

No. 633,505.

Patented Sept. 19, 1899.

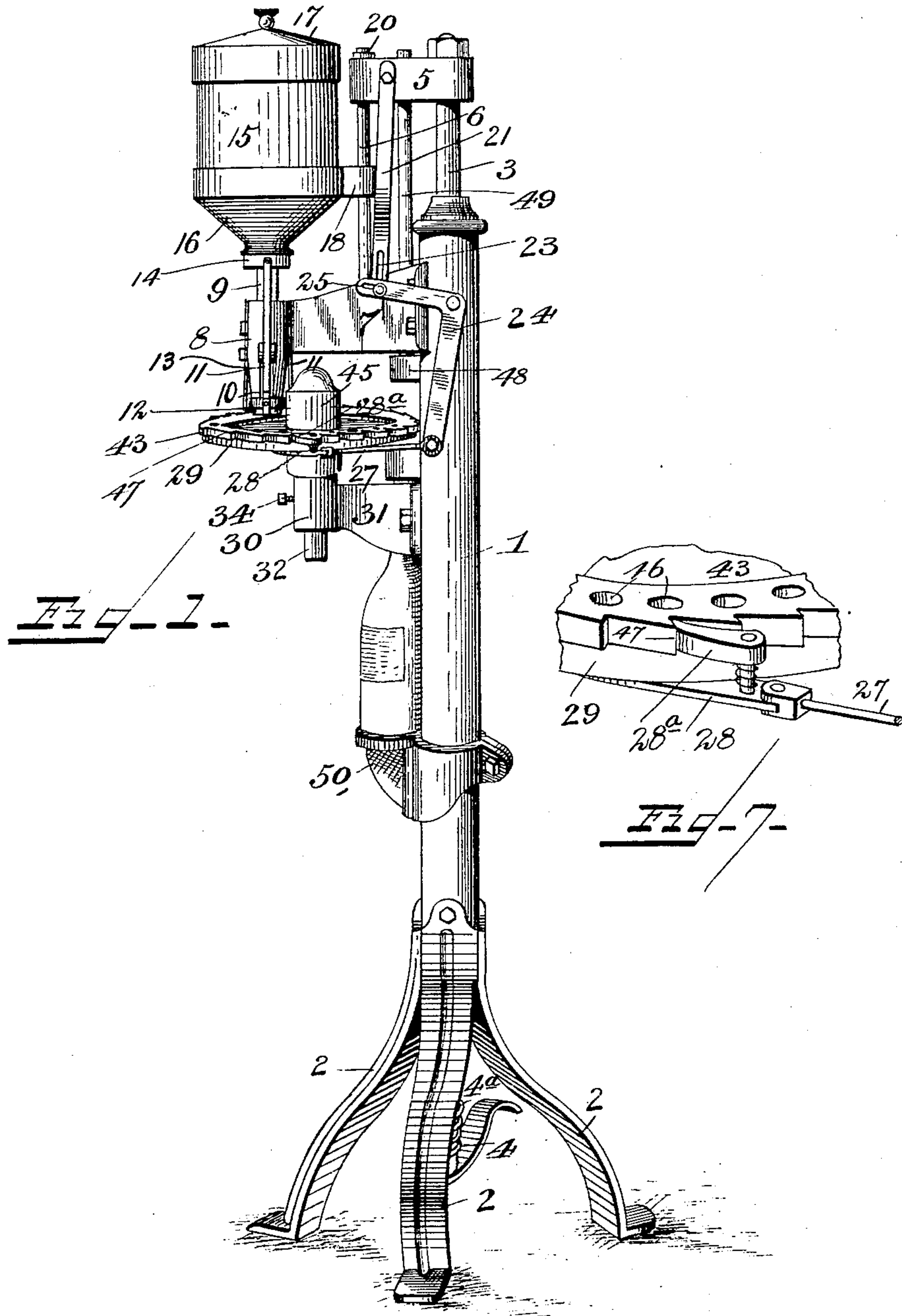
THEODORE M. CONNER & THOMPSON M. CONNER.

