their vertical movement.

The rod 10 has bolted on its upper end a frame 13, moved by said rod to slide vertically between guides 14 15, extending upwardly from the base 1. Said frame 13 is open in the center to permit the passage therethrough of the channel 16 for the can-bodies 17, said frame being extended at the top into a circular table 18, having a circular recess 19 to receive the crimping-jaws and the gear-ring for operating the same.

The rod 9 slides vertically in a bearing 20, formed in the frame 13, and carries at its upper end an arm 21, in the outer end of which is adjustably secured a threaded hanger 22, attached to a follower 23, the function of which is to press the can-head upon the can-body and to hold the same thereon during the operation of crimping.

The can-bodies are fed in the channel 16, which rests upon the table 25 of the support 1, being secured thereto by screws 26, and said can-bodies are fed into position exactly underneath the follower 23 by the following mechanism: The main shaft 2 has secured thereon a bevel-gear 27, operating a bevel-gear 28 on a vertical shaft 29, operating a second vertical shaft 30 by a Geneva movement—that is to say, the shaft 29 carries an arm 31, upon which is pivotally mounted a roller 32, said roller being adapted to engage in succession each of a series of recesses 33, five in number, formed in a wheel 34 on the vertical shaft 30, said latter shaft being mounted in the support 1, and said shaft 30 carrying at its upper end sprocket-wheels 35 36, which engage the vertical pins 37, connecting two sprocket-chains 38, the latter carrying fingers 39. By this construction an intermittent movement of said fingers is derived from the continuous rotary movement of the shaft 29, and said fingers are brought in succession into proper position to enter the channel 16 and advance the can-bodies into the desired position beneath the central aperture of the circular table 18 and the follower 23.

In order to advance the can-heads simultaneously with the can-bodies, the upper sprocket-wheel 35 carries a series of five studs or pins 40, each in turn projecting into the path of and engaging an L-shaped downward extension 41 from a plate 42, which moves in

a guideway 43 and extending into the lower end of the chute 44, down which the can-heads 45 are fed. Thus at the same time that a can-body is advanced to a position beneath the follower 23 a can-head 45 is also advanced by the plate 42 into a position beneath said follower. A spring 46 withdraws the plate 42 to its original position when the pin 40 has passed the extension 41.

The upper end of the shaft 29 is reduced in diameter, as shown at 47, and upon said reduced portion is mounted a sleeve 48, caused to rotate with said shaft 29 by means of a spline and feather 49, while free to slide vertically on said reduced portion. Upon the upper end of said sleeve 48 is secured a horizontal pinion 50, which meshes with a gear-ring 51, revolving in the socket or recess 19 in the table 18, said ring having formed on its inner edge projections 52, having cam-surfaces 53, which engage corresponding cam-surfaces 54 on jaws 55, pivoted, as shown at 56, to the table 18. The inner edges of said jaws are beveled, as shown at 57, so that when the jaws are moved inward said inner edges are made use of first to "size" the can-body and then to crimp the can-head thereon.

In order to provide for slight variations in the depths of cans, a movable support 62 for the can-body is arranged in the channel 16, beneath the follower 23, said support having a downwardly-extending post 63, moving in a fixed guide 64, a spring 65 being interposed around said post between said support and guide.

The operation of the machine is as follows: After the heading and crimping of a can and prior to the commencement of the operation of heading and crimping the succeeding can the follower 23 and frame 13 will have been raised to allow the finished can to pass along the channel 16 beneath the table 18. The shaft 30 will now receive its intermittent movement from the shaft 29, rotating it through one-fifth of a revolution, thereby moving the fingers 39 to remove the finished can and replace it by the succeeding can-body and at the same time moving the plate 42 to advance the succeeding can-head into position upon the frame 13. As this movement is completed the gear-ring 51 will have revolved through a sufficient distance to cause its cam-surfaces 53 to engage the cam-surfaces 54 of the jaws 55 to close said jaws. The cam-groove 6, operating the rod 10, will also act to cause the frame 13 to descend, and this descent of the frame upon the upper edge of the can-body in connection with the closure of the jaws 55 will have the effect of "sizing" said can-body—that is, forming its upper edge into an accurately cylindrical shape. The cam-groove 5 will operate the rod 9 to cause the follower 23 to descend after the frame 13, thereby pressing the can-head 45 onto the top of the can-body. The cam-groove 5 now operates to maintain the follower 23 stationary, while the cam-groove 6

operates to reverse the movement of the frame and cause it to ascend. Owing to the upper bevel of the edges of the jaws 55 the upward movement of the frame 13, acting against the lower edge of the can-head, held stationary against upward movement by the follower 23, will have the effect of crimping inward the edge of the can-head and of correspondingly crimping or indenting the upper edge of the can-body. The internal projections 52 of the cam-ring will now have passed the cam-surfaces of the jaws 55, thereby releasing said jaws, and the cam-grooves 5 and 6 will now operate to raise the follower 23 and frame 13 to such a height that the can-body having the head crimped thereon can pass underneath the table 18 of said frame 13, when the above cycle of steps is repeated for the next can.

I claim—

1. In a machine of the character described, the combination of means for feeding the can bodies and heads into suitable position relative to each other and to the mechanism hereinafter referred to, a frame for supporting the can-head, a follower for pressing the can-head upon the body, means for crimping the head upon the body, and mechanism for operating the frame, follower and crimping means, said mechanism being operatively related and arranged, first to compress the crimping means, then to depress the frame and follower, then to raise the frame, the follower being held stationary, then to expand said crimping means, and finally to raise the frame and follower to release the headed cans, substantially as described.

2. In a machine of the character described, the combination of means for feeding the can bodies and heads into suitable position relative to each other and to the mechanism hereinafter described, a frame for supporting the can-head, a follower for pressing the can-head upon the body, crimping-jaws for crimping the head upon the body, mechanism for closing said jaws, and cams for raising and lowering said frame and follower, said mechanism and cams being operatively connected to act in the following order, first to compress the jaws upon the body, then to depress the frame and follower, then to raise the frame, the follower being held stationary, then to release the jaws, and finally to raise the frame and follower to release the headed can, substantially as described.

3. In a machine of the character described, the combination of means for feeding the can bodies and heads into suitable position relative to each other and to the mechanism hereinafter referred to, a frame for supporting the can-head, crimping-jaws carried by said frame for crimping the head upon the body, mechanism for closing said jaws, a follower for pressing the can-head upon the body, and mechanisms for operating said frame and follower, said mechanisms being operatively related and arranged first to compress the jaws

upon the body then to depress the frame and follower, then to raise the frame, the follower being held stationary, then to release the jaws, and finally to raise the frame and follower to release the headed can, substantially as described.

4. In a machine of the character described, the combination of crimping-jaws having beveled crimping edges, means for closing said jaws upon the can-body, means for pressing the can-head down upon the body and holding it stationary thereon, and means for pressing upward said beveled crimping-jaws against the lower edge of the can-head, there-
15 by crimping the head upon the body, substantially as described.

5. A machine of the character described comprising the following instrumentalities, namely, crimping-jaws having beveled crimp-

ing edges, means for closing said jaws upon 20 the can-body, means for depressing said jaws to size the can-body, means for pressing the can-head upon the can-body and holding it stationary, means for raising said crimping-jaws against the lower edge of the can-head 25 to crimp the same upon the body, means for releasing said crimping-jaws, means for raising said jaws above the level of the can, and means for removing the can and feeding a succeeding can-body and can-head, substan- 30 tially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES E. FORRY.

Witnesses:

FRANCIS M. WRIGHT,
Z. A. DANIELS.