

(No Model.)

2 Sheets—Sheet 1.

A. RUEMMELI & F. BAUER.
ICE DISCHARGING APPARATUS.

No. 469,320.

Patented Feb. 23, 1892.

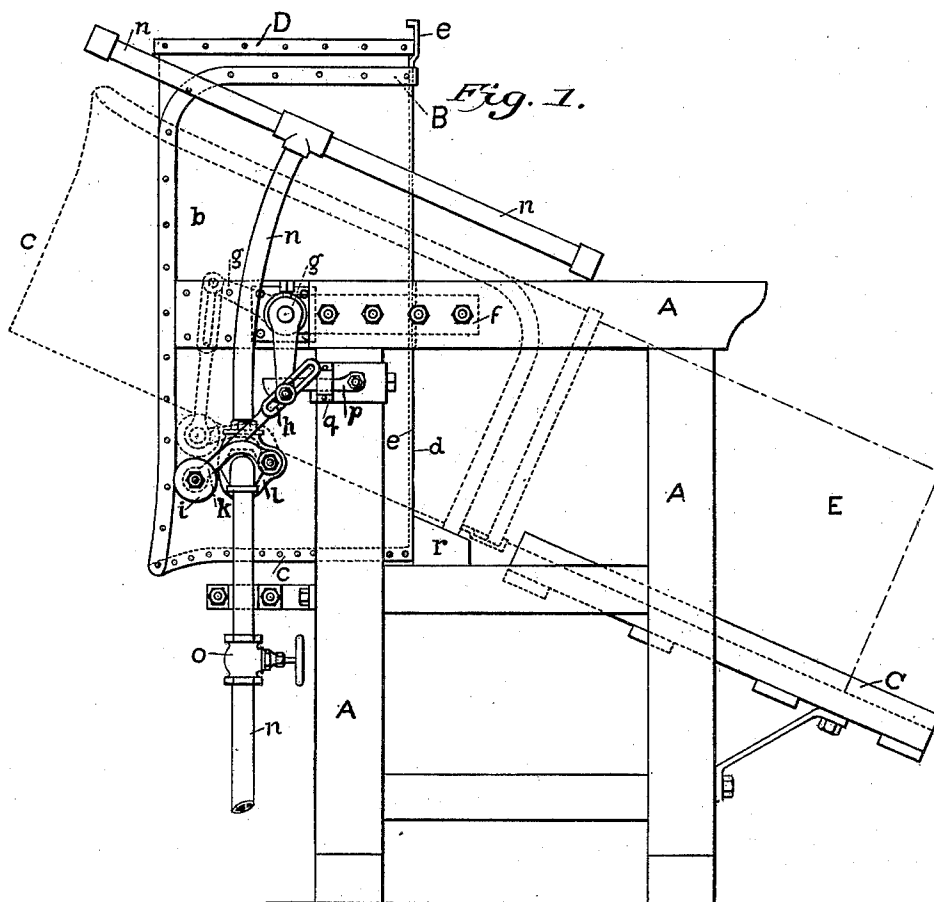
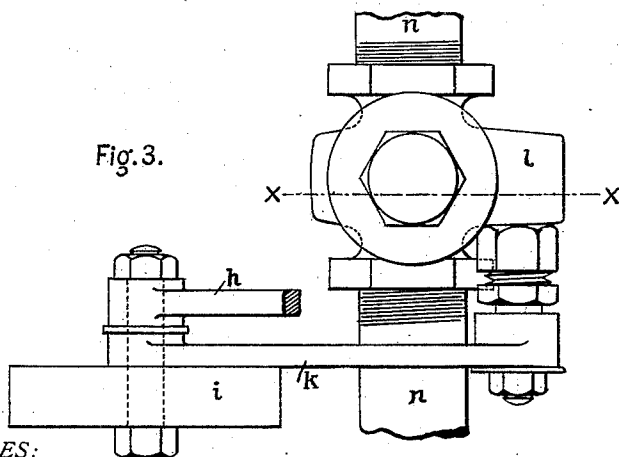


Fig. 3.



