March 22, 1932. C. H. AYARS 1,850,067

CAN WASHING AND FEEDING MECHANISM

Filed Oct. 14, 1930 4 Sheets-Sheet 1

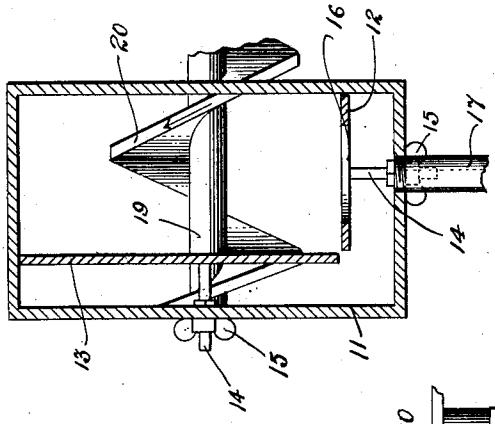


Fig. 6.

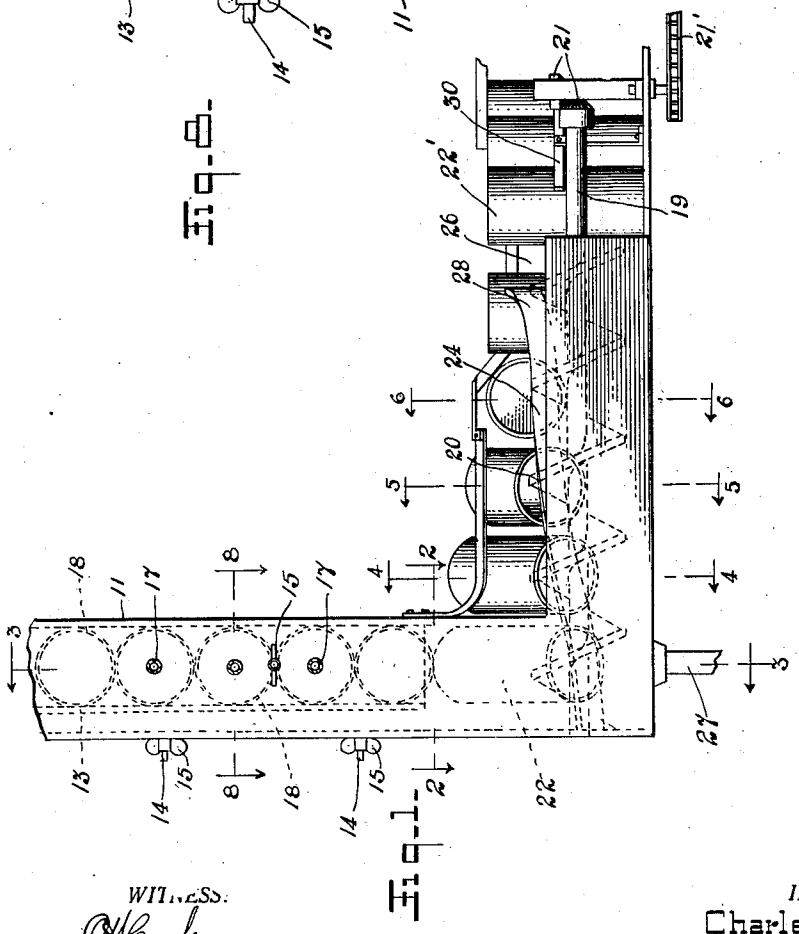


Fig. 1.

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CAN WASHING AND FEEDING MECHANISM

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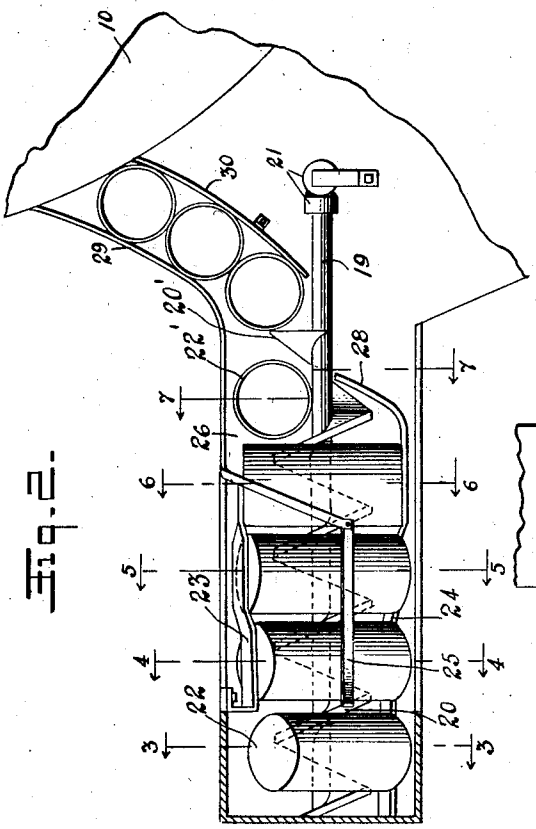


Fig. 2.

