

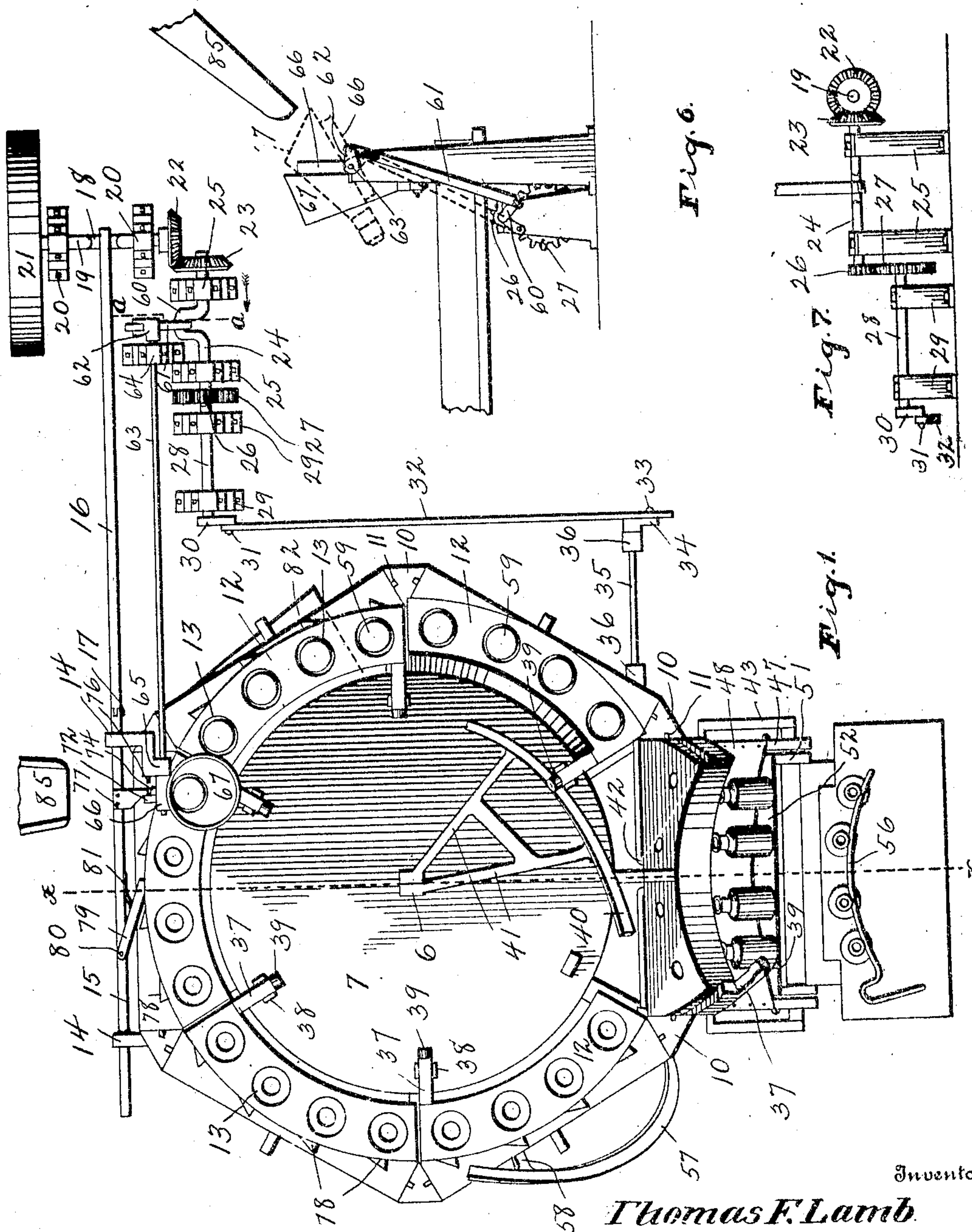
No. 892,433.

PATENTED JULY 7, 1908.

T. F. LAMB.
BOTTLE RECEIVING AND HANDLING DEVICE.

APPLICATION FILED AUG. 30, 1907.