SEAL FEEDING MECHANISM FOR BOTTLING MACHINES.

(Application filed Nov. 28, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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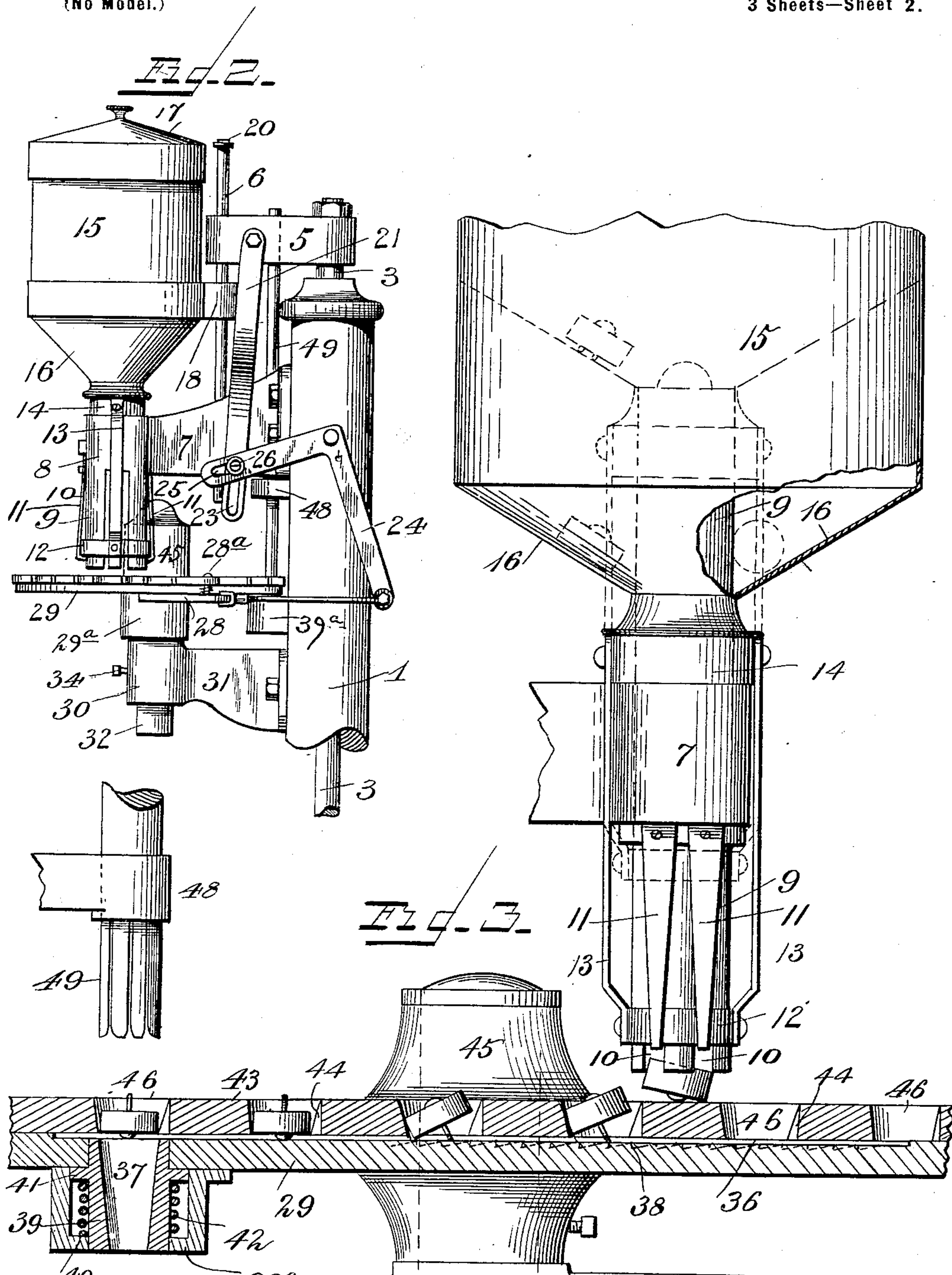
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