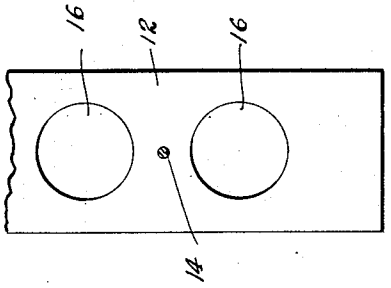


Fig. 5.

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CAN WASHING AND FEEDING MECHANISM

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Fig. 3.

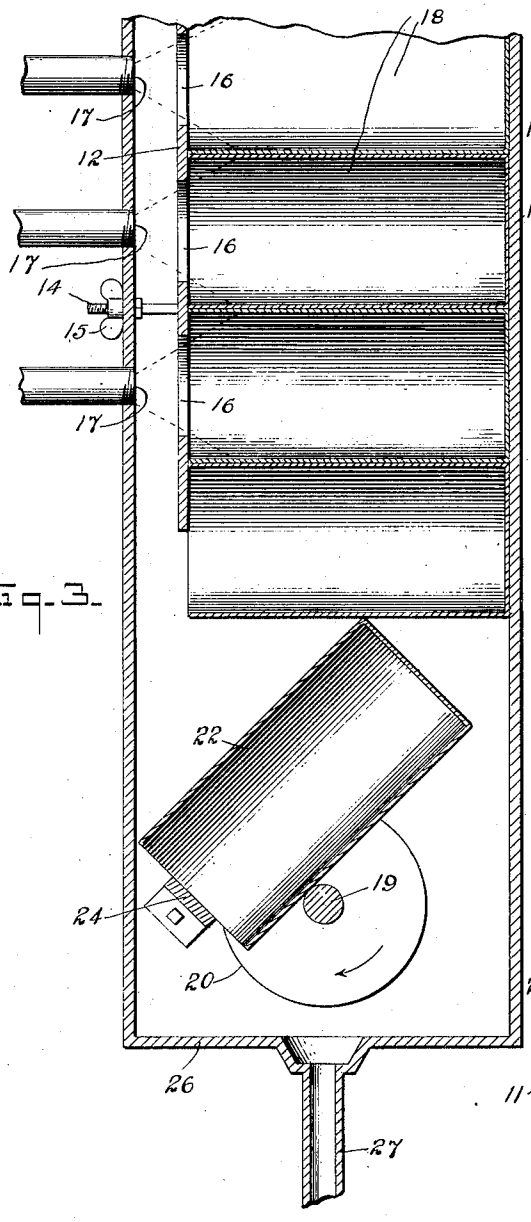


Fig. 4.

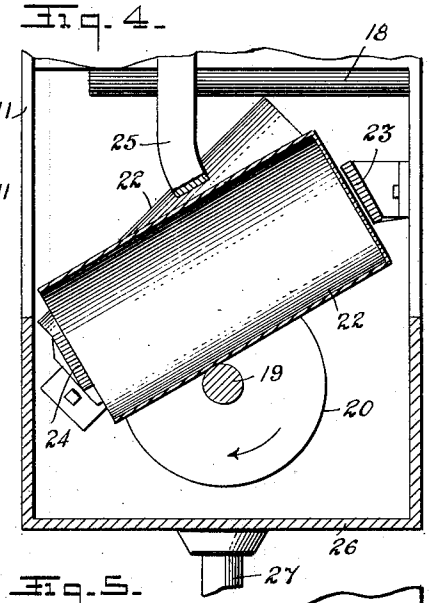
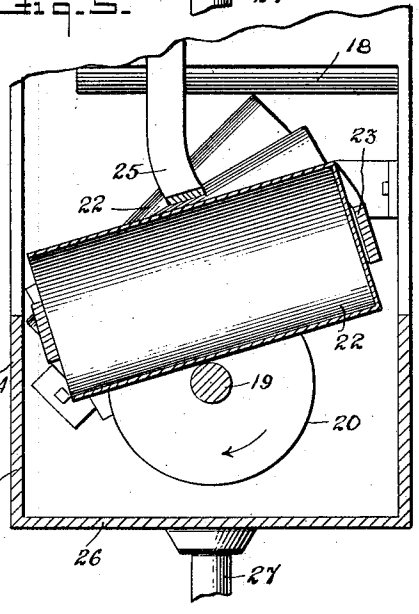


Fig. 5.



