E. R. ALLING AND F. F. WOLF.

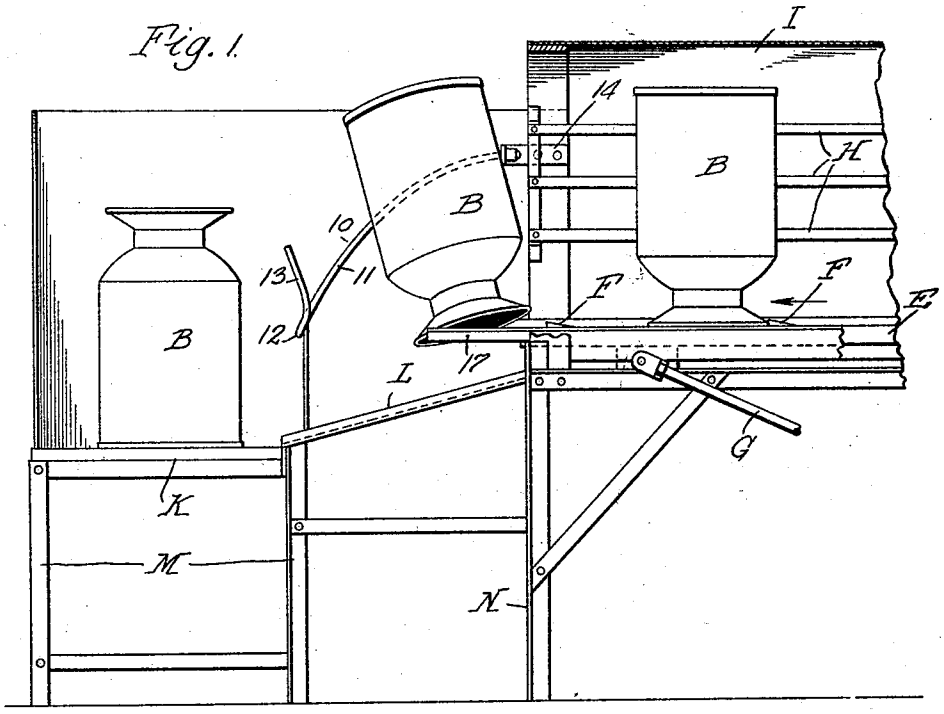
CAN INVERTING DEVICE FOR CAN WASHING MACHINES AND THE LIKE.

APPLICATION FILED DEC. 31, 1921.

1,421,056. **Patented June 27, 1922.**

2 SHEETS—SHEET 1.

Fig. 1.



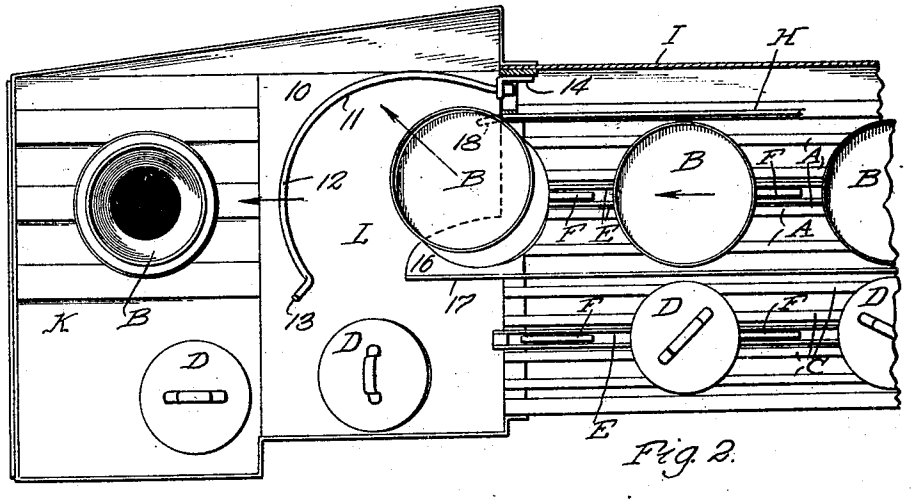


Fig. 2.

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2 SHEETS—SHEET 2.

