No. 759,349. PATENTED MAY 10, 1904.

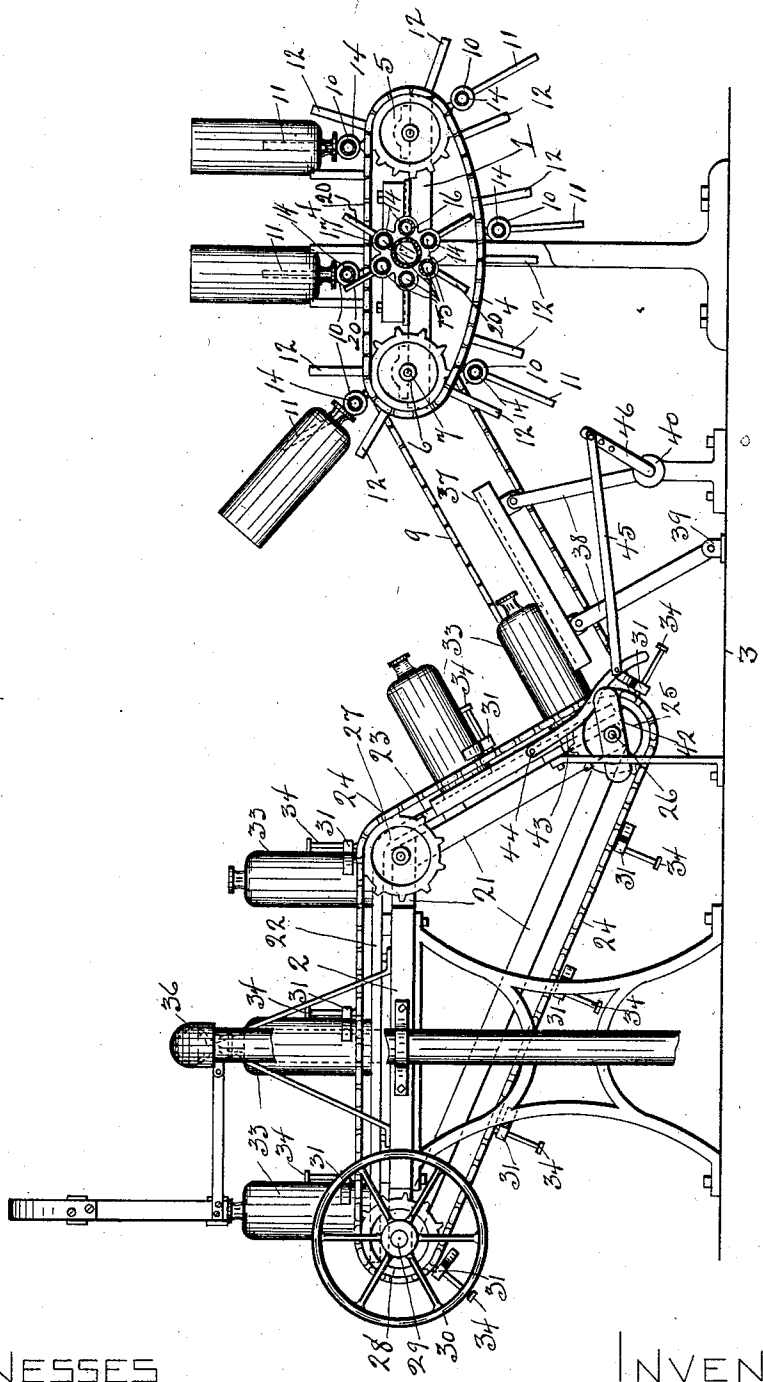
J. J. CLIFFORD.

BOTTLE RINSING MACHINE.