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CAN WASHING AND FEEDING MECHANISM

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Fig. 6.

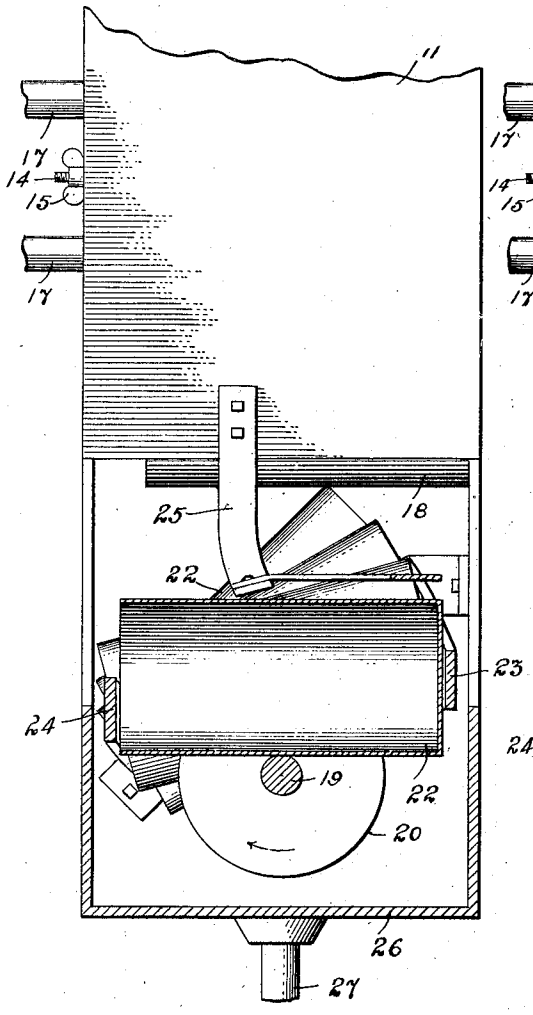
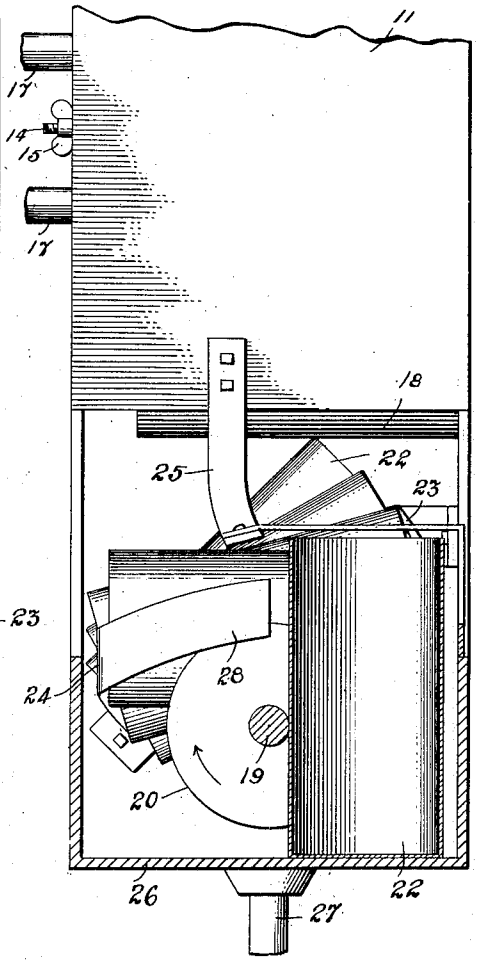


Fig. 7.



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Patented Mar. 22, 1932 1,850,067

UNITED STATES PATENT OFFICE

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CAN WASHING AND FEEDING MECHANISM

Application filed October 14, 1930. Serial No. 488,577.

This invention relates to can washing and feeding mechanisms, and has for an object to provide improved means for feeding the cans to a canning machine, and to simultaneously wash the cans and drain them, before such delivery.

