E. F. RASSMAN.

CAN WASHING MACHINERY.

APPLICATION FILED SEPT. 30, 1916.

1,216,494.

Patented Feb. 20, 1917.

2 SHEETS—SHEET 1.

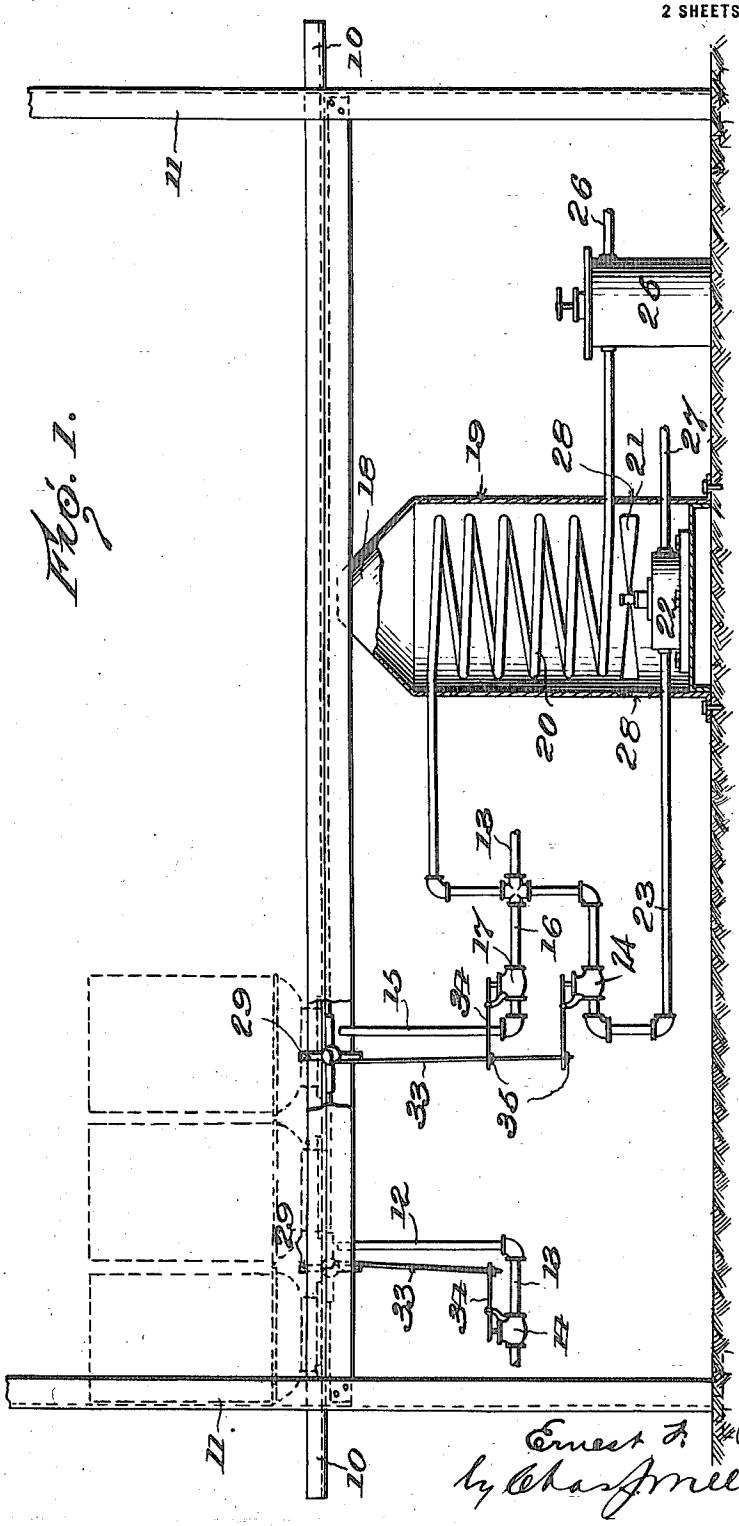


FIG. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

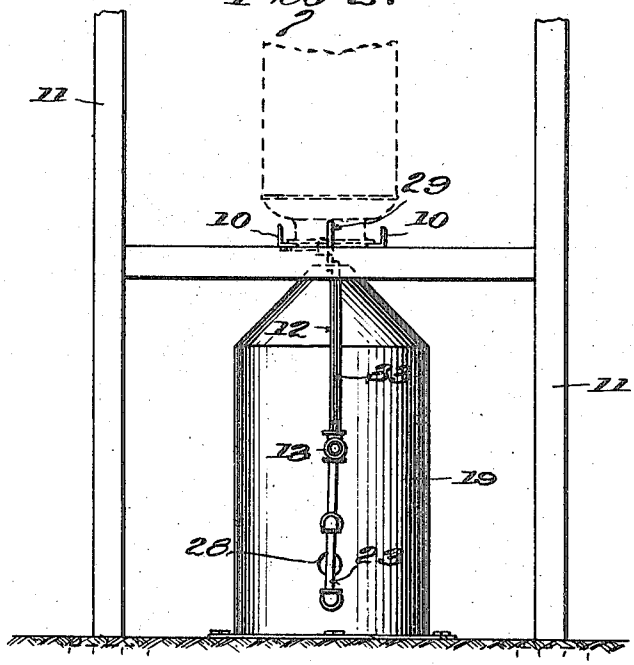


Fig. 3.

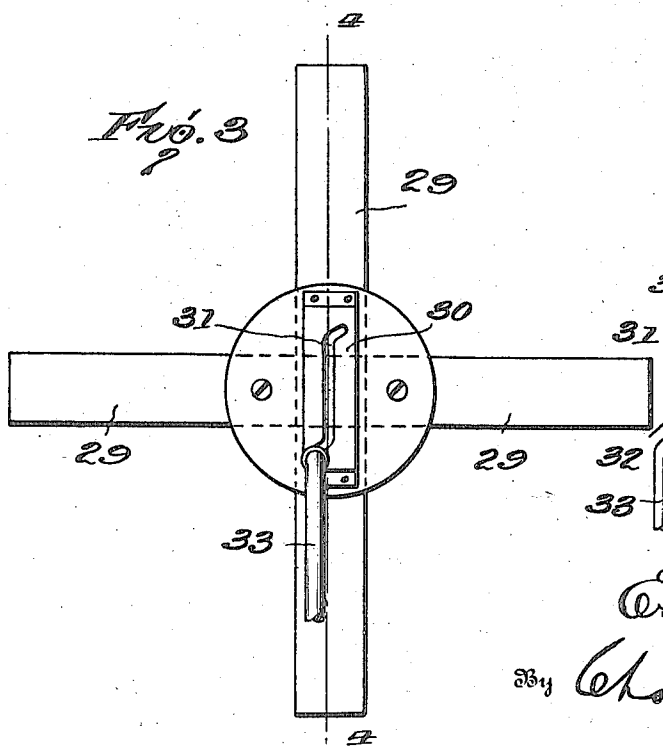
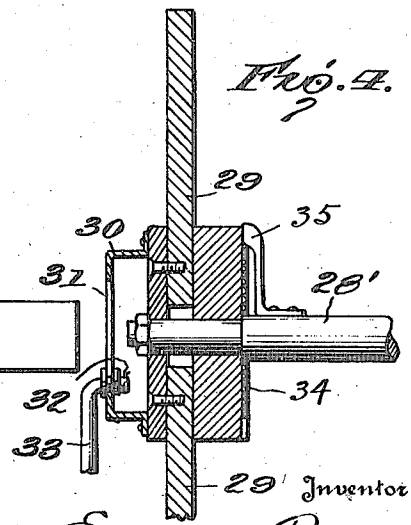


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CAN-WASHING MACHINERY.

1,216,494. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed September 30, 1916. Serial No. 123,053.

To all whom it may concern:

Be it known that I, ERNEST F. RASSMAN, a citizen of the United States, and resident of Charlottesville, in the county of Albemarle, and in the State of Virginia, have invented a certain new and useful Improvement in Can-Washing Machinery, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to can washing machinery, and more particularly has to do with the operations of rinsing and sterilizing milk can bodies, and generally stated the object of my invention has been to produce an apparatus which will be as automatic in its operation as is possible, so that a minimum of manual effort, time and labor will be required, which shall be extremely simple, so as to avoid heavy first cost in constructing it and repairs, and which withal can be depended upon to efficiently do the work required, and with this object in view my invention consists in the apparatus constructed substantially as hereinafter specified and claimed.