APPLICATION FILED APR. 30, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

FIG 1



WITNESSES

Wm. L. Greer

E. M. O'Reilly.

INVENTOR

James J. Clifford

By Mosher & Curtis

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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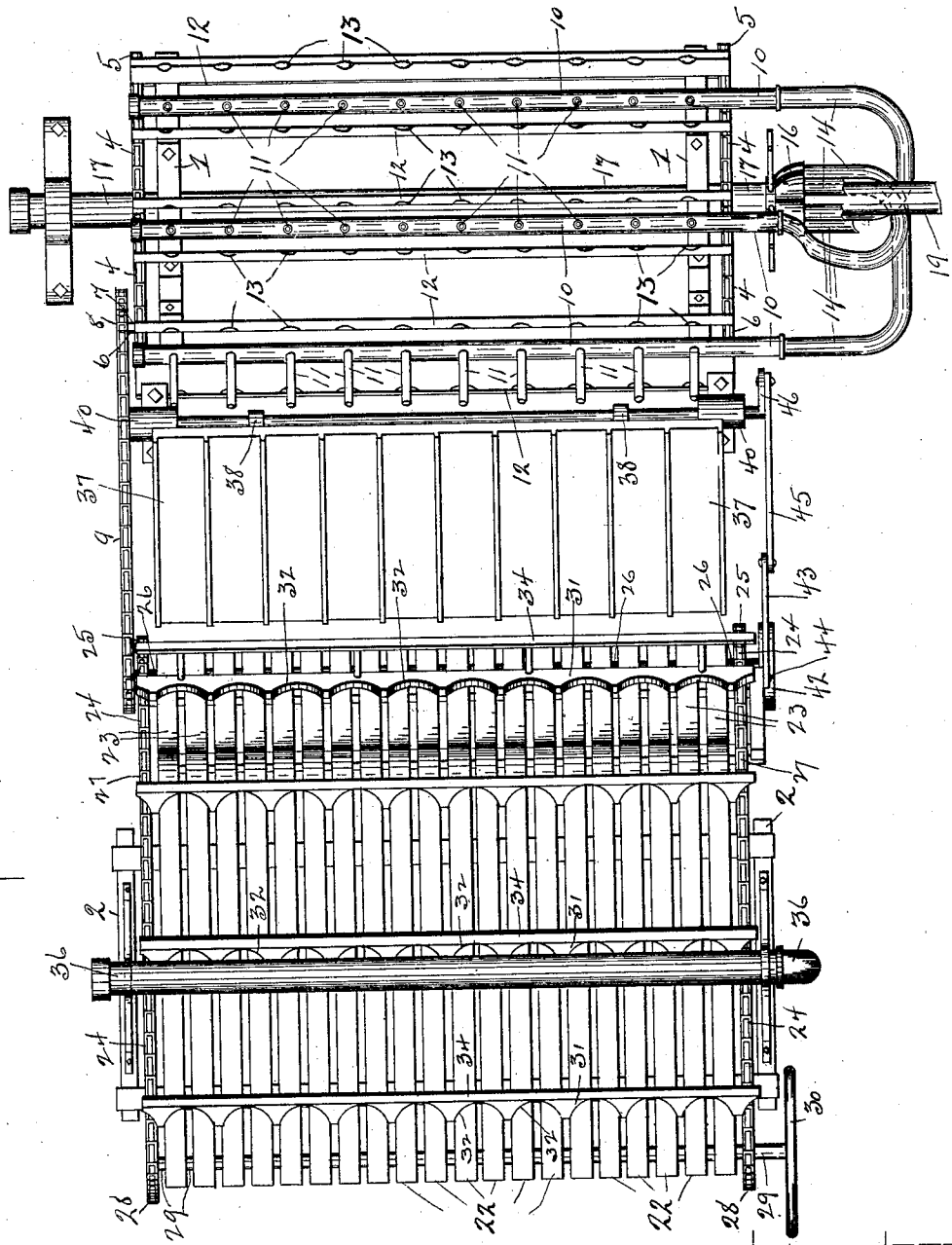
J. J. CLIFFORD.

BOTTLE RINSING MACHINE.

APPLICATION FILED APR. 30, 1902.

NO MODEL. 3 SHEETS—SHEET 2.

FIG 2



WITNESSES

Wm. S. Greer

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BOTTLE RINSING MACHINE.

APPLICATION FILED APR. 30, 1902.

NO MODEL 3 SHEETS—SHEET 3.

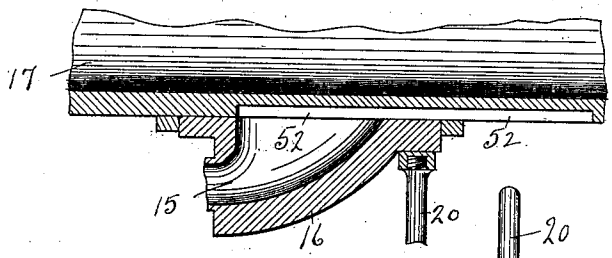


FIG. 7.

