R. L. GALLUP & W. G. WACHS.

BOTTLE WASHING MACHINE.

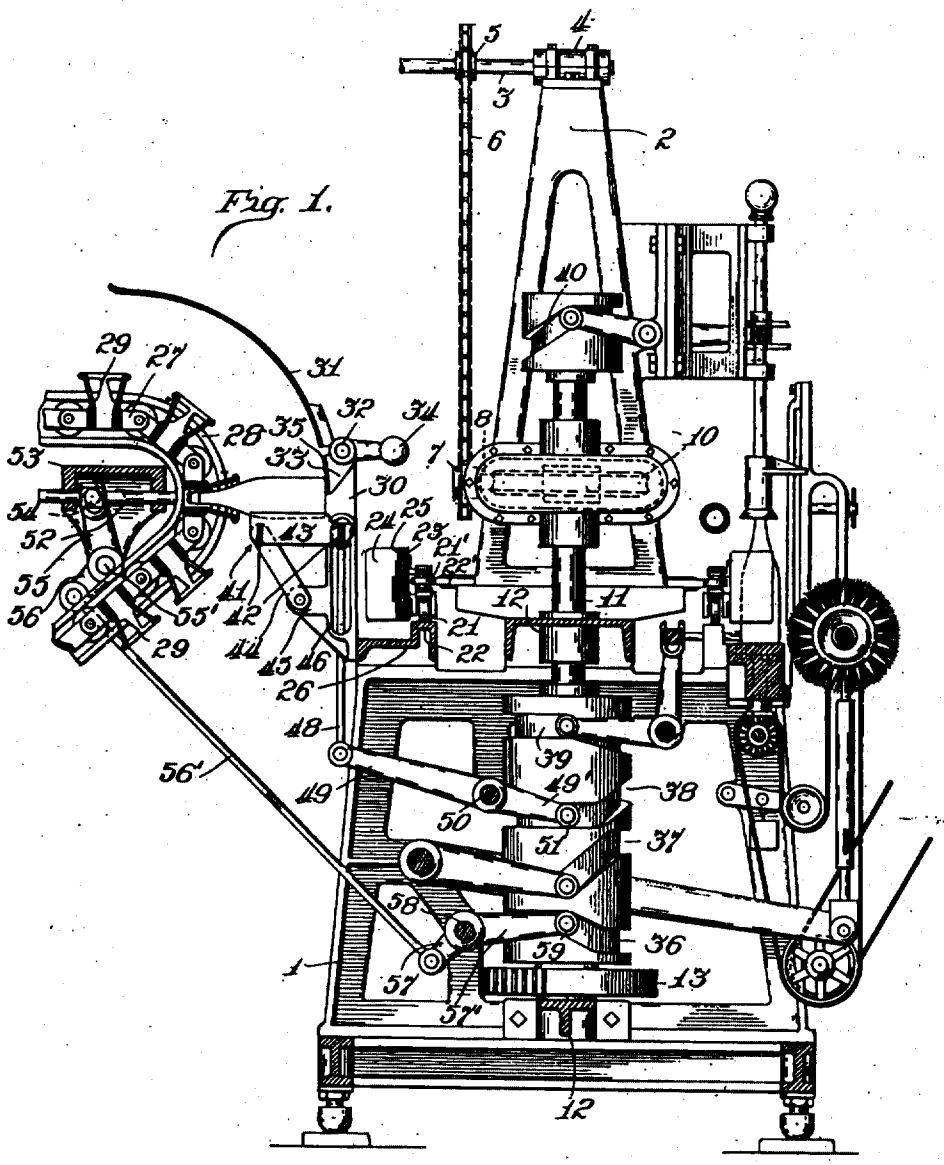
APPLICATION FILED OCT. 27, 1917.

1,276,898.

Patented Aug. 27, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



Inventors

Rockwell L. Gallup and

Walter G. Wachs,

by Wm. O. Belt

Attorney

R. L. GALLUP & W. G. WACHS.

BOTTLE WASHING MACHINE.

APPLICATION FILED OCT. 27, 1917.

1,276,898.

Patented Aug. 27, 1918.

2 SHEETS—SHEET 2.

Fig. 3.

