Aug. 30, 1927. 1,640,835

I. H. KENDALL

JET WASHING MACHINE

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Fig. 1

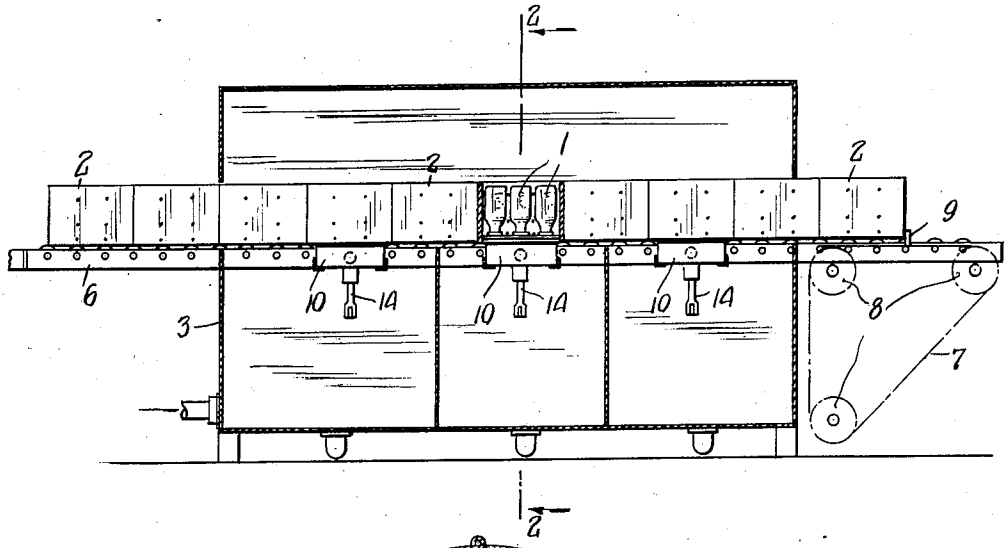
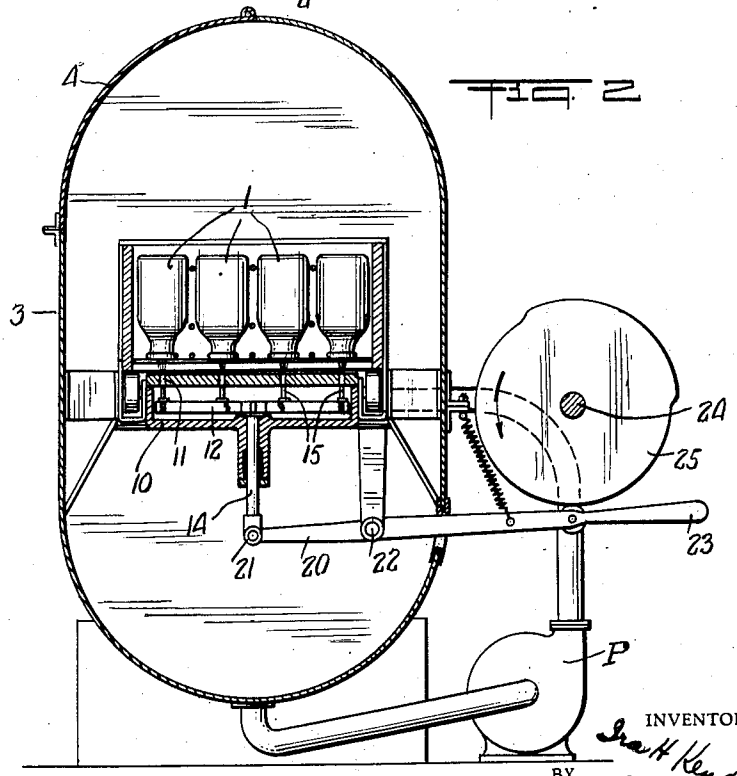


