J. W. DAWSON.

BOTTLE WASHING MACHINE.

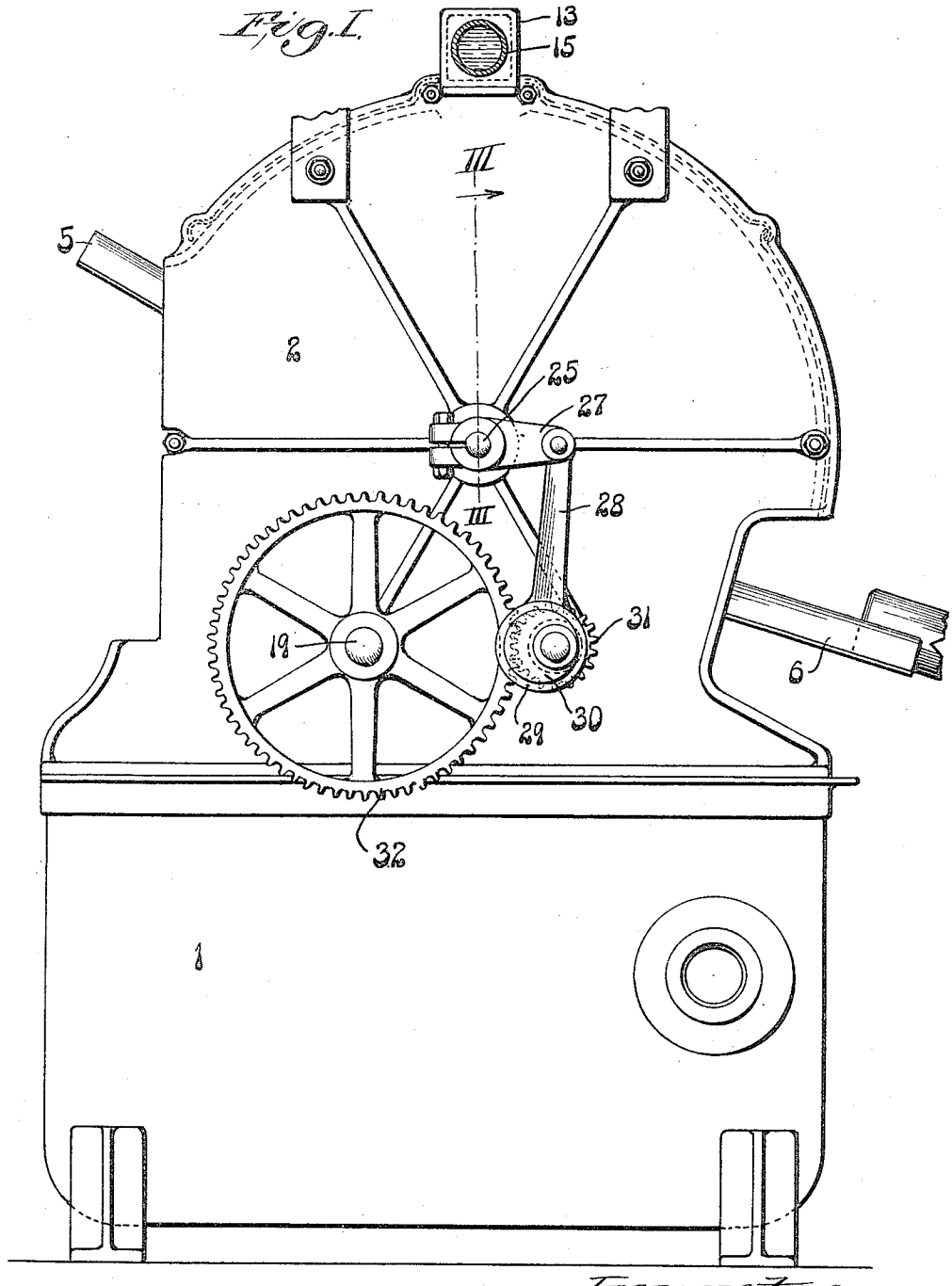
APPLICATION FILED MAY 24, 1915.

1,212,459.

Patented Jan. 16, 1917.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. II.

