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WATER AGITATOR FOR ICE CANS.

APPLICATION FILED SEPT. 10, 1913.

1,137,551.

Patented Apr. 27, 1915.

2 SHEETS—SHEET 1.

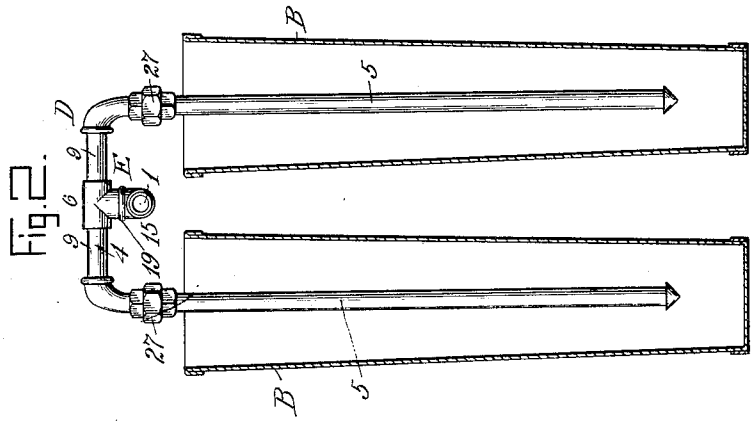

Fig. 2.

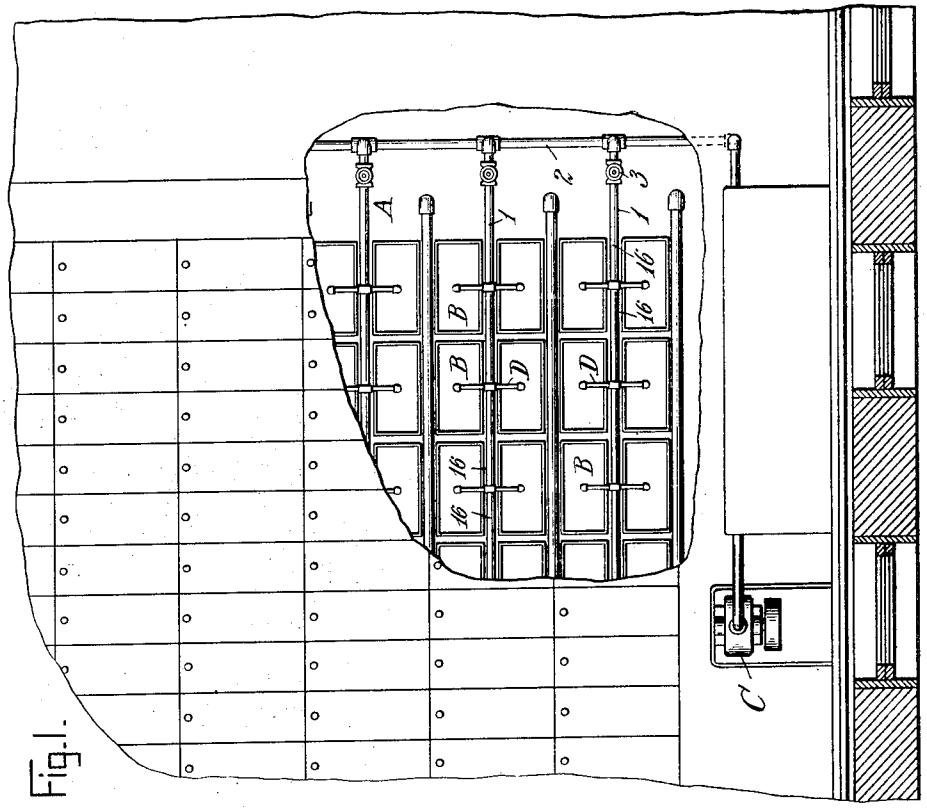

Fig. 1.

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Fig. 3.

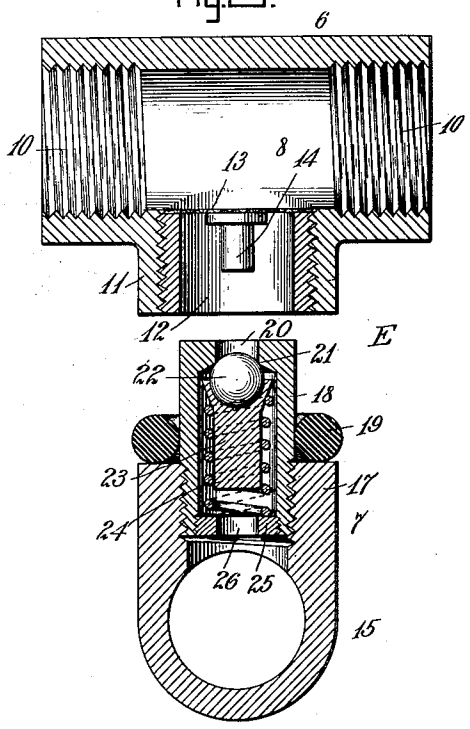


Fig. 4.

