

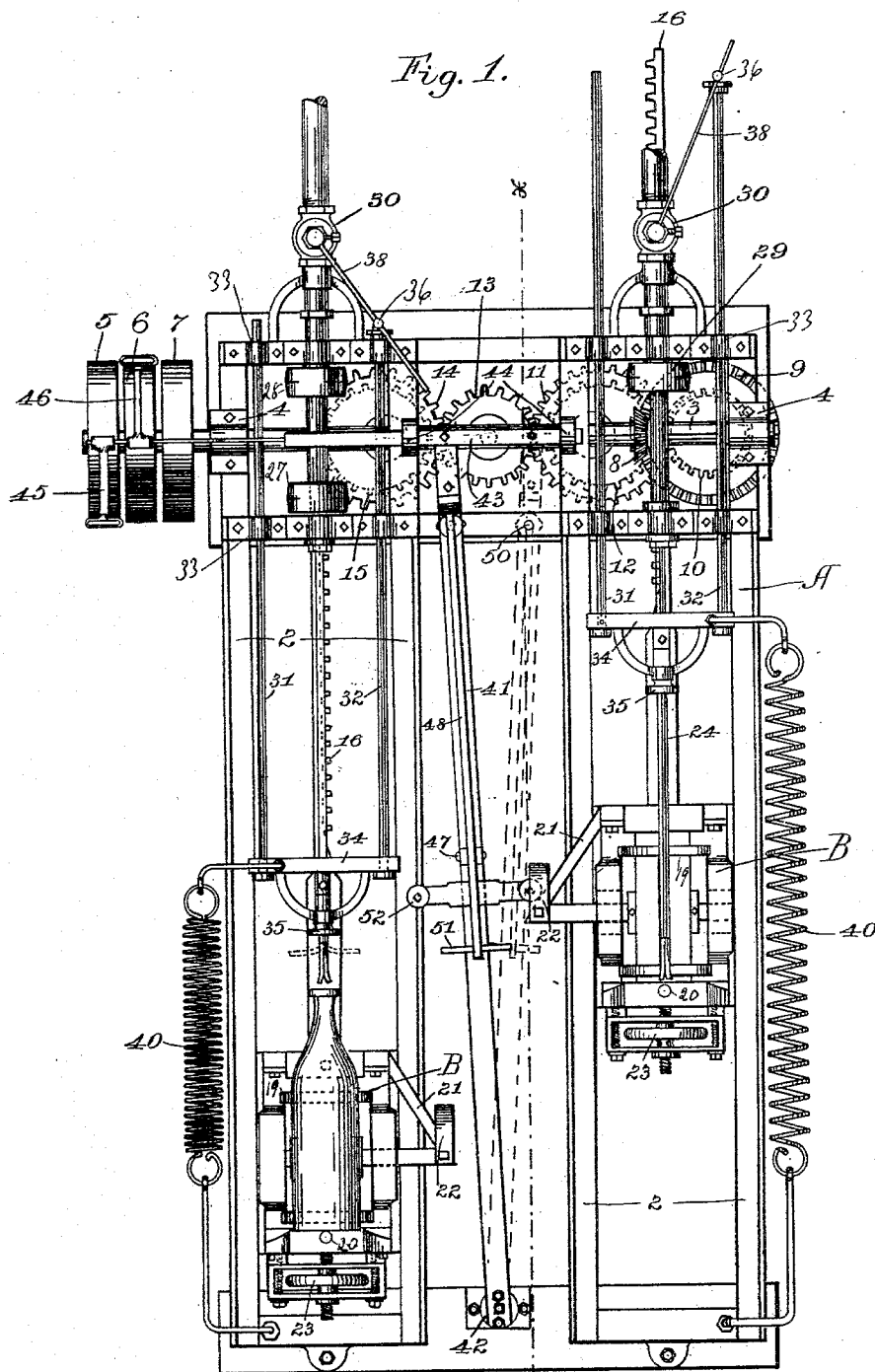
(No Model.)

3 Sheets—Sheet 1.

F. HOUSKA.
BOTTLE WASHING MACHINE.

No. 556,822.

Patented Mar. 24, 1896.



Witnesses:

V. L. Bradbury,
J. S. Johnson

Inventor:

Frank Houska,
per: D. W. Brown,
Attorney.

