

No. 757,535.

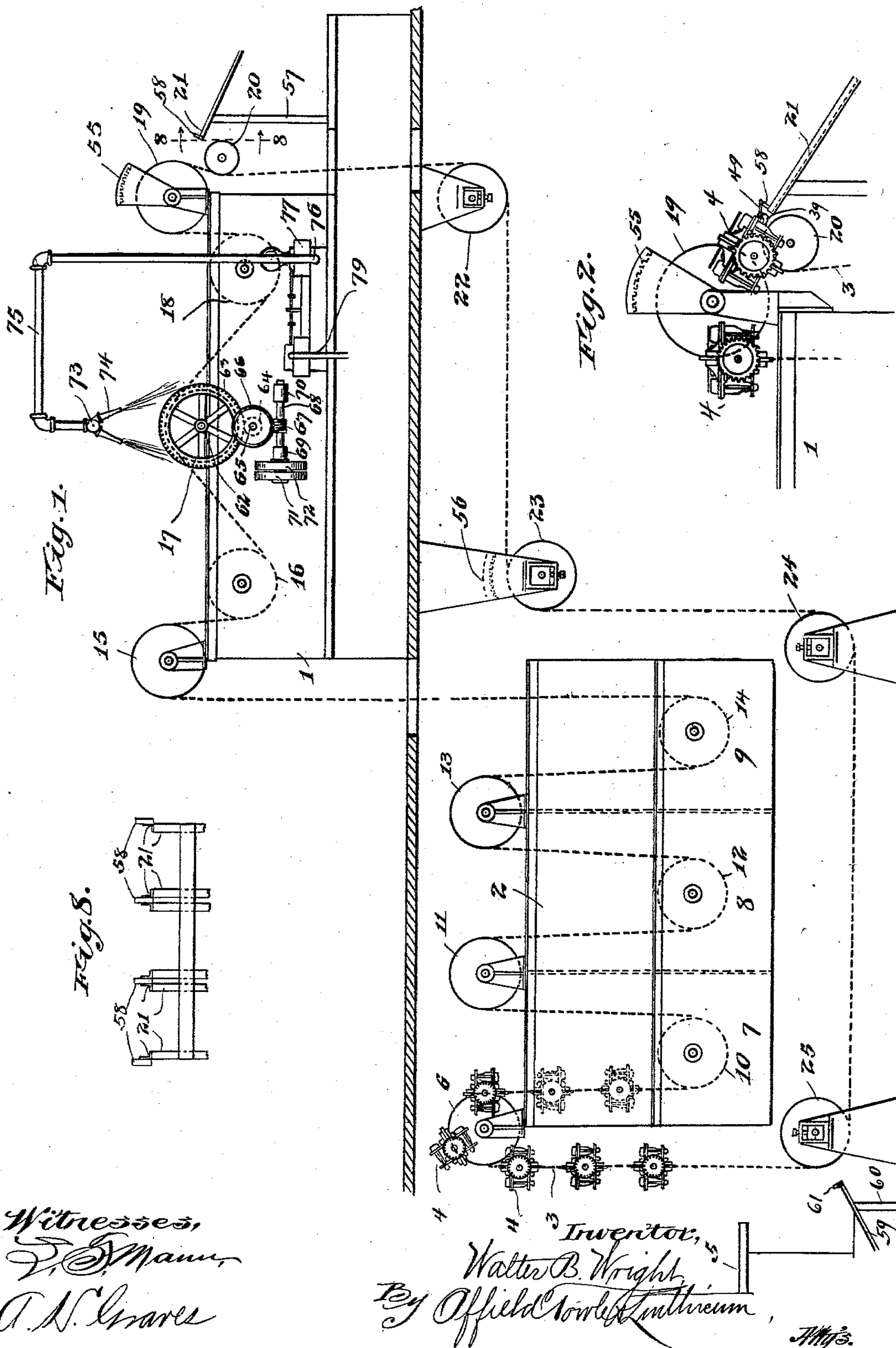
PATENTED APR. 19, 1904.

W. B. WRIGHT.
BOTTLE SOAKING APPARATUS.

APPLICATION FILED APR. 20, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses,
J. E. Mann,
A. N. Graves

Inventor,
Walter B. Wright
By *Offield Crowl* Attorney

No. 757,535.