2 SHEETS—SHEET 1.



Witnesses

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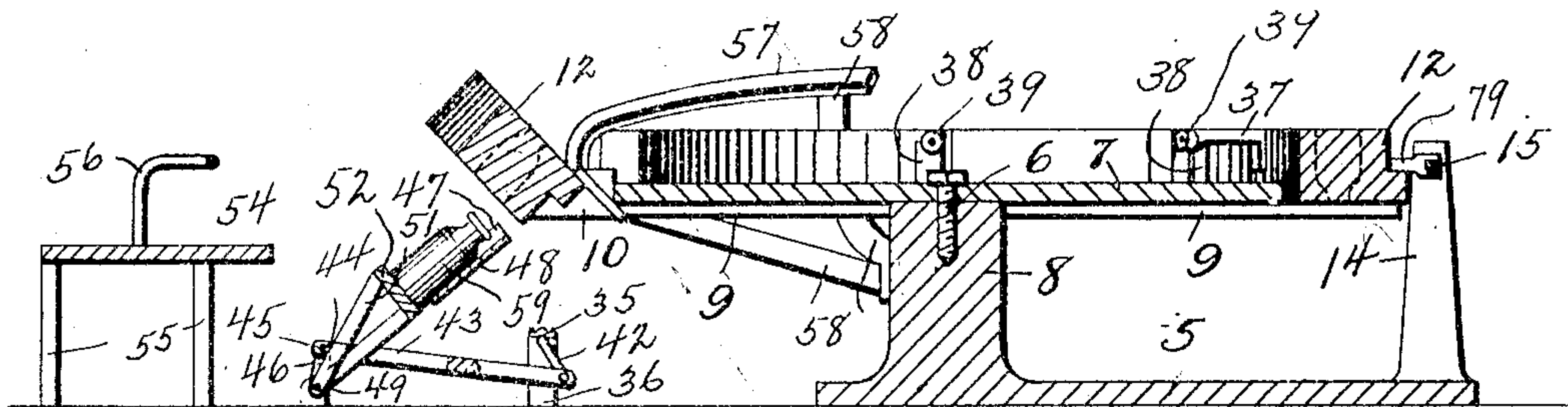


Fig. 2.