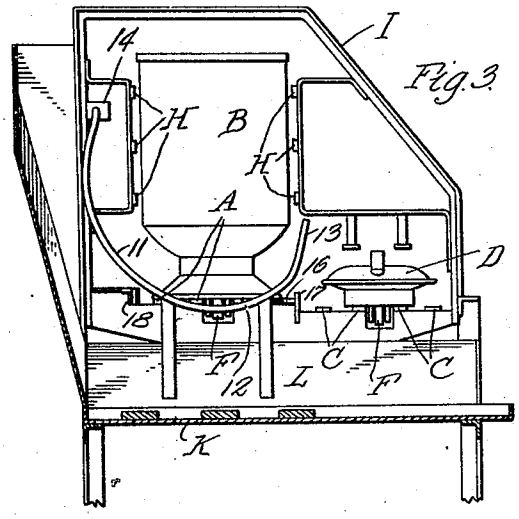


Fig. 3.

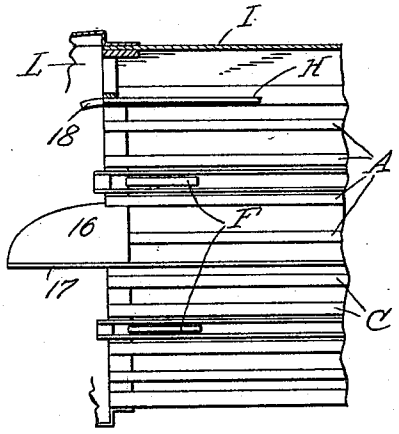


Fig. 4.

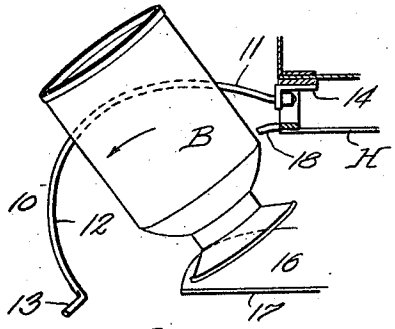


Fig. 5.

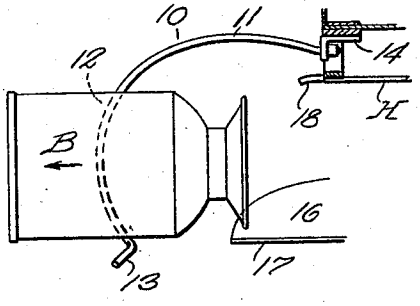
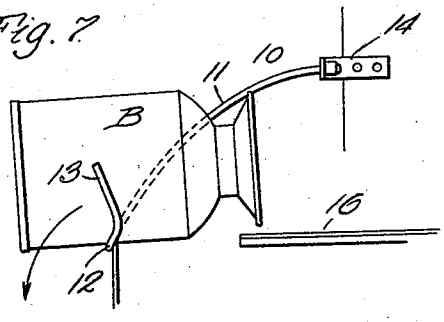


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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CAN-INVERTING DEVICE FOR CAN-WASHING MACHINES AND THE LIKE.

1,421,056. Specification of Letters Patent. Patented June 27, 1922.

Application filed December 31, 1921. Serial No. 526,237.

To all whom it may concern:

Be it known that we, EDWARD ROY ALLING and FRANK F. WOLF, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Can-Inverting Devices for Can-Washing Machines and the like, of which the following is a specification.

This invention relates to washing machines, such for example, as are used for washing milk cans or the like, in which the cans are moved with their mouths downward past fluid discharge or cleaning devices by means of which the cans are cleansed, and more particularly to improvements in means for reversing the cans or turning them from inverted position to an upright position as they are discharged from the machine so that they rest upon their bottoms.

Heretofore, it has been proposed to provide apparatus for turning the cans so as to discharge them from the machine with their bottoms downward in order that the interiors of the cans can be readily inspected to determine if they are thoroughly cleansed, and to permit the covers to be placed thereon, but the means heretofore proposed have either subjected the cans to a sudden and more or less violent somersaulting action with resultant objectionable noise and damage to the cans, or have been relatively complicated and expensive to provide, or in other cases have taken up considerable room or floor space.

The objects of this invention are to provide improved can-reversing and discharging means of very simple construction and which requires a minimum of room in which to turn the cans; and also to provide means of the type set forth which effectually and gently invert the cans as they are discharged from the washing machine without denting or injuring the cans, and with the minimum of noise. Further objects are to provide improvements in can-inverting means for can washing machines in the other respects hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevation partly in section, of the discharge end of a can washing machine embodying the invention.

Fig. 2 is a sectional plan view thereof.