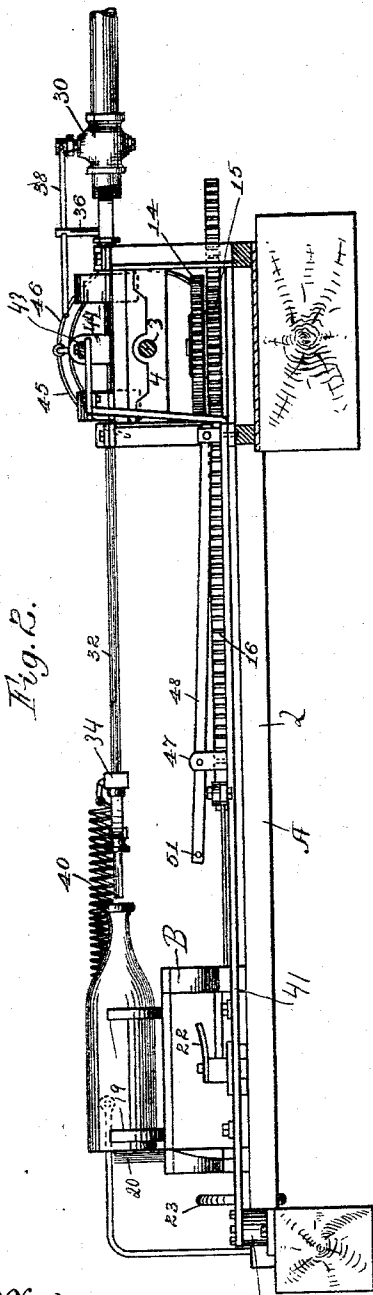
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W. S. Johnson

Fig. 1.

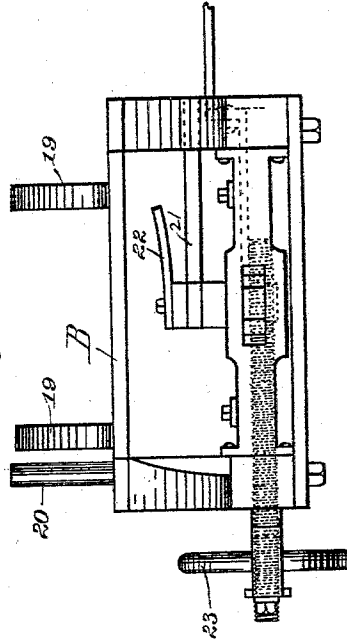
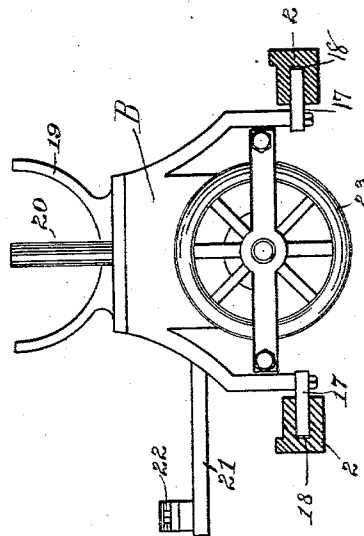


Fig. 3.



Inventor:
Frank Houska.
per: V. D. Munn
Attorney.

