Oct. 19, 1926.

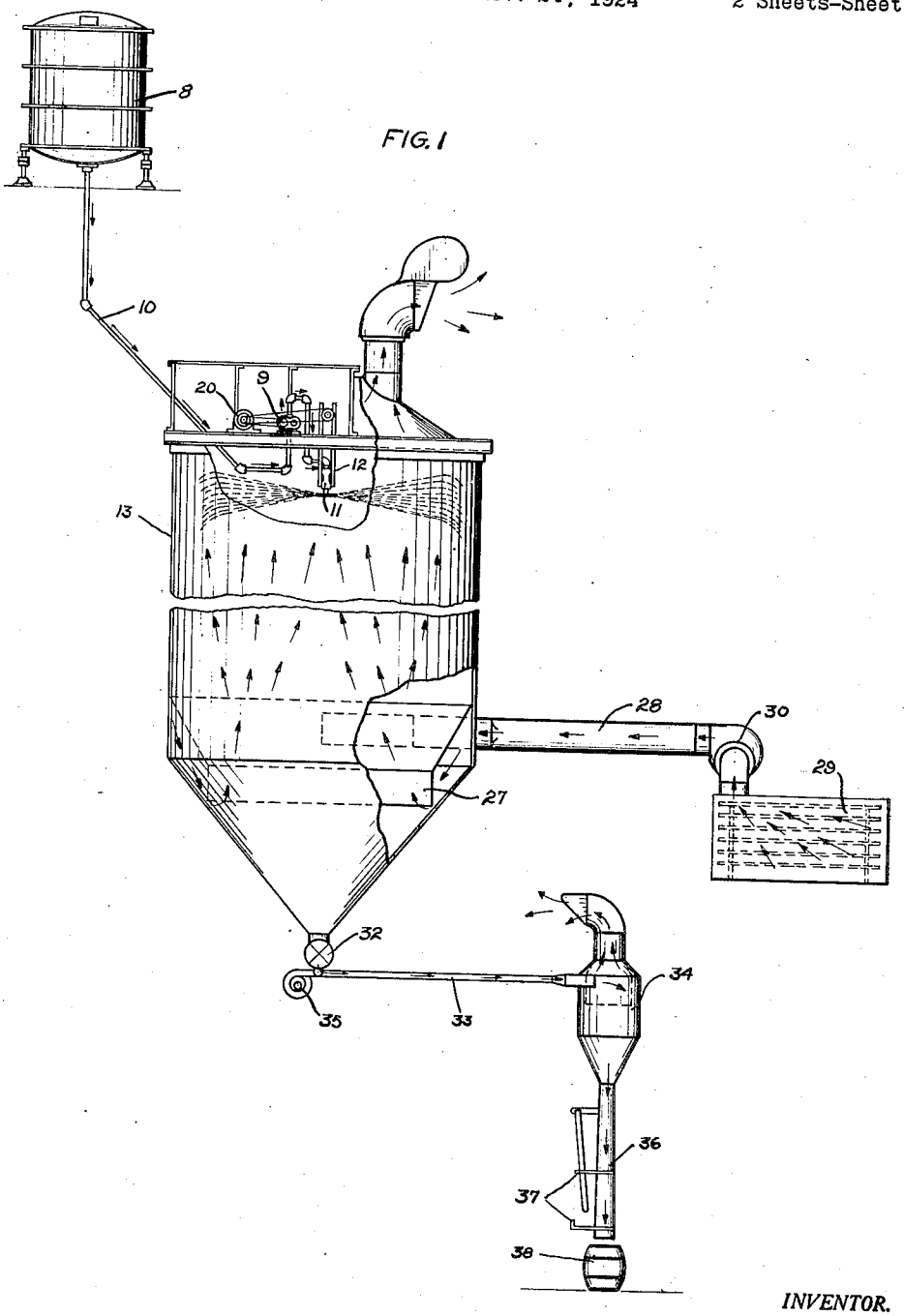
1,603,559

J. A. SCHWANTES

METHOD OF SHREDDING AND DRYING SOAP

Filed Nov. 24, 1924 2 Sheets-Sheet 1

FIG. 1



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FIG. 2

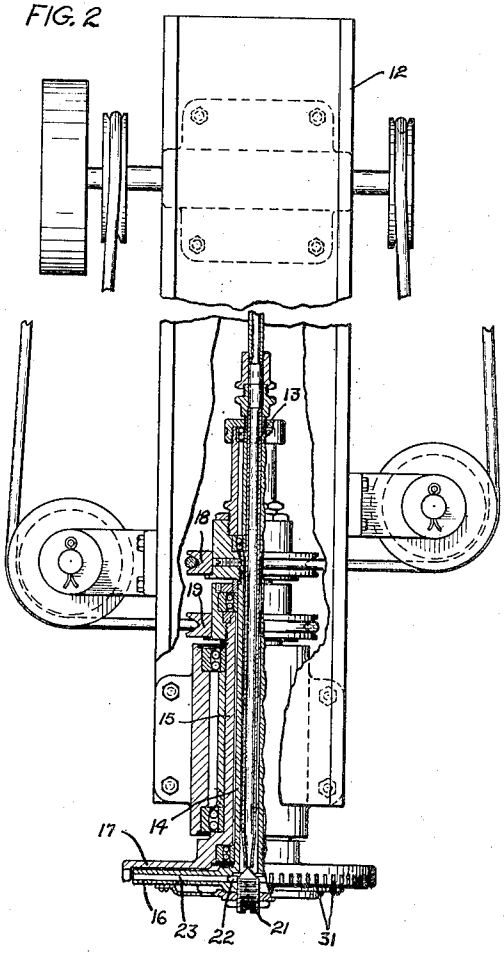


FIG. 3

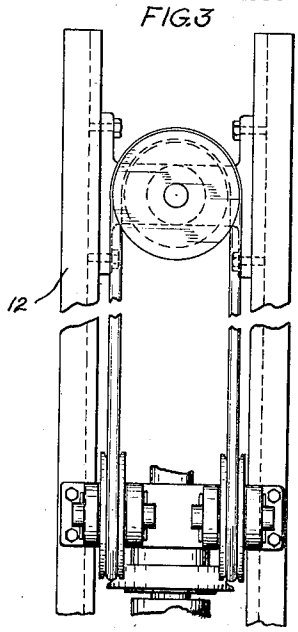
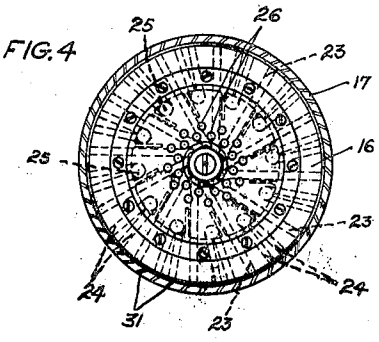


FIG. 4



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Patented Oct. 19, 1926. 1,603,559

UNITED STATES PATENT OFFICE.

JULIUS A. SCHWANTES, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE PALMOLIVE COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

METHOD OF SHREDDING AND DRYING SOAP.

Application filed November 24, 1924. Serial No. 751,889.

This invention relates to improvements in the method of shredding and drying soap.

Shredded soap has peculiar qualities which make it very more desirable for certain forms of use than powdered soap, but heretofore it has been very difficult to shred soap.

It is, therefore, one of the objects of the present invention to provide a new method of thoroughly and efficiently shredding soap.

A further object of the invention is to provide a method of drying soap shreds immediately after their formation.

A further object of the invention is to provide a new method of shredding and drying soap which may be carried out in a very simple and inexpensive manner.

With the above and other objects in view, the invention consists of the improved method of shredding and drying soap, and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a side view, parts being broken away, of the apparatus employed in shredding and drying soap under the new method of manufacture;

Fig. 2 is an enlarged detail view of the shredding mechanism, parts being broken away and shown in section;

