Nov. 29, 1927. 1,651,208

L. E. HOLMES

APPARATUS FOR WASHING CANS

Filed July 28, 1926 2 Sheets-Sheet 1

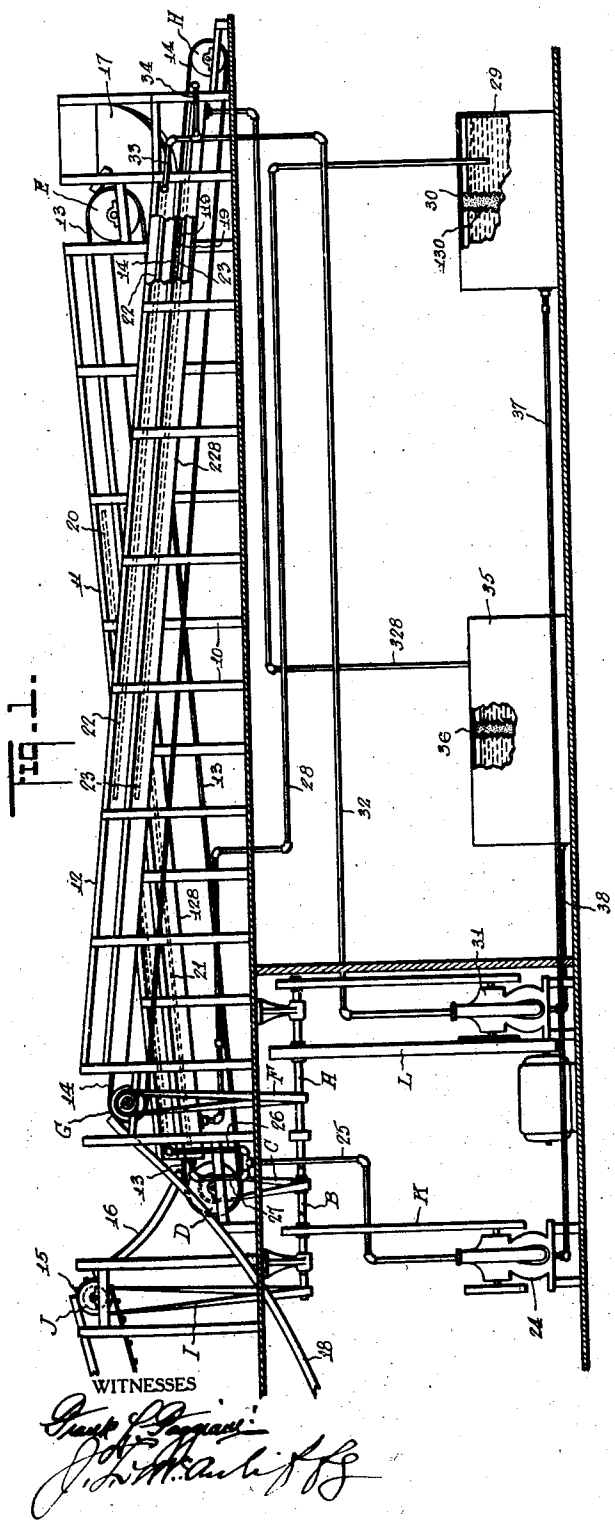

Fig. 1.

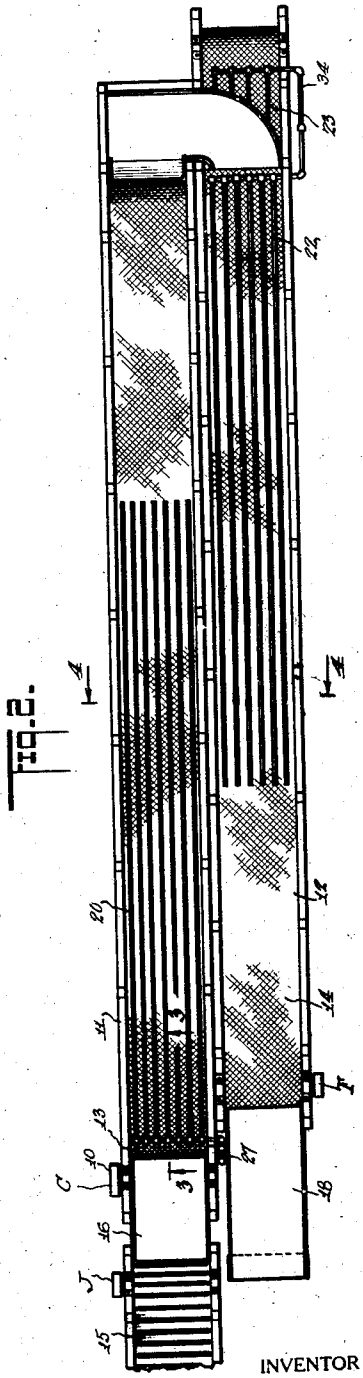

Fig. 2.