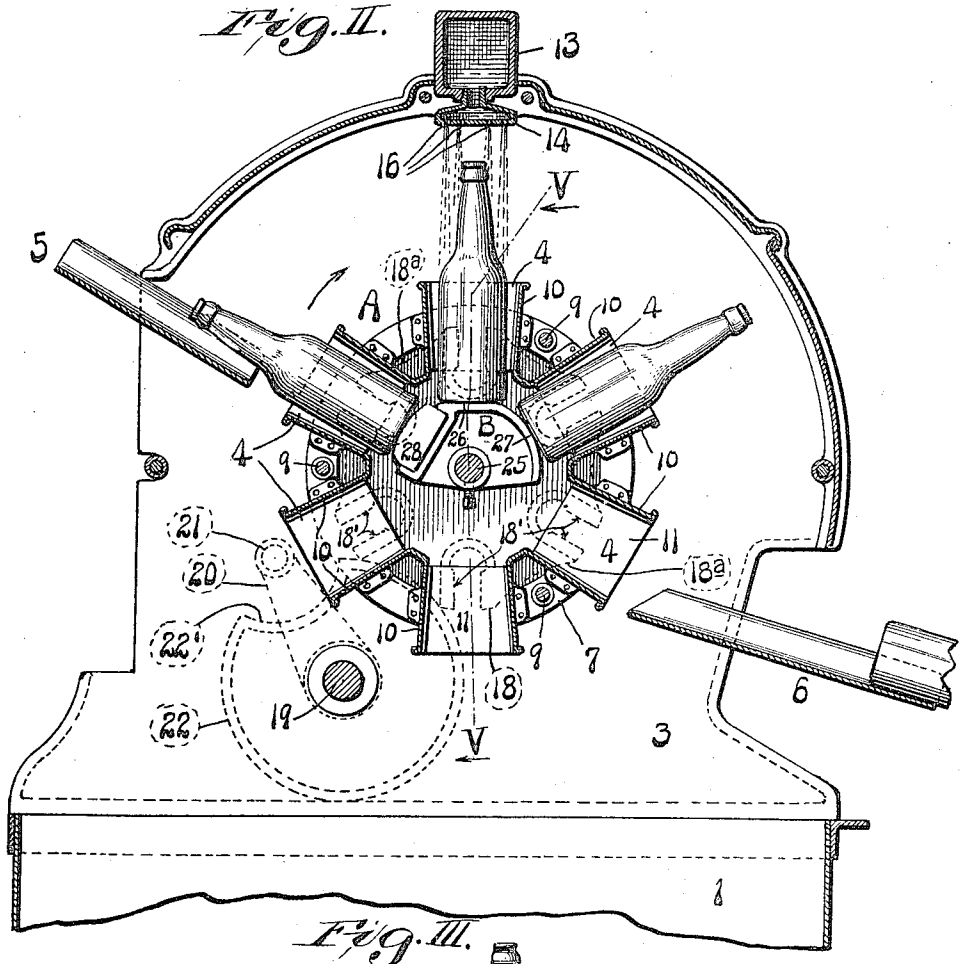
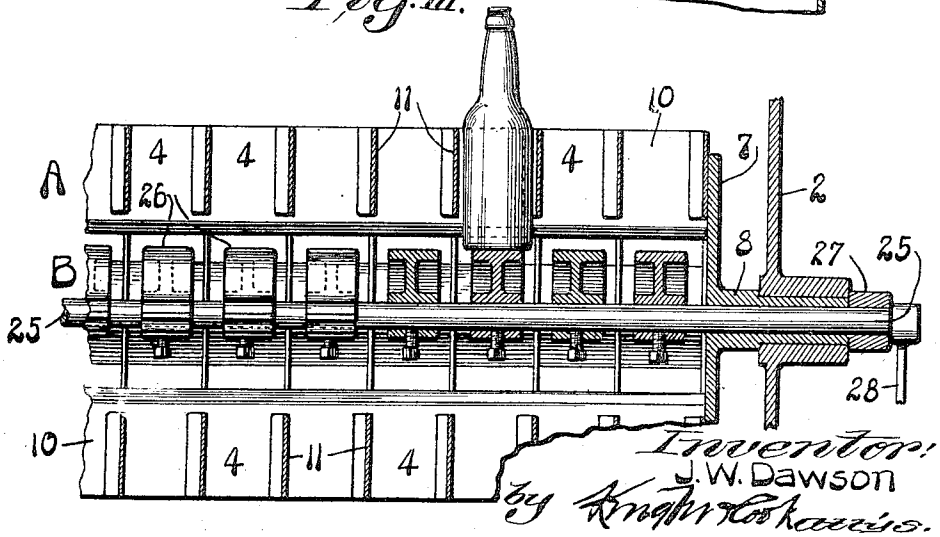


Fig. III.



