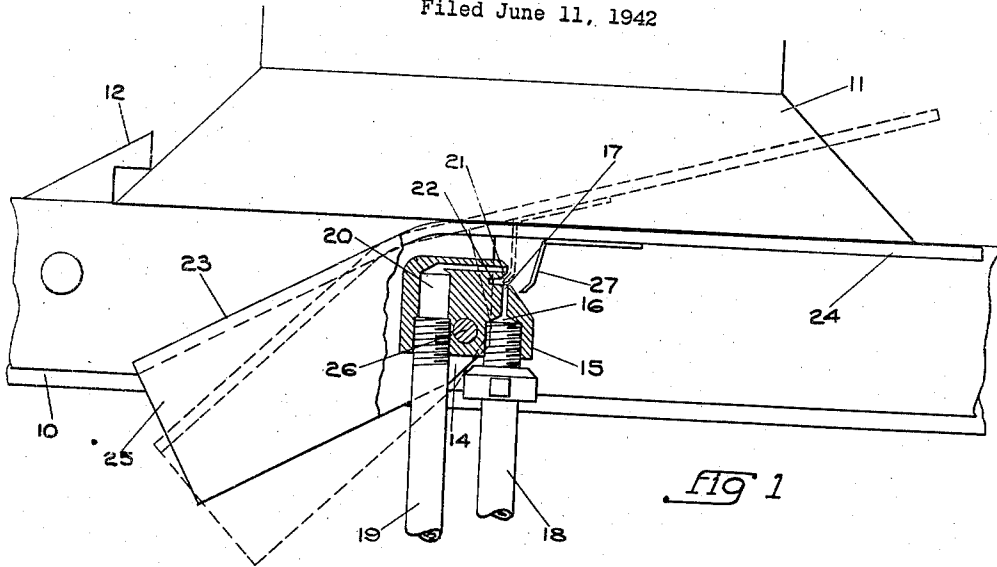
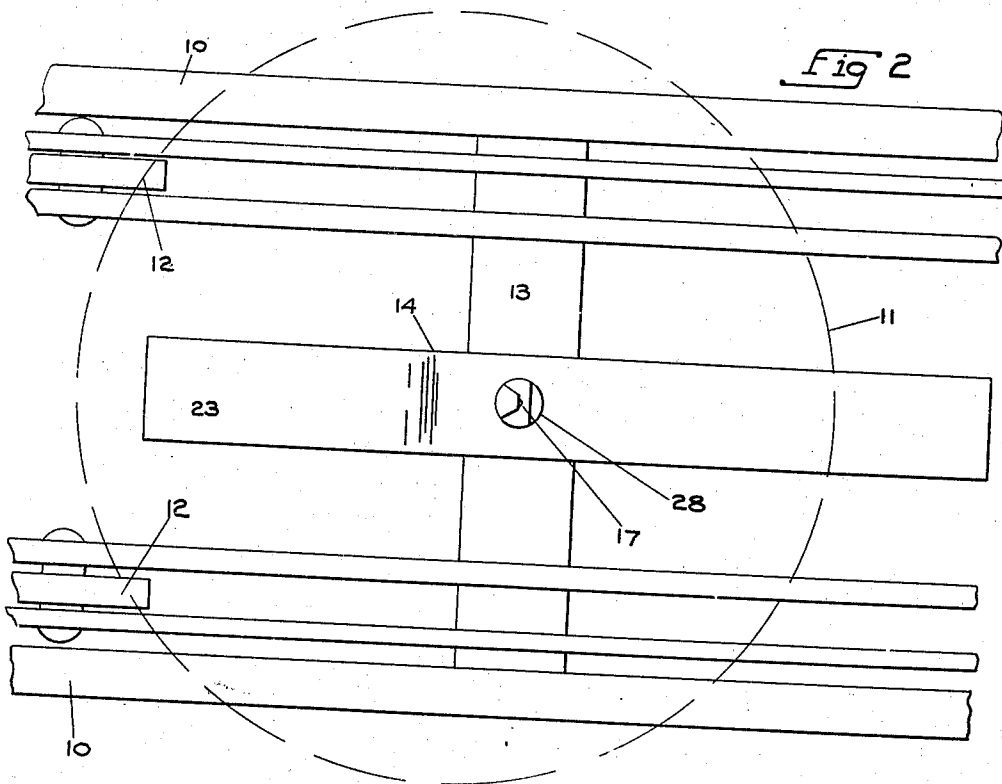


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WASHING MECHANISM

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WASHING MECHANISM

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This invention relates to washing mechanism, and more particularly to mechanism for projecting a cleansing material into a container or the like.