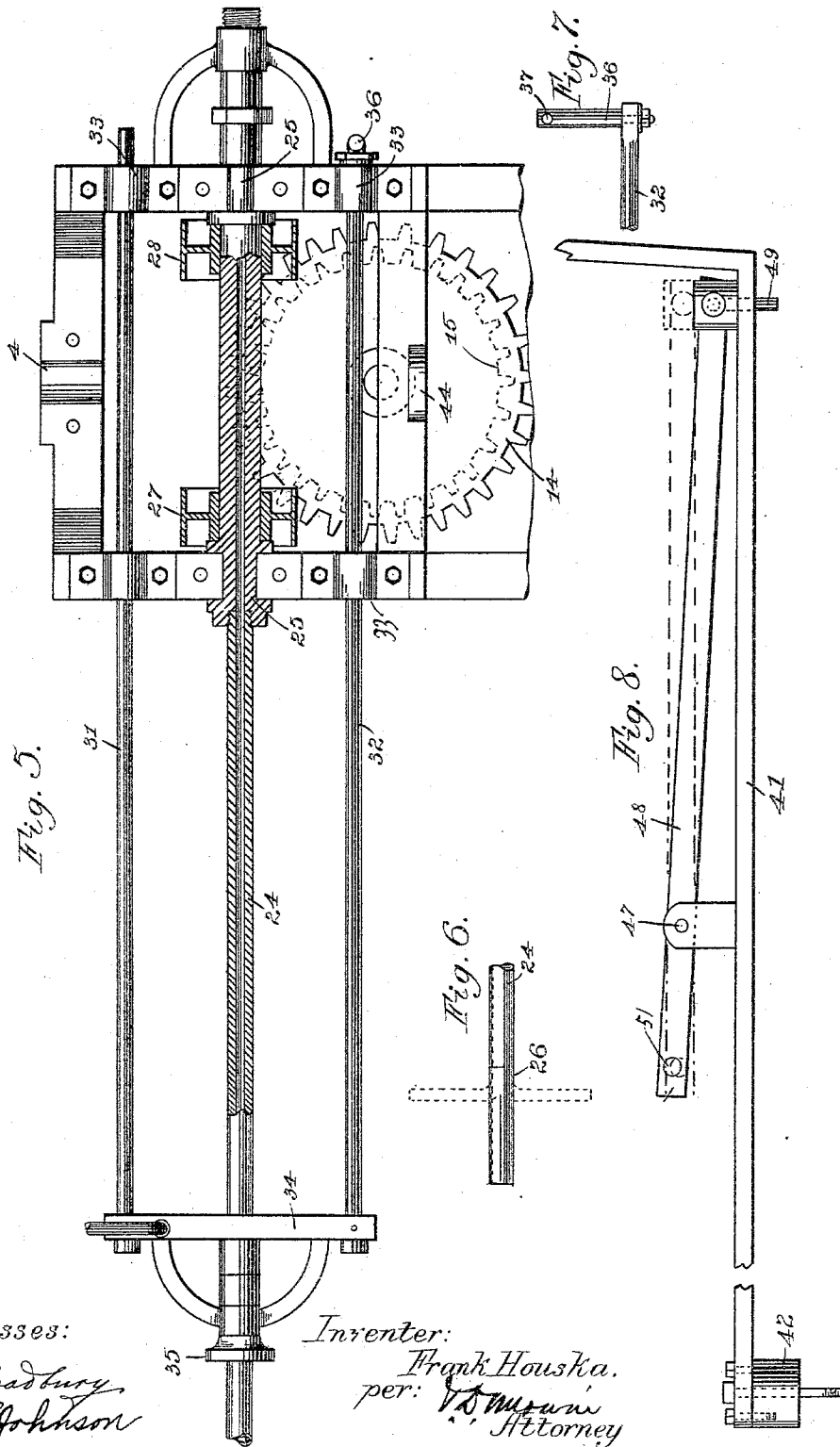
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3 Sheets—Sheet 3.

F. HOUSKA.
BOTTLE WASHING MACHINE.

No. 556,822.

Patented Mar. 24, 1896.



UNITED STATES PATENT OFFICE.

FRANK HOUSKA, OF ST. PAUL, MINNESOTA.

BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 556,822, dated March 24, 1896.

Application filed June 17, 1895. Serial No. 553,019. (No model.)

To all whom it may concern:

Be it known that I, FRANK HOUSKA, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in Bottle-Washing Machines, of which the following is a specification.

My invention relates to improvements in bottle-washing machines, its object being to provide improvements in the construction thereof whereby the work is more efficiently done and the bottles removed and replaced without interfering with the operation of the machine, as hereinafter more particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of my machine. Fig. 2 is a longitudinal vertical section of the same on line *x x* of Fig. 1. Fig. 3 is an end elevation of one of the bottle-carriers, and Fig. 4 is a side elevation of the same. Fig. 5 is a detail of the valve-controlling mechanism and connected parts, the pipe for carrying the water into the bottles being shown in section. Fig. 6 is a detail of the bottle-swabber. Fig. 7 is a detail of part of the valve-controlling mechanism, and Fig. 8 is a detail of the mechanism for shifting the driving-belts in the operation of the machine.

