Aug. 9, 1927. 1,638,776

J. A. MARTOCELLO

RAW WATER SYSTEM FOR MAKING ICE

Filed Sept. 26, 1922

Fig. 1.

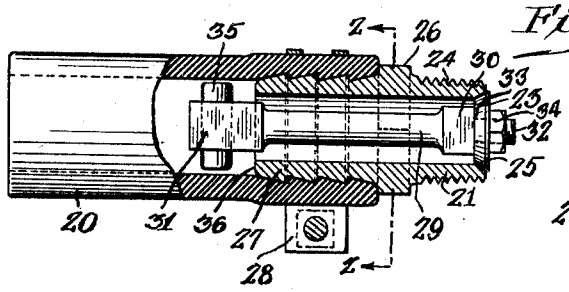


Fig. 2.

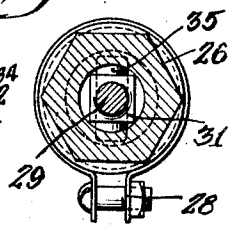


Fig. 3.

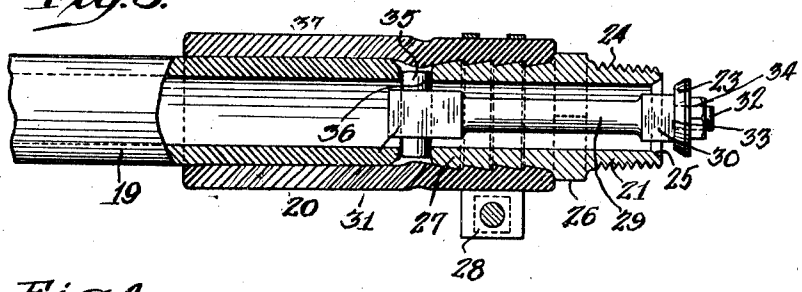


Fig. 4.

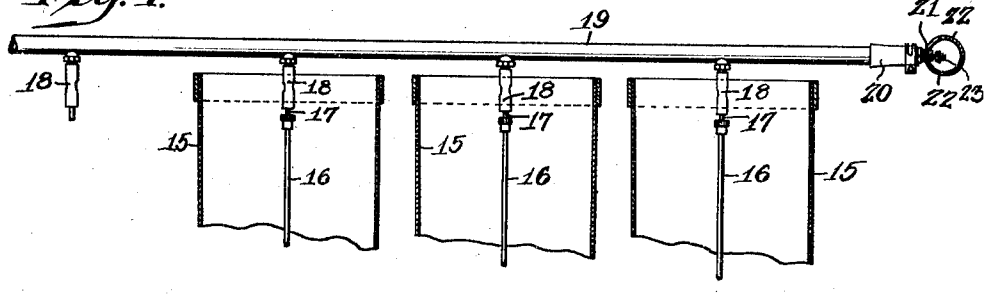
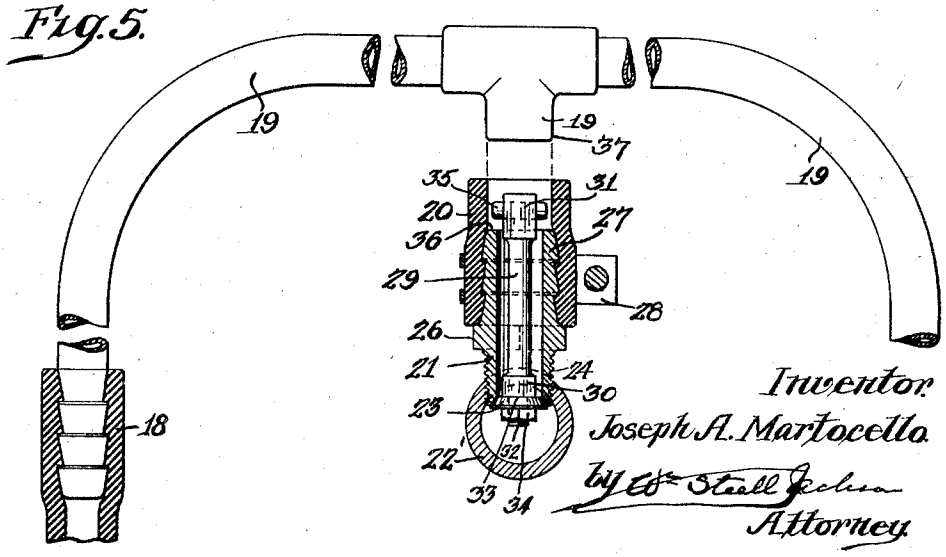


Fig. 5.