Fig. 2



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Fig. 3

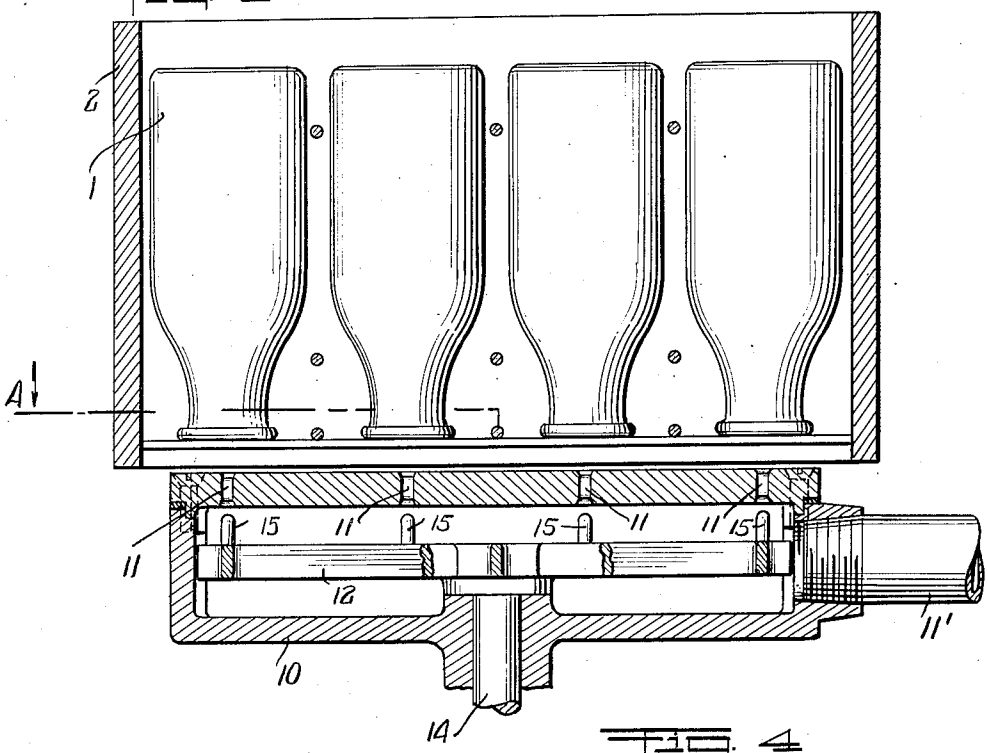
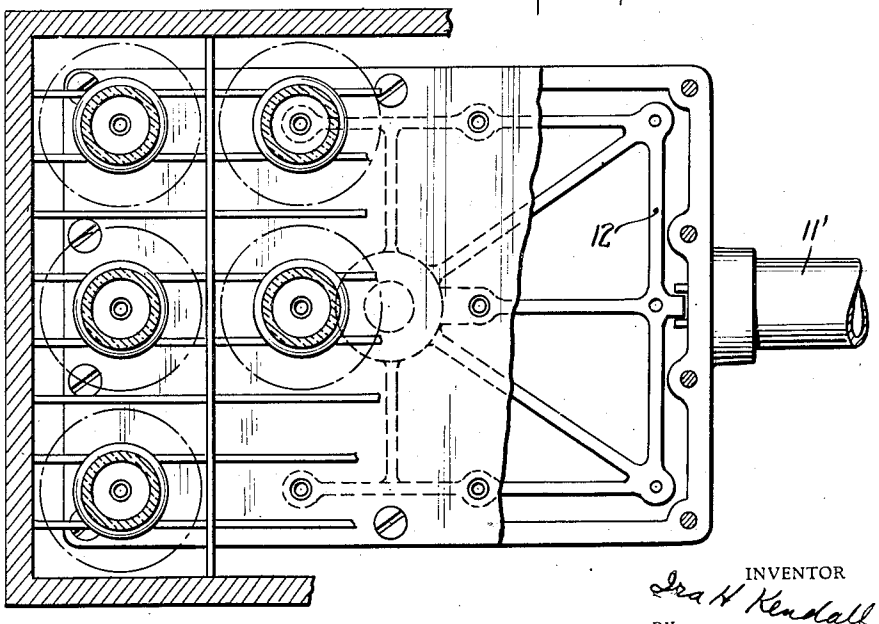


Fig. 4



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Patented Aug. 30, 1927. 1,640,835

UNITED STATES PATENT OFFICE.

IRA H. KENDALL, OF POTSDAM, NEW YORK, ASSIGNOR TO MANNING MANUFACTURING COMPANY, OF RUTLAND, VERMONT.

JET WASHING MACHINE.

Application filed January 28, 1927. Serial No. 164,187.

My invention relates to a new and improved jet washing mechanism.

One of the objects of my invention is to devise a new and improved jet washing mechanism which will be particularly adapted for washing bottles, milk cans and other receptacles, and which will be combined with mechanism for cleaning the jets either automatically or by hand.

Another object of my invention is to devise a jet washing mechanism whose jets will be positively cleaned at regular intervals, or whenever desired by the operator, so as to insure the complete and simultaneous operation of all the jets.

Other objects of my invention will be set forth in the following description and drawings which illustrate a preferred embodiment thereof, it being understood that the above general statement of the objects of my invention is intended merely to generally explain the same and not to limit it in any manner.

Fig. 1 is a side view diagrammatically showing one form of washing machine to which my invention is applied.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a detail sectional view showing the jet box.

Fig. 4 is a section on the line 4—4 of Fig. 1.

In the forms of jet washing machines which have been used for a great many years in washing milk bottles, milk cans and other receptacles, experience has shown that the fine jets clogged up more or less rapidly because the wash water contained particles of dirt, sediment or the like. It was impossible to immediately detect the clogging up of one or more jets, with the result that a large number of bottles or other receptacles were passed through the machine completely unwashed.

According to my invention, a positive and mechanically actuated cleansing mechanism is operated so as to positively clean the jets at short and stated intervals, preferably after the washing of each receptacle, so that positive and continuous cleansing of the receptacles is insured.