Fig. 3 is an end view thereof, partly in section.

Fig. 4 is a sectional plan view of the discharge end of the can track and conveyor.

Figs. 5 and 6 are plan views of the can reversing device illustrating different successive positions of a can being reversed.

Fig. 7 is a side elevation thereof showing the same position of the can as Fig. 6.

Can washing machines embodying this invention usually, though not necessarily, include conveyors or means for moving the cans through the machine. In the machine illustrated, A designates spaced longitudinal rails upon which the inverted cans B are slid through the machine and C designates spaced rails on which the can lids or covers D are moved. E designates reciprocating pusher bars which carry a suitable number of can-engaging dogs F, one of these pusher bars being adapted to move the cans and the other to propel the lids through the machine. Reciprocatory motion is imparted to the pusher bars E by a pitman G or other means connected to any suitable source of power (not shown). H designates longitudinal, side, guide rails for the cans and I is a casing or hood through which the cans pass in being washed. K designates a discharge platform on which the cans are deposited on their bottoms as illustrated in Fig. 1, and L is an apron or incline connecting the discharge platform to the discharge end of the machine. M and N designate legs or supports for the discharge platform and machine respectively. The discharge platform is located below the level of the tracks A and C. These hereinbefore described features are known in the art. The invention generally stated, comprises means for gently tipping and guiding and lowering the can from an inverted upright position, first to a recumbent position as they are moved out of the discharge end of the washing machine, and thence causing the cans to assume upright positions with their mouths uppermost where they may be readily inspected.

According to this invention, there is provided at the discharge end of the machine, a can-inverting arm or member having a downwardly and laterally curved guiding part and a transverse portion on which the

cans are turned up to upright position. The can engages the guiding portion as it is moved out of the discharge end of the machine, which guiding portion first engages the can at a point above the center of mass of the can and is so formed as to permit the can to gradually move of its own weight to a recumbent position, in which position the can will pivot on the transverse portion of the inverting arm or member at a point about at, or below the center of mass of the can. From this position, the can, by reason of the momentum gained in its gradual movement to recumbent position, and the weight of its overhanging portion, overbalances and falls to an upright position on the discharge platform.

In the machine illustrated, 10 designates the can-inverting arm, which may be constructed of a suitable metal rod, bar or the like, and which is preferably provided with a longitudinal downwardly and laterally extending or inclined portion 11, and a transverse curved or arcuate portion 12, which terminates in an upwardly and outwardly extending end portion 13. The inverting arm 10 is rigidly connected to the machine by any suitable means. For example, in the construction illustrated, the inner end of the arm 10 is secured in a bracket 14 which is riveted or otherwise secured to the casing I.

As shown in Figs. 1 and 5, the first movement of the can in the process of inversion or return to upright position should be a forward and lateral tilting of the can, as it is discharged from the machine by the last can-engaging dog F over against the downwardly extending portion 11 of the inverting arm, from which position the can will gradually slide or roll to the recumbent position shown in Fig. 6. Any suitable means may be employed to effect this tilting of the cans, for example, the preferred means illustrated for accomplishing this object comprises a substantially horizontal extension 16 at that side of the can-supporting track A farthest from the inverting arm 10, and which receives and supports the adjacent edge of the can mouth as the can is discharged from the tracks. As the can is moved outwardly on this extension 16 of its supporting track, the opposite edge of its mouth is unsupported and the can tilts in the direction of the arrow, Fig. 2, until, as hereinbefore described, it engages the inverting arm 10 and slides thereon to a recumbent position. This extension 16 preferably comprises a flat metal plate which is rigidly secured to the frame or track and which has an upturned edge or flange 17 for preventing the can from slipping off of the extension away from the inverting arm. As the can rolls down the inclined portion of the arm 10, it gradually swings around to the position shown in Figs. 6 and 7, in which it extends lengthwise of the machine with its bottom projecting out over the transverse portion 12 of the arm 10, in which position its further lateral movement is arrested by the engagement of the can with the upturned, outer end 13 of the arm. The heavy bottom end of the can will then tilt downwardly over the part 12 of the arm, as indicated by the arrow in Fig. 7, and the can will drop down and rest on its bottom on the receiving platform.