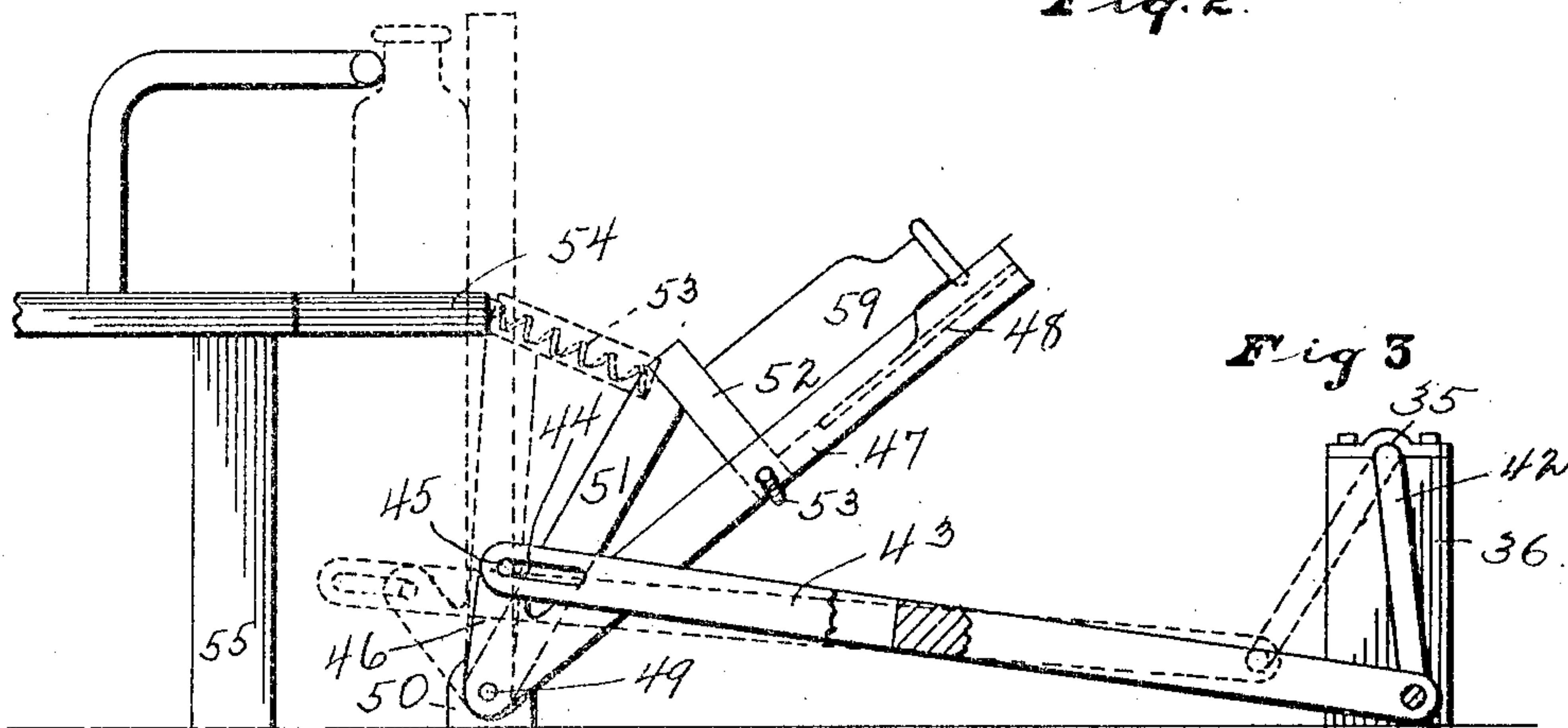
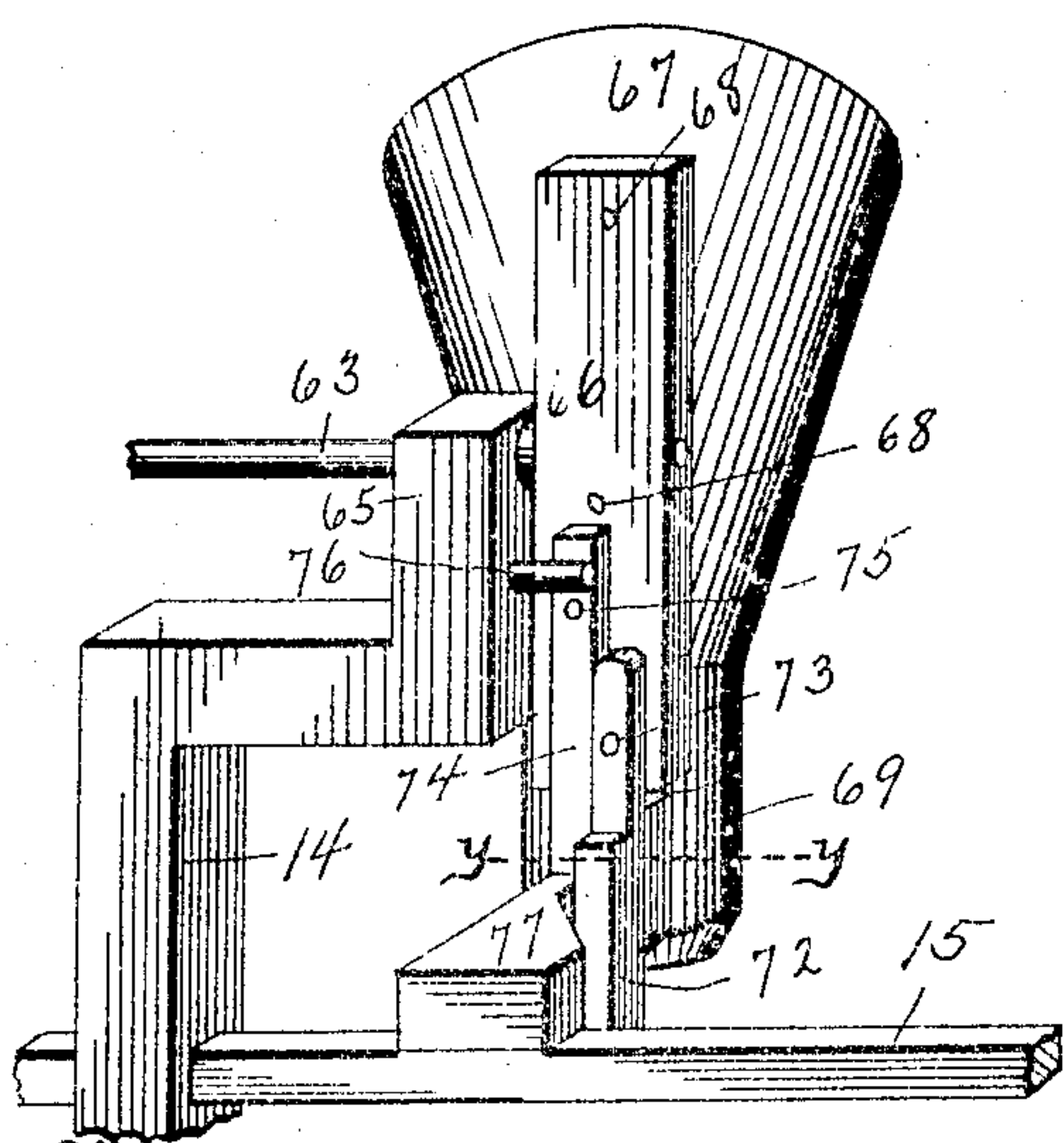