As shown in Fig. 1, the bottles 1 are mounted in crates or boxes 2 which are provided with frames of any suitable type so as to retain the bottles in inverted shape in the cases 2. I have not illustrated these holding frames in detail because in themselves they are old and well known and it is to be understood that the general showing herein of the jet washing machine is largely diagrammatic, as such jet washing machines per se have been well known for many years. The machine is provided with a hood 3, the top 4 of which may be moved away from the body thereof by any suitable means so as to provide access into the interior of the hood. The machine is also provided with a base portion 5 upon which a rollway 6 is mounted. This rollway 6 is provided with a series of rollers upon which the cases 2 rest so that they can be readily pushed through the hood 3.

An endless chain 7 is mounted upon sprockets 8 and this endless chain is provided with a projection or pusher 9. This chain 7 is moved in the counter-clockwise direction so that the pusher 9 intermittently contacts with a case placed upon the front of the rollway and pushes it into the hood 3. The operator places the cases 2 in proper position at the front of the machine and since these cases 2 contact with each other, they are pushed through the hood 3 in a long and continuous line.

In the type of machine illustrated herein, three jet boxes 10 are provided. These jet boxes 10 are of like construction, this construction being shown in detail in Figs. 3 and 4. Each jet box 10 is provided with an inlet pipe 11′ through which any suitable liquid may be forced into the respective jet box. This liquid may be hot water, cold water, water containing dissolved alkali, or the like. The jet box 10 is provided with a cover portion having a series of small openings 11 which constitute the jet openings through which the cleansing liquid is forced under suitable pressure. The cases 2 are pushed through the machine so that the bottles 1 are intermittently located above the respective jets 11, so that each bottle 1 receives the stream of cleansing fluid from a jet 11.

Since the cases are intermittently pushed through the machine, they remain stationary above the jets for longer periods of time than the periods of movement thereof, it being preferable that each period or interval of non-movement should be three times as long as each period or interval of movement. However, my invention is not limited to this

detail or to other details incidental to well known jet washing machines.

Each jet box 10 has a movable pin support 12 connected thereto. Each movable pin support is mounted upon a vertical rod 14 which can be slidably moved up and down within the respective jet box 10. The pin support 12 preferably has the form of a perforated plate, as clearly shown in Fig. 4. This pin support 12 has a series of pins 15 mounted therein and each pin 15 has approximately the diameter of the respective adjacent opening 11.

Hence, whenever the rod 14 is moved up and down so as to cause the pins 15 to enter the respective openings 11 and to then move out of said openings 11, this causes the thorough cleansing of the said openings 11 by removing any accumulated sediment, dirt particles or the like.

When the pins 15 are in their upper position, they preferably project slightly above the respective openings 11, each pin 15 being aligned with an opening 11, as shown in Fig. 3.

As shown in Fig. 2, each rod or plunger 14 is connected with a transverse lever 20 pivotally connected to the respective plunger 14 at 21. Each lever 20 is pivotally mounted at 22. Each lever 20 has a projecting handhold 23 by means of which the pins 15 can be actuated whenever this is desired by the operator to positively cleanse the jets. In order to automatically accomplish this, I provide a transverse shaft 24 which is driven by any suitable means. The transverse shaft 24 has a series of cam members 25 connected thereto, each cam member 25 being associated with a lever 20. The cam projection of each cam member 25 may occupy 120° of the circumference thereof. Hence, while the bottles or other receptacles remain stationary above the respective jet openings, the pins are kept in their lower position so that the openings are left free. However, while the bottles are being moved from one jet box to the next jet box, the cam members 25 cause the pins 15 to be moved to their upper position in which they fit substantially tightly within the openings 11, thus minimizing any waste of liquid. However, it is preferable in many instances to utilize these openings 11 to cleanse the outsides of the bottles or other receptacles and this does not involve a waste of the wash water. Hence, the cam projections of the respective members 25 can be made very short, if desired, so as to cause a very quick intermittent movement of the pins 15, thus insuring a practically continuous flow of the wash water from each jet box and a thorough cleansing of the outsides of the receptacles.

As shown in Fig. 2, the machine is provided with a series of pumps P whose outlets are connected to the respective pipes 11′ and whose inlets are connected to the bottom of the hood into which the wash water is permitted to drain into separate receptacles after having been utilized. This enables the wash water for each jet box to be used over and over again in the usual manner.

I have shown a preferred embodiment of my invention, but it is clear that numerous changes and omissions could be made without departing from its spirit.

I claim:—

1. A jet washing machine comprising a jet box having jet openings associated therewith, a movable member having a plurality of pins and mounted in said box, the said pins being respectively aligned with the said jet openings, and means adapted to actuate the said movable member to cause the said pins to clear the said jet openings.

2. A device according to claim 1 in which the said jet box is provided with a water inlet and the said movable member is provided with a movable rod, the said water inlet and the said movable rod being associated with different walls of the said jet box.

3. A jet washing machine having a hood and also having a jet box located within said hood, said jet box having a plurality of jet openings, a movable pin support member mounted in said jet box and having a plurality of pins thereon, said pins being respectively aligned with the said jet openings, a plunger rod connected to the said movable pin support member and projecting out of the jet box, and actuating means adapted to actuate said plunger rod and projecting beyond the said hood.

4. A device according to claim 3 and including automatic means located external to the said hood and adapted to intermittently operate the said actuating means.

In testimony whereof I affix my signature.

IRA H. KENDALL.