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3 SHEETS—SHEET 3.

Fig. IV.

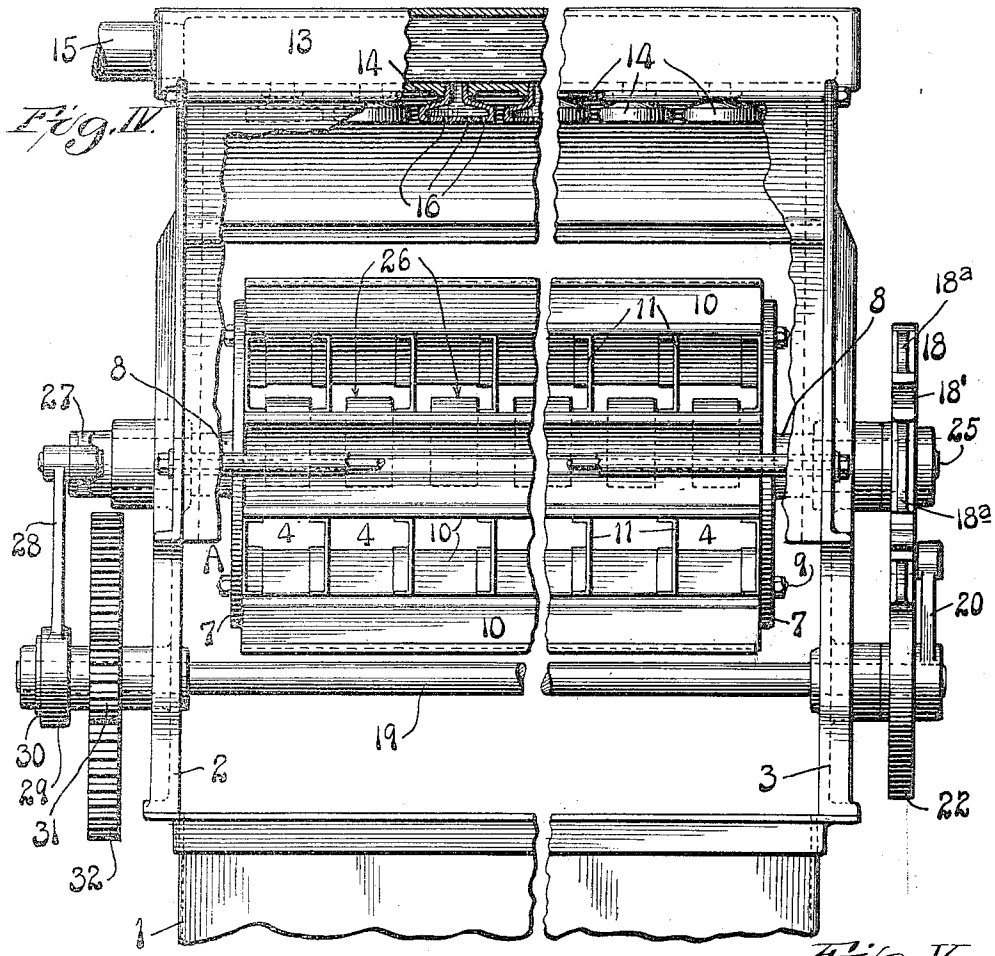


Fig. V.

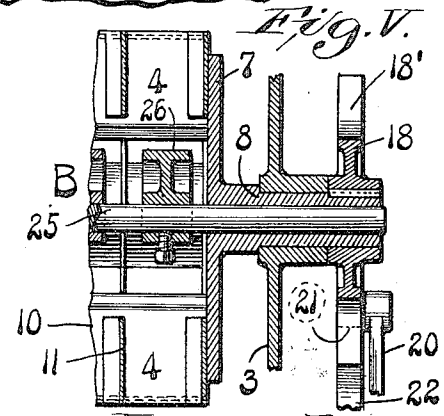
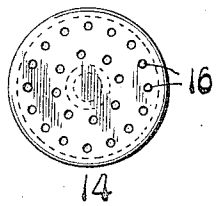


Fig. VI.



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UNITED STATES PATENT OFFICE.

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BOTTLE-WASHING MACHINE.

1,212,459. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed May 24, 1915. Serial No. 30,007.

To all whom it may concern:

Be it known that I, JOSEPH W. DAWSON, a citizen of the United States of America, a resident of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Bottle-Washing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in bottle washing machines, one of the principal objects being to produce a very simple and highly efficient means for washing the outer faces of bottles. Prior to this invention bottles have been carried through bottle soaking machines to loosen the dirt, labels, etc., and thereafter passed through brushing machines for the purpose of removing the loose labels and other matter adhering to their outer faces.