Fig 3



Witnesses

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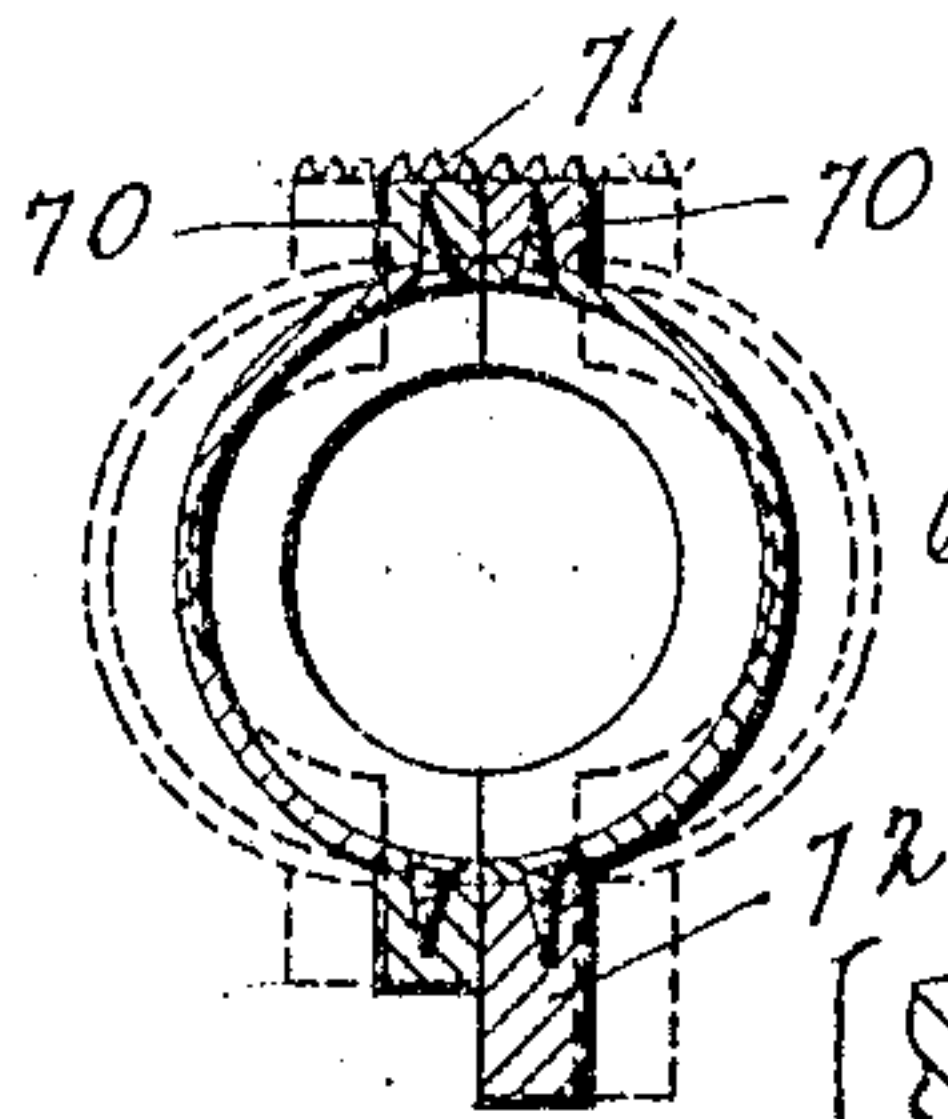


Fig. 4.