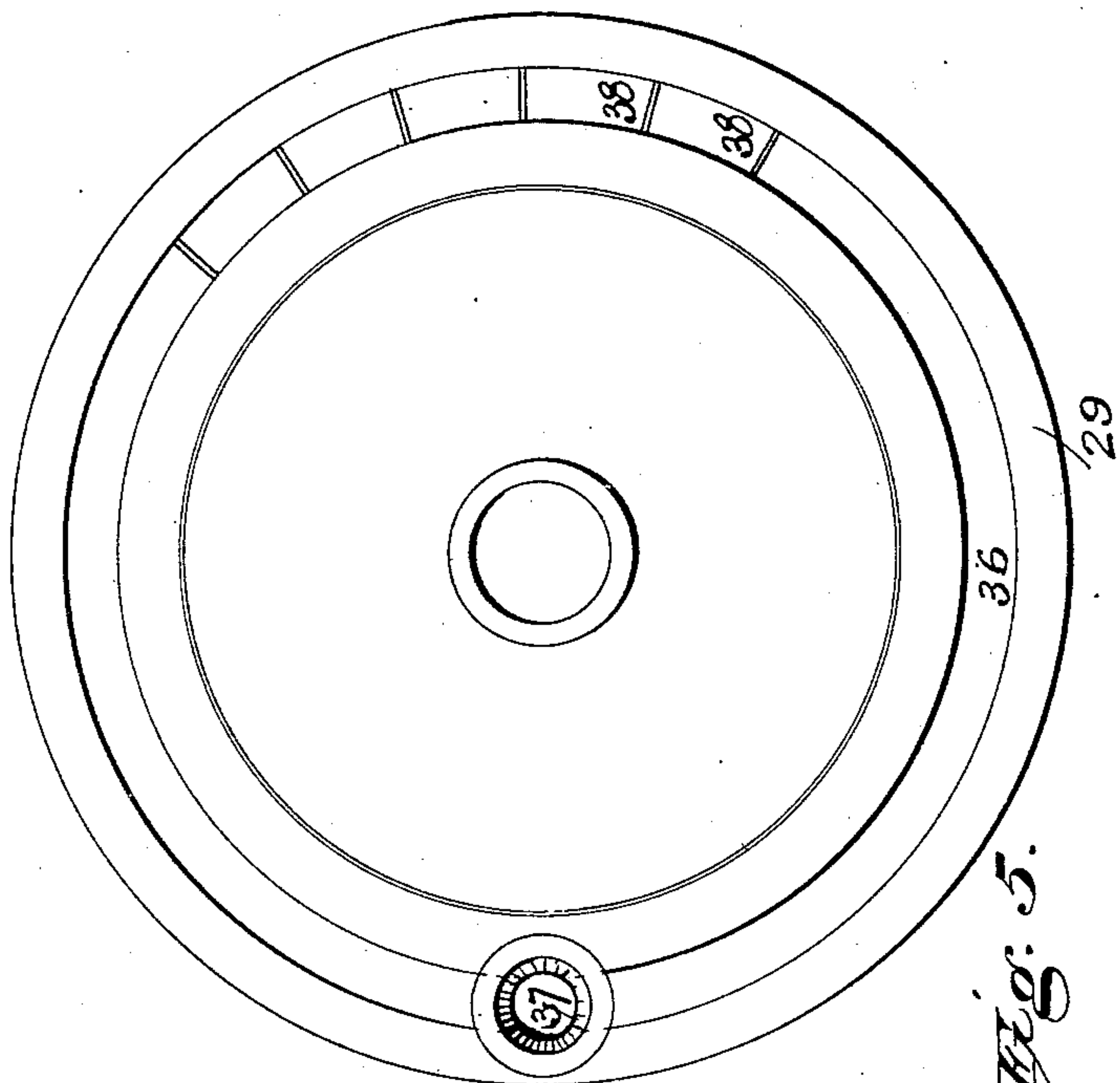


Fig. 5.

