

No. 743,821.

PATENTED NOV. 10, 1903.

W. E. BROWN.
BOTTLE WASHING MACHINE.
APPLICATION FILED JAN. 27, 1903.

NO MODEL.

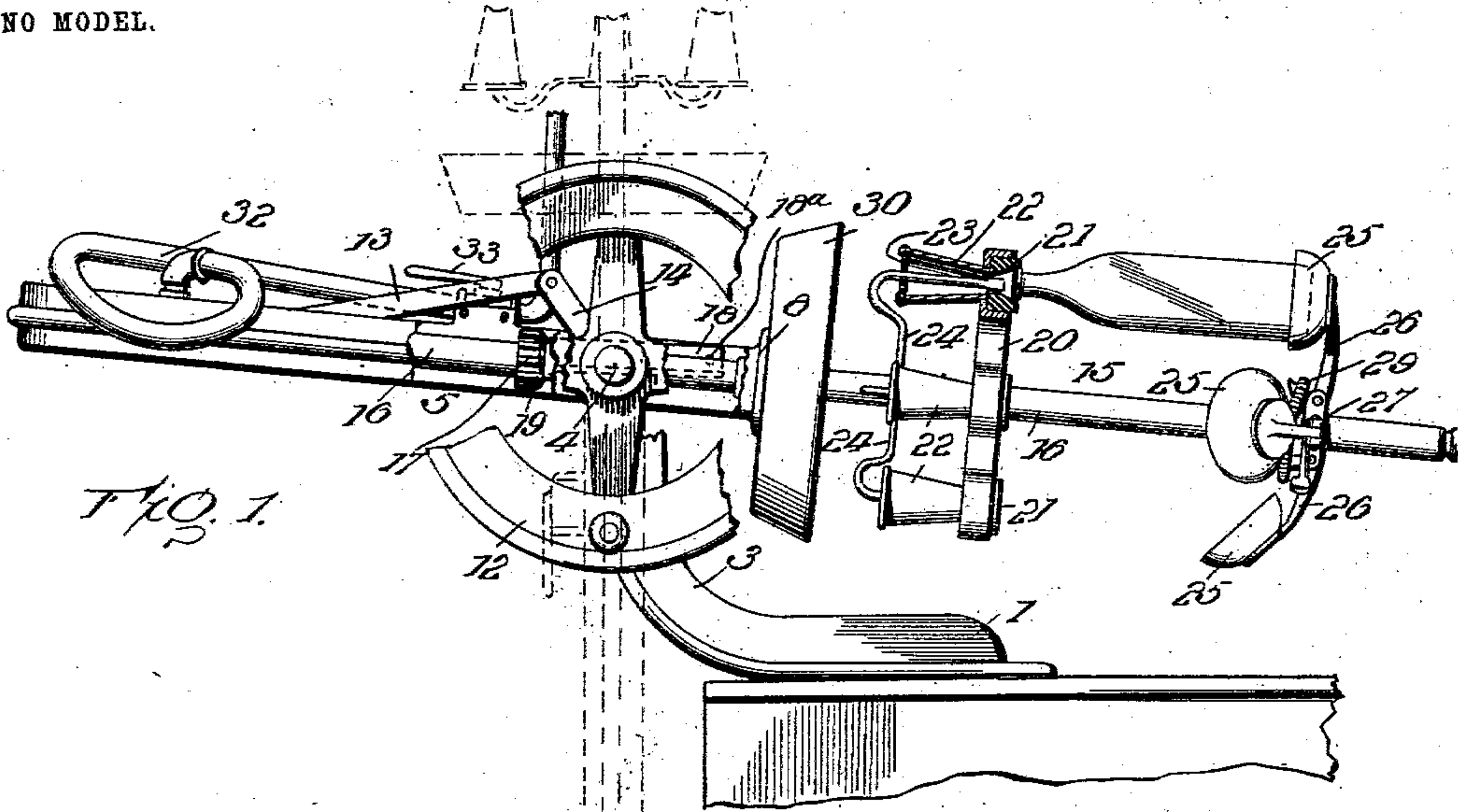


Fig. 1.