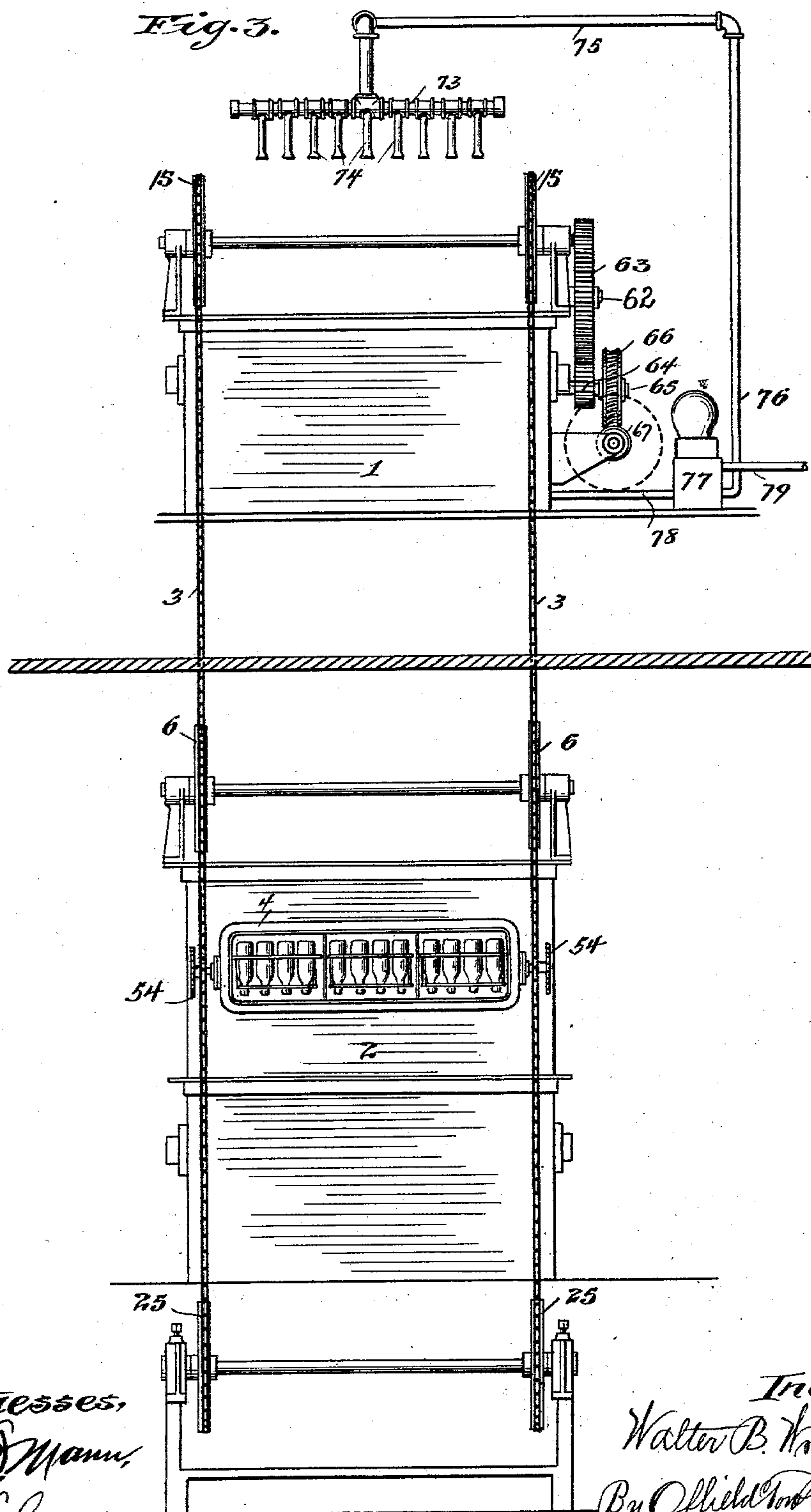
PATENTED APR. 19, 1904.

W. B. WRIGHT.
BOTTLE SOAKING APPARATUS.

APPLICATION FILED APR. 20, 1903.

NO MODEL.

4 SHEETS--SHEET 2.



Witnesses,
J. D. Mann,
A. N. Graves.

Inventor,
Walter B. Knight,
By Offield Porter Attorney,
Atty's.

No. 757,535.

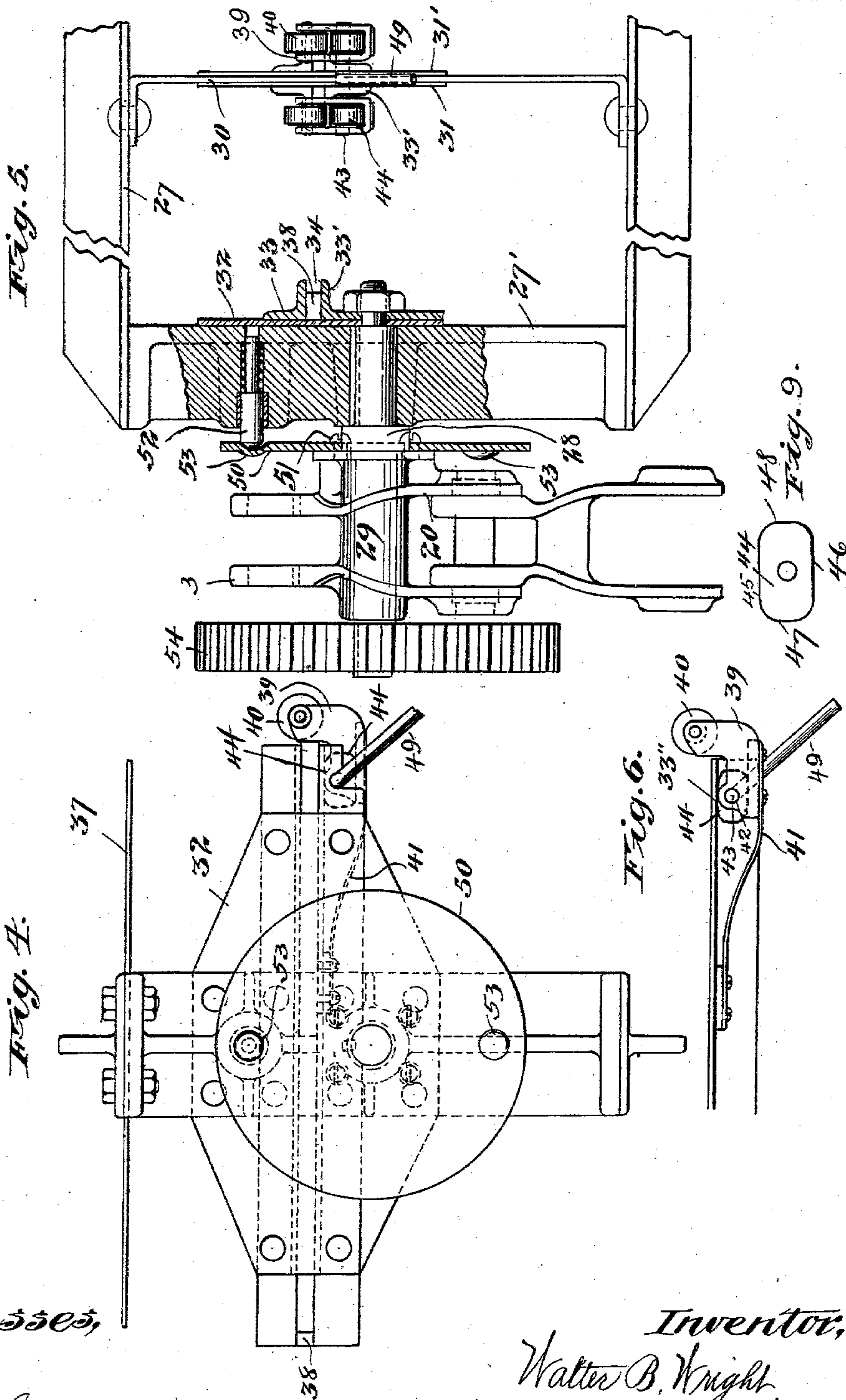
PATENTED APR. 19, 1904.