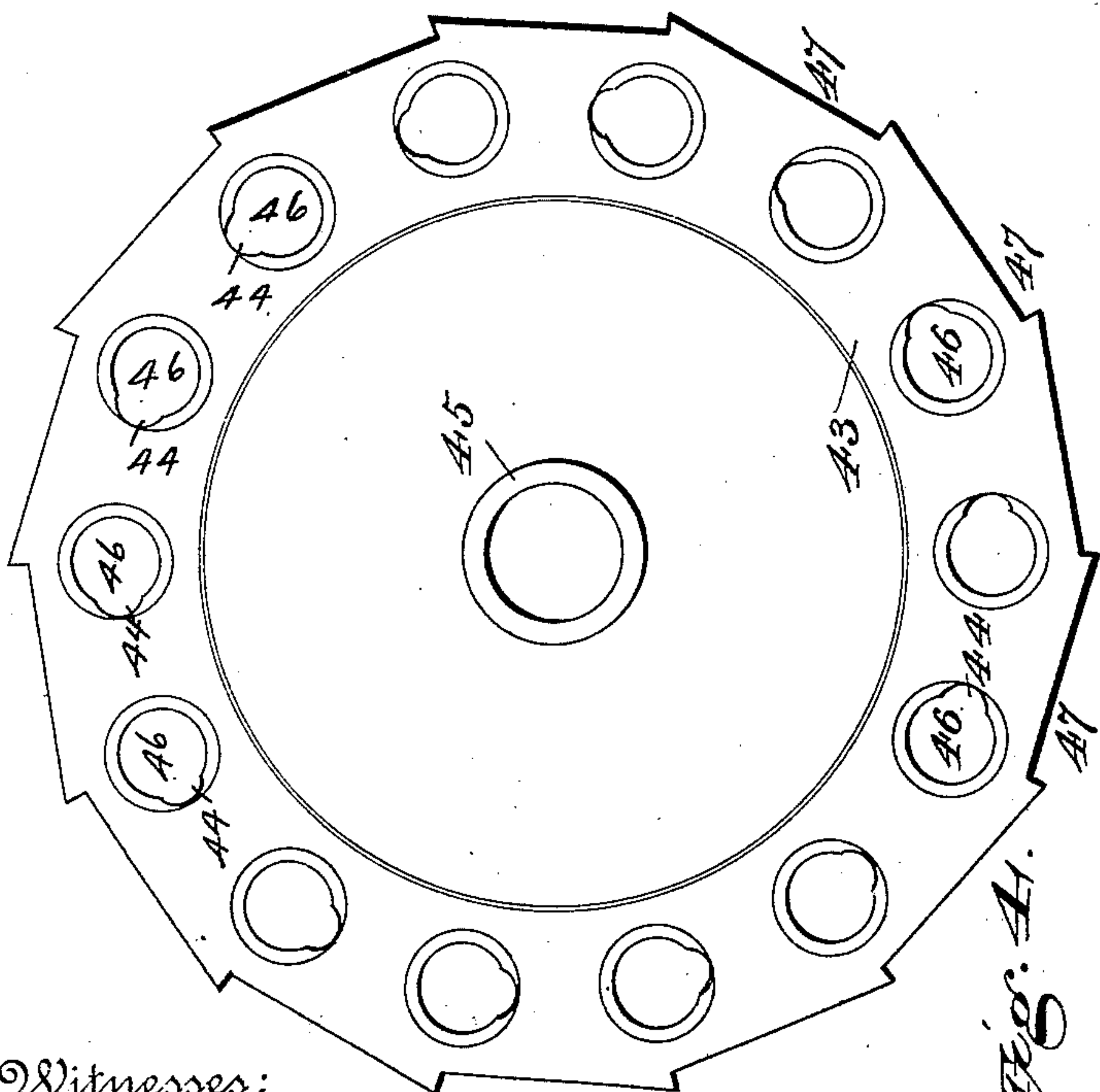


Fig. 4.