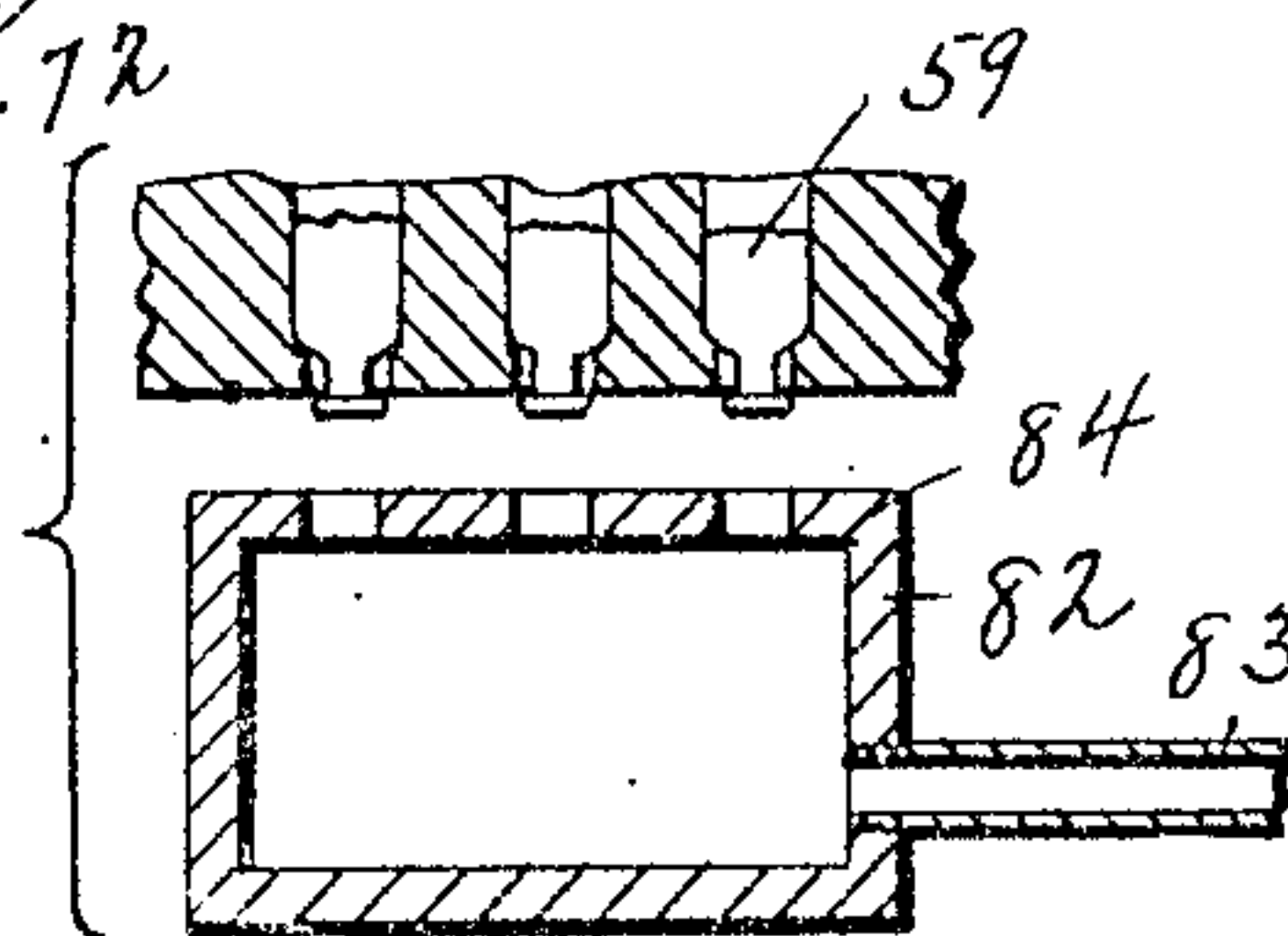


Fig. 8.

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UNITED STATES PATENT OFFICE.

THOMAS F. LAMB, OF NEWARK, OHIO.

BOTTLE RECEIVING AND HANDLING DEVICE.

No. 892,433.

Specification of Letters Patent.

Patented July 7, 1908.

Application filed August 30, 1907. Serial No. 390,737.

To all whom it may concern:

Be it known that I, THOMAS F. LAMB, citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Bottle Receiving and Handling Devices, of which the following is a specification.