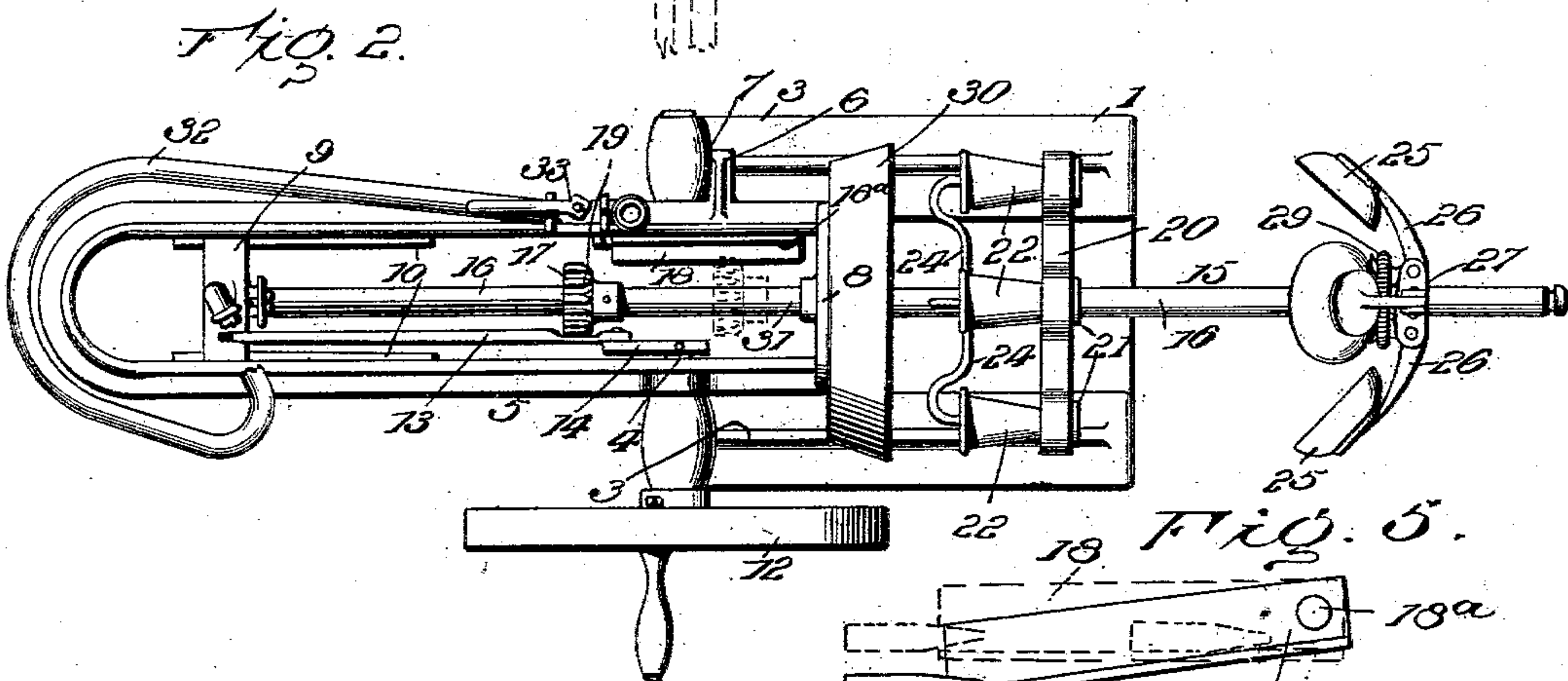


Fig. 2.

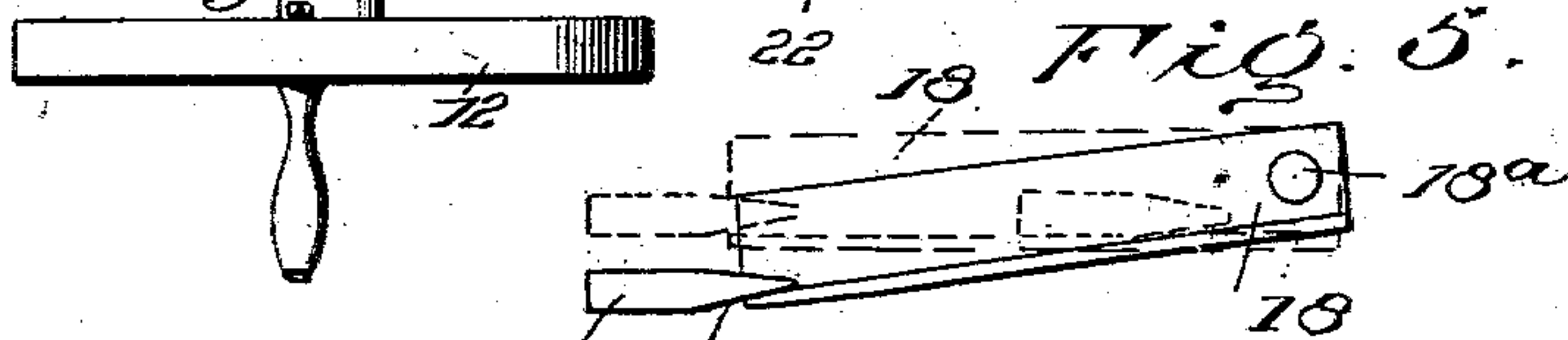


Fig. 3.