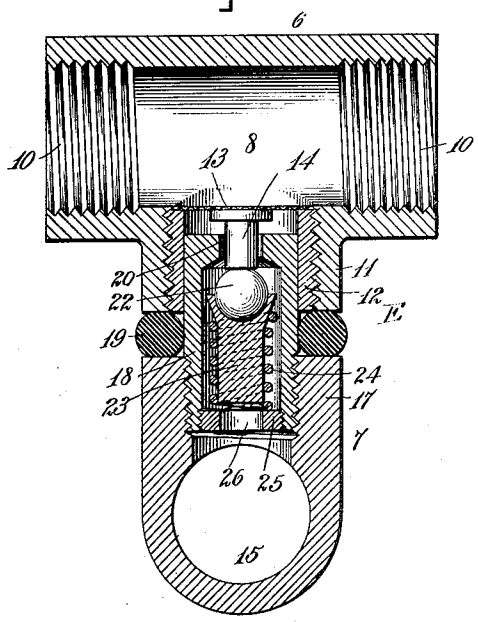
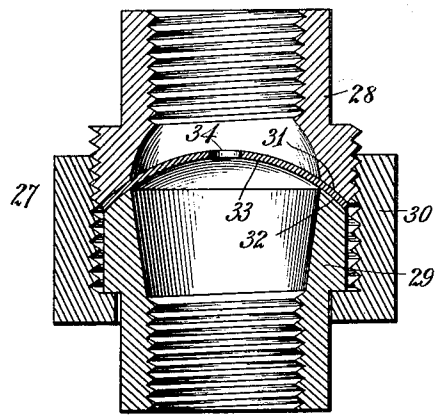


Fig. 5.



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WATER-AGITATOR FOR ICE-CANS.

1,137,551. Specification of Letters Patent. Patented Apr. 27, 1915.

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To all whom it may concern:

Be it known that we, JOSEPH C. TABY, JAMES H. STRAUB, and DAVID M. MAURER, citizens of the United States, and residents of Shamokin, in the county of Northumberland and State of Pennsylvania, have invented a new and Improved Water-Agitator for Ice-Cans, of which the following is a full, clear, and exact description.

This invention relates to the art of making artificial ice and has to deal more particularly with means for agitating the water in the ice cans in the early stage of freezing.

It has for its general objects to improve and simplify the construction and operation of air supply devices for ice cans so as to be reliable and efficient in use and so designed as to economize the time of the attendant and be comparatively inexpensive to install and keep in operative condition.

Another object of the invention is the provision of an air distributing system in which there is arranged on each pipe line running along the rows of tanks a plurality of removable agitating nozzles that discharge air into the water in the tanks for agitating the water during the process of freezing, there being self-closing valves in the distributing main which automatically open when the nozzles are placed in position on the pipe and automatically close when the nozzles are removed.

Another object is to so mount the agitating nozzle on the distributing pipe that the nozzles can be oscillated back and forth by the attendant to test the condition of the ice in the process of freezing.

Still another object is the provision of means for excluding the entrance of dust into the nozzles and clogging the same, and also the provision of a perforated diaphragm in each nozzle valve by which the air supplied to the nozzles is controlled.

With these objects in view, and others as will appear as the description proceeds, the invention comprises various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, and wherein similar reference characters are employed to designate corresponding parts throughout the several views, Figure 1 is a plan view of a portion of the flushing floor of an ice plant; Fig. 2 is an enlarged sectional view of a pair of ice cans and agitating nozzles therein; Fig. 3 is an enlarged sectional view of the coupling and valve device between each set of nozzles and distributing pipe; Fig. 4 is a similar view showing the valve open for admitting air from the distributing pipe to the agitating nozzles; and Fig. 5 is a sectional view of the coupling between each nozzle and its supporting yoke.

Referring to the drawing, A designates a brine tank in which are arranged rows of ice cans B, and extending between every two rows is an air distributing pipe 1, such pipes being connected with a manifold 2 leading to a source of air under pressure, such as a blower C, and in each distributing main or pipe 1 is a cut-off valve 3. Arranged in spaced relation on each distributing pipe 1 is an agitating device D which consists of a yoke 4 formed of pipe and agitating nozzles 5 depending therefrom, as shown in Fig. 2, the nozzles being spaced apart so that each yoke will supply air to a pair of ice cans B. A combined coupling and valve device E removably and movably connects the agitating device D with the distributing main 1, such device E being shown in detail in Fig. 4. The two sections 6 and 7 of the coupling and valve device E are arranged one above the other, the former being a T-coupling 8 which has the tubular members 9 of the yoke screwed into the ends 10 of the coupling. The boss 11 of the coupling 8 is fitted with a smooth bore bushing 12 that has fastened thereto a screen 13 which serves to prevent dirt from entering the agitating device, and on this screen is a depending stud 14 which is adapted to engage and open the automatic air valve in the section 7 of the device E. This section 7 consists of a T-coupling 15 for connection with the sections 16 of the distributing pipe 1, and the central boss 17