In the accompanying drawings—

Figure 1 is a side elevation thereof;

Fig. 2 is an end elevation;

Figs. 3 and 4 are detail views on an enlarged scale showing the construction and operation of the automatic valve mechanism for controlling the steam, or fluid used with the apparatus.

Briefly described, the apparatus shown in the drawings comprises a track, or way along which the cans placed on end are moved in succession, nozzles located along such way having valve mechanism which is automatically operated by the cans coming in contact with members thereof as the cans move along, and a drying mechanism by which heated air is applied to the cans, which drying mechanism includes a heating device using a heating medium which is also controlled by a can operated means. The workman picks up can after can and places them in succession upon the track, or way, the cans being pushed along as he places a fresh can thereon and shoves it along the way.

The track, or way is preferably formed of two parallel angle irons 10 that are supported in a preferably horizontal position by a framework 11, consisting of uprights, or posts and horizontal members that may also be constructed of angle iron, said angle irons 10 being spaced apart and arranged so that one flange, or member of each extends vertically, and the other horizontally, the vertical flanges being spaced apart a distance to receive between them the mouth end of the can in an inverted position, and the horizontal flanges being turned toward each other and forming a support for diametrically opposite edge portions of the can at the mouth thereof with nothing in contact with the remainder of the can mouth, so that the fullest access is possible for water, steam and air to the interior of the can from nozzles situated at suitable points along the way between said angle irons.

For the supply of water a nozzle 12 in the form of a vertical pipe is connected by means of a pipe 13 with a suitable source of supply of water, in which pipe 13 there is a valve 14 that is normally closed, but which is automatically opened, as hereinafter described, when the open end or mouth of the milk can is in position above the nozzle to receive the discharge therefrom. For the supply of steam, a nozzle 15 in the form of a vertical pipe is connected by means of a pipe 16 with a suitable source of supply of steam, in which pipe 16 there is a valve 17 that is normally closed, but which is automatically opened, as hereinafter described, when the mouth of the milk can is in position above the nozzle to receive the discharge therefrom. For the supply of hot air for drying purposes, a nozzle, or outlet 18 is provided in the top of a chamber, or housing 19 that contains a steam coil 20 which is connected to the steam supply pipe 13. Within the chamber, or housing below the steam coil therein, is a rotary fan 21 on the shaft of a steam turbine 22 which receives its impelling steam through a pipe 23 which is connected with the steam supply pipe 16 and in which pipe 23 there is a valve 24 that is normally closed, and which is automatically opened by the action of the milk can as it is slid over the track, or way. The steam coil leads to a suitable steam trap 25 which has a discharge pipe 26 and the steam turbine has an exhaust pipe 27 leading therefrom. In the wall of the housing, or chamber 19, there are air holes 28 for the supply of air to the interior of the housing.

Each valve for the control of water and steam has a similar operating mechanism, and a description of one such mechanism will, therefore, suffice for all.

Pivotally supported upon a bracket, or arm 28′, substantially midway between the two track bars 10, is a wheel consisting of a circular series of radial arms, 29, spaced equal distances apart, one of which at a time normally stands vertically and projects above the plane of the open end of the can so as to be in position to be engaged either by the front, or advancing edge of the can on the outside thereof, and the wheel thereby moved to a quarter turn, or in position to be engaged by the rear of the coming edge of the can on the inside, and by the forward movement of the can be revolved through a quarter turn, each time, of course, leaving the next following arm in a similar vertical position for a similar coöperation with the can. In its outer face, and conveniently in a plate 30 attached to the wheel, is a Z-shaped slot 31, the middle portion of which extends diametrically of the wheel and parallel with two of the diametrically opposite arms thereof while each extremity of said slot extends rearwardly, and at more or less of an angle to the diametrically extending portion. Engaging said slot, and adapted to play back and forth therein, is a pin, or projection, 32 on a vertical rod 33, which at its lower end passes through a hole in a lever 34 connected with the valve, and upon the rod below the lever is a collar 35, which by the lifting of the rod engages the lever and opens the valve. The rising and falling movement of the rod is under the control of the rotating wheel. When the middle portion of the slot is in a vertical position, said rod is in its lowermost position, and the valve is closed (its closing being effected by a suitable spring) and as the wheel revolves the pin 32 passes into the then lowermost horizontal extension of said slot until it strikes the end thereof, whereupon the further rotation of the wheel causes the lifting of the rod and the opening of the valve, by which time the arm engaged and acted upon by the forward edge of the can reaches a horizontal position, and the succeeding arm is in a vertical position and ready to be engaged by the rear wall, or edge of the can on the inside, which next following arm, by the movement imparted to it from the inside edge of the can, and by being itself moved from a vertical to a horizontal position, brings the middle portion of the slot again to a vertical position, and the then pin-engaged portion of the slot to the top, and said slot portion being slightly inclined downward and forward, gravity acting upon the rod will cause the pin to slide to the vertical middle portion of the slot and then to drop through the latter to the bottom, and thus allow the automatic closing of the valve and shutting off the water or steam supply, as the case may be. It will be observed that by this valve mechanism it is assured that during the entire time the open mouth of the can is over the nozzle, water, or steam, as the case may be, will be discharged from the nozzle and the discharge promptly cut off within the can by the time the can is ready to be moved from over the nozzle. I preferably utilize the same rod 33 for controlling the valves for the steam, or sterilizing jet and the steam for the motor of the drying device. Although the steam for rotating the fan will be cut off before the last can comes over the nozzle of the drying device, yet, there will be ample heated air coming from such nozzle from the steam coil to effect the drying of the last can.