In accordance with the preferred form of my invention the outer faces of the bottles are subjected to the action of streams of water which remove the loose labels, etc., from the bottles. The machine is so constructed that it may be used as a substitute for the bottle brushing machines heretofore employed, the streams of water being directed onto the bottles with considerable force so as to positively remove all the matter adhering to the exterior of the bottles. The water discharging device is preferably associated with a bottle carrier, adapted to convey the bottles to the water discharging device so that the streams of water will strike the necks or upper portions of the bottles, and flow downwardly with considerable force throughout the outer faces of the bottles, thereby thoroughly washing the outer faces of the bottles and at the same time positively removing the labels and other matter which has been previously loosened by soaking the bottles in the bottle soaking machine.

Instead of concentrating the force of each stream at a given point throughout the washing operation, I provide means for changing the positions of the bottles with respect to the streams of water, so that each stream is discharged directly onto various different parts of a bottle, thereby subjecting each bottle to a very thorough cleansing action. To illustrate this feature of the invention I have shown a bottle moving device adapted to move the bottles continuously during the washing operation, thereby constantly changing the positions of the bottles with respect to the streams of water which strike the outer faces of the bottles.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

Figure I is a side elevation of a bottle washing machine, embodying the features of my invention. Fig. II is a vertical section taken through the upper portion of the machine shown in Fig. I. Fig. III is a vertical section taken approximately on the line III—III, Fig. I. Fig. IV is a fragmentary rear elevation, partly in section. Fig. V is a section taken approximately on the line V—V, Fig. II. Fig. VI is an enlarged inverted plan view of one of the water discharging members.

The machine I have shown to illustrate the preferred form of the invention comprises a tank 1, side plates 2 and 3 resting upon said tank and a bottle carrier A supported by said side plates. The bottle carrier is a rotatable device having bottle receiving pockets 4.

5 designates a runway for conducting bottles to the bottle carrier, and 6 designates a runway onto which the bottles are discharged after the washing operation.

The bottle carrier A comprises circular heads 7 each of which is provided with a central tubular journal 8. These journals 8 are rotatably mounted in the side plates 2 and 3.

9 designates tie rods connecting the heads 7.

The bottle receiving pockets 4 consist of sheet metal members 10 having their ends secured to the heads 7, and partition members 11 connecting said sheet metal members 10.

The water distributing device comprises a manifold 13, and a series of discharge members 14 communicating with said manifold.

15 designates a water supply pipe for conducting water to the manifold 13.

Each discharge member 14 is preferably provided with a series of discharge ports 16 for the discharge of water onto a bottle in one of the bottle receiving pockets. When the machine is in service, the bottle carrier moves step by step to carry the bottles to the water distributing device and each bottle is subjected to the action of streams of water, as indicated by dotted lines in Fig. II.

Instead of concentrating each stream of water at a given point on a bottle throughout the washing operation, I provide means for moving the bottles with respect to the bottle carrier, thereby exposing different parts of each bottle to the streams of water, as will be hereinafter described.

The means for operating the bottle carrier comprises a slotted wheel 18 located adjacent to the side plate 3 and fixed to one of the hollow journals 8, the latter being secured to the rotary bottle carrier. A constantly rotating power shaft 19, passing through the side plates 2 and 3, is provided at one end with a crank arm 20 having a crank pin 21. The slots 18′ formed in the slotted wheel 18 are adapted to receive the crank pin 21, Fig. II. The slotted wheel 18 is provided with a series of curved faces adapted to be engaged by a locking disk 22, the latter being fixed to the power shaft 19. When the parts occupy the position shown in Fig. II, the bottle carrier is locked by the disk 22 which engages one of the curved faces 18^a of the slotted wheel 18. When the crank pin 20 enters a slot 18′, the slotted wheel and the bottle carrier secured thereto partake of the movement of the power shaft, the disk 22 being notched at 22′ to permit such movement, and when the crank pin 21 passes from a slot 18′ the slotted wheel is again locked by engaging the rotating disk 22. The constantly rotating power shaft thus imparts an intermittent movement to the bottle carrier A, the latter moving step by step to carry the bottles from the runway 5 to the water distributing device and finally discharging the bottles onto runway 6. It is to be understood that the bottle carrier is at rest when the parts occupy the position shown in Fig. II.