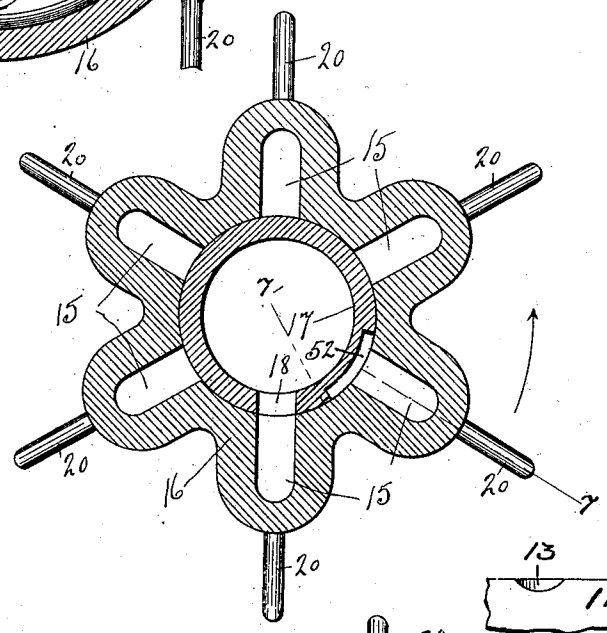


FIG. 5.

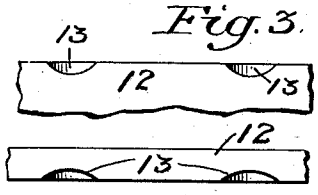


Fig. 3.

Fig. 4.

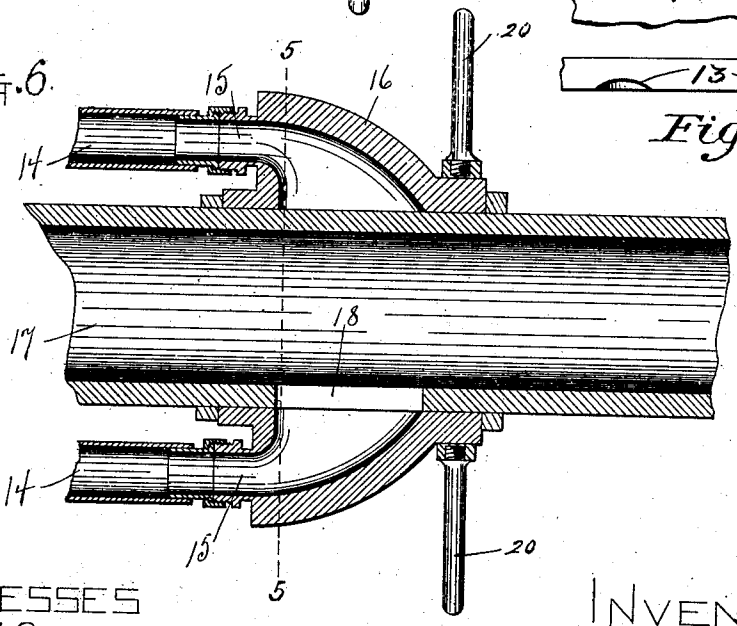


FIG. 6.

WITNESSES

Wm. L. Greer

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 759,349. Patented May 10, 1904.

UNITED STATES PATENT OFFICE.

JAMES J. CLIFFORD, OF GREEN ISLAND, NEW YORK, ASSIGNOR TO JAMES J. CLIFFORD & CO., OF GREEN ISLAND, NEW YORK, A FIRM.

BOTTLE-RINSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 759,349, dated May 10, 1904.

Application filed April 30, 1902. Serial No. 105,251. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. CLIFFORD, a citizen of the United States, residing at Green Island, county of Albany, and State of New York, have invented certain new and useful Improvements in Bottle-Rinsing Machines, of which the following is a specification.

The invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification.

Similar characters refer to similar parts in the several figures.