Fig. 3 is a fragmentary side view thereof to show the belt and pulley arrangement; and

Fig. 4 is a bottom view of the shredding discs employed.

In the improved method of shredding and drying soap, a tank or vat 8 is provided and the same is filled with hot liquid or semi-liquid soap from whence the soap is allowed to flow, by the combined means of gravity and a motor operated pump 9, through a feed pipe 10 and into the top portion of a tubular shredding member 11 within an enlarged tank or chamber 13.

The shredding member 11 is carried by a frame 12 and consists essentially of a tubular stem 13 surrounded by a pair of sleeve members 14 and 15 formed with disc shaped lower end portions 16 and 17 respectively, the members 14 and 15 being revolved in opposite directions by means of pulleys 18 and 19 connected thereto and in belted connection with a motor 20.

The melted soap is forced down the stem 13 and the lower end portion of the stem is fitted with an adjusting screw 21 to diminish or increase the outlet opening of the stem. The stem opens into a reservoir portion 22 in the center of the disc 16 into which the melted soap is gradually deposited and from there the soap is thrown by centrifugal force through tangential vents 23 in the disc 16. The disc 16 also has short vents 24, medial openings 25 and center openings 26 through which the soap shreds may pass and the openings 26 also allow the entrance of warm air to contact with and act on the soap within the disc vents. The warm air for that purpose rises from an air chamber 27 positioned within the lower portion of the tank 13, the chamber being fed with warm air by a pipe 28 having its outer end in connection with a plurality of heating coils 29. A blower within the pipe 28 at the point 30 draws in air over the coils and forces said air into the air chamber 27 from whence it rises.