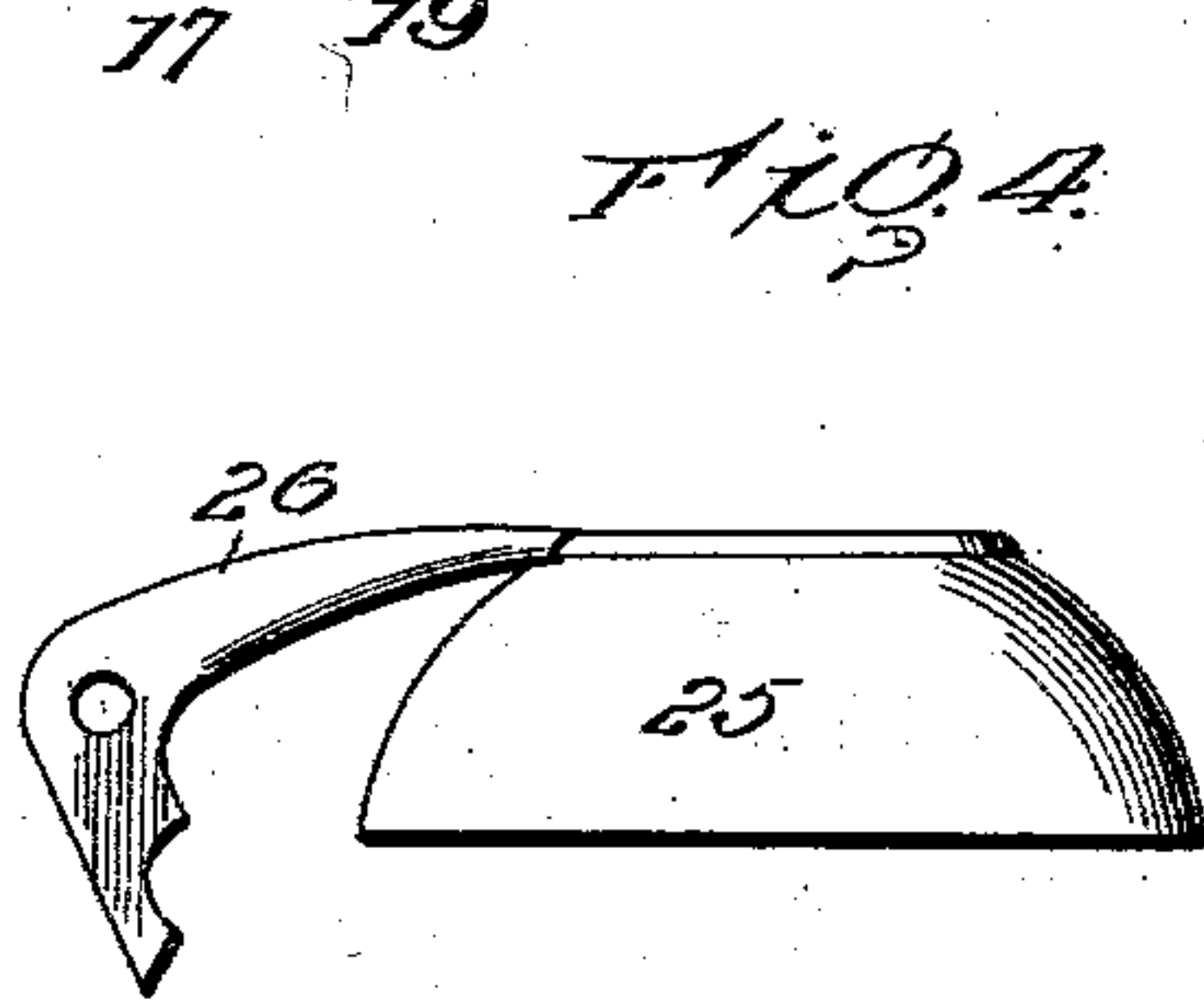


Fig. 4.