W. B. WRIGHT.
BOTTLE SOAKING APPARATUS.

APPLICATION FILED APR. 20, 1903.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses,

A. A. Graves,

Inventor,

Walter B. Wright

By Offield Fowler Litchman,
Att'y.

No. 757,535.

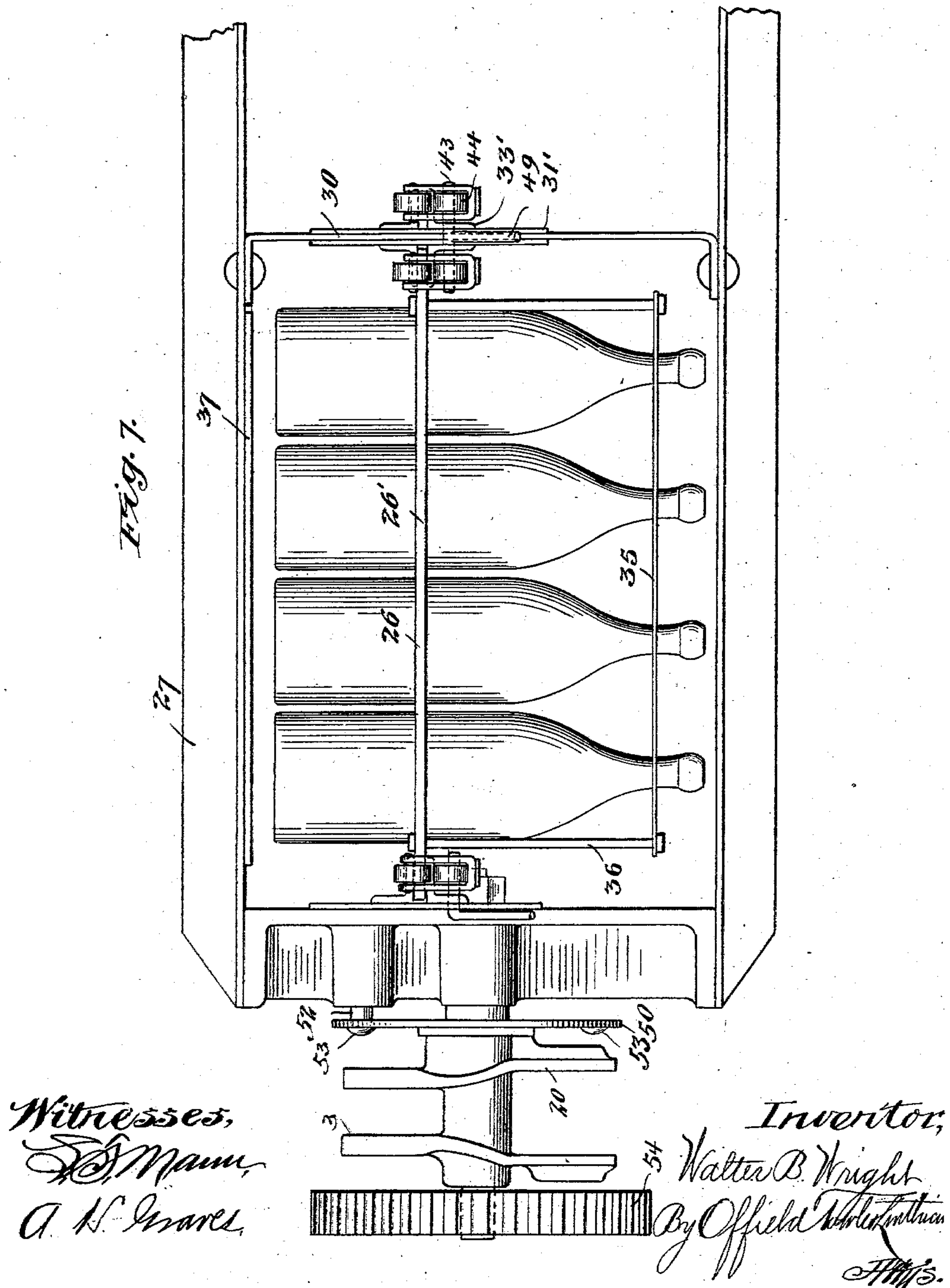
PATENTED APR. 19, 1904.