Cans, as delivered to a cannery, are supposed to be of new material and clean. However, in transit, and handling, dust and other extraneous material will find lodgment in the cans, and it is necessary to remove this, in some manner, before introducing the commodity into the can. In the present instance, this is accomplished by the use of jets of water, under pressure, which are projected through properly constructed nozzles into the open ends of the cans, thereby washing from the cans, the accumulation, and then providing means for draining the water from the cans after such washing, then righting the can to its upright position for feeding to the canning machine proper.

The object of the invention is, therefore, to provide mechanical means for accommodating a plurality of cans, such means being operable to adjust itself to different sizes of cans, and with other mechanical means for accomplishing the functions following such manipulation of the cans.

A further object of the invention is to provide in combination with a housing having adjustable walls, a screw, or worm, which will remove cans from such housing, and tilt them to such an inclination as will drain the injected water therefrom, and then from such inclination tilt the can from draining position to an upright position, and in its upright position deliver it to the canning machine.

The invention is directed to other objects and possesses other features of novelty and advantage, some of which, together with the foregoing, will be hereinafter more fully set forth.

In the drawings:—

Figure 1 is a view of the improved can washing and feeding mechanism, in side elevation,

Figure 2 is a top plan view of the feeding mechanism, showing the housing, or stack-containing part in section, as indicated by line 2—2 of Figure 1,

Figure 3 is a vertical sectional view through the can containing housing, showing the initial introduction of the can to the worm,

Figures 4, 5, 6 and 7 are respectively transverse sectional views taken on lines similarly designated in Fig. 1.

Figure 8 is a transverse sectional view through the housing, taken on line 8—8 of Figure 1, with the housing empty, and all cans removed, and

Figure 9 is a view in side elevation of one of the adjusting plates within the housing.

Like characters of reference indicate corresponding parts throughout the several views.

The can washing and feeding mechanism, which forms the subject matter of this application, is designed to operate in conjunction with any type of canning machine. At 10, in Figure 2, is shown an arc, indicating schematically, a rotating canning machine, or canning machine embodying rotating parts. Such canning machine, may in fact, be only a filling machine, or perform any intermediate step between the feeding and the complete closing of the can, with the commodity therein, and the device is in no way limited to such intermediate association.

Erected at any approved position, adjacent to the intermediate mechanism, is a housing 11, of such size and proportion as to accommodate adjusting plates or walls 12 and 13 therein. These adjusting plates 12 and 13, are for the purpose of accommodating cans of different sizes, and the adjustment is made by means of screws 14, inserted through two sides of the housing, with any convenient means for manipulation, as the winged nuts 15.

One of these plates, as for instance, the plate 12, is provided with a plurality of openings 16, properly positioned in registry with nozzles 17, so that water ejected through said nozzles 17, will be also injected into the open ends of the cans 18, arranged in a stack within said housing.

As the lowermost can is removed from the

housing, in the manner and by the mechanism hereinafter to be more fully explained, the stack of cans with in the housing is fed, by gravity, down so that each can is successively subjected, to a plurality of streams of water under pressure ejected from the nozzles.

Within the lower part of the housing, and extending outwardly therefrom, is a worm, comprising the core 19, and fin 20. This worm is driven in any approved manner, as by means of the beveled gears 21, and sprocket chain 21′, which will take power from any moving part of the filling machine, or other intermediate mechanism, so as to operate in timed relation with a step-by-step action with said intermediate mechanism.

The lower can of the stack, is delivered onto the worm in an inclined position, as shown at 22, such inclination being effected by means of a guide rail 23 which engages the bottom of the can, a guide rail 24 which engages the top of the can, and an intermediate guide rail 25, which will engage the can approximately at the middle, and will maintain the can at the inclination as shown at Figure 5, for instance. There has been chosen for this inclination, merely as an illustration, an angle approximating 45°, but it is to be understood, that the angle may be varied, as found convenient, the only requisite being, that it needs sufficient inclination to drain the wash water from the can. The wash water drained from the can is caught by a trough 26, underlying the worm, and a conduit 27 has been shown to conduct this water away.