of the coupling 15 has a bushing 18 projecting therefrom, said bushing constituting a nipple and being smooth externally and of such diameter as to have a sliding but close fit in the bushing 12. Surrounding this nipple 18 is a rubber gasket 19 that is adapted to form an air-tight joint between the two couplings 8 and 15, as in Fig. 4, the weight of the agitating device serving to maintain the gasket under compression.

Within the nipple or bushing 18 is an outlet port 20 that terminates in a valve seat 21 that is adapted to be engaged by a ball valve 22. This valve 22 is sustained by a follower 23 slidably mounted in the bushing and is supported by a helical compression spring 24 which rests on a shoulder 25 at the inner end of the bushing 18. The inner end of the bushing has an inlet port 26 that communicates with the air distributing pipe 1, so that when the valve is opened air passes through the coupling and valve device E to the nozzles 5. In placing the agitating device D on the distributing pipe the stud 14 of the agitating device enters the port 20 and engages the valve 21, pressing the latter downwardly to open position against the tension of the spring 24. This opening or unseating of the valve occurs automatically in the placing of the agitating device so that the operator does not have to turn on a valve to supply air to the ice tanks, and obviously the removal of the agitating device D from the distributing pipe 1 is accompanied by the automatic closing of the valve 22, since in the removing of the agitating device the stud 14 is disengaged from the valve. The agitating device D is pivotally connected with the distributing pipe so that the said device can have a limited oscillatory movement, and this is made use of by the attendant in order to test to what degree the ice has formed in the ice tanks, and by this means he can tell when the agitating device should be removed and the pumping out of the dirty water from the ice cans started.

The arms of the yoke forming the head of the agitating device are connected with the nozzles 5 by couplings 27, the details of which are shown in Fig. 5. These couplings consist of mating members 28 and 29 united by a nut 30, and between the ground faces 31 and 32 of the coupling members 28 and 29 is clamped a diaphragm 33 of lead or other suitable material having a central opening 34. These diaphragms in the various agitating nozzles control the supply of air in such a manner that all the nozzles connected with a distributing main will receive their proper proportion.

The arrangement of the air distributing system herein shown and described is advantageous in that the self-closing valve eliminates the loss of time and trouble on the part of the attendant in going to the inlet end of the distributing main to turn off the supply of air when the air is no longer required for a row of ice cans supplied by such main. Furthermore, instead of shutting off the air from the entire row of cans at once the particular arrangement of nozzle devices allows the air to circulate in each can independently of the other cans, since each nozzle device is operative until it is removed from the can. The loose joint between the nipples and nozzle devices permits the attendant to swing the said devices back and forth to ascertain how near the water is frozen and ready for pumping out the dirty water. The screens at the inlets of the nozzle devices prevent the latter from becoming clogged, so that a continuous flow of air is obtainable during the period of agitation.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while we have described the principle of operation, together with the system which we now consider to be the best embodiment thereof, we desire to have it understood that the system shown is merely illustrative, and that such changes may be made when desired as are within the scope of the appended claims.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. In an apparatus of the class described, the combination of an air distributing pipe, a nipple extending upwardly therefrom and having a smooth exterior, a nozzle having a coupling provided with a smooth interior to slip on and off the nipple, a self-closing valve in the nipple, a screen in the coupling, and a device carried by the screen for entering the nipple and unseating the valve by the placing of the nozzle on the nipple.

2. In an apparatus of the class described, the combination of an air distributing pipe, a nipple extending upwardly therefrom, an agitating nozzle having a coupling provided with an inlet for fitting over the nipple, a gasket on the nipple arranged to be engaged by the coupling, whereby the weight of the nipple is brought to bear on the gasket to maintain an air-tight joint while permitting the nozzle to be moved around the nipple as a center, and a valve in the nipple arranged to be automatically closed by the removal of the nozzle.

3. In an apparatus of the class described, an agitating device comprising a yoke, a nozzle, a coupling connecting the nozzle with the yoke, and a diaphragm in the cou-

pling and having an opening through which the air passes from the yoke to the nozzle.

4. In an apparatus of the class described, an agitating device comprising a yoke including a central inlet coupling, a screen in the inlet, a valve-unseating means carried by the screen, and nozzles on the ends of the yoke.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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Witnesses:
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