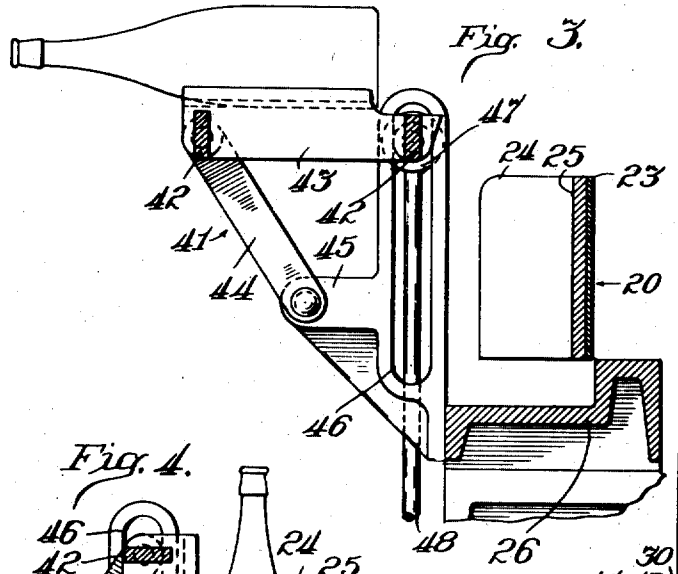


Fig. 4.

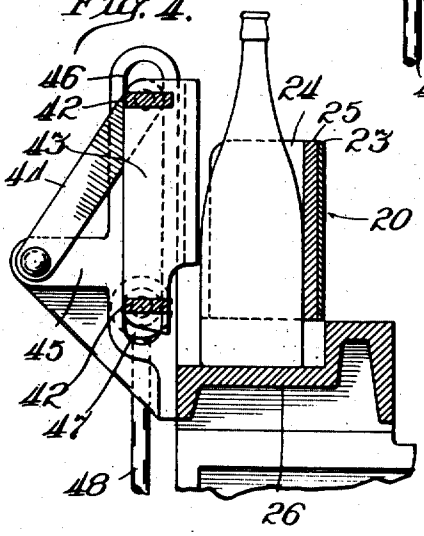


Fig. 5.

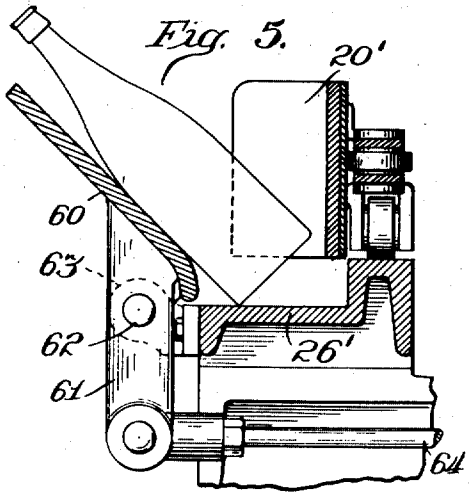
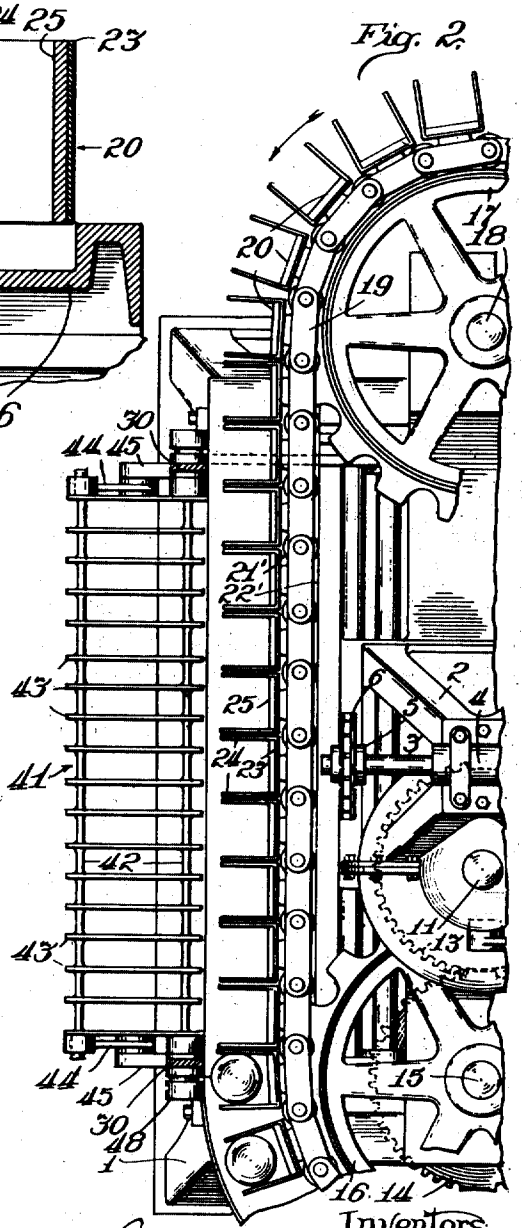


Fig. 2.