In the treatment of milk cans and other containers, it is often desirable to introduce a concentrated washing solution in spray form so as to cover the interior or other surface with a thin film of the concentrated material. By this means, effective change in the milk fats or other materials is accomplished so that they can be readily removed while at the same time a very small amount of the concentrate or cleansing solution is employed. It is important that every possible means of saving the concentrate be employed.

An object of the present invention is to provide simple mechanism whereby a concentrated washing solution is effectively atomized and projected onto surfaces to be cleansed while at the same time providing means for automatically discontinuing the atomization, except when a washing surface is presented in range of the device. A further object is to provide means whereby the flow of compressed air can be diverted so as to prevent the flow and atomization of the washing solution. Other specific objects and advantages will appear as the specification proceeds.

The invention is illustrated, in a preferred embodiment, by the accompanying drawing, in which—

Figure 1 is a side view in elevation of a portion of a conveyor equipped with an atomization device embodying our invention; and Fig. 2, a broken top plan view.

In the illustration given, 10 designates conveyor tracks along which a milk can or other container may be advanced in inverted position. The neck of the can 14 is indicated in dotted lines. The machine is equipped with the usual reciprocating bars equipped with pivotally-mounted feed dogs 12 by which the can is advanced in a step-by-step movement. Since the track and advancing structure are well known in the art, a detailed description is believed unnecessary. Between the tracks 10 extends a support 13 which carries the atomization device 14. The atomization device consists of a metal block 15 having a vertical conduit 16 therein, terminating in an air discharge nozzle 17. The lower portion of the block is tapped to receive the threaded end of a compressed air conduit 18 leading to a source of compressed air supply. The rear portion of the block 15 is tapped to receive a pipe 19 leading to a liquid reservoir containing a concentrated washing

solution. This solution may consist of an acid cleansing material or an alkali cleansing substance. Communicating with the pipe 19 is a passage 20 which leads to a discharge port 21 which is vertically disposed above the air discharge port 17. The block is cut away to provide a recess 22 between the ports 21 and 17.

We next provide valve means for preventing the airflow from the discharge orifice 17 passing across the liquid discharge port 21. The valve structure consists of a lever 23 having a forward-projecting portion 24; and, at its rear, downwardly-turned sides 25. The lever is pivoted upon the block 15 by means of a pin 26 which extends through the sides 25 and the block 15. The weight of the side walls 25 causes the front portion of the lever 23 to tilt upwardly normally. To separate the air discharged from port 17 from the opening 21, we provide a downwardly-extending valve plate 27 having a rearwardly-extending portion welded to the bottom of the lever 24.

The lever 23 is provided centrally with a large opening 28 which is directly over the discharge orifices 17 and 21 when the lever is swung downwardly under the impact of a can to the horizontal position shown in Fig. 1.

The conduit 18 is preferably provided with a set collar to limit the downward travel of the sides 25 on lever 23.

Operation

In the operation of the device, a can or other container is advanced upon the track 10 by means of the pivotally-mounted dogs 12 carried by the reciprocating bar, as in the usual can washing machine. As shown in Fig. 1, the dogs 12 have advanced the can to a position directly over the atomizing device 14. In this position, the forward end of lever 24 is swung downwardly to a horizontal position and the valve plate 27 is dropped to the position shown in Fig. 1 where it does not interfere with the directly vertical movement of the compressed air. The compressed air moves upwardly across the nozzle or port 21, creating a vacuum therein and thus drawing liquid from the reservoir to this surface. At the same time, the air atomizes the liquid and causes it to move upwardly through the opening 28 and, in the form of a mist, into the interior or other surfaces of the can or container. When the can is then advanced to the next position, the lever 23 is released and the forward end portion thereof swings to the position indicated in dotted lines in Fig. 1. In this position, the valve plate

27 moves upwardly across and to the rear of the air discharge opening 17. The plate thus prevents the escape of air past the nozzle 21, and any air that passes out of the orifice is deflected to the rear of the plate 27. Thus, no liquid is atomized or drawn forward to the nozzle 21.