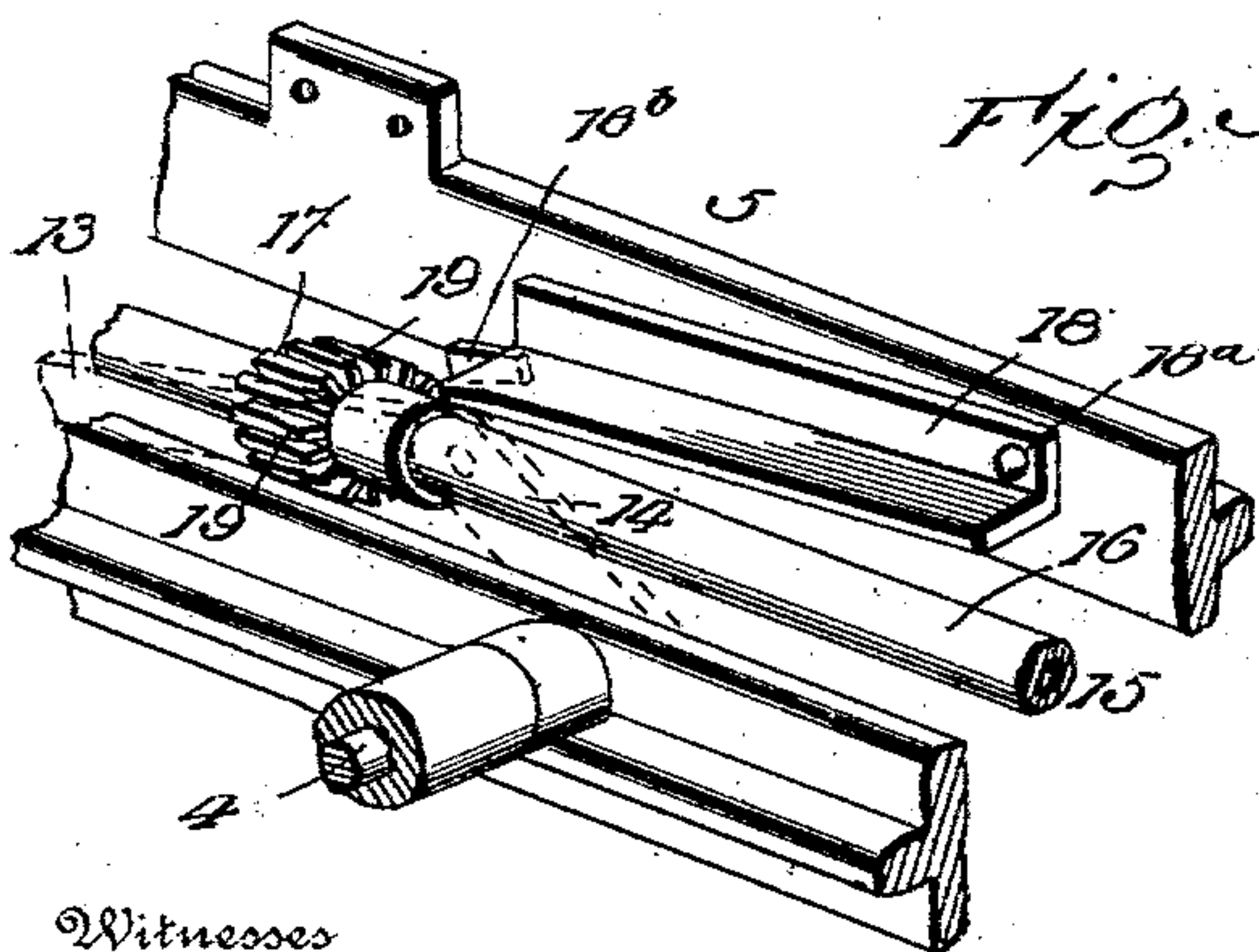


Fig. 5.

Inventor

William E. Brown

Witnesses

John M. ...
Charles L. ...

By

R. ...

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. BROWN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO BROWN-WINSTANLEY MANUFACTURING COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 743,821, dated November 10, 1903.

Application filed January 27, 1903. Serial No. 140,793. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BROWN, of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Bottle-Washing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of bottle-washing machines in which the bottles, supplied with shot or other cleansing medium, are placed in a reciprocatory rotary carrier and thoroughly agitated.