Inventors

Rockwell L. Gallup and

Walter G. Wachs.

Wm. O. Belt

Attorney

UNITED STATES PATENT OFFICE.

ROCKWELL L. GALLUP AND WALTER G. WACHS, OF CHICAGO, ILLINOIS, ASSIGNORS TO BARRY-WEHMILLER MACHINERY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

BOTTLE-WASHING MACHINE.

1,276,898. Specification of Letters Patent. Patented Aug. 27, 1918.

Original application filed January 2, 1915, Serial No. 131. Divided and this application filed October 27, 1917. Serial No. 198,753.

To all whom it may concern:

Be it known that we, ROCKWELL L. GALLUP and WALTER G. WACHS, citizens of the United States, both residing at Chicago, in the county of Cook and State of Illinois, have jointly invented certain new and useful Improvements in Bottle-Washing Machines, of which the following is a specification.

This invention relates to a bottle washing machine and more particularly to bottle handling mechanism associated therewith, the present application being a division of our application Serial No. 131 filed January 2, 1915 for improvements in bottle washing machines.

The object of the present invention is the provision of means to receive the bottles from a conveyer in which they are supported in inverted position and to deliver them to another conveyer in upright position resting upon their bottoms.

Further objects and advantages of my invention will be apparent as it is better understood by reference to the following specification when read in connection with the accompanying drawing illustrating the preferred embodiment thereof in which—

Figure 1 is a transverse sectional view through a machine embodying our invention;

Fig. 2 is a plan view of a portion of the machine;

Fig. 3 is an enlarged detail in section illustrating the mechanism for receiving and deposited bottles in the machine;

Fig. 4 is a similar view illustrating another position of the parts, and

Fig. 5 is an enlarged sectional view illustrating a slightly modified form of the mechanism for receiving and depositing bottles in the machine.

Referring to the drawing 1 indicates a suitable frame adapted to support the mechanism. The frame is provided at its center with an upwardly extending portion 2 of pyramidal or other suitable form. One end of a shaft 3 is mounted in a bearing 4 at the upper end of the extension 2. The shaft 3 is adapted to be driven from any suitable source of power. A sprocket 5 on the shaft 3 is connected by a chain 6 or other suitable driving mechanism with a sprocket 7 on a shaft 8 (Fig. 1). The shaft 8 is provided with a worm meshing with a worm gear 10 secured to a vertical cam shaft 11. The shaft 11 is journaled in suitable bearings 12 in the frame 1 and is provided with a plurality of cam tracks 36, 37, 38, 39 and 40 which coöperate with suitable mechanism presently to be described for operating the various parts of the mechanism as the shaft 11 is rotated.

Secured to the lower end of the cam shaft 11 is a mutilated gear 13 which engages a mutilated gear 14 secured to a vertical shaft 15 suitably journaled in the frame 1. The gear 13 is provided with teeth on one half only of its circumference the remaining portion of the circumference being finished to the pitch circle of the gear. The gear 14 is provided on each half of its circumference with a number of teeth equal to the number of teeth on the gear 13, but between each set of teeth a space is allowed in which the blank portion of the gear 13 is adapted to slide during one half of a revolution thereof until the teeth thereon again engage the teeth of the gear 14. It will be understood that we have provided means whereby upon a half revolution of the shaft 11 and its gear 13 the gear 14 and the shaft 15 are rotated through one-half of a revolution, after which the gear 14 and the shaft 15 remain idle while the gear 13 completes its revolution. Upon reëngagement of the teeth of the gear 13 with the teeth of the gear 14, the gear 14 is driven through another half revolution which is followed by another idle period. We have thus provided for intermittent rotation of the shaft 15 from the constantly rotating shaft 11.

Upon the upper end of the shaft 15 a sprocket 16 is secured and a similar sprocket 17 is mounted on a stub shaft 18 journaled in suitable bearings at the other end of the machine. A chain conveyer 19, provided with a plurality of members 20 forming pockets each adapted to contain a single bottle, is disposed about the sprockets 16 and 17 and adapted to be driven by the sprocket 16 in the direction indicated by the arrow in Fig. 2. The conveyer 19 is provided at intervals with anti-friction rollers 21 which run on suitable tracks 22 on the frame 1 of the machine. Rollers 21′ are

also provided to engage with tracks 22′ between the sprockets 16 and 17 to hold the chain conveyer 19 and the members 20 in proper alinement.