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UNITED STATES PATENT OFFICE.

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RAW-WATER SYSTEM FOR MAKING ICE.

Application filed September 26, 1922. Serial No. 590,585.

My invention relates to devices for air agitation of raw water within ice cans when making artificial ice, and more particularly relates to means for controlling an automatic valve in the air supply.

The purpose of my invention is to provide a quick and easy flexible connection from an air lateral to the air distributing pipe within an ice can, using an ordinary pipe or pipe fitting to open an automatic valve and to keep it open while the connection is made.

A further purpose is to cheapen and simplify the device by using an ordinary pipe end as the valve-operating means.

A further purpose is to provide a valve-operating couple within a flexible connection by which an air pipe may be suspended or otherwise connected from a lateral or a feeder for several such pipes may be so connected to any air supply pipe without requiring centering of the pipe or feeder with respect to the opening in the lateral.

Further purposes will appear in the specification and in the claims.

I have preferred to illustrate my invention by but one general form, showing two applications of it which have proved to be simple, effective and inexpensive and which at the same time well illustrate the principles of my invention.

Figure 1 is a broken sectional elevation illustrating one application of my invention, the valve being in closed position.

Figure 2 is a section through the line 2—2 of Figure 1.

Figure 3 is a broken sectional elevation similar to Figure 1 but showing the end of the supply pipe holding the valve open.

Figure 4 is a broken sectional elevation to reduced scale illustrating connections for the supply of air to several cans upon the same side of the lateral.

Figure 5 is a broken and partly sectional elevation, to larger scale than Figure 4, illustrating connections to supply cans upon both sides of the lateral.

In the drawings like numbers refer to like parts in all figures.

Describing in illustration and not in limitation and referring to the drawings:—

In making artificial ice in cans, raw water in cans 15 surrounded by cold brine, is agitated by air from depending air-tubes 16 until ice closes the tube outlets and the tubes freeze in. The tubes are preferably placed substantially coaxial with the cans so as to remain open as long as possible, the water along the can axis being last to freeze.

After the tubes are frozen in they are disconnected and a thawing needle is applied to remove the pipe. I connect and disconnect at a point where the combined structure secures other advantages, by nipples 17 in hose connections 18 from the air-supply pipe 19. This supply pipe is connected by flexible hose connection 20 and the nipple 21 with the air lateral 22, controlled by an automatic valve 23, which closes in the direction of air travel.

So far as I am aware all previous valve connections have been complicated by requiring a specially prepared terminal upon the distributing pipe which is connected with the lateral, whereas I adapt the valve to automatic opening on connection with any pipe (under which term I aim to include also the tubular ends of T's or other fittings) both to reduce the expense and to facilitate substitution of other connecting parts.

The nipple 21 is threaded at 24 so that it may be screwed into the lateral and carries a valve seat 25 at its threaded end. An intermediate polygonal wrench hold 26 is provided and the shank 27 is fitted to receive flexible hose connection 20, conveniently clamped to it by clamp 28.

The valve disc 23 is carried coaxial with the nipple 21 and valve seat 25 upon a stem 29 within and through the nipple. The stem member has non-circular and preferably substantially square portions 30 and 31 loosely fitting the interior of the nipple near each end and serving to maintain the stem and valve coaxial with the nipple while permitting the air to pass the stem.

The disc 23 fits over a threaded end 32 of the stem and is held in place against the shoulder 33 by nut 34.

The pin 35 passes through the end of the stem and limits the opening of the valve by stop engagement with the end 36 of the nipple, the stop pin being so placed as to limit the maximum air delivery to that merely adequate for proper service.

The transverse air supply pipe 19 is preferably tapered slightly at the extreme end, 37 to fit within the hose connection 20 and when in place for air supply to the air-tubes 16 engages the pin 35 to open the valve and to maintain it open as long as connection is made. The movement of the pin is stopped

by the end of the nipple, as best seen in Figure 3. It will be noted that the end of the pipe need not be specially prepared nor turned in any special position, that the size of the pipe may be varied within the range of gripping connection with the hose coupling and that no exact alignment of axis or direction of the pipe is required.

When the air-supply pipe is disconnected so that the cans may be lifted out, the valve is free to close, and does so by reason of the greater pressure within the lateral as compared to the pressure on the discharge side of the valve.