In the drawings, A represents the bed of the machine provided with the pairs of similar longitudinal carrying-rails 2, upon which travel the bottle-carriers B, and provided at one end with the driving-shaft 3, turning in journals 4, power being transmitted to the shaft by means of the pulleys 5, 6 and 7, the pulleys 5 and 7 turning loosely upon and the pulley 6 being keyed to and turning with the shaft.

Mounted upon the shaft 3 is the bevel-gear 8. This gear engages with the bevel-gear 9 and through the intermeshing gears 10, 11, 12, 13 and 14 with the gear 15. Working in suitable bearings between the rails 2 and connected to and operating the bottle-carriers B are the racks 16, these racks being in line with the faces of the gear-wheels 12 and 15 (see Fig. 1) by which they are respectively engaged and operated.

The carriers B (see Figs. 3 and 4) are held in place and guided by means of the lugs 17 working in grooves 18 in the carrying-rails. Formed upon the tops of the carriers are the

bottle-rests 19, and adjacent the end rest is the post 20, against which the bottle abuts when in place. Projecting from the inner side of each of these carriers is the angle-frame 21, provided with the dog 22, which is adapted to engage the shifting mechanism, as hereinafter explained. The frame 21 is slidably mounted upon the carrier and is adapted to be adjusted longitudinally thereof by means of the hand-wheel 23, the screw-threaded shaft of which engages the angle-frame, as shown in Fig. 4.

Arranged between each set of rails 2 and in line with the bottle when in place is the hollow shaft 24, having suitable journal-support 25, and provided at its end adjacent the bottle-carrier with the split swabber 26, adapted to fly outward by centrifugal force in the rotation of the shaft to clean the inside of the bottle when inserted therein. Mounted upon one of these shafts is the pulley 27, adapted to be connected to a suitable source of power, and a pulley 28, by which power is transmitted to the pulley 29 upon the other shaft, 24. These shafts are each connected with a source of water supply and are each provided with a valve 30 to turn on or shut off the flow of water through the shaft into the bottle, the valve being operated by suitable mechanism actuated by the bottle-carrier. This mechanism, as shown, consists of the rods 31 and 32, adapted to slide in the bearings 33 upon the end of the machine. The ends of the rods adjacent the bottle-carrier are connected by the brace 34, having sliding bearing upon the shaft 24 and being formed with a stop or shoulder 35, against which the bottle abuts in the travel of the carrier. Upon the free end of each of the rods 32 is swiveled the post 36, provided with a hole 37, through which the arm 38, connected with the valve 30, passes. In the forward and return movement of the rods 32 the post 36 turns freely, and the arm 38 slides in the hole 37, thus alternately opening and closing the valve to allow the proper amount of water to flow through into the bottle. It will thus be seen that in the forward movement of the bottle-carrier the bottle thereon will abut against the stop 35, sliding the valve-controlling mechanism forward in its bearings and opening the valve to cause a stream of water to pass into the bottle. The

pressure of the carrier then being removed on account of its return movement, the valve-controlling mechanism is returned to its normal position by means of the spring 40 connecting it with the end of the machine-bed, thus shutting off the stream of water.

The belt-shifting mechanism, arranged in the center of the machine and extending longitudinally thereof, is made up of the bar 41, having pivotal connection 42 at one end of the machine and provided with the cross-arm 43 at the other end. This cross-arm works in suitable bearings 44 and extends out over the pulleys 5, 6 and 7, where it is provided with the guide-fingers 45 and 46, through which the belts pass. These belts run oppositely, so that by shifting the belts the fixed pulley will be caused to turn in first one direction and then the other, thus reversing the travel of the bottle-carriers.

Arranged upon the shifting-bar 41 and having pivotal connection 47 thereon is the bar 48, provided at its long end with the pin 49, adapted to project through the bar 41 into a socket 50 in the bed of the machine to hold the belt-shifting mechanism in set positions. The other end of the bar 48 is provided with the cross-pin 51, adapted to be struck by the dog 22 in the forward movement of the bottle-carrier, thus pressing down the short end of the bar 48 and lifting its other end and the pin 49 out of engagement with the socket 50. (See dotted lines, Fig. 8.) As the carrier continues to move forward the angle-frame 21 engages the antifriction-roll 52, carried by the shifting-bar 41, thus pushing the shifting mechanism over in position to be struck by the other bottle-carrier and shifting the driving-belts.