Figure 1 of the drawings is a view in side elevation of my improved bottle rinsing and filling machine. Fig. 2 is a top plan view of the same. Fig. 3 is a view in side elevation, on an enlarged scale, of a portion of one of the bottle-supporting wings. Fig. 4 is a top plan view of the same. Fig. 5 is a vertical cross-section taken on the broken line 5 5 in Fig. 6. Fig. 6 is a vertical section taken centrally and longitudinally through the main supply-pipe for the rinsing apparatus. Fig. 7 is a section taken on the broken line 7 7 in Fig. 5.

My invention relates to machines for rinsing preparatory to filling bottles, such as are used in supplying to the trade spring-water and other liquids.

My improved rinsing apparatus is particularly adapted for use in connection with an improved filling-machine shown in the drawings; but no claim is made herein to said filling-machine either separately or in combination, the same forming the subject-matter of a separate application filed by me February 13, 1903, Serial No. 143,248, as a division of the present application.

The objects of the invention will appear in connection with the following description.

1 represents the framework of the rinsing apparatus, and 2 the framework of the filling apparatus. I have shown the two frameworks supported in fixed relation to each other, as by bolting both to the same bed or floor 3, and I preferably provide conveying mechanism interposed between the rinsing and filling mechanisms whereby the rinsing and filling operations are performed automatically and successively upon the bottles.

Referring to the rinsing mechanism, I have shown the endless carrier comprising the chain belts 4, passing over sprocket-wheels 5 and 6, the latter being fixed upon the shaft 7, to which rotary movements are imparted through the sprocket-wheel 8, also fixed thereon, and the endless chain 9, as will be hereinafter described. At intervals certain oppositely-located links in the chains 4 are connected together by a rigid hollow cross-bar or pipe 10, provided with nipples 11, projecting therefrom at right angles to the chain carrier and each adapted to receive thereupon the open end of a bottle supported thereon in an inverted position. Oppositely-disposed links in the chains 4 on opposite sides of and adjacent to the pipe-connected links are connected together, respectively, by the wings 12, each comprising a board supported in a plane at right angles to the chain carrier and having its outer edge portion on the side adjacent to said nipples provided with notches 13, disposed opposite the respective nipples. It will be seen that as the chain carrier is operated these wings 12, being always at right angles to the portion of the chain 4 with which they are connected, will in passing the sprocket-wheels 5 and 6 be caused to assume positions radial thereto, whereby the boards of each pair of wings located on opposite sides of one of the pipes 10 will be caused to diverge outwardly from each other. When, however, such wings are located on the upper side of the carrier between the sprocket-wheels 5 and 6, they will occupy planes parallel with each other or may even converge outwardly toward each other on account of the slack in the chains. The opening and closing movements thus imparted to said wings enable me to utilize such wings for supporting the bottles upon the respective nipples, the bottles being applied to the nipples while passing said sprocket-wheels 5 and delivered while passing the other sprocket-

wheels 6. These wings being made of wood or other comparatively soft material, the bottles can be quickly applied to the nipples and permitted to drop into seats formed by the notches 13 in the wings without danger of breakage, and in passing from the sprocket-wheels 5 to the sprocket-wheels 6 the bottles are supported by the wings in an upright inverted position upon the respective nipples.

Each of the pipes 10 is connected by means of a flexible tube 14 with one of the ports 15 in the valve-hub 16, rotatively mounted upon the hollow shaft 17 and provided with such a port 15 for each pipe 10. The hollow shaft 17 is provided with an aperture or port 18, adapted to register successively with the ports 15 in the hub as the latter is rotated and to admit fluid from said hollow shaft through said registering ports and a flexible tube 14 to a pipe 10. Except when one of the ports 15 registers with the aperture 18 the valve is closed. The flexible tubes 14 are so arranged that as each port 15 is caused to register with the aperture 18 it is connected by a tube 14 with that one of the pipes 10 which is located directly above the valve and upon the nipples of which the bottles are supported in inverted vertical position. Water or other rinsing fluid may be supplied to the hollow shaft 17 in any known manner, as through the supply-pipe 19, communicating therewith.