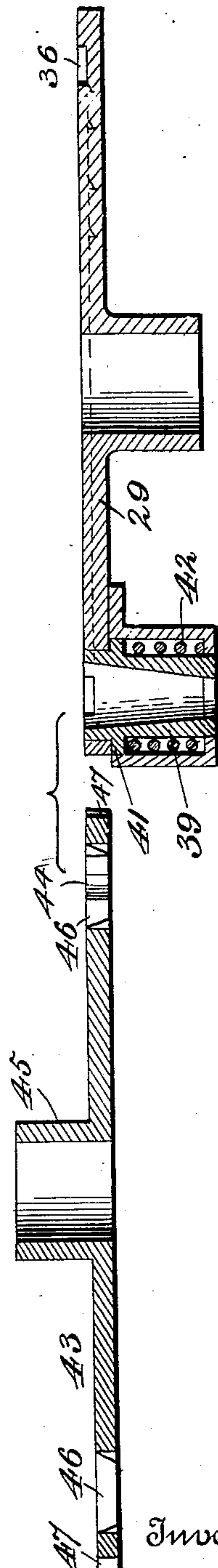


Fig. 6.

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UNITED STATES PATENT OFFICE.

THEODORE M. CONNER AND THOMPSON M. CONNER, OF KOKOMO, INDIANA.

SEAL-FEEDING MECHANISM FOR BOTTLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 633,505, dated September 19, 1899.

Application filed November 28, 1898. Serial No. 697,671. (No model.)

To all whom it may concern:

Be it known that we, THEODORE M. CONNER and THOMPSON M. CONNER, citizens of the United States, residing at Kokomo, in the county of Howard and State of Indiana, have invented new and useful Improvements in Seal-Feeding Mechanism for Bottling-Machines, of which the following is a specification.

Our invention relates to bottling apparatus in which the stoppers or seals consist of disks of felt, rubber, or other similar material provided at their upper sides with metal loops or staples to receive a suitable instrument for withdrawing the seals from the mouth of the bottle.

The object of the invention is to provide improved means for feeding the seals to the bottles so that they will always be presented in proper position to be inserted in the mouth thereof.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a bottling machine or apparatus constructed in accordance with our invention. Fig. 2 is a similar view, on an enlarged scale, of the upper part of the machine, showing the parts in a different position. Fig. 3 is a vertical sectional view of the upper part of the machine. Fig. 4 is a detail plan view of the rotatable plate for feeding the seals to the bottle. Fig. 5 is a similar view of the stationary plate located below the feed-plate. Fig. 6 is a longitudinal sectional view taken centrally through the rotatable feed-plate and the stationary plate. Fig. 7 is a detail perspective view showing the means for rotating the feed-plate.

In the said drawings the reference-numeral 1 designates a hollow standard mounted upon legs 2. Located in said standard is a vertically-reciprocating shaft 3, the lower end of which is pivotally connected with a treadle 4, pivoted to one of said legs. Said treadle is provided with a coiled spring 4^a for returning it and the shaft and the hopper, hereinafter described, to normal position after having been depressed. Secured to the upper end of this shaft is a cross-head 5, through which passes a vertical guide-rod 6, which passes