As was mentioned, the discs 16 and 17 revolve in opposite directions and the soap forced through the disc 16 is shredded between the two revolving discs while passing through the disc apertures and vents. Most of the shredded soap finds its way through slots 31 formed in the flange of the disc 17 and the shredded soap is from there thrown outwardly by centrifugal force. As the soap shreds fall to the bottom of the tank all parts of the surface of each shred are acted on by the warm air within the tank, with the result that each shred is thoroughly dried by the time it reaches the bottom of the tank 13.

The discharge of shredded soap from the tank 13 is regulated by means of a revolving gate 32 in the lower portion of the tank, said gate regulating the opening to a pipe 33 which has one end connected to a cyclone member 34 which creates a suction to draw the soap shreds through the pipe 33 and also drawing in cool atmospheric air through a blower 35 to cool the shreds. The cyclone member has a discharge pipe

36, regulated by hand valves 37, through which the shredded soap passes to be deposited in suitable containers 38.

Thus, it will be seen that in the improved method hot soap is fed to a shredder, which discharges soap shreds, the soap shreds are dried while falling from the shredder, and are then cooled and discharged for packing. Furthermore, the improved method of shredding and drying soap is very simple and efficient.

What I claim as my invention is:

1. The method of shredding and drying soap which consists of providing a quantity of fluid soap, conveying the soap to a rotary shredding member, shredding the soap within the rotary member by the action of the same, discharging the shredded soap from the rotary member by centrifugal action, subjecting the shreds of soap while under centrifugal action to a drying medium, and then permitting the soap shreds to fall to a position of discharge.

2. The method of shredding and drying soap, which consists of providing a quantity of fluid soap, conveying the soap to a rotary member having tangential discharge and intermittently registering ducts whereby the soap is shredded, discharging the soap from the rotary member through the discharge ducts by centrifugal action, subjecting the shreds of soap while under centrifugal action to a drying medium, and then permitting the soap shreds to fall to a position of discharge.

3. The method of shredding and drying soap, which consists of providing a quantity of fluid soap, feeding the liquid soap into a rotary member, breaking up the soap while passing through the rotary member into minute particles, discharging the soap particles from the rotary member by centrifugal force, subjecting the particles of soap while under centrifugal action to a drying fluid to form shreds and then permitting the soap shreds to fall to a position of discharge.

4. The method of shredding and drying soap, which consists of providing a quantity of fluid soap, feeding the fluid soap to a pressure medium, forcing the soap under pressure to a rotary member shredding the soap within the rotary member, discharging the soap in minute shreds from the rotary member by centrifugal force and allowing the shreds to fall, absorbing moisture from the soap shreds while the same are falling, and then discharging the soap shreds thus formed to containers.

5. The method of shredding and drying soap, which consists of providing a quantity of fluid soap, feeding the soap to a pressure medium, forcing the soap under pressure through a pair of oppositely revolving duct members wherein the soap is shredded by the action of said members and from where the soap is discharged by centrifugal force, subjecting the shreds of soap while under centrifugal action to a drying fluid, and then permitting the soap shreds to fall to a position of discharge.

6. The method of shredding and drying soap, which consists of providing a quantity of fluid soap, conveying the soap to a pressure medium, forcing the soap under pressure through and between a pair of oppositely revolving members formed with ducts wherein the soap is subjected to a shearing action, discharging the soap in elongated particles from said revolving members and into a chamber by centrifugal force, subjecting the soap particles within the chamber to a drying fluid, and then drawing the soap particles from the chamber to a position of discharge and subjecting the particles to a cooling fluid while the same are being drawn from the chamber.

7. The method of shredding and drying soap, which consists of introducing hot, liquid soap, into a vat, conveying the liquid soap from the vat to a pump, forcing the soap from the pump through and between a pair of oppositely revolving discs formed with tangential ducts wherein the soap is subjected to a shearing and severing action, discharging the soap by centrifugal force in minute particles from said discs into a chamber, introducing heated air into said chamber, allowing said particles of soap to fall to the bottom of the chamber and to be dried by said heated air while falling, drawing the soap shreds thus formed from said chamber into a discharge pipe, and subjecting the shreds to cool air while in said discharge pipe.

In testimony whereof, I affix my signature.

JULIUS A. SCHWANTES.