Intermittent rotary movements are imparted to the valve-hub corresponding with similar intermittent movements imparted to the chain carriers and nipple-supporting pipes, which intermittent movements may be accomplished in any known manner. As a means for intermittently rotating the valve-hub I have shown the hub provided with outwardly-projecting spurs 20, corresponding in number with the pipes 10 and adapted as the valve-hub is rotated to be successively moved into and out of the path traversed by said pipes. These spurs are so arranged upon the hub that at the beginning of the intermittent movement one of the pipes 10 will engage one of said screws and impart to the valve-hub a partial rotary movement sufficient to close the valve by causing the shaft-aperture 18 to register with one of the closed portions of the valve-hub between two ports 15, but not sufficient movement to bring the next port 15 into registry with the shaft-aperture 18. The movement so imparted to the valve-hub causes the spur so engaged to pass out from the path of its engaging pipe 10 and causes the next spur to be moved into the path of the next pipe 10, which in turn engages said last-mentioned spur to complete the movement of the valve-hub, which brings the next port 15 into registry with the shaft-aperture 18. In like manner the carrier 4 and valve-hub 16 are intermittently moved in accordance with each other, so that the rinsing fluid is supplied to the pipes 10 successively and to each when directly over the valve and is cut off from said pipes while the bottles are still maintained in an inverted vertical position suitable for draining the rinsing fluid therefrom.

Bottles may be applied to the rinsing-nipples by hand or in any known manner at one end of the apparatus above described adjacent to the sprocket-wheels 5 and at the other end of said apparatus adjacent to the sprocket-wheels 6 may be removed from the nipples and filled by hand or in any known manner.

I have shown means for automatically delivering the bottles from the rinsing apparatus to the filling apparatus or other receptacle for the rinsed bottles. The inclined bed 23 of the filling-machine is adapted to receive the bottles so delivered from the rinsing apparatus, from or along which bed the bottles so delivered may be conveyed in any known manner. The delivering mechanism comprises in part a channeled transfer-table 37, supported upon the outer end of two pairs of links 38 by means of hinge connections, the lower ends of said links being separately hinge-connected with a fixed support, as at 39 and 40, such points of connection being some distance apart. Oscillating movements imparted to said table and links cause the outer ends of the links to traverse different curved paths, whereby the table is caused to assume an approximately horizontal position at one end of its path of movement when adjacent to the rinsing apparatus and is caused to assume a downwardly-inclined positon at the other end of its path of movement when adjacent to the filling apparatus. As each pipe 10 of the rinsing apparatus passes the sprocket-wheels 6 the bottles supported upon the nipples on said pipe are gradually brought from an inverted vertical position to a horizontal position and as the movement is continued to a downwardly-inclined position, such that they slip by gravity off from the respective nipples, and the parts are so arranged and the movements so timed that as the bottles are thus automatically delivered from the rinsing mechanism they are received by the channeled table 37, the same being in an approximately horizontal position, the channels in said table being arranged in line with the respective nipples. As the table with its supply of bottles so received is moved toward the filling apparatus it is caused to gradually assume a downwardly-inclined position, permitting the bottles to slide along their respective channels downwardly until they are deposited upon the bed 23.

Movements may be imparted to the carrier-chain 4 of the rinsing apparatus in any known manner, as by connecting the chain 9 with a sprocket-wheel 41, fixed upon the cross-shaft 26, to which power is transmitted by the chain 27 from the sprocket-wheel 28, fixed on shaft 29, operated by hand-wheel 30.

The oscillating movements of the channeled

transfer-table 37 are accomplished by means of a cam 42, fixed upon the shaft 26 and adapted to engage a lever 43, fulcrumed upon the frame of the machine at 44 and connected by link 45 with an arm 46, fixed to oscillate with one of the table-supporting links 38. The fulcrum 44 of said lever 43 is so located relatively to the axis of the shaft 26 that the cam 42 engages said lever at a considerable distance from its fulcrum, causing a comparatively slow movement of the lever and the transfer-table, which movement of the table is that which withdraws the table from the bed 23. As the cam 42 continues to rotate it engages said lever 43 at a point much nearer its fulcrum, causing a more rapid movement of said lever and a quick movement of said transfer-table, which is the movement causing the return of said table to its position adjacent to the rinsing apparatus to receive a fresh supply of bottles therefrom.

If desired, the hollow shaft 17 of the rinsing apparatus may be provided with an outlet-groove 52 in its outer surface, leading exteriorly of the valve-hub and adapted to be brought into registry with each port 15 immediately after the same is cut off from the aperture or port 18 in the supply-pipe, whereby the rinsing liquid is permitted to drain from the pipe 10 and its nipples while the nipples and bottles are upright in an approximately vertical position and before they have become sufficiently inclined to permit the rinsing fluid to drain from said nipples into the partially-righted bottles.