From this initial position on the worm, at the angle shown at Figure 3, the can is gradually rotated. The numeral 22, indicating the can, as shown at its initial inclination at Figure 3, has been employed throughout several figures to indicate the movement of one can. Therefore, it will be seen that from the initially inclined position, shown at Figure 3, the can is gradually tilted through the several positions shown at Figures 4 and 5, to a horizontal position shown at Figure 6. At this position, the guide rail 24, is provided with an acutely inturned bend 28, which together with the fin of the worm, quickly rotates the can a quarter turn from the horizontal shown at Figure 6, to the vertical, or upright position, shown at Figure 7. This later, or upright position, is shown in Figures 1 and 2, and is designated by the number 22′. The fin 20, at this point, is provided with a part 20′ of much greater pitch than the other convolutions of the worm, providing a kick for the can at the position 22′, so that it will be moved quickly and with a "snap" into the passage provided by the guide rails 29 and 30, which conduct the cans, or a series of cans, as circumstances may dictate to the intermediate machine 10.

In operation, cans will be introduced into the housing 11 manually, or by the employment of any approved types of mechanisms, or instrumentalities. They will be introduced with the open ends of the cans directed to and against the adjustable plate 12, so that in passing downwardly, within this housing, the open ends of each can will successively pass the openings 16, and the registering nozzles 17. Water, under pressure, will be introduced through the nozzle 17, and forcibly into said open ends of the cans, to thoroughly wash the cans. It is obvious, that this water introduced may be hot water, or cold water, and the water introduced through the first opening, may contain a solvent, and the later nozzles may introduce merely rinsing water. This however, is a matter of practice, and may be employed as conditions make desirable, and the invention and patent is in no way concerned with the manner of use.

As the worm rotates, the lowermost can is engaged by the fin 20, and is withdrawn from the housing, and maintained in an inclined position for such length of time in transit that the wash water is drained therefrom. The angle of inclination, as has been explained, may be varied at will, and the showing is merely illustrative. By the action of the worm, and the several guide strips 23, 24 and 25, the can is gradually righted from such inclined position, to a horizontal position, from which position it is suddenly moved to an upright position, by the action of the worm, and the guide finger 28.

The upright can is now in position to be "kicked" by the fin section 20′ which will force the said can, and any preceeding cans in the runway, toward and into the intermediate machinery with a "snap". By having this apparatus operating in step with the intermediate machine, the can is "kicked" into the intermediate machine at the exact moment such machine presents mechanism for receiving the can.

Of course, the can washing and feeding mechanism, herein illustrated, may be modified in various ways without departing from the invention herein set forth and hereinafter claimed.

The invention is hereby claimed as follows:

1. A can washing and feeding mechanism comprising a housing having side walls adjustable inwardly or outwardly to accommodate varying sizes of cans, one of said walls being provided with perforations, inlet nozzles registering with said perforations and adapted to eject fluid through said perforations, said housing and adjustable walls being properly positioned to accommodate a stack of cans with the open ends adjacent to said perforations, and means communicating with said housing functioning to remove

the lowermost can from said position, said can being positioned thereby at a draining inclination, and to tilt said can from said inclination to an upright position.

2. A can washing and feeding mechanism comprising a housing having a perforated wall therein adjustable inwardly or outwardly to accommodate varying sizes of cans in a stack within said housing, nozzles inserted through a wall of the housing and in registry with the perforations of the adjustable wall and adapted to eject fluid through said perforations into the open ends of cans contained in said housing, and a worm having one end introduced into the lower portion of said housing adapted to withdraw cans serially from said housing, and conduct them to a position of further functioning, means cooperating with the worm tending to position said cans initially at a draining inclination en route.

3. A can washing and feeding mechanism comprising a housing having walls positioned to accommodate cans in a stack therein, one of said walls being provided with perforations registering at times with the open ends of the stack of cans, nozzles positioned to register with said perforations and to eject fluid through said perforations into the open ends of said cans, a worm positioned in the bottom of said housing and functioning to withdraw the lowermost can from said housing and guide rails associated with said worm tending to hold said withdrawn can initially at a draining inclination and to convey said can to a position of further functioning, said rails being shaped to tilt said can from said draining position to an upright position as it is moved along by said worm.

4. A can washing and feeding mechanism comprising a housing having walls properly related to maintain a stack of cans therein in recumbent positions, one of said walls being provided with perforations registering with said recumbent cans, jet nozzles positioned to eject fluid through said perforations into the open ends of the cans, a worm having one end introduced into the bottom of said housing and functioning to remove the lowermost can therefrom, guide rails associated with said worm functioning with said worm to position the can first at a draining inclination the rails being shaped to gradually rotate said can to a horizontal position, one of said guide rails being further provided with means for coaction with the worm to suddenly tilt said horizontal can to a vertical position, said worm being provided with a fin extension functioning to kick said vertical can along a guide way provided therefor.

In testimony whereof I have signed my name to this specification.

CHARLES H. AYARS.