through an aperture in a lateral arm or bracket 7, secured to or formed integral with the standard 1. The outer end of said arm or bracket is provided with a socket 8, in which is located a stationary tube 9, the lower end of which is formed with a number of slots 10, four being shown in the present instance arranged at right angles to each other. Secured to said socket are four downwardly-extending spring-arms 11, the free ends of which are adapted to project through the slots 10. Loosely embracing the lower end of said tube is a ring 12, to which are secured the lower ends of vertically-movable rods 13, the upper ends of which are secured to vertically-reciprocating hub 14, which works on said tube. Secured to this hub is a hopper 15 for containing the seals or stoppers, the bottom of which is made tapering. This hopper reciprocates with said hub, and when in its lowest position the tube 9 extends some distance up into the hopper, but on the latter being lowered the upper end of the tube will be flush with the lower end of the tapering bottom 16. Said hopper is provided with a removable cover 17 and at one side is provided with an apertured lug 18, which is secured to the vertical rod 6, which passes through and reciprocates in an aperture in the arm or bracket 7. Said rod also loosely passes through an aperture in the cross-head 5 and is provided with a head 20. Pivoted to said cross-head is a downwardly-depending bar 21, the lower end of which is formed with a slot 23.

The numeral 24 designates an angle or elbow lever pivoted to the standard 1, one of the arms of which is formed with a slot 25. This arm is connected with the bar 21 by a pin or bolt 26 passing through said slots. The other arm of said angle-lever is pivotally connected by a link 27 with a lever 28, pivoted to the under side of a stationary plate 29, secured to an arm 29^a, located in a socket 30 of an arm or bracket 31, secured to or formed integral with the standard 1. Pivoted to the lever 28 is a spring-pawl 28^a, which engages with and intermittently rotates the feed-plate, hereinafter described.

The socket 30 is located at one side of the socket 8, and passing therethrough and secured therein is a vertical rod 32, which is

held in place by a set-screw 34. Secured to this rod is a stationary disk or plate 29, formed in its upper side with a circular groove 36, concentric with the axis thereof. Said plate is also formed with a beveled or tapering aperture or hole 37, which said groove intersects. The said plate is provided with a number of equidistant ratchet-teeth or beveled ribs 38, which extend across the groove 36, for a purpose hereinafter described. Located below the hole or aperture 37 is a tube 39, having a tapering bore. This tube is located in a cylinder 39^a, secured to the lower side of the plate 29, provided at the lower end with an inwardly-extending flange 40. The said tube at the upper end is formed with an outwardly-extending flange 41, and between said flanges is interposed a coiled spring 42, to allow the tube to have a limited vertical movement. The purpose of this tapering tube is to contract the seal forced through the hole 37, so that it will be of the proper diameter to fit the mouth of the bottle.

Located above the stationary plate 29 is a rotatable plate 43, having a hub 45, which is journaled on the upper end of the rod 32. This plate is formed with a number of tapering holes 46, arranged in a circle concentric with the axis of the plate and provided at their rear sides with semicircular notches 44. These holes are so disposed that they will successively come into coincidence or alinement with the hole 37 as the plate 42 is rotated. Formed in the periphery of the said rotatable plate are ratchet-teeth 47, one for each of the holes 46. The pawl 28^a engages with said teeth to rotate the plate.

Located above the hole in the stationary plate is a guide-lug 48, in which works a plunger 49, secured to the cross-head 5, and which forces the seal through the hole 37 and tube 39 into the neck of the bottle. The numeral 50 designates a shelf for supporting the bottle while being sealed.

The operation is as follows: The seals are placed loosely in the hopper, and as the latter is vertically reciprocated by the treadle and connections said seals will fall into the tube 9, keeping the latter constantly filled. As the tube 9 is reciprocated the spaces between the holes in the plate 43 will successively come into coincidence with the lower end of the tube 9. Upon the downstroke of the hopper and the ring 12 the spring-arms 11 will be expanded or spread apart by the ring allowing one of the seals to drop onto one of the spaces between the tapering holes in the rotatable plate 43. Upon the upstroke of the hopper and ring the latter will allow the said spring-arms to contract, causing their free ends to be projected through the slots in the lower end of the tube 9 and preventing the escape of another seal until the plate 43 has been rotated to bring another space into coincidence with the lower end of said tube. At the same time this intermittent rotatable movement of the plate 43 will cause the seal dropped onto