In order to prevent lateral shifting of the can by reason of which the mouth of the can might become disengaged from the plate 16 so as to permit the can to drop down upon the apron and not be inverted, a guide finger or the like is positioned to engage the side of the can opposite to the plate 16 and to prevent any excessive shifting of the mouth of the can in that direction. In the preferred form illustrated, this member comprises a finger 18 fixed to and projecting a short distance outwardly from the frame at the side of the track opposite to the plate 16. In case the can shifts inwardly on the plate 16 the finger 18 engages the neck or shoulder of the can and ensures that the can will properly tilt to engage the inverting arm.

The change from the laterally and downwardly sliding or rolling movement, which change occurs when the can assumes a recumbent position and starts to swing or turn over to upright position on the discharge platform, results in the first part of the movement from recumbent to upright position being relatively slow and gradual. As the can approaches an upright position it slides bottom foremost upon the receiving platform. As the cans are subjected to severe handling while resting upon their bottoms when in use and are reinforced and strengthened, with this in mind, it is not necessary that this last portion of the inverting movement be designed with any particular view to restraining the descent to upright position, as is necessary and provided herein when the can is supported or rests upon its mouth or sides, but it is contemplated in order to prevent undue noise that the discharge platform may be cushioned with any suitable padding or resilient material.

We claim as our invention:

1. In a can washing machine having a track along which cans are moved on end through said machine, the combination of a transverse member spaced from the discharge end of said track and adapted to support a can while in a recumbent position and to permit said can to turn thereon to an upright position, and downwardly and laterally curved guiding means for supporting the upper end of a can moving from said

end of said track and guiding said can to a recumbent position on said transverse member.

2. In a can washing machine, the combination of means for supporting cans in upright position while they are passing through said machine, said means having one side portion thereof broken away at one end whereby cans discharging therefrom will be tilted to initiate movements of said cans toward recumbent positions, means extending transversely of the path of travel of said cans for engaging said cans when they are in recumbent positions and permitting said cans to turn thereon to assume inverted upright positions, and means positioned to engage the upper portions of cans tilted on said supporting means and to guide said cans to recumbent positions on said transverse can-engaging means.

3. In a can washing machine, in combination, means for supporting an edge of a can as it is moved on end out of said machine and permitting said can to tilt in a direction away from said means, a guide member positioned to engage said can as it tilts away from said means and along which said can slides to a substantially recumbent position, said guide member having a transverse portion on which said can pivots to assume an upright position.

4. In a can washing machine, in combination, means for supporting an edge of a can as it is moved on end out of said machine and permitting said can to tilt in a direction away from said means, a can-inverting member having a portion positioned to engage said can above its center as it is tilted away from said means, and a portion positioned to engage the can beneath its center when said can assumes a recumbent position.

5. In a can washing machine, in combination, means for supporting an edge of a can as it is moved on end out of said machine and permitting said can to tilt in a direction away from said means, a can-inverting arm having a downwardly and laterally extending portion for engaging a side of said can above the mid-length of the can when said can is tilted and guiding said can to a recumbent position, and a transverse portion providing a pivot at approximately the mid-length of said can when said can is in a recumbent position to permit said can to turn thereon to assume an upright position.

6. In a can washing machine, in combination, means for supporting an edge of a can as it is moved on end out of said machine and permitting said can to tilt in a direction away from said means, a can-inverting arm extending from a position a distance from said can edge supporting means to engage cans tilted thereon above their mid-lengths to a position adjacent the horizontal plane of said supporting means and closer to the center of cans tilted thereon, and a transverse pivot for said cans closer to said can-supporting means and upon which said cans turn to assume upright position.

7. In a can washing or the like machine, in combination, a track along which the cans are moved on end and from one end of which they discharge, a can-inverting arm which curves downwardly and laterally from a point at one side of and above said track and has a transversely extending portion located beyond the discharge end of said track, a portion of the discharge end of said track at the side thereof adjacent said inverting arm being removed whereby the cans are caused to tilt over against said arm and slide downwardly along the curved portion of the arm and fall end downward over the transverse portion of the arm.

8. In a can washing or the like machine, in combination, a track along which the cans are moved on end and from one end of which they discharge, a can-inverting arm which curves downwardly and laterally from a point at one side of and above said track and has a transversely extending downwardly bent portion with an upturned end located beyond the discharge end of said track, a portion of the discharge end of said track at the side thereof adjacent said inverting arm being removed whereby the cans are caused to tilt over against said arm and slide downwardly along the curved portion of the arm and fall end downward over the transverse portion of the arm.

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