The pockets 20 comprise a back plate 23 and side plates 24 integral therewith or secured thereto, the back plates 23 being secured in any suitable manner to the chain conveyer 19. Plates 25 of wood or other suitable material adapted to prevent breakage of the bottles, are secured to the plates 23. Beneath the members 20 and extending nearly or wholly around the machine is a suitable shelf 26 carried by the frame 1 and adapted to support the bottles as they are moved through the machine by the chain conveyer 19 and the members 20.

The bottles are delivered to the machine from a bottle carrier 27 traveling in tracks 28 and carrying bottle holders 29. This carrier is of sufficient width to carry a plurality of bottles, for example nine, in alinement transversely of the machine and may be the carrier of a bottle washing apparatus disclosed in Patent No. 1,161,468 granted on November 23, 1915 to Rockwell L. Gallup, or the carrier may be one which is fed by hand at any suitable distant point and adapted merely to deliver bottles to the present machine.

Upon brackets 30 secured to the frame 1 a shield 31 is mounted which is adapted to prevent bottles from falling from the holders 29. A shaft 32 is mounted in the brackets 30 and the plurality of bell-crank levers 33 having weighted ends 34 are loosely mounted on the shaft 32. The opposite ends of the bell-crank levers 33 are disposed to engage the bottoms of the bottles as they are delivered to the machine and are provided with pads 35 of rubber or other suitable material.

The bottle-receiving mechanism consists of a shelf 41 comprising a pair of longitudinal members 42 (Figs. 3 and 4) and transverse members 43 secured thereto and adapted to receive and center the bottles and to prevent sidewise movement thereof. The shelf 41 is pivotally mounted through links 44 on extensions 45 of the brackets 30. The brackets 30 are provided with slots 46 and the shelf 41 is provided at either end adjacent its inner side with rollers 47 rotatably mounted thereon and adapted to move in the slots 46. Links 48 connect the inner side of the shelf 41 with levers 49 (Fig. 1) secured to a shaft 50 journaled in the frame 1. A lever 49′ is secured to the shaft 50 and provided with a roller 51 which coöperates with the cam slot 38, whereby, as the shaft 11 is rotated, the link 48 will be reciprocated and will move the shelf 41 from the position indicated in Fig. 3 of the drawing to the position indicated in Fig. 4. The bottles on the shelf 41 are thereby disposed on the shelf 26 between the side walls 24 of the pocket 20 in position to be moved through the machine by the chain conveyer 19.

To free the bottles from the bottle carrier 27 I have provided means to positively force the bottles from the holders 29 when the bottles are disposed in proper relation to the shelf 41. This means comprises a plurality of plungers 52 (Fig. 1) mounted in a suitable supporting means 53 and secured to a transversely extending rod 54. A pair of levers 55 secured to the shaft 55′ operatively engage the rod 54 and levers 56 secured to the shaft 55′ are connected by links 56 to levers 57, secured to a shaft 58 journaled in the frame 1. A lever 57′ is secured to the shaft 58 and is provided with a roller 59 cooperating with the cam slot 36. It will be understood that as the shaft 11 is rotated the plungers 52 will be operated to force the bottles in the bottle holders 29 forwardly upon the shelf 41. The bell-crank levers 33 engage the bottoms of the bottles as they are forced from the bottle holders 29 and prevent overthrow thereof. The conveyer 29 is advanced intermittently by any suitable mechanism and the cam slots 36 and 38 are timed to operate the plungers 52 when the shelf 41 is in proper position to receive bottles and when a flow of bottle holders 29 is disposed in front of the plungers 52 in position to deliver the bottles to the shelf 41.

As has been previously explained the chain conveyer 19 is intermittently moved forwardly a distance equal to approximately one-half the circumference of the sprocket 16 at each complete revolution of the constantly moving shaft 11 and the sprocket 16 and the chain conveyer 19 remain idle during one-half of a revolution of the shaft 11 following each forward movement. The gears 13 and 14 are timed with respect to the cam slots 36 and 38 so that when a row of bottles is disposed by the carrier 27 in position for delivery to the machine the plungers 52 will first be operated to force the bottles onto the shaft 41, the shelf 41 will be moved into position shown in Fig. 5 to deposit the bottles in pockets 20 and the chain conveyer 19 will then be advanced to remove the bottles. The circumference of the sprocket 16 is such that a half revolution thereof will move the chain conveyer 19 a distance sufficient to carry the row of bottles beyond the shelf 41 and to dispose a new set of empty pockets in position to receive the next row of bottles, as indicated in Fig. 2. The operation of this portion of the machine is then repeated. The bottles will be moved by the intermittent actuation of the conveyer 19 along the shelf 26 until they are disposed on the side of the machine opposite the bottle receiving side where they are subjected to bottle brushing operation.