My invention relates to a bottle receiving and handling device and has for its object the provision of a device of this character constructed and arranged to receive bottles as they are discharged from a bottle blowing or molding machine and to conduct said bottles over a furnace or burner to impart the necessary finish to said bottles and to finally arrange a plurality of said bottles in alinement in such manner that a number of said bottles may be picked up simultaneously by a workman when it is desired to transport them to an annealing furnace.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings: Figure 1 is a plan view of a bottle receiving and handling device constructed in accordance with the invention, Fig. 2 is a vertical section upon line $x-x$ of Fig. 1, Fig. 3 is a detail view of a bottle discharging mechanism hereinafter described, Fig. 4 is a detail perspective view of a bottle receiving funnel hereinafter described, Fig. 5 is a sectional view through said funnel upon line $y-y$ of Fig. 4, Fig. 6 is a detail sectional view upon line $a-a$ of Fig. 1, Fig. 7 is a detail view of a portion of the gearing illustrated in Fig. 1, and, Fig. 8 is a detail view of a furnace or burner hereinafter described.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numeral 5 designates a base. A bolt 6 passes through a plate 7 and is threaded into a standard 8 of the base 5. The plate 7 is provided with a plurality of radial arms 9 and these radial arms carry triangular bearing blocks 10 (see Figs. 1 and 2). Pivoted upon studs 11 which take into said triangular bearing blocks are segments 12. Each of these segments has a plurality of pockets 13 formed therein, said pockets being adapted to receive and support bottles in an inverted position.

The base 5 is provided with a pair of standards 14 (see Figs. 1, 2 and 4) and a bar 15 is slidably disposed within these standards. A

connecting rod 16 is pivoted to this bar as at 17 and the outer end of this connecting rod engages a crank 18 of a shaft 19, said shaft being mounted in bearing blocks 20. A pulley 21 is mounted upon one end of this shaft and a bevel gear wheel 22 is mounted upon the opposite end of said shaft. The gear wheel 22 meshes with a bevel gear wheel 23 which is fast upon a shaft 24. This shaft 24 is mounted in bearing blocks 25 and carries a pinion 26. The pinion 26 meshes with a gear wheel 27 which is fast upon a shaft 28 and the shaft 28 is rotatably mounted in bearings blocks 29. Mounted upon one end of the shaft 28 is a crank 30 which is pivoted at 31 to a connecting rod 32. The opposite end of the connecting rod 32 is pivoted at 33 to a second crank 34. The crank 34 is mounted upon a shaft 35 and this shaft is in turn mounted in bearings 36.

It is to be understood that the segments 12 are pivoted upon the studs 11 between the triangular bearing blocks 10. These segments are supported when in an upright position by inwardly extending arms 37, said arms resting upon lugs 38 of the plate 7, it being understood that the segments and the plate rotate bodily together, as will be hereinafter set forth. The arms 37 carry anti-friction rollers 39 upon their inner ends, these rollers being adapted to ride over a fixed cam 40 which is supported by arms 41 from the bolt 6. This cam causes the segments to tilt upon their studs to discharge the bottles upon a swinging frame, as will be hereinafter set forth.

A crank 42 is integrally formed with the shaft 35 and engages a substantially U-shaped frame 43. This U-shaped frame is slotted as at 44 for the reception of pins 45 which are carried by upstanding arms 46 of a frame 47. The side members of the frame are connected by a thin metallic sheet such as tin, indicated at 48, these side members being pivoted upon a shaft 49 which is mounted in bearings 50. Likewise pivoted upon the shaft 49 is a second frame 51 comprising a pair of side members which support a swinging shelf 52. The side members of the frame 47 are connected by a coiled spring 53 which lies behind the rear edge of the shelf 52. When this shelf 52 is thrown up to the dotted line position in Fig. 3, it abuts against the front edge of a table 54, said table being supported from a standard 55. This table carries a gage or guide 56