Figures 4 and 5 show respectively different ways of placing the air-supply pipe with respect to the air lateral.

In Figure 4 the flexibility of the connection not only frees from necessity for matching up the axis and direction of the air tube with the nipple but permits the air tube to hang freely in a vertical position even if the nipple be slightly misplaced in direction or position. A ferrule is shown between pipe 16 and the hose but connection can be made direct between pipe and hose.

In Figure 5 the air-supply pipe supplies air tubes on both sides of the lateral and in order that it may lift away when disconnected from the air tubes is placed above the lateral, the connection into the lateral being on the top instead of the side, as shown in Figure 4. Corresponding members of Figures 4 and 5 are given the same numerals and the description applies to both. A ferrule can be used between the tube 19 and the air pipe in Figure 5 similar to the ferrule in Figure 4.

In view of my invention and disclosure modifications and variations will doubtless become evident to others skilled in the art and it is my wish to include herein all such as fall within the reasonable spirit and scope of my claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a system for supplying agitating air to ice cans, the combination of an air supply pipe, a valve body therein having an inwardly facing seat at its inner end, a valve in the body, a pipe to which the air is to be supplied, a flexible connection between the valve body and the pipe, a stem for the valve extending through the body and a projection upon the stem engaged by the end of the pipe to open the valve.

2. In a system for supplying agitating air to ice cans, the combination of an air lateral, a valve body connected therewith and having a valve seat in the body and within lateral, a valve engaging the valve seat and closing in the direction of air flow, a conduit with which the valve is to be connected to pass the air to the cans, a fluid tight union surrounding the valve body and the conduit and permitting movement of the conduit thereinto, a valve stem for the valve and means upon the valve stem engaged by the end of the conduit for operating the stem with sliding movement of the conduit within the union.

3. In the air system of an ice plant, an air lateral, a nipple tapped thereinto having an inwardly facing valve seat at its inner end and a shank for hose connection at its outer end, a hose connection upon the shank, a valve within the lateral adapted to fit the seat, a stem member carrying the valve and extending through the nipple and having a non-circular portion within and loosely fitting the nipple near its inner end, means for maintaining the outer end of the stem member substantially central of the nipple, a stop upon the outer end of the stem and without the nipple for limiting the inward position of the valve by stop engagement with the end of the nipple, and an air-supply pipe having the end fitting the hose connection and adapted when in place to inwardly position the stop.

4. In the air system of an ice plant, an air lateral, a nipple tapped thereinto having an inwardly facing valve seat at its inner end and a shank for hose connection at its outer end, a hose connection upon the shank, a valve within the lateral adapted to fit the seat, a stem member carrying the valve, extending through the nipple and having a non-circular portion within and near each end of the nipple loosely fitting the nipple for maintaining the stem and nipple substantially coaxial, a stop upon the outer end of the stem member without the nipple for limiting the opening of the valve by stop engagement with the shank, a transverse air-supply pipe and a T within the air supply pipe, fitting the hose connection and adapted when in place to inwardly position the valve.

5. In the air system of an ice plant, an air lateral, a nipple tapped thereinto having an inwardly facing valve seat at its inner end and a shank for hose connection at its outer end, a hose connection upon the shank, a valve within the lateral adapted to fit the seat, a stem member carrying the valve, extending through the nipple and having a substantially square portion within and near each end of the nipple loosely fitting the nipple for maintaining the stem member and nipple substantially coaxial, a stop upon the outer end of the stem member without the nipple for limiting the opening of the valve by stop engagement with the shank, a transverse air-supply pipe and a T within the air supply pipe fitting the hose connection and adapted when in place to inwardly position the valve.

6. In the air system of an ice plant, an

air lateral, a nipple tapped thereinto having a valve seat at its inner end and a shank for hose connection at its outer end, a hose connection upon the shank, a valve disc within the lateral adapted to fit the seat, a stem member extending through the nipple having a shoulder and an inwardly extending threaded portion therefrom through the disc and a nut thereon clamping the disc against the shoulder, a noncircular portion upon the stem and within and near each end of the nipple loosely fitting the nipple for maintaining the stem member and nipple substantially coaxial, a pin through the outer end of the stem member without the nipple for limiting the opening of the valve by stop engagement with the shank, a transverse air-supply pipe and a T within the air supply pipe fitting the hose connection and adapted when in place to inwardly position the valve.

JOSEPH A. MARTOCELLO.