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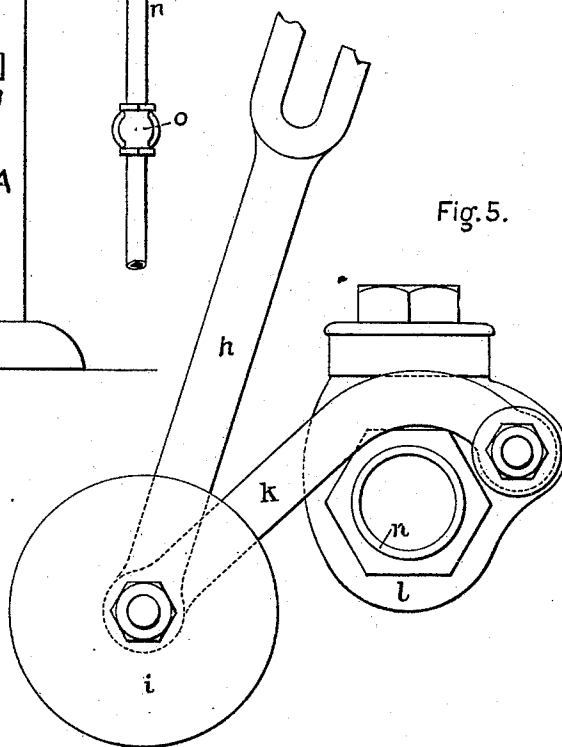
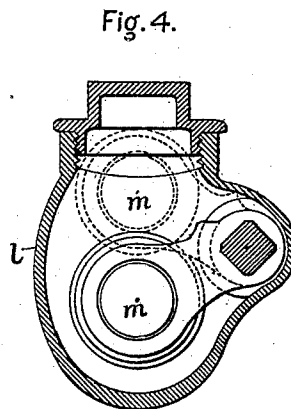
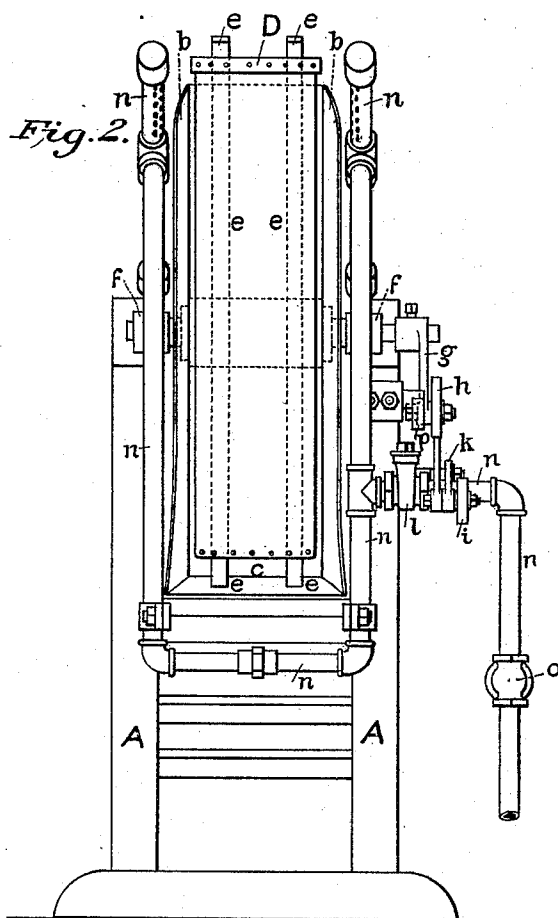
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WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT RUEMMELI AND FERDINAND BAUER, OF ST. LOUIS, MISSOURI, ASSIGNORS TO THE DE LA VERGNE REFRIGERATING MACHINE COMPANY, OF NEW YORK.

ICE-DISCHARGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 469,320, dated February 23, 1892.

Application filed September 1, 1890. Serial No. 363,725. (No model.)