In the operation described, it will be noted that the atomizer is operated only when there is a can directly thereabove. When the can is advanced by the next stroke, the atomization at once ceases, and no further discharge of liquid occurs until a succeeding can has been advanced to the position above the atomizer.

If desired, the compressed air may be supplied to the orifice 17 continuously and discharged continuously, or, if desired, the plate 27 may be provided with means for closing off the flow of air. In the construction shown, the plate 27 serves mainly to deflect air rearwardly and does not prevent the discharge of air.

It will be noted that the recess 22 provided in the block 15 enables the valve plate 27 to extend below the nozzle 21 and to the rear of the air port 17 so as to provide a complete separation between the two ports.

The apparatus is extremely simple, foolproof, and it operates effectively and automatically to supply and atomize the liquid when a can surface to be washed is presented above the atomizer.

The foregoing description has been given in detail for the purpose of illustrating one mode of the invention. As already pointed out, considerable variation may be made in the type and structure of the valve employed to close the air supply or to separate the flow thereof from said liquid nozzle. Wide variations in the details may and will be made by those skilled in the art without departing from the spirit of our invention. We claim:

1. An atomizer comprising a liquid conduit and a compressed air conduit, an atomizer body communicating with said conduits and providing a substantially vertical air passage and a liquid passage disposed at an angle with respect to the vertical and intersecting at its outlet the outlet of the air passage so that air is discharged across the outlet of the liquid passage, a lever pivotally mounted on said body and having a central opening therein above said passages, said lever being pivotally mounted at an intermediate portion thereof and being weighted at its rear end, the other end of said lever extending forwardly and upwardly at an angle with respect to the horizontal when in normal position and being swingable downwardly from normal position to a lower position when engaged by means moving forwardly in a substantially horizontal plane, and a valve plate carried by said lever and depending from a portion thereof forward of said pivotal mounting, said plate, when said lever is in normal position, extending downwardly from said lever in a position about said outlet in the

air passage and between said outlets whereby flow of air from said air outlet is intercepted and separated from the liquid outlet, said plate, upon movement of the forward end of the lever to lower position, being movable downwardly and forwardly from said position to a position wherein it does not intercept the air flow.

2. An atomizer comprising a substantially vertical air conduit and a liquid conduit disposed at an angle with respect to the vertical, the outlets of said conduits being adjacently disposed and intersecting so that air is discharged across the outlet of the liquid passage, a pivotally-mounted lever member extending over said outlets and having a central opening therein above the outlet of the air conduit, said lever being pivotally mounted at an intermediate portion thereof, the forward end of said lever extending upwardly at an angle with respect to the horizontal when in normal position and being swingable downwardly from normal position to a lower position when engaged by means moving forwardly in a substantially horizontal plane, and a valve plate carried by said lever and depending from a portion thereof forward of said pivotal mounting, said plate extending downwardly above and on one side of said air outlet and between said outlets when the lever is in normal position whereby the flow of air from said air outlet is intercepted and separated from the liquid outlet, said plate being movable, upon movement of said lever to lower position, forwardly and downwardly from intercepting position to a position wherein the plate does not intercept the flow of air from said air outlet.

3. An atomizer comprising a substantially vertical air conduit and a liquid conduit disposed at an angle with respect to the vertical, the outlets of said conduits being adjacently disposed and intersecting so that air is discharged across the outlet of the liquid passage, a pivotally-mounted lever member extending over said outlets and having a central opening therein above the outlet of the air conduit, said lever being pivotally mounted at an intermediate portion thereof, the forward end of said lever extending upwardly at an angle with respect to the horizontal when in normal position and being swingable downwardly from normal position to a lower position when engaged by means moving forwardly in a substantially horizontal plane, and a valve plate carried by said lever and extending therefrom, said plate, when the lever is in normal position, being disposed between said outlets whereby the flow of air from the air outlet is intercepted and separated from the liquid outlet and being movable, upon movement of said lever to lower position, from said intercepting position to a position wherein the air flow from said air outlet is not intercepted.

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