the plate to be brushed by the end of the tube into the hole 46 as the latter passes underneath the tube. This vertical movement of the hopper and ring and the rotatable movement of the plate 43 are accomplished by the shaft 3, the cross-head 5, and the connections, the cross-head engaging with the head 20 of the rod 19 to elevate the same and the pawl 28^a engaging with the ratchet-teeth at the periphery of the rotatable plate 43 to rotate said plate. As the holes in the rotatable plate successively come into alinement or coincidence with the hole in the stationary plate 35 the plunger 49 will be carried downward by the shaft 3 and will force the seal into the neck of the bottle. The object of the slot 23 in the arm 21 is to allow the plunger 49 to be elevated a sufficient distance to clear the plate 43 before the elbow or angle lever 24 begins to move to rotate said plate.

In case any of the seals should be fed to the holes in the rotatable plate upside down the wire staple or loop of the seal will strike one of the ribs or teeth 36 of stationary plate 35 as plate 43 rotates, which will cause the seal to be tilted upward and the periphery of the seal to fall into the circular groove in the stationary plate 35, when the continued rotation of the plate 43 will cause the seal to be reversed and assume its proper position for being inserted into the bottle, the notch 44 in the sides of the holes 46 allowing the staple or loop to pass up into the holes when the seal is turned to bring the staple uppermost.

The movements of the different parts of the machine are so timed that on the upward movement of the shaft 3 the spring-arms 11 will be contracted by their resiliency to hold the seals in the tube 9, and the plate 43 will be rotated or moved a distance equal to the distance between the holes 46. Upon the downstroke the plunger 49 will be depressed, so as to force a seal into the neck of a bottle, and the hopper will also be depressed, carrying with it the ring 12, which will engage with and expand the spring-arms 11 to allow a seal to be fed to the space between two of the holes 46 below. The vertical movement of the hopper when elevated and depressed by the movement of the treadle and connections causes the seals to be fed into the tube 9.

Having thus fully described our invention, what we claim is—

1. In a seal-feeding mechanism for bottling-machines, the combination with the stationary feed-tube having slots in the lower end, of the stationary spring-arms adapted to be projected through said slots and the vertically-movable ring surrounding said feed-tube and adapted to expand said spring-arms when depressed and means for elevating and depressing said ring, substantially as described.

2. In a seal-feeding mechanism for bottling-machines, the combination with the stationary feed-tube having slots at the lower end, of the vertically-movable hopper and means for reciprocating the same, the ring connected

with said hopper and surrounding said feed-tube, the stationary spring-arms adapted to be projected through said slots, and the rotatable feed-plate and means for operating the same, substantially as described.

3. In a seal-feeding mechanism for bottling-machines, the combination with the stationary feed-tube having slots in the lower end, the spring-arms, the lower ends of which are adapted to be projected through said slots, the ring surrounding the lower end of said feed-tube, and the vertically-movable hopper with which said ring is connected, of the lug secured to said hopper, the headed rod secured to said lug, the cross-head through which said rod loosely passes, and the vertically-reciprocating shaft to which said cross-head is secured, substantially as described.

4. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal, and means for feeding seals to said hole and forcing them therefrom, of the tapering tube located below said hole having a flange at the upper end, the cylinder in which said tube is located, having a flange at the lower end, and the coiled spring interposed between said flanges, substantially as described.

5. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal, and the tapering tube located below said hole, the outer sleeve surrounding the same and the coiled spring, of the rotatable feed-plate formed with a number of holes adapted to be successively brought into coincidence with said hole in the stationary plate and means for intermittently rotating said rotatable plate, substantially as described.

6. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive the seal, and the rotatable feed-plate having peripheral ratchet-teeth, and formed with a series of holes adapted to be successively brought into coincidence with the hole in the stationary plate, of the vertically-reciprocating shaft, the cross-head secured to the upper end of said shaft, the plunger secured to said cross-head, the arm pivoted to said cross-head having a slot in the lower end, the angle-lever, the bolt passing through one arm thereof and through said slot, the link pivoted to the other arm of said angle-lever, the lever connected therewith pivoted to said stationary plate and the spring-pawl pivoted to said lever, substantially as described.

7. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal, the rotatable feed-plate having peripheral ratchet-teeth and formed with a series of holes adapted to be brought into coincidence with said hole, the stationary feed-tube and the vertically-movable hopper, of the lug secured to said hopper, the headed rod secured

to said lug, the cross-head through which said rod loosely passes, the vertically-reciprocating shaft to which said cross-head is secured, the arm pivoted to said cross-head having a slot in the lower end, the angle-lever, the bolt connecting the same with said slotted arm, the link pivoted to said angle-lever, the lever pivoted to said stationary plate, the spring-pawl pivoted thereto, and the plunger connected with said cross-head, substantially as described.

8. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal, the rotatable feed-plate having a series of holes therein adapted to be successively brought into coincidence with said hole, and means for rotating said feed-plate, of the stationary feed-tube having slots in its lower end, the spring-arms, the free ends of which are adapted to be projected through said slots, the vertically-movable ring surrounding said feed-tube, the vertically-movable hopper with which said ring is connected and means for operating said hopper, substantially as described.

9. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having an opening or hole therein to receive a seal, the rotatable feed-plate having peripheral ratchet-teeth and formed with a series of holes adapted to be brought successively into coincidence with said hole, the stationary feed-tube having slots in the lower end, the spring-arms adapted to be projected through said slots, the vertically-movable ring surrounding said feed-tube, and the vertically-movable hopper with which said ring is connected, of the lug at the side of said hopper, the vertically-movable rod connected therewith, the head at the upper end of said rod, the cross-head through which said rod loosely passes, the vertically-movable shaft to which said cross-head is secured, the slotted arm pivoted to said cross-head, the angle-lever pivoted thereto, the link pivoted to said angle-lever, the pivoted lever connected therewith, the spring-actuated pawl, and the plunger connected with said cross-head, substantially as described.

10. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal and formed in its upper side with a circular groove and with a series of ribs or ratchet-teeth extending across said groove, of the rotatable feed-plate having a series of holes therein having notches at their rear sides, and adapted to be successively brought into coincidence with said hole and means for rotating said feed-plate and feeding seals thereto, substantially as described.

11. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal and formed with a circular groove in its upper side intersecting said hole and with

ribs or ratchet-teeth extending across said groove, of the rotatable feed-plate having a series of holes adapted to be brought successively into coincidence with said hole and provided with notches at the rear sides, the stationary feed-tube, the vertically-movable hopper and means for rotating the same and rotating the feed-plate, substantially as described.

10 12. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal and formed with a circular groove in the upper side and with a series of ratchet-teeth
15 or ribs extending across said groove, the stationary feed-tube having slots in its lower end, the spring-arms adapted to be projected through said slots, the ring surrounding said feed-tube, the vertically-movable hopper
20 with which said ring is connected and means for reciprocating said hopper and rotating the feed-plate, substantially as described.

13. In a seal-feeding mechanism for bottling-machines, the combination with the stationary plate having a hole therein to receive a seal and formed with a circular groove in its upper side and with a series of ratchet-teeth

or ribs extending across said groove, the rotatable feed-plate having peripheral ratchet-teeth and formed with a series of holes adapted to be successively brought into coincidence with said hole, the stationary feed-tube having slots in the lower end, the spring-arms adapted to be projected through said slots, the ring surrounding said feed-tube, the vertically-movable hopper with which said ring is connected, of the vertically-movable rod secured to said hopper and provided with a head, the cross-head through which said rod loosely passes, the vertically-movable shaft to which said cross-head is secured, the slotted arm pivoted to said cross-head, the angle-lever, the link, the lever pivotally connected therewith, the spring-actuated pawl, and the plunger secured to said cross-head, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

THEODORE M. CONNER.
THOMPSON M. CONNER.

Witnesses:

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S. C. MILLS.