To all whom it may concern:

Be it known that we, ALBERT RUEMMELI, a citizen of the Republic of Switzerland, and FERDINAND BAUER, a subject to the Emperor of Germany, and residents of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Ice-Discharging Apparatus, of which the following is such a full, clear, concise, and exact description as will enable others skilled in the art to which our invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Our invention is especially applicable for use in connection with apparatus for the production of artificial ice by the freezing of water in cans or molds. When thus formed the ice has to be released from its adherence to the can or mold before it can be taken out for delivery and use. The methods heretofore most generally practiced for removing the ice from the cans have been to sprinkle the can with water and lift and upset it by hand, or else to dip the can in water and afterward upset and lift it in like manner. Such methods, however, are both cumbersome and expensive, and frequently result in unnecessary loss of ice by its remaining too long in contact with the water as well as by exposure during the slow process of handling.

The object of our invention is to provide means for removing the ice from the cans or molds in a more rapid and less expensive manner than heretofore.

To these ends the invention consists in the construction and arrangement of suitable mechanical appliances which may, if desired, be automatically operated and effect the removal of the ice in a rapid and easy manner.

The accompanying drawings illustrate the apparatus as we prefer to make it, with all the parts which are either essential or convenient for use in ordinary practice; but the principal features of the construction may be carried into effect by modifications or changes of detail which will readily suggest themselves.

In the drawings, Figure 1 is a side eleva-

tion of the sprinkling apparatus, its frame-work, and connections, with an ice-can in place, and shows by dotted lines the inclined position assumed by the receiver and can containing ice when partially rotated and with the block of ice indicated as in the act of slipping from the can. Fig. 2 is a front elevation of the apparatus, frame-work, and connections, also with the ice-can in place, and shows the receiver with the can in a normal or vertical position. Fig. 3 is an enlarged plan view of a valve and connections for controlling the admission of water to the can when placed in the receiver. Fig. 4 is also an enlarged sectional view of the valve shown by Fig. 3, taken on the line *xx* of that figure; and Fig. 5 is an enlarged side view of the valve and part shown in Fig. 3.

In the drawings, *A A* represent a frame or support, consisting of upright posts with cross-pieces suitably secured by mortises or bolts, the posts or upright pieces being of such distance apart as to leave space between them for the can-receiver *B* and its connections, which are attached in their proper places. The frame may be of any material and of any form which adapts it to support the receiver and permit the discharge of ice, but is shown as of wood and provided with a chute *C*, down which the blocks of ice slide when loosened from the can.

The can-receiver *B* is preferably constructed of sheet metal, having two sides *b b*, with a bottom *c* and a closed back *d*, the top and front being open. The receiver *B* should have considerable strength, which may be given it by bands bolted or riveted thereto, and we prefer to have two iron bands *e e* placed on the inside of the back and along the bottom, which are given a slight bend as they pass outward from the open end, beyond which they extend for a short distance and terminate in a brace or hook for holding the ice-can from slipping out when it assumes its inclined position above the chute. One of these bands *e*, with its terminal extension and hook, appears in side view in Fig. 1, the portion within the receiver being indicated by dotted lines, and both of the plates *e e* appear in

front view in Fig. 2, parts behind the ice-can D, shown in the receiver, being indicated by dotted lines.

The can-receiver B is supported by suitable bearings or plates *ff*, secured to and extending outward from the top pieces of the frame A, in which bearings it is journaled or pivotally hung, thus allowing a partial rotation or swinging movement. The journals or trunnions of the receiver B are preferably eccentric thereto and so disposed with reference to the weight as to permit the receiver with an empty ice-can therein, by the aid of a slight counter-weight, to find its equilibrium in an upright position.