W. B. WRIGHT.
BOTTLE SOAKING APPARATUS.

APPLICATION FILED APR. 20, 1903.

NO MODEL.

4 SHEETS--SHEET 4.



UNITED STATES PATENT OFFICE.

WALTER B. WRIGHT, OF CHICAGO, ILLINOIS, ASSIGNOR TO E. GOLDMAN & COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BOTTLE-SOAKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 757,535, dated April 19, 1904.

Application filed April 20, 1903. Serial No. 153,472. (No model.)

To all whom it may concern:

Be it known that I, WALTER B. WRIGHT, of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Bottle-Soaking Apparatus, of which the following is a specification.

This invention relates to improvements in bottle-soaking apparatus, and refers more specifically to an endless carrier system and associated soaking and washing tanks through which the bottles are conveyed progressively for the purpose of soaking and rinsing the same.

Among the salient objects of the invention are to provide an apparatus by means of which the soaking and rinsing is to a very large degree rendered automatic; to provide a construction and arrangement by means of which groups of bottles held in crates may be connected to an endless carrier as the latter moves past a definite charging-point, which crates, with their contained bottles, will be automatically discharged at a definite delivery-point after the soaking and rinsing has been completed; to provide a construction and arrangement in which the soaking and rinsing is effectively performed by repeated filling and emptying operations as the bottles pass through successive tanks or tank-compartments; to provide an improved carrier into which a crate of a construction now in common use may be inserted with the utmost facility and will be readily locked therein until positively released; to provide, in conjunction with an endless carrier, mechanism for automatically reversing the positions of the crates at certain points in the travel of the carrier for purposes hereinafter explained, and in general to provide improvements in the details of construction and arrangement of the several instrumentalities constituting a complete apparatus.

To the above ends the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and the invention will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a view in side elevation of a com-

plete apparatus, the arrangement being to a certain extent diagrammatic. Fig. 2 is a fragmentary detail showing in side elevation the automatic discharge mechanism and immediately-connected parts. Fig. 3 is a left-hand end elevation of the apparatus shown in Fig. 1. Fig. 4 is a detail side elevation of one of the carriers. Fig. 5 is a plan view of one of the carriers, with parts in horizontal section, taken in a plane of the axis of rotation of the carrier. Fig. 6 is a fragmentary view in side elevation of the release mechanism of one of the carriers. Fig. 7 is a detail generally similar to that shown in Fig. 5, but showing one of the field-crates in position in the carrier. Fig. 8 is a view taken on line 8 8 of Fig. 1 and looking in the direction of the arrows. Fig. 9 is a detail side elevation of the gate-cam.

Referring to the drawings, 1 designates the rinsing-tank, 2 the soaking-tank, and 3 an endless conveyer which is guided to travel through both tanks and is provided at intervals apart with carriers, (designated as a whole 4.) In the preferred embodiment of the invention shown herein the soaking and rinsing tanks are located on different levels, the soaking-tank being elevated somewhat above and resting upon the ground floor, while the rinsing-tank is correspondingly elevated above and rests upon the second floor.

5 designates a slightly-elevated platform located adjacent to a vertical and upwardly-running portion of the conveyer-belt 3, that portion of the conveyer-belt opposite the platform being for convenience of description hereinafter designated the "loading-point." From this point the conveyer-belt passes upwardly over a pair of guide-pulleys 6, then dips downwardly into the first compartment 7 of the soaking-tank, passes thence upwardly out of this compartment and into the next, 8, in a similar manner, and from the latter to the final compartment 9 of the soaking-tank, and thence upwardly through a suitable opening in the upper working floor to the rinsing-tank. Suitable pairs of guide-pulleys (designated, respectively, 10, 11, 12, 13, and 14) serve to carry the conveyer-belt in its undulatory path through the several compartments of the soaking-tank. The conveyer-belt passes

over a pair of guide-pulleys 15, mounted upon the upper edge of the rinsing-tank, thence downwardly around a pair of guide-pulleys 16 within the rinsing-tank, from there upwardly over a pair of drive-pulleys 17, and again downwardly around a pair of guide-pulleys 18, and finally up over a pair of pulleys 19 at the opposite end of the rinsing-tank. Just as the belt passes from the pair of guide-pulleys 19 the carriers encounter tripping mechanism, which opens the carriers successively and permit them to discharge their crates and contained bottles automatically. This point will therefore be designated the "unloading-point." The belt in leaving the pulleys 19 is deflected and passes by a pair of guide-pulleys 20, located just beneath the inclined chute members 21, which receive the discharged crates, and immediately below the pulleys 20 empty crates are reinserted in the carriers in order that they may be conveyed back to the point where the crates are filled, which is just below the platform 5 at the loading-point. From the guide-pulleys 20 the conveyer-belt passes downwardly through the working floor around a pair of guide-pulleys 22, thence horizontally to and around guide-pulleys 23, thence vertically downward again and around guide-pulleys 24, and from there horizontally beneath the soaking-tank and up around a pair of guide-pulleys 25.