which is bent to the curvature indicated in Fig. 1 and said guide being adapted to engage the necks of the bottles as will be hereinafter set forth, it being understood that the plate 48 is bent to conform to the curvature of the guide 56. A second fixed cam 57 is supported by arms 58 from the standard 8, this latter cam serving to engage the rollers 39 to tilt the segments back to an upright position after they have discharged the bottles 59. A crank 60 (see Fig. 1) is connected by a link 61 with a crank arm 62. This crank arm 62 is mounted upon a shaft 63 and this shaft is in turn mounted in a bearing 64 and an offset portion 65 of one of the standards 14. The shaft 63 is a rock shaft and is adapted to have oscillatory movement imparted thereto through the medium of the link 61 and the crank 62, as will be hereinafter set forth. This shaft carries upon its inner end a block 66 and a funnel 67 is secured by rivets or like fastening devices 68 to this block, it being understood that the block oscillates with the shaft 63. The lower portion of the funnel 67 indicated at 69, is split and formed in two parts. Upon one side, this portion 69 of the funnel carries blocks 70 which are connected by a spring 71. Upon its opposite side one of the portions of the funnel carries a block 72 which is pivoted at 73 to the block 66. A bar 74 which is pivoted at 75 to the block 66 engages the other part of the split portion 69 of the funnel. A stop pin 76 is carried by the upper part of the standard 14. A dog 77 is secured to and moves with the bar 15. A plurality of ratchet teeth 78 are formed upon the outer faces of the segments 12, said teeth corresponding in number to the bottle receiving openings formed in the segments. A pawl 79 is pivoted at 80 to the bar 15 and a flat spring 81 holds the free end of this pawl in such position that it will engage the ratchet teeth 78 to impart a step by step rotative movement to the plate 7 and the segments 12 as the bar 15 is reciprocated through the medium of the link 16 as will be hereinafter described. A burner 82 is located beneath the segments and is arranged to direct a flame upon the bottles. Gas may be supplied to this burner through a pipe 83 said gas being ignited at the openings 84 formed in said burner.

The operation of the device is as follows: As the freshly molded bottles are discharged from the spout 85 of a bottle molding machine, the oscillation of the shaft 63 tilts the funnel 67 over into such position that the bottle will fall into the funnel (see the dotted line position in Fig. 6). At this time the split lower portion of the funnel is closed and under the tension of the spring 71. The bottle falls into the funnel in an inverted position and is held therein until the funnel is tilted back to the full line position in Fig. 6.

At this time the bar 15 will be moving toward the left in Fig. 1 and the nose of the dog 77 will engage the bar 72 to throw this bar in one direction. That portion of the bar 72 that projects above the pivot 73 will act against the bar 74 to throw the bar 74 in the opposite direction. This will spread the two parts of the lower portion 69 of the funnel apart against the tension of the spring 71 and will permit the bottle to drop into one of the pockets 13. During this movement of the dog 77, the pawl 79 will be moved over into such position as to engage one of the teeth 78, so that upon the movement of the bar 15 to the right in Fig. 1, the plate 7 and the segments will have a partial rotation imparted thereto to bring another bottle receiving pocket beneath the funnel for another bottle to be deposited therein, as will be readily understood.

It is to be understood that power may be imparted to the pulley 21 by means of a belt or in any other desired manner. After all the pockets of the segments have been filled the segments move over the burner 82 and flame from said burner is directed against the lower portions of said bottles to thereby remove any thin and ragged seams formed upon the necks of the bottles during the molding operation. After these segments move from over the burner, the rollers 39 ride up upon the fixed cam 40 until the segments are over-balanced by their own weight and the weight of the bottles and said segments fall to the position illustrated at the lower portion of Fig. 1 and at the left of Fig. 2. When the segments fall over to this position, they discharge the bottles upon the plate 48. As the segments continue to bodily rotate, the rollers 39 ride over the fixed cam 57 and the segments are again thrown to an upright position in readiness to receive more bottles when the pockets of said segments pass beneath the funnel.

The movement imparted to the crank 42 through the connections described, results in imparting a swinging movement to the frame 47. As this frame starts to swing up to the dotted line position shown in Fig. 3, the spring 53 engages behind the rear edge of the shelf 52 and throws said shelf up to the dotted line position illustrated in said figure, but after the front edge of this shelf abuts against the front edge of the table 54 further movement of this shelf is impossible, but the frame 47 continues to move distending the spring 53 around the rear edge of the shelf. During this latter movement of the frame 47, the plate 48 shoves the bottles from the shelf 52 up to their dotted line position in Fig. 3 to bring the necks of these bottles against the guide 56.

It will be noted by referring to Fig. 7, that the shaft 28 from which motion is imparted to the frame 47 is driven by a small pinion 26

meshing with the gear wheel 27. The relative size of the pinion 26 and the gear wheel 27 is such that one revolution will be imparted to the shaft 28 during four revolutions of the shaft 24. The reason for this is apparent when it is remembered that four bottles are carried by each of the segments and that four step by step movements must be imparted to the plate 7 and the parts carried thereby before one of the segments will be in position to be tilted and discharge the bottles upon the swinging frame.