The invention contemplates the provision of improved means for mounting the machine as a whole, securing the bottles upon the carrier, supplying water to the bottles, and effecting the reciprocation and rotation of the carrier.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation and partly in section, the upright position of the carrier and its frame being shown in dotted lines. Fig. 2 is a plan view. Fig. 3 is a detail view of the mechanism by which the carrier is rotated. Fig. 4 is a detached view of one of the bottle-supports. Fig. 5 is a diagrammatical view of the mechanism by which the carrier is rotated.

Referring to the drawings, 1 designates a supporting base or casting designed to be secured to a cross-piece at one end of a tank, and from this casting extend outwardly and upwardly curved arms 3, forming bearings for the short shafts or trunnions 4 of a frame 5. When the machine is so secured to a tank, the arms 3 project sufficiently beyond the end thereof to permit the frame 5 to be swung into a vertical position for supplying and removing the bottles; but during the cleansing operation the frame is moved into an approximately horizontal position, such movement being limited by a lug 6 contacting with a stop 7 on one of the arms. When thus posi-

tioned, the end of the frame at which the bottles are secured is slightly lower than the opposite end. (See Fig. 1.)

The pivoted frame 5 preferably consists of a single casting of approximately elongated U shape, the inner ends of the parallel sides being connected by a centrally-apertured disk 8. Within the frame is a cross-head 9, designed to have a reciprocal movement in guides 10. This is effected by a hand-wheel 12, fast on one of the shafts 4, and a pitman 13, secured at one end to the head and at its other end to a crank 14, fast on the inner end of such shaft.

15 designates the carrier proper. It is shown as consisting of a pipe or hollow rod 16, extending longitudinally through frame 5 and secured at one end to head 9 and having a bearing in disk 8. In order to effect the rotation of the carrier, I mount on pipe 16 a ratchet-wheel 17, designed to engage a plate 18, secured to one of the sides of the frame. This plate is pivoted at 18^a, and its free end is designed to normally rest on a stop 18^b. When in this position, the plate is at an angle to the plane of reciprocation of the carrier, its free end being within such plane and terminating within the range or extent of rearward movement of the carrier. Thus upon the carrier moving forwardly the ratchet-wheel will engage the plate and be guided by the latter through a partial rotation. On the return stroke the ratchet-wheel, being still in engagement with the plate, will lift the free end of the latter to the plane of the space intermediate the teeth by which the plate is engaged, the carrier in consequence not being rotated; but upon the wheel leaving the plate before the limit of the carrier-stroke is reached the plate will drop down onto stop 18^b and be in position for engagement by the next teeth of the ratchet in the following forward stroke. Thus the carrier is rotated in one direction, step by step, synchronously with the forward reciprocation of the carrier, the rearward reciprocation being intermediate the respective steps. To insure the engagement of the wheel with the plate, the teeth are beveled as at 19.

The means for holding the bottles upon the carrier comprises a collar 20, provided with radial arms having openings in their outer ends wherein are rubber gaskets 21 to receive the ends of bottle-necks. From the opposite sides of these arms, coincident with the openings therein, extend a series of shot-cups 22, having perforated bottoms 23. Into these cups extend spray-pipes 24, leading from pipe 16. The complementary portion of the bottle-holder comprises saucer-like plates 25, mounted on the outer ends of bell-crank levers 26, fulcrumed each on a collar 27, adjustably secured by a thumb-screw on pipe 16. The inner short arms of these bell-crank levers are encompassed by an endless coiled spring 29, the tension of which serves to hold the plates 25 tight against the bottles and the latter in turn are retained against gaskets 21. To supply the bottles with water, the rod or pipe 16 is made hollow at least up to the point at which the spray-pipes 24 are secured. Adjacent to the bottle-holder is a pan 30, into which the water will be discharged from the shot-cups when the carrier and its frame are moved into an approximately upright position, such water flowing from the pan through a suitable outlet.

Water is admitted to the carrier through a hose 32, leading to the reciprocating hollow head 9, to which the carrier rod or pipe is secured by suitable packing. The other end of the hose is connected to any suitable source of supply. A cock 33, mounted on frame 4, controls the admission of water to the carrier.