Describing now in detail one of the carriers 4, (all of the carriers being alike in construction,) and referring more particularly to Figs. 4 to 7, inclusive, each carrier is in the present instance adapted to receive and hold three crates, each of which is designated as a whole 26, preferably of the form known as the "Eick" crate, the carrier being to this end of oblong rectangular shape in side elevation and comprising three approximately rectangular compartments each adapted to receive a crate. The carrier comprises a main rectangular frame 27, provided at each end with alined trunnions 28, rigidly secured thereto, which trunnions extend through and are secured within journal-links 29 of the conveyer-belt 3. At suitable intervals apart the main frame 27 is provided with cross-frame members 30, which divide the interior of the frame into the three compartments referred to. Upon each cross-frame member 30 is mounted a pair of supporting-plates 31 31', and upon the inner faces of the end-frame members 27' of the main frame are mounted similar plates 32, these plates 31, 31', and 32 being all similar in shape in end elevation and of oblong shape, as seen clearly in Fig. 4. Upon the plates 31, 31', and 32 are mounted pairs of angle-pieces 33 33', each pair being spaced apart at a suitable distance to provide an intervening channel or way 34, adapted to receive the edge of the main supporting-plate 26' of one of the crates, and the pairs of angle-pieces on each car-

rier-frame member are arranged in horizontal alinement with each other, so as to receive and support the opposite ends of the crate. These Eick crates, as best shown in detail, Fig. 7, each consist, essentially, of the main plate 26', hereinbefore referred to, and a parallel confining-plate 35, said plates being rigidly united and spaced apart by means of a plurality of space-bolts 36. The main plate 26' is provided with a series of apertures adapted to receive the body portions of the bottles, while the confining-plate 35 is provided with a similar series of smaller apertures arranged to register with the apertures of the main plate and serving to hold the bottles from dropping through the crate when the latter is in inverted position, but permitting the bottles to escape therefrom freely when the crate is reversed. Inasmuch as the carriers are reversed repeatedly in the travel of the conveyer-belt, it is necessary to provide means for preventing the bottles from escaping from the crates, and accordingly each carrier is provided with a series of guard-plates 37, which are respectively secured to the main frame 27, but extend parallel with and opposite the several main plates of the crates adjacent to the butt-ends of the bottles. The crates are shoved edgewise into the several carriers and are arrested and held in proper position by means of stops 38, located at the back ends of the several ways, as best seen in Fig. 4.

Describing next the gate mechanism, by means of which the crates are confined in position within the carriers until said mechanism is automatically tripped and the gates thrown open, 39 designates a gate member which is L-shaped in side elevation, as seen in Fig. 4, and is of U shape in elevation, as seen in Fig. 5, and carries journaled between its upper ends a roller 40. The lower end of said gate member is rigidly attached to and carried by a plate-spring 41, which is in turn secured rigidly to the under side of the overhanging flange of the lower channel member 33', as shown clearly in Fig. 6. The horizontal portion of the gate member 39 is provided with transverse bearing-apertures 42, and through the bearing-apertures 42 is arranged to extend a rock-shaft 43, a pair of said gate members being mounted upon each cross-bar 30, so that the two ends of each shaft 43 are carried in the two gate members pertaining to the respective compartments of the carrier. Upon the shaft 43 between the two sides of each gate member is rigidly mounted a cam-block 44, which cam-block, as best seen in Fig. 6, is of oblong shape, provided with parallel upper and lower sides 45 and 46, respectively, and rounded ends 47 and 48. The upper side of each cam-block bears against the overhanging flange portion 33'' of the angle member, while its under side is in bearing with the bottom of the gate member in such manner that when the rock-shaft is turned the cam

operates to force the gate member downwardly against the tension of the spring 41, the length of the cam-block being sufficiently greater than its vertical width to depress the gate to a position below and out of alinement with the channel 34 when the cam-block is turned at right angles to its normal position. In order to thus operate the gates, the rock-shaft 43 is provided at a point between the gate members with a rigid tripping-arm 49, which extends at a suitable angle to engage trip-stops mounted adjacent to the path of travel of the conveyer-belt, as will be hereinafter described. During certain parts of the travel of the conveyer-belt it is necessary to reverse the carriers by turning them on their trunnions, and in order that the carriers may be held in whatever position to which they are thus turned a friction-plate 50 is provided on one of the conveyer-belt chains adjacent to the end of each carrier and united rigidly with the journal-link 29, conveniently by means of screw-bolts 51, as shown in Fig. 5. With each friction-plate is arranged to cooperate a spring-pressed plunger 52, mounted within the end frame of the corresponding carrier, the end of the plunger being arranged to impinge against the face of the friction-plate, as shown clearly in Fig. 5. In order that the carrier may be held more certainly in definite positions, the friction-plate is provided at diametrically opposite points and in vertical alinement with the conveyer-belt with concave recesses 53, which the end of the plunger is adapted to engage. The crates are inserted in the carriers at the loading-point with bottles in inverted position, as shown in Fig. 7, and it will be seen by tracing the course of the conveyer-belt that the crates are naturally inverted, so that the bottles pass downwardly into each compartment of the rinsing-tank butt-end first and are inverted and rise with their necks directed downwardly, so as to empty as they leave the compartment. The same relations exist in the travel of the carriers through the rinsing-tank; but as the crates must be discharged from the carriers with the bottles in inverted position, so as to prevent the latter from falling from the crates at the unloading point, it is necessary to provide means for rotating the carriers a half-revolution on their trunnions as they pass over the guide-pulleys 19. Accordingly each carrier is provided upon one of its trunnions with a rigidly-connected spur-gear 54, and upon the standard which supports the pulley 19 at the corresponding side of the conveyer-belt is rigidly mounted an internal toothed gear-segment 55, which has a sufficient number of teeth to rotate the gear 54 exactly one-half revolution as the gear travels past the segment. Inasmuch as it is necessary to rotate the carriers another half-revolution before they can reach the loading-point, a second similar segment 56 is mounted upon the sup-

porting-bracket which supports the guide-pulley 23 at the corresponding side of the conveyer-belt.