In use power is being constantly applied to the driving-pulley 6 and the pulley 27 upon the shaft 24, the pulley 6 being driven at a low and the pulley 27 at a relatively high speed. With the parts as shown in Fig. 1 the bottle-carrier in normal position will be carried forward by its connected rack, the swabber passing inside the bottle, and the bottle abutting against the stop 35 of the valve-controlling mechanism. The continued forward movement of the carrier forces the valve-controlling mechanism forward in its bearings, opening the valve and allowing a stream of water to flow through the shaft 24 into the bottle, where it is swashed around by the swabber. The bottle-carrier in its forward movement also engages the belt-shifting mechanism, shifting the belts and oppositely actuating the gearing to return the bottle to normal position, the other bottle-carrier being carried forward and its bottle washed.

It will thus be seen that the shifting of the belts will cause the bottle-carriers to be alternately brought forward and returned to normal position, thus allowing the attendant to remove and replace the bottles without interfering with the operation of the machine.

I claim—

1. In a machine of the class described, the combination with the frame and the driving-shaft, of the reversing mechanism for said driving-shaft, the reciprocating carriers, actuated from said shaft, and the means carried by said carriers for tripping said reversing mechanism.

2. In a machine of the class described, the combination with the frame and the driving-shaft mounted thereon, of the bottle-carriers traveling in suitable guides adjacent thereto, the gear interposed between said shaft and carriers, and the mechanism actuated by said carriers for reversing the rotation of said shaft.

3. In a machine of the class described, the combination with the frame and the driving-shaft, of the reciprocating carriers actuated from said shaft, the mechanism actuated by said carriers to reverse the rotation of said shaft, and the means for locking said mechanism in set positions.

4. In a machine of the class described, the combination with the frame and the driving-shaft, of the reciprocating carriers actuated from said shaft, the mechanism actuated by said carriers to reverse the rotation of said shaft, the means for locking said mechanism in set positions and the means actuated by said carrier to release said shifting mechanism from locked position.

5. In a machine of the class described, the combination with the frame and the driving-shaft, of the reciprocating carriers actuated from said shaft, the shifting mechanism arranged between said carriers, and the projections upon said carriers adapted to engage said shifting mechanism to alternately reverse the rotation of said shaft in the operation of the machine.

6. In a machine of the class described, the combination with the frame, of the driving-shaft connected with a suitable source of power, the bottle-carriers traveling in suitable guides adjacent thereto, the gear connection between said shaft and carriers, the shifting mechanism arranged between said carriers, and the projections upon said carriers and longitudinally adjustable thereof, adapted to engage and operate said shifting mechanism to alternately reverse the rotation of said shaft.

7. In a machine of the class described, its driving-pulley, the idler-pulleys journaled one on each side of the driving-pulley, the pair of oppositely-running driving-belts arranged to run one upon the driving-pulley and the other upon the adjacent idler-pulley, the train of gear driven by said shaft, the pair of oppositely-reciprocating carriers driven by said gear, means for throwing said belts to bring them alternately upon the driving-pulley, and means carried by the carriers for actuating said belt-throwing mechanism.

8. In a machine of the class described, the

combination with the frame, and the driving-shaft mounted thereon, of the bottle-carriers traveling in suitable guides adjacent thereto, the gear connection between said shaft and carriers, the pipes arranged in line with the travel of said carriers, the valves arranged in said pipes, and the means adapted to be actuated by the carriers to open said valves.

9. In a machine of the class described, the combination with the frame, of the driving-shaft connected with a suitable source of power, the bottle-carriers traveling in suitable guides adjacent thereto, the operative connection between said shaft and carriers, the pipes arranged in line with the travel of said carriers and connected with a source of water supply, the valve arranged in each of said pipes, and the means actuated in the travel of said carriers for opening said valves

to permit the passage of a stream of water through said pipes.

10. In a machine of the class described, the combination with the frame, of the driving-shaft, the reciprocating carriers actuated from said shaft, the mechanism operated by said carriers to reverse the rotation of said shaft, the pipes arranged in line with the travel of said carriers and connected with a source of water supply, and the valve arranged in each of said pipes and adapted to be alternately opened and closed in the travel of said carriers.

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

FRANK HOUSKA.

Witnesses:

MINNIE L. THAUWALD,
H. S. JOHNSON.