For convenience of illustration I have shown in Fig. 2 of the drawings only two of the flexible pipes 14 in full, the other pipes being broken away, and for the same reason the flexible pipes 14 are shown broken away and in section in Fig. 1.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the class described and in combination, a movable flexible bottle-carrier having a nipple adapted to receive an inverted bottle; separated means for supporting and moving said carrier and means for supplying rinsing fluid to said nipple.

2. In a machine of the class described and in combination, a movable flexible carrier; a pipe mounted upon said carrier; a plurality of nipples projecting from said pipe each adapted to receive an inverted bottle; separated means for supporting and moving said carrier, and means for supplying rinsing fluid to said pipe.

3. In a machine of the class described and in combination, a carrier comprising a pair of endless chains; a plurality of cross-pipes mounted thereon at intervals; nipples projecting from said pipes each adapted to receive an inverted bottle; two pairs of chain-supporting sprocket-wheels rotary one pair upon an axis parallel with and at a distance from the other pair; means for supplying rinsing fluid to said cross-pipes at certain times; and means for operating the carrier.

4. In a machine of the class described and in combination an endless carrier; a plurality of cross-pipes mounted thereon at intervals; nipples projecting from said pipes each adapted to receive an inverted bottle; a rotary valve-hub having ports for the respective pipes; flexible tubes connecting the respective pipes and valve-hub ports; a supply-pipe having a port adapted to register with the ports in the valve-hub successively; and means for imparting corresponding movements to the carrier and valve-hub.

5. In a machine of the class described and in combination, an endless carrier; a plurality of cross-pipes mounted thereon at intervals; nipples projecting from said pipes; a rotary valve-hub having ports connected with said cross-pipes respectively; a supply-pipe having a port adapted to register with the ports in the valve-hub successively; means for operating the carrier; and means projecting from the valve-hub into the path of the carrier mechanism whereby said hub is rotated, substantially as described.

6. In a machine of the class described and in combination, an endless carrier; a plurality of cross-pipes mounted thereon at intervals; nipples projecting from said pipes; a rotary valve-hub having ports for the respective pipes; flexible tubes connecting the respective pipes and valve-hub ports; a supply-pipe having a port adapted to register with the ports in the valve-hub successively; means for operating the carrier; and means projecting from the valve-hub into the path of the carrier mechanism whereby said hub is rotated, substantially as described.

7. In a machine of the class described and in combination, an endless carrier passing around suitable guides; nipples supported by said carrier; means for supplying rinsing fluid to said nipples at certain times; wings arranged in pairs upon said carrier adjacent to said nipples and adapted to engage and support bottles inverted upon the nipples, said wings projecting outwardly from the carrier, and being fixed to portions thereof whereby they are adapted to change their relative angular positions as the carrier changes direction in passing around said guides, substantially as described.

8. In a machine of the class described and in combination, an endless carrier passing around suitable guides; bottle-supporting wings mounted thereon in pairs the neighboring faces of each pair being grooved to receive the bottles between them, said wings projecting outwardly from the carrier and being fixed to portions thereof, substantially as described.

9. In a machine of the class described and in combination, a frame; rotatory guide-supports at opposite ends thereof; an endless carrier passing around said guide-supports; bot-

tle-receiving nipples supported by said carrier and adapted to be carried thereby around said guide-supports; and a receptacle supported beneath said guide-supports at the rear end of the frame adapted to receive the bottles as the same fall from the nipples in passing around said guide-supports.

10. In a machine of the class described and in combination, bottle-rinsing apparatus; a delivery-table movable toward and from the same; means for moving the delivery-table at certain times to an approximately horizontal position adjacent to said rinsing mechanism adapted for the reception of bottles therefrom and at certain other times to a downwardly-inclined position for the delivery of bottles from said table.

11. In a machine of the class described and in combination, bottle-rinsing apparatus, having bottle-supporting nipples, and a delivery-table adapted to receive bottles therefrom and provided with separate channels for the bottles in line with said nipples.

In testimony whereof I have hereunto set my hand this 25th day of April, 1902.

JAMES J. CLIFFORD.

Witnesses:
FRANK C. CURTIS,
E. M. O'REILLY.