Describing now more particularly the construction and arrangement of the chute members 21 and the trip-stop mechanism which cooperates with the carriers to discharge the latter, and referring more particularly to Figs. 1, 2, and 8, 57 designates as a whole a suitable trestle-working frame upon which are supported the several chute members 21, which, as best shown in Fig. 8, consist of a series of angle-irons arranged parallel with each other and in inclined position, the internal angles 21' of the several pairs of chute members forming ways which receive and guide the crates as the latter are discharged from the carriers. Three pairs of such ways are provided to correspond to the three compartments of each carrier, as shown clearly in Fig. 8.

58 designates a series of trip-stops mounted upon the upper ends of the respective ways and severally extending upwardly in position to engage the projecting ends of the corresponding trip-arms 49 of the carriers, as shown clearly in Fig. 2. In this connection it is to be noted that the normal angular positions of the trip-arms when the gate mechanisms are closed and the relation of the upper or engaging ends of the trip-stops to said arms is such that as the carrier is moved past the receiving-ways the carrier will be fully opened before it has descended to a position in alinement with the inclined ways, as indicated clearly in said Fig. 2. The carrier being at this time in inclined position, the several crates slide therefrom by gravity.

59 designates a second series of inclined chute members mounted upon a suitable supporting-frame 60 just below the loading-platform 5, these latter chute members being likewise provided with trip-stops 61, adapted to engage the trip-arms of the carriers and open the latter as they are passing upwardly and around the guide-pulleys 25 and at a time when the carriers are inclined at approximately forty-five degrees from the horizontal.

The conveyer is driven at a relatively slow and substantially uniform speed by means of any suitable driving mechanism, the driving mechanism being in the present instance conveniently mounted upon the rinsing-tank 1 and arranged as follows: Upon the shaft 62, which carries the sprocket 17, over which the conveyer is trained, is mounted a gear 63, with the periphery of which is arranged to intermesh a second gear 64, mounted upon a suitable stub-shaft 65, and with the latter gear is connected a worm-gear 66, which is in turn engaged by a worm 67 upon the worm-shaft 68. The worm-shaft is mounted in suitable bearings 69 and 70 and is provided at one end with fast and loose pulleys 71 72, by means of which it may be actuated from any suitable source of power.

As a further feature of the apparatus I provide means for forcibly spraying the bottles while they are passing over the rinsing-tank in order to dislodge the labels and dirt loosened by the soaking operation. To this end I provide a sprinkler-head 73, arranged to extend parallel with the upper lap of the conveyor, preferably at a point vertically above the sprockets 17, which sprinkler-head is provided with a plurality of jet-nozzles 74, part of which are directed toward the upwardly-moving part of the conveyor and part toward the downwardly-moving part of the conveyor. With the sprinkler-head is connected a supply-pipe 75, the opposite end 76 of which is connected with the delivery side of a pump designated as a whole 77 and which may conveniently be an ordinary steam-pump. The receiving side of the pump is preferably placed in communication with the rinsing-tank by means of a pipe 78, so that the liquid used in spraying is simply circulating from the rinsing-tank through the spraying apparatus and back to the tank. The pump is operated from any suitable source of steam-supply through a steam-pipe 79.

The operation of the apparatus has been clearly indicated in connection with the description of the construction and arrangement thereof and need not be repeated in detail. It may be explained, however, that an operator standing upon the loading-platform 5 receives the filled crates from an assistant and shoves them into the carriers as the latter pass, it being noted that the carriers will at that time be standing in open position, having been opened to discharge the empty crates at the discharge-point just below the loading-platform. The loaded carriers pass through the several compartments of the soaking-tank, being naturally reversed repeatedly, so that they enter the compartments butt-end down and leave the latter necks down, thus filling and emptying during their passage to each compartment. The same filling and emptying operation occurs twice during their passage through the rinsing-tank. As the carriers leave the rinsing-tank and pass over the guide-pulleys 19 they are reversed by the segment 55, so that they arrive at the discharge-point with the bottles inverted, and therefore held in the crates by gravity. The carriers are discharged at this point by the trip-stops 58 and slide down the chutes 21 to an operator who empties the crates, while another assistant returns the empty crates to the conveyor at a point just below the discharge-chutes 21 and closes the gates manually. The empty crates are then conveyed back to the second discharge-point, where they are again discharged to be refilled with other bottles and returned to the conveyor. The operation is thus continuous and all manual conveying of the crates from place to place avoided, the return-lap of the conveyor serving the pur-

pose of transferring the empty crates back to the refilling-point.

While the apparatus herein shown and described is a preferred embodiment of the invention, yet it will be obvious that the details may be modified without in any sense departing from the invention, and I do not, therefore, limit myself to the details of construction and arrangement shown except to the extent that such details are made the subject of specific claims.