The mechanism for brushing the bottles

forms no part of the present invention being covered in the application of which the present application is a division. This mechanism is accordingly not described herein.

In Fig. 5 of the drawing I have shown a slightly different form of bottle receiving mechanism adapted for use in connection with a bottle carrier such as the carrier 27 of Fig 1. In the use of this form of our invention the bottles are allowed to fall by gravity from the holders 29 upon an inclined shelf 60 secured to a lever 61 pivotally mounted at 62 on a bracket 63 secured to the frame of the machine. As the bottles are delivered their bottom edges rest on the shelf 26, each bottle being disposed in one of the pockets 20'. A link 64 connects the end of the lever 61 to a suitable cam operating mechanism not shown to swing the lever 61 about its pivot at suitable intervals moving the shelf 60 to vertical position to right the bottles on the shelf 26'.

It will be understood that various changes may be made in the form proportions and arrangements of the parts without departing from the spirit and scope of the invention or sacrificing any of its material advantages the forms hereinbefore described being merely preferred embodiments thereof.

I claim:

1. In a machine of the character described, the combination of a support, a shelf adapted to receive a plurality of bottles in reclining position, links pivotally connecting one side of said shelf to said support, the other side of said shelf being slidably mounted in said support, whereby the shelf may be moved from horizontal to vertical position, and means for moving said shelf to vertical position to right the bottles disposed thereon.

2. In a machine of the character described, the combination of a support, a shelf adapted to receive a plurality of bottles in reclining position, including means to prevent lateral displacement of the bottles, links pivotally connecting one side of said shelf to said support, slotted guides in said support, the other side of said shelf having means slidably mounted in said slotted guides, whereby the shelf may be moved from horizontal to vertical position, and means for moving said shelf to vertical position to right the bottles disposed thereon.

3. In a machine of the character described, the combination of a bottle carrier adapted to support a plurality of bottles, a shelf in juxtaposition therewith and adapted to receive the bottles therefrom, automatic means for forcing the bottles from said carrier onto said shelf, weighted levers adapted to contact with the ends of the bottles to prevent overthrow thereof as they are forced from said carrier, a bottle conveyer, and automatic means for actuating said shelf to dispose the bottles in upright position in said conveyer.

4. In a machine of the character described, the combination of a support, a shelf adapted to receive a plurality of bottles in reclining position, links pivotally connecting one side of said shelf to said support, the other side of said shelf being slidably mounted in said support, a vertical shaft, a conveyer having a plurality of pockets and movable in a horizontal plane about said shaft and means operatively connected to said shaft and to the slidably mounted side of said shelf to cause the latter to deliver the bottles therefrom to said pockets.

5. In a machine of the character described, the combination of a support, a shelf movably mounted upon the support to receive a plurality of bottles in horizontal position and having one edge constrained to move in a vertical plane while the shelf bodily tilts, and means for operating said shelf to deliver the bottles therefrom.

6. In a machine of the character described the combination of a bottle conveyer comprising a fixed shelf and a chain movable thereabout and having a plurality of pockets vertically disposed above the shelf, a movable shelf horizontally disposed above the fixed shelf and at the side thereof opposite said pockets, said movable shelf being adapted to receive a plurality of bottles in horizontal position and having its inner edge constrained to move in a vertical plane while the shelf bodily tilts, and means for operating said shelf to deliver the bottles therefrom into upright position in said conveyer.

7. In a machine of the character described, the combination of a bottle conveyer comprising a fixed shelf and a chain movable thereabout and having a plurality of pockets vertically disposed above the shelf, a movable shelf horizontally disposed above the fixed shelf and at the side thereof opposite said pockets, the edge of said movable shelf adjacent said conveyer being constrained to move in a vertical plane while the shelf bodily tilts, a carrier adapted to support a plurality of bottles, and located adjacent said movable shelf on the side thereof opposite the conveyer, ejector means arranged to deliver the bottles from said carrier in horizontal position on said movable shelf, and means for operating said shelf to deliver bottles therefrom into said conveyer.

ROCKWELL L. GALLUP.
WALTER G. WACHS.

Witnesses:
WM. O. BELT,
M. A. KIDDIE.