The means for changing the relative positions of the bottles and the water discharging device preferably comprises a bottle supporting device B arranged within the rotary bottle carrier. This bottle supporting device includes a series of bottle seats fixed to a shaft 25, each of said seats having a flat face 26 upon which the bottles rest during the washing operation, and a curved face 27 over which the bottles travel after the washing operation.

28 designates abutment members fitted to the bottle supporting device and adapted to be engaged by the bottles when the latter are introduced into the bottle carrier. To prevent breakage, these abutments are preferably made of wood or some yielding material. The bottle receiving pockets 4 are open at their inner ends so that the bottoms of the bottles will engage and slide along the bottle supporting device B during the movement of the bottle carrier. The means for moving the bottle supporting device B comprises a crank arm 27 fixed to the shaft 25, an arm 28 depending from crank 27, said arm 28 being provided at its lower end with a band 29 which surrounds an eccentric 30. The eccentric is secured to a pinion 31 which meshes with a gear wheel 32, the latter being fixed to the constantly rotating power shaft 19. Obviously, the eccentric 30 is driven continuously with the result of oscillating the crank arm 27, thereby oscillating the bottle supporting device B which engages the bottoms of the bottles. The bottles are loosely arranged in the pockets 4 so that they may be oscillated by the bottle supporting device B which moves about the axis of shaft 25. The bottles located directly below the water discharging device are kept in constant motion for the purpose of exposing different parts of each bottle to the action of the streams of water. If the bottles were not placed in motion during the washing operation, the force of each stream would be concentrated at some particular point on the bottle, and the other points on the bottle would not be subjected to a thorough cleansing action. It is, therefore, a decided advantage to move the bottles while they are being subjected to the action of the streams of water. The dirt, labels, etc., discharged from the bottles pass through the bottle carrier with the water and fall into the tank 1.

I claim:—

1. A bottle washing machine comprising a bottle holder, a water discharging device adapted to discharge a stream of water onto the bottle at said bottle holder, a shaft supporting a portion of said bottle holder, and means for turning said shaft to tilt said bottle portion of the holder thereby exposing different parts of the bottle to said stream of water.

2. A bottle washing machine comprising a bottle holder, a water discharging device adapted to discharge a stream of water onto the bottle at said bottle holder, and means for oscillating a portion of said bottle holder to expose different parts of the bottle to said stream of water.

3. A bottle washing machine comprising a bottle carrier having bottle receiving pockets which are open at their inner ends, a bottle supporting device forming seats for the bottles confined by said bottle receiving pockets, a water discharging device ar-

ranged above said bottle carrier and above said bottle supporting device, said water discharging device being adapted to discharge streams of water onto the bottles, and means for moving said bottle supporting device to expose different parts of the bottles to said streams of water.

4. A bottle washing machine comprising a bottle carrier having bottle receiving pockets which are open at their inner ends, a bottle supporting device forming seats for the bottles confined by said bottle receiving pockets, a water discharging device arranged above said bottle carrier and above said bottle supporting device, said water discharging device being adapted to discharge streams of water onto the bottles, means for operating said bottle carrier intermittently to conduct the bottles along said bottle supporting device, and means for operating said bottle supporting device while the bottle carrier is at rest so as to move bottles confined by said pockets, thereby exposing different parts of each bottle to the streams of water.

5. A bottle washing machine comprising a rotary bottle carrier having bottle receiving members which are open at their inner ends, a bottle seat within said bottle carrier, a water discharging device adapted to discharge streams of water onto the bottles in said bottle carrier, and means for operating said bottle seat to move the bottles independently of the carrier, thereby exposing different parts of the bottles to the streams of water.

6. A bottle washing machine comprising a rotary bottle carrier having bottle receiving members which are open at their inner ends, a bottle tilting device arranged within said bottle carrier, said bottle tilting device being movable about the axis of said bottle carrier, a washing device adapted to discharge streams of water onto the bottles, and means for operating said bottle tilting device during the washing operation.

7. A bottle washing machine comprising a bottle carrier having bottle receiving members, which are open at their inner ends, a washing device adapted to discharge streams of water onto the bottles in said bottle carrier, a bottle supporting device within said bottle carrier, said bottle supporting device being provided with abutments adapted to be engaged by the bottoms of the bottles when the latter are introduced into said bottle receiving members and also provided with seats upon which the bottles rest during the washing operation, and means for moving said bottle supporting device to move the bottles in said bottle receiving members during the washing operation.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."