It is desirable to prevent any tendency of the valve-operating wheels spinning, or turning too freely. A suitable brake device for this purpose is, therefore, provided. As shown in the drawings, such brake device consists of a toothed, or roughened surface 34, on the inner side of the wheel hub, and a spring pawl, or dog 35 that bears against such toothed, or roughened surface which affords the desired resistance, although not preventing the ready turning of the wheel by the engagement of the cans with the arms thereof.

The operation of the apparatus shown and described, has, I believe, been sufficiently set forth, and it will be evident that such apparatus attains the object of my invention as hereinbefore set forth.

While I prefer, as an excellent embodiment of my invention, apparatus having the construction and organization of elements as illustrated in the drawings, it is to be understood variations from that construction within the scope of the appended claims may be made without departing from the spirit of my invention.

The various parts of the apparatus are not shown in the drawings in strict proportion, or relative arrangement, as departures exist in these particulars for the sake of clearness of illustration.

Having thus described my invention what I claim is—

1. In an apparatus of the class described, the combination of a support over which the article to be acted upon is movable, means for supplying a fluid medium to the article situated adjacent the support, said means including a valve, and a valve operating mechanism comprising a wheel having a series of projections that extend successively into the path of the article as it moves along said support.

2. In an apparatus of the class described, the combination of a support over which the article to be acted upon is movable, means for supplying a fluid medium to the article situated adjacent the support, said means including a valve, and a valve operating mechanism comprising a wheel having a

series of projections that extend successively into the path of the article as it moves along said support, said extensions being spaced apart for successive engagement by the exterior and interior of the can member.

3. In an apparatus of the class described, the combination of a support over which the article to be acted upon is movable, means for supplying a fluid medium to the article situated adjacent the support, said means including a valve, and a valve operating mechanism comprising a wheel having a series of projections that extend successively into the path of the article as it moves along said support, said wheel having a Z-shaped slot, and a rod having a slot-engaging portion and connected with the valve.

4. In a machine of the class described, a support over which the article to be acted upon is movable, means for subjecting the article to the action of an aqueous fluid, a drier having a nozzle adjacent the path of said article as it moves along, means for supplying a heating medium to the drier, a motor operated blower for causing a flow of air through the drier, and means for controlling the operation of said blower situated in position to be actuated by an article on the support in its movement thereover.

5. In a machine of the class described, a support over which the article to be acted upon is movable, means for subjecting the article to the action of an aqueous fluid, a drier having a nozzle adjacent the path of said article as it moves along, means for causing a flow of air through said drier, means for controlling the means for causing a flow of air through the drier, and means for actuating said controlling means lying in position to be actuated by an article on the support in its movement thereover.

6. In an apparatus of the class described, the combination of a support for the article to be acted upon, means for supplying a fluid medium to the article adjacent the support to and past which the article is movable, and mechanism for controlling the application of said fluid medium to the article comprising a wheel having a series of projections that extend successively into the path of the article as it moves along.

In testimony that I claim the foregoing I have hereunto set my hand.

ERNEST F. RASSMAN.