I claim as my invention—

1. In a bottle-soaking apparatus, the combination of a soaking-tank, a flexible endless conveyor, a series of guides over which said conveyor travels, arranged to direct the conveyor through the solution in the soaking-tank repeatedly, a series of carriers mounted upon said endless conveyor, each adapted to detachably hold a bottle-crate, a gate mechanism upon each carrier adapted to normally hold a crate in position therein, and a trip device mounted adjacent to the path of travel of the carrier and operating to automatically open the gate mechanisms of the several carriers to automatically discharge the latter during the progress of the conveyor.

2. In a bottle-soaking apparatus, the combination of a soaking-tank, an endless conveyor, a series of guides over and around which said conveyor travels, arranged to direct the conveyor through the solution within the soaking-tank, a series of carriers mounted upon said endless conveyor each provided with a gate mechanism for holding a bottle-receptacle within the carrier, a tripping device located adjacent to the path of travel of the conveyor and adapted to cooperate with said gate mechanism to automatically open the latter as the carriers reach the tripping-point, and inclined ways located in position to receive the bottle-receptacles as they are discharged from the carriers, substantially as described.

3. In a bottle-soaking apparatus, the combination of a soaking-tank and a rinsing-tank, an endless conveyor, a series of guides arranged to support and direct said endless conveyor through the solutions in the soaking and rinsing tanks, said guides being arranged to effect repeated reversals of the endless conveyor as the latter progresses, a series of carriers mounted at intervals apart upon said conveyor each adapted to hold a bodily-removable bottle-receptacle, a series of bottle-receptacles adapted to said carriers, a gate mechanism upon each carrier adapted to normally hold a bottle-receptacle in position therein and comprising a trip-arm, a relatively fixed stop located adjacent to the path of the endless conveyor and adapted to cooperate with the trip-arms of the several carriers, and supports adapted to receive said bottle-receptacles as the latter are discharged from the carrier, for the purpose set forth.

4. In a bottle-soaking apparatus, the combi-

nation of a soaking-tank and a rinsing-tank, an endless flexible conveyer, guide-supports supporting and directing said conveyer and arranged to direct the latter through the solutions in the soaking and rinsing tanks, a series of carriers revolubly mounted upon said endless conveyer each adapted to hold a bodily-removable bottle-holder, means upon each carrier and coöperating means upon a relatively fixed support adjacent to the path of travel of the carriers for effecting a reversal of the several carriers as they are successively carried past a predetermined point.

5. In a bottle-soaking apparatus, the combination of a soaking-tank, an endless flexible conveyer, guide-supports supporting and directing said conveyer and arranged to direct the latter through the solutions in the soaking-tank, a series of carriers revolubly mounted upon said endless conveyer each adapted to hold a bodily-removable bottle-holder, mechanism upon each carrier for adjustably holding a bottle-holder therein, a coöperating trip device located adjacent to the path of travel of the carriers and adapted to automatically release the holders within the carriers as the latter pass said trip device.

6. In a bottle soaking and rinsing apparatus, the combination of a soaking-tank, a rinsing-tank, an endless conveyer, a series of revoluble guide-supports about which said conveyer is trained, arranged to direct the conveyer through the soaking and rinsing tanks and to reverse said conveyer in relation to said tanks, a series of carriers revolubly mounted upon said endless conveyer to rotate upon axes arranged transversely of the conveyer, a wheel connected with each carrier concentrically with its axis of rotation, a coöperating reversing member mounted upon a fixed support adjacent to the path of travel of the wheels of the carriers and adapted to effect a reversal of said carriers as the latter pass, a series of bottle-holders adapted to said carriers, a gate mechanism upon each carrier arranged to detachably hold a bottle-holder therein and provided with a tripping device, a coöperating trip member located adjacent to the path of travel of the carriers, and inclined ways arranged to receive the bottle-holders as they are automatically released and discharged from the carriers, substantially as described.

7. In a bottle soaking and rinsing apparatus, the combination of a soaking-tank, a rinsing-tank, an endless conveyer, a series of revoluble guide-supports about which said conveyer is trained, arranged to direct the conveyer through the soaking and rinsing tanks and to reverse said conveyer in relation to said tanks, a series of carriers revolubly mounted upon said endless conveyer to rotate upon axes arranged transversely of the conveyer, a wheel connected with each carrier concentrically with its axis of rotation, a co-

operating reversing member mounted upon a fixed support adjacent to the path of travel of the wheels of the carriers and adapted to effect a reversal of said carriers as the latter pass, a series of bottle-holders adapted to said carriers, a gate mechanism upon each carrier arranged to detachably hold a bottle-holder therein and provided with a tripping device, a coöperating trip member located adjacent to the path of travel of the carriers, inclined ways arranged to receive the bottle-holders as they are automatically released and discharged from the carriers, a spraying apparatus located in proximity to the conveyer, and means for delivering liquid through said spray apparatus under pressure.

8. In a bottle soaking and rinsing apparatus, the combination of a soaking-tank and a rinsing-tank, an endless conveyer, guide-supports arranged to support and direct said conveyer through both said tanks, a series of carriers upon said conveyer each adapted to detachably hold a bottle-holder, a series of bottle-holders adapted to said carriers, mechanism for automatically effecting the discharge of the bottle-holders from the carriers at a point beyond the rinsing-tank, considered with reference to the circuit of the endless carrier, and other mechanism for automatically effecting the discharge of the bottle-holders from the carriers at a point beyond said first-mentioned discharging mechanism and between the latter and the point where the conveyer enters the soaking-tank, substantially as described.