WITNESSES

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Fig. 3.

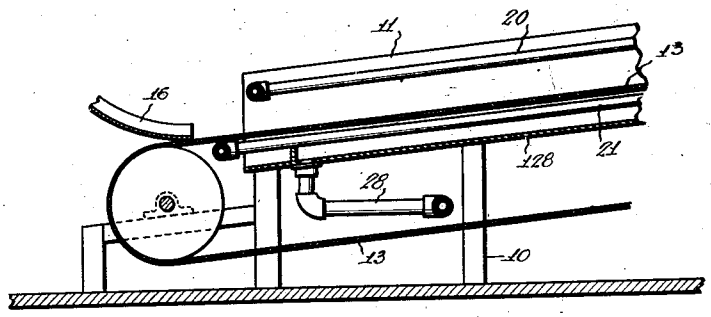

Fig. 4.

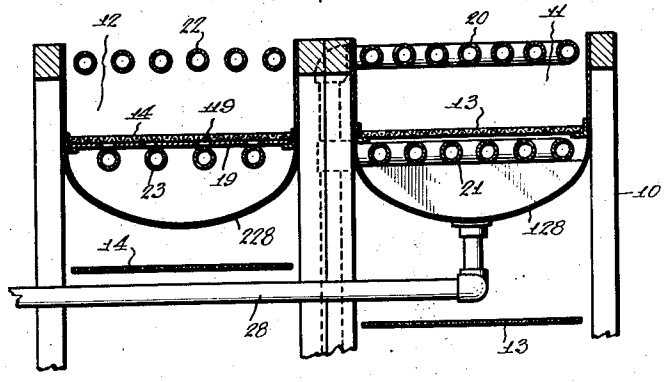

Fig. 5.

WITNESSES

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Patented Nov. 29, 1927. 1,651,208

UNITED STATES PATENT OFFICE.

LORING EVERETT HOLMES, OF DAYTONA, FLORIDA.

APPARATUS FOR WASHING CANS.

Application filed July 28, 1926. Serial No. 125,489.

My invention relates to an apparatus for cleaning cans, particularly sardine cans which after sealing are in an oily condition at the exterior and the oil is required to be removed before shipment of the cans. More particularly the invention relates to a can cleaning apparatus in which oppositely inclined chambers are provided through which the working runs of belts travel for carrying the cans in which chambers the cans are subjected in succession to a cleaning liquid and then to a washing liquid to remove the first liquid.

The general object of the present invention is to provide an apparatus of the indicated character improved in various particulars especially with respect to the means for directing the respective liquids against the cans as they are carried along and with respect to a simple and effective arrangement for filtering the liquids, the filtering means being included in the novel circulating circuits for the liquids.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a side elevation of a can washing apparatus embodying my present invention, parts being broken out and in section;

Figure 2 is a plan view;

Figure 3 is a detail in vertical section on an enlarged scale as indicated by the line 3—3, Figure 2;

Figure 4 is a transverse vertical section as indicated by the line 4—4, Figure 2;

Figure 5 is an elevation of a fragment of one of the pipes for directing liquid against the travelling cans, the view being given to indicate the staggered arrangement of the jet orifices.

In carrying out my invention in accordance with the illustrated example, a suitable framework designated generally by the numeral 10 is provided supporting the various parts of the apparatus. An elongated chamber 11 open at both ends is provided, and a second similar chamber 12. The chambers 11 and 12 are reversely inclined.

In the respective chambers 11, 12 are passed the working runs of endless belts 13, 14. The cans are carried by an elevator belt 15 which dumps the cans to a chute or runway 16 which discharges to the chamber 11. The cans discharge from the belt 13 and in chamber 11 are passed onto a chute or runway 17 which discharges to the adjacent end of a chamber 12. From the belt 14 in chamber 12, the cans discharge to a chute or runway 18 to the packing room.