The bottles are removed from the table 54 by a workman who inserts a paddle, not shown, beneath all four of the bottles simultaneously to transport them to the annealing furnace. Heretofore it has been necessary to have a workman catch the bottles as they were discharged from the spout 85. Where the workman handled but one bottle at a time, it required several men to catch the bottles from each machine. The structure herein shown and described, receives the bottles and aligns a plurality of them in such position that they may be picked up and transported simultaneously to the annealing furnace. It has also been customary for the workmen to handle each bottle separately in removing the fine and ragged seams left after the molding operation was completed. This structure passes the necks of the bottles through the heat of the gas burner, which effectually accomplishes this result without the aid of a workman.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim, is:

1. In a device of the character described, the combination with a plurality of segments having bottle receiving pockets formed therein, of means for inverting said segments, and means for returning said segments to an upright position.

2. In a device of the character described, the combination with a plurality of bodily rotative segments having bottle receiving pockets formed therein, of means arranged in the path of movement of said segments for inverting said segments, and means also arranged in the path of movement of said segments for returning said segments to an upright position.

3. In a device of the character described, the combination with a plurality of bodily rotative members having bottle receiving pockets formed therein, of a cam arranged

in the path of movement of said members and adapted to invert said members, and a second cam arranged in the path of movement of said members and adapted to return said members to an upright position.

4. In a device of the character described, the combination with a plurality of bodily rotative members, each of said members having a plurality of bottle receiving pockets formed therein, of means arranged in the path of said members for inverting said members, and a swinging frame upon which the bottles are discharged when said members are inverted.

5. In a device of the character described, the combination with a plurality of bodily rotative members, each of said members having a plurality of bottle receiving pockets formed therein, of means arranged in the path of said members for inverting said members, a swinging frame upon which the bottles are discharged when said members are inverted, and means for returning said members to an upright position after said bottles have been discharged therefrom.

6. In a device of the character described, the combination with a plurality of members having bottle receiving pockets formed therein, of means for imparting a step by step bodily rotation to said members, means for directing heat upon said bottles during the rotation of said members, means for inverting said members, and a swinging frame upon which the bottles are discharged when said members are inverted.

7. In a device of the character described, the combination with a plurality of members having bottle receiving pockets formed therein, of means for imparting a step by step bodily rotation to said members, means for directing heat upon said bottles during the rotation of said members, means for inverting said members, a swinging frame upon which the bottles are discharged when said members are inverted, and means for returning said members to an upright position.

8. In a device of the character described, the combination with a plurality of tilting members having bottle receiving pockets formed therein, of a tilting funnel adapted to register with said pockets, means for imparting a bodily step by step rotation to said members, means for inverting said members, and means for returning said members to an upright position after they have been inverted.

9. In a device of the character described, the combination with a plurality of tilting members having bottle receiving pockets formed therein, of a tilting funnel adapted to register with said pockets, means for imparting a bodily step by step rotation to said members, means for inverting said members, and means for returning said members to an upright position.

right position after they have been inverted, and a yielding swinging frame upon which the bottles are discharged when said members are inverted.

5 10. In a device of the character described, the combination with a plurality of tilting members having bottle receiving pockets formed therein, of a tilting funnel adapted to receive bottles as they are discharged
10 from a bottle molding machine, said funnel having a clamping portion adapted to hold the bottles therein, means for causing said funnel to register with the pockets of the tilting members, means for releasing the
15 clamping portions of the pockets, means for imparting a step by step bodily movement to the bottle receiving members, and means for inverting said bottle receiving members.

20 11. In a device of the character described, the combination with a plurality of tilting

members having bottle receiving pockets formed therein, of a tilting funnel adapted to receive bottles as they are discharged from a bottle molding machine, said funnel having a clamping portion adapted to hold the bot- 25 tles therein, means for causing said funnel to register with the pockets of the tilting members, means for releasing the clamping portions of the pockets, means for imparting a step by step bodily movement to the bottle receiving members, means for inverting said bottle receiving members, and a swinging frame upon which the bottles are discharged when said members are inverted.

In testimony whereof I affix my signature 35 in presence of two witnesses.

THOMAS F. LAMB.

Witnesses:

E. R. NOFT,

FLORENCE E. TRACE.