9. In a bottle-handling apparatus, the combination with an endless conveyer and means for supporting and actuating the latter, of a carrier mounted upon said conveyer and comprising an open frame provided with alined trunnions revolubly engaging the carrier, parallel opposing ways upon the opposite ends of said carrier, a bottle-crate adapted to fit within said ways, a detent mechanism for holding the crate against rotation upon its trunnions in two positions of adjustment, and means for removably holding said bottle-holder in position within the carrier.

10. In a bottle-handling apparatus, the combination with an endless conveyer comprising parallel conveyer-chains and mechanism for supporting and actuating said conveyer, of a series of carriers revolubly mounted upon said conveyer, each comprising an open frame provided at opposite ends with alined trunnions engaging the conveyer-chains, and opposed parallel ways upon the interior of said carrier-frame, a series of bottle-crates adapted to said ways, a gate mechanism arranged to control the entrance-passage to said ways and provided with a trip-arm, a friction member mounted upon one of said conveyer-chains adjacent to each carrier, a coöperating friction member mounted upon the carrier and where-

by the latter is yieldably held in a predetermined angular relation to the conveyer-chain, a reversing-wheel mounted upon the carrier, and means for actuating said reversing-wheel and said trip-arm located adjacent to the path of travel of the carrier.

11. In a bottle-handling apparatus, the combination with a conveyer, of a carrier comprising an open rectangular frame provided at each end with trunnions, dividing cross-frame members, a plurality of pairs of ways arranged in opposed relation upon the end-frame members and cross-frame members of the carriers, a gate mechanism arranged to control the entrance-passage to each compartment of the carrier and a series of bottle-holding crates each comprising a main apertured plate adapted to fit at its ends within the ways of one of the carrier-compartments and apertured to receive and support a plurality of bottles, and a cooperating plate rigidly supported in fixed relation to the main plate and provided with apertures to receive the neck portions of the bottles, substantially as described.

12. In a bottle-handling apparatus, the combination of a flexible endless conveyer, guide-supports over which said conveyer is arranged to travel, a series of carriers revolubly mounted upon said conveyer, a series of bottle-holders each adapted to hold a plurality of bottles, means upon each carrier for detachably holding a bottle-holder engaged with the carrier, a detent mechanism for holding the holders against rotation upon its trunnions in two positions of adjustment, and means for actuating said conveyer.

13. A carrier for endless conveyers comprising a main frame provided with crate-receiving ways and a gate mechanism for controlling said ways comprising an angular gate member having its free end arranged to normally stand in alinement with the ways, a spring normally holding said gate member in operative position, a rocking cam interposed between said gate member and a stationary part, and a trip-arm operatively connected with said rocking cam and arranged to project beyond the margin of the carrier for engagement with a relatively stationary stop, substantially as described.

14. In a carrier for endless conveyers, the combination of a main frame provided with trunnions adapted for engagement with a flexible conveyer, ways upon said main frame for receiving a holder, and a gate mechanism for holding the holder within the ways of the carrier comprising a gate member having one of its ends arranged to project into alinement with the ways, a spring arranged to hold said gate member in its normally projected position, a rocking cam arranged to act upon the

gate member to retract the same, and a trip-arm operatively connected with said cam.

15. In a carrier for endless conveyers, the combination of a main frame provided with trunnions adapted for engagement with a flexible conveyer, ways upon said main frame for receiving a holder, and a gate mechanism for holding the holder within the ways of the carrier comprising a gate member having one of its ends arranged to project into alinement with the ways, a spring arranged to hold said gate member in its normally projected position, a rocking cam arranged to act upon the gate member to retract the same and a trip-arm operatively connected with said cam, said gate member being provided at its projecting end with a terminal antifriction-roller, for the purpose set forth.

16. A carrier for endless conveyers, comprising a rectangular main frame provided at each end with alined trunnions, a reversing-wheel operatively connected with one of said trunnions, friction devices adapted to hold the carrier in various angular positions, one or more cross-frame members dividing the main frame into compartments, crate-receiving ways arranged in opposed relation in each of said compartments, and one or more gate mechanisms controlling the delivery ends of said ways comprising a spring-pressed gate member arranged to normally project across the entrance to the ways, a non-circular-shaped rocking cam interposed between a part moving with said gate member and a fixed part of the carrier, and a trip-arm rigid with the axis of the rocking cam and arranged to project beyond the lateral edge of the carrier-frame, for the purpose set forth.

17. In a bottle soaking and rinsing apparatus, the combination of a soaking-tank and a rinsing-tank, an endless conveyer, guide-supports arranged to support and direct said conveyer through both said tanks, a series of carriers upon said conveyer each adapted to detachably hold a bottle-holder, a series of bottle-holders adapted to said carriers, a working floor or platform arranged in proximity to an upwardly-traveling portion of said conveyer, mechanism for automatically effecting the delivery of said holders from the carriers at a point contiguous to said working platform or floor, a delivery-chute located adjacent to a downwardly-moving portion of said conveyer and at a point beyond the rinsing-tank, mechanism for effecting the automatic discharge of the holders from the carriers upon said chute, and mechanism for effecting a travel of the conveyer, substantially as described.

WALTER B. WRIGHT.

Witnesses:

ALBERT H. GRAVES,
A. M. CRONA.