In accordance with the present invention, I provide in the chamber 11 an upper longitudinal series of spray pipes 20 and a lower series of spray pipes 21, the working run of the belt 13 being between said pipes so that a cleansing liquid escaping from the jet orifices 121 of the pipes will be directed against the cans on the belt 13 at both the upper and lower sides of the cans, it being understood that the belt 13 and the belt 14 also are of wire mesh to be open for the passage of the liquid. The jet orifices 121 in the several pipes, it will be observed from Figure 5, are in staggered relation to increase the effective width of the sprayed cleansing liquid, to remove the oil from the cans, as supplied by the pipes 20 and 21. In the chamber 12 there are also longitudinally disposed series of pipes, there being spray pipes 22 above the belt 14 and spray pipes 23 beneath the working run of belt 14. Also, in the chamber 12 for the washing fluid, there is a longitudinally disposed partition 19 which has perforations 119 larger than the jet orifices in the pipes 23 and directly above the same so that the jets of washing water are effective through the belt 14 and against the cans on said belt.

Any suitable system of water supply for the pipes 20, 21, 22, 23 may be provided. I have indicated in the illustrated assemblage, a pump 24 the discharge pipe 25 of which has upper and lower branches 26, 27 to supply the respective pipes 20, 21.

The chamber 11 has an upward inclination from the feed end into which the cans pass from the chute 16 and from the lower end of said chamber leads a drain pipe 28 from a trough 128 disposed at the bottom of said chamber. Said pipe 28 leads to a tank 29 having a vertically disposed filtering partition 30 which in practice is formed of a body of charcoal held between wire mesh 130. Similarly, a pump 31 furnishes cleansing water for the cans running upwardly through the chamber 12. The discharge pipe 32 from pump 31 has upper and lower branches 33, 34 supplying the pipes 22, 23 and trough 228 is provided at the bottom of chamber 12 from which trough leads a drain pipe 328 to a tank 35 having a filtering partition 36

corresponding with the partition 30. The numeral 37 indicates the supply pipe for pump 24, said pipe 37 leading from the tank 29. Similarly, the inlet pipe 38 to pump 31 leads from the tank 35.

The arrangement is such that the liquids before being drawn from the tanks 29, 35 are required to pass through the filtering partitions 30 and 36.

As the cans travel up the incline in the chamber 11, the cleansing fluid runs downward in the trough 128 to the drain pipe 28 and to tank 29. Similarly, the cans after travelling through the chamber 11 and down the runway 17 to the lower end of the chamber 12 will be subjected as they travel upward in said chamber 12 to the action of the washing water from the pipes 22, 23, the water collecting in the trough 128 and escaping by drain pipe 328 to tank 35. Thus, the liquids are directed to the cans in the reversely inclined chambers 11 and 12 and then by the troughs 128, 228 to drain pipes 28, 328 to the tanks 29 and 35 to be again pumped to the spray pipes in the chambers 11 and 12.

Distinct advantages result from the reverse inclining of the chambers 11 and 12. The arrangement materially promotes compactness in the disposing of the chamber side by side and reversely inclined and furthermore the tanks drain by their troughs 128 and 228 to opposite ends of the apparatus, thereby greatly promoting convenience in the arrangement of the pipes to conduct the water to the spray pipes and conduct the water away from the lower ends of the respective chambers.

Any suitable drive means may be provided for the carrying belts 13 and 14 and for driving the pumps 24, 31. I have indicated a shaft A and a counter-shaft B. From shaft B a belt C runs to the drive pulley D of belt 13, the other end of said belt running over an idler E. From shaft A belt F runs to drive pulley G at the upper end of belt 14, there being an idler H over which the belt runs at the lower end. A belt I driven by shaft A runs over the drive pulley J at the upper end of elevator 15. A belt K from shaft A drives the pump 24 and a belt L from shaft A drives pump 31.

I would state furthermore that while the illustrated example constitutes a practical embodiment of my invention, I do not limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. In a can cleaning apparatus, elongated chambers disposed side by side and reversely inclined to provide compactness, means to cause cans to travel through said chambers in succession, means to direct a cleansing liquid against the tops and bottoms of the cans in one of said chambers, means to direct rinsing water against the tops and bottoms of the cans in the second chamber, means connecting with the lower end of one chamber at one end of the apparatus to conduct away the sprayed liquid running down the said chamber, and means connecting with the lower end of the other chamber at the opposite end of the apparatus to conduct away water flowing down the other chamber.