In operation the bottles to be cleaned are positioned within the holders, while the carrier is upright, and upon the frame of the latter being turned on its pivot-bearings into the position shown in Fig. 1 the shot will pass from the cups into the bottles. The operator then admits the water and operates the hand-wheel to effect the reciprocation and rotation of the carrier, the water-supply being maintained in the meantime, if desired, as the movement of the carrier does not interfere with the flow from the hose. Through the medium of the described mechanism for operating the carrier the water and shot within the bottles will be thoroughly agitated and the effective cleansing of the latter is insured.

The advantages of my invention are apparent to those skilled in the art to which it relates. It is obvious that other than hand-power may be employed for operating the carrier.

I claim as my invention—

1. In a bottle-washing machine, the combination with a stationary base designed to be secured to a tank or other support near the end thereof, and having outwardly and upwardly curved arms, of a carrier-support pivotally mounted in said arms, the bottle-carrier movable on said support, and means for reciprocating and rotating the same, substantially as set forth.

2. In a bottle-washing machine, the combi-

nation with the carrier-support, of a reciprocating head movable in said support, the tubular bottle-carrier secured to said head comprising a series of radial arms having openings to accommodate the open ends of bottles, shot-cups in line with such openings having perforated bottoms, spray-pipes leading from said tubular carrier and opening into the shot-cups, and a series of spring-pressed plates also mounted on said carrier in line with said arms, and means for reciprocating and rotating the carrier, substantially as set forth.

3. In a bottle-washing machine, the combination with the carrier-support, the carrier, and means for reciprocating the same, of a ratchet-wheel on said carrier, and a guide on said support with which said ratchet-wheel is designed to engage, said guide being normally at an angle to the plane of reciprocation of said carrier, as and for the purpose set forth.

4. In a bottle-washing machine, the combination with the carrier-support, the carrier, and means for reciprocating the same, of a ratchet-wheel on said carrier, and a plate pivotally mounted on said support with which said ratchet-wheel is designed to engage, said plate being normally at an angle to the plane of reciprocation of said carrier and terminating at one end within the range of movement of said ratchet-wheel in such reciprocation, as and for the purpose set forth.

5. In a bottle-washing machine the combination with the carrier-support, the carrier, and means for reciprocating the same, of a ratchet-wheel on said carrier, a stop on said support, a plate pivotally mounted on said support and designed to have its free end normally supported by said stop whereby said plate will be at an angle to the plane of reciprocation of said carrier, said ratchet-wheel being designed to engage said plate, for the purpose set forth.

6. In a bottle-washing machine, the combination with the tubular reciprocating carrier, of the bottle-support mounted thereon, such support having seats for the bottles, a series of engaging devices for holding the bottles to their seats, and spring-held bell-crank levers on which such devices are mounted, as set forth.

7. In a bottle-washing machine the combination with the reciprocating carrier, of the bottle-support mounted thereon, such support having seats for the bottles, a collar adjustable on said carrier, bell-crank levers fulcrumed on such collar, socket-like plates on the outer ends of said levers, and a spring-band encircling the inner ends of said levers, substantially as set forth.

8. In a bottle-washing machine the combination with the supporting-base having outwardly and upwardly curved arms, of the carrier-support pivotally mounted in said arms, such support consisting of an approximately U-shape frame and a disk connecting the

sides thereof, a bottle-carrier having a tubular rod movable in said support and having a bearing in said disk, and means for reciprocating and rotating said carrier, substantially as set forth.

9. In a bottle-washing machine the combination with the supporting-base having outwardly and upwardly curved arms, of the carrier-support having short shafts or trunnions journaled in said arms, a reciprocating head in said support, a bottle-carrier having a tubular rod secured to and movable with said head, a hand-wheel fast on one of said short shafts, a crank fast on the inner end thereof, a pitman connecting said crank and said head, and means for rotating said carrier during its reciprocation, substantially as set forth.

10. The combination with the base having outwardly and upwardly extended arms, of a frame pivotally hung in said arms, guideways within such frame, a hollow head movable on such guideways, a pipe extended centrally of

the frame and connected at one end to said head, a hose opening into said head, means for reciprocating said head and pipe, a ratchet-wheel on the latter, the teeth of such wheel being beveled, a pivoted plate extending from one side of said frame with which such teeth are designed to engage, a series of seats for the necks of bottles, shot-cups in line with such seats, spring-held devices for holding the bottles to such seats, spray-tubes leading from the pipe and opening into said shot-cups, and a stop for limiting the movement of said frame when turned into working position, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM E. BROWN.

Witnesses:

F. WINSTANLEY,
W. E. BLOCHER.