2. In a can cleaning apparatus, reversely inclined chambers, means to cause cans to travel through said chambers in succession, means to direct a cleansing liquid against the tops and bottoms of the cans in the one chamber, and means to direct rinsing water against the tops and bottoms of the cans in the second chamber, the bottoms of said chambers constituting troughs to cause the cleansing liquid and washing water to flow to the lower ends of the respective chambers; together with separate collecting tanks, means to direct said cleansing liquid and rinsing water from the lower ends of said chambers to said separate tanks, and means to separately return said cleansing liquid and washing water to the respective chambers.

3. In a can cleaning apparatus, reversely inclined chambers, means to cause cans to travel through said chambers in succession, means to direct a cleansing liquid against the tops and bottoms of the cans in the one chamber, and means to direct washing water against the tops and bottoms of the cans in the second chamber, the bottoms of said chambers constituting troughs to cause the cleansing liquid and washing water to flow to the lower ends of the respective chambers; together with separate collecting tanks, means to direct said cleansing liquid and rinsing water from the lower ends of said chambers to said separate tanks, filtering partitions in said tanks, and means to pump liquids from the respective tanks, after passing through said partitions to the separate chambers.

4. An apparatus for washing cans, including reversely inclined chambers, means to cause cans to travel through one inclined chamber, means to direct the cans from said last-mentioned chamber to the lower end of the second chamber, means to subject the cans in the respective chambers in succession to a cleansing liquid and rinsing water, troughs beneath said chambers whereby the water will flow to the lower ends of said chambers, and means to separately collect the water from the respective troughs.

5. An apparatus for washing cans, including reversely inclined chambers, means to cause cans to travel through one inclined chamber, means to direct the cans from said

last-mentioned chamber to the lower end of the second chamber, means to subject the cans in the respective chambers in succession to a cleansing liquid and rinsing water, troughs at the bottoms of said chambers whereby the water will flow to the lower ends of said chambers, and means to separately collect the water from the respective chambers; together with pumps to pump the liquid and the water from the respective collecting means to the respective chambers.

6. In an apparatus for cleaning cans, a chamber, means for carrying cans through said chamber, pipes above and below said carrying means, the carrying means permitting the liquid from the pipes to pass therethrough, a second chamber, said first and second chambers being reversely inclined, means to carry the cans through said second chamber, spray pipes above and below the carrying means, said carrying means adapted to permit liquid to pass therethrough, and a horizontal perforated partition in said second chamber over which partition said carrying means runs, the bottoms of said chambers constituting troughs to cause the sprayed liquid and rinsing water to flow downward to the lower ends of the respective chambers.

7. In an apparatus for cleaning cans, a chamber, means for carrying cans through said chamber, pipes above and below said carrying means, the carrying means permitting the liquid from the pipes to pass therethrough, a second chamber, said first and second chambers being reversely inclined, means to carry the cans through said second chamber, spray pipes above and below the carrying means, said carrying means adapted to permit liquid to pass therethrough, and a horizontal perforated partition in said second chamber over which partition said carrying means runs, said pipes in the respective chambers having jet orifices in staggered relation, the bottoms of said chambers constituting troughs to cause the sprayed liquid and rinsing water to flow downward to the lower ends of the respective chambers.

8. In an apparatus for cleaning cans, chambers open for the passage of cans, means to cause the cans to travel through said chambers, and means to direct cleansing liquids against the cans in the respective chambers, said means to cause the cans to travel being formed of openwork belts presenting a supporting surface throughout the length of the belt to sustain the cans and permitting liquid to flow through said carrying means, the bottoms of said chambers constituting troughs to cause the sprayed liquid and rinsing water to flow downward to the lower ends of the respective chambers.

9. In a can cleaning apparatus, reversely inclined chambers, means to cause cans to travel through said chambers in succession, means to direct a cleansing liquid against the tops and bottoms of the cans in the one chamber, and means to direct rinsing water against the tops and bottoms of the cans in the second chamber, the bottoms of the said chambers constituting troughs to cause the cleansing liquid and washing water to flow to the lower ends of the respective chambers.

LORING EVERETT HOLMES.