On one side of the frame the journal or trunnion of the receiver extends outward for a short distance beyond its bearing and is provided with an arm or lever *g*, which is rigidly secured and moves with the trunnion whenever the receiver is tipped or rotated by the weight of the ice in the can. The opposite end of the lever-arm *g* is provided with a bolt or projecting lug, which passes through the slotted end of another arm or lever *h* and secures the same by a nut or retaining device on the outer side of the slot. The lever *h* extends at an angle from the arm *g* and carries a weight *i*, connected by a pin passing through its opposite end, for counterbalancing the receiver and can when relieved of the weight of the ice. The outer end of the arm *h* also connects by a bolt or pivot with the outer end of a curved arm or lever *k*. The lever *k* passes over or across a pipe-fitting *l* and connects by a suitable bolt with the valve *m* on the inner side of the fitting *l*. The valve *m* may be of any suitable construction, but is shown in the form of an eccentric, which opens and closes an opening in the valve-casing, communicating on opposite sides with pipes *n* for supplying water to the can. The pipes *n* may lead from any suitable water-supply or be connected therewith by means of a hose, and the water can be entirely shut off whenever desired by a valve *o*. The pipes *n* extend partly up the sides of the receiver B, communicating by an extension across the frame below the receiver, and are provided with branch pipes about the length of the ice-can, which are set at about the angle or incline assumed by the can when the receiver is rotated to permit the discharge of the ice from the can onto and down the chute. These inclined branch pipes are provided with perforations or openings for admitting or sprinkling the water upon the top and around the sides of the can when the same is placed in the receiver and assumes its inclined position. The bolt which connects the lever-arm *g* with the slotted lever *h* is preferably provided with a head on the opposite end thereof, one portion of which is shaped so as to form a tooth or an acute-angled surface for receiving a hook or ratchet upon the end of a pawl or drop lever *p*, which is secured at its opposite end to one of the upright posts of the frame,

such pawl being limited in its movement by a strap *q*, through which it passes. This pawl or drop lever acts to hold the receiver in a vertical position until it be desired to admit the water to a can filled with ice.

The operation of the apparatus commences when the can in which the ice is frozen is placed into the receiver, which is usually done by taking a can of ice from the freezing-chamber by means of a crane, which lets it down into the receiver from above. When this is done, the drop-lever *p* is lifted from its hold on the connecting-bolt at the outer end of the lever-arm *g*, and the greater part of the weight of the ice in the can being above the journal or trunnions and toward the back of the receiver tips the same, so that it rotates until it assumes the inclined position shown by the dotted lines in Fig. 1, its movements being limited by a check-piece *r*. This check-piece *r* may be provided with a cushion or strip of rubber to lessen the force of the motion against it in case the weight of the ice is much greater on the back of the center of gravity. This partial rotation at first changes the position of the levers *g* and *h* until the slotted end of the lever *g* begins to lift the weight *i*, and at the same time the outer end of the lever *k*, which moves the valve *m* and opens communication between the pipes *n*, admitting water to the inclined branches of the pipes on opposite sides of the can, then in a position to receive the flow through the perforations in such branch pipes. The sprinkling or running of the water very quickly loosens the hold of the ice upon the can or mold, and the instant it is loosened it slides out of the can onto and down the chute, as indicated at E. When the ice has been loosened and slipped out of the can, the weight *i* counterbalances the receiver and empty ice-can, so that it immediately returns to its original upright position, by this reverse movement closing the water-valve, while at the same time the drop-lever *p* takes its hold on the connecting-bolt at the outer end of the lever *g* and holds the receiver in a position which permits the removal of the empty ice-can and its replacement by another filled with ice.

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

1. In an ice-discharging apparatus, an automatically-tilting tank adapted to receive an ice-can and discharge the contents thereof.
2. In an ice-discharging apparatus, a tank adapted to receive an ice-can and to be automatically tilted by the weight thereof.
3. The combination, in an ice-discharging apparatus, of a tilting tank adapted to receive an ice-can, means for disengaging the ice from the can, and mechanism for automatically returning the tank to its normal position after the ice has been discharged.
4. In an ice-discharging apparatus, a tilting tank adapted to receive an ice-can and

discharge the contents thereof and having hooks or stops whereby the can when in such inclined position is prevented from slipping out of said receiver.

5 5. The combination, in an ice-discharging apparatus, of an automatically-tilting tank adapted to receive an ice-can and discharge the contents thereof, with means of melting the ice adhering to the can.

10 6. The combination, in an ice-discharging apparatus, of an automatically-tilting tank adapted to receive an ice-can, with a series of pipes adapted to distribute water over the can.

15 7. The combination, in an ice-discharging apparatus; of a tilting tank, distributing-pipes connected therewith, a feed-pipe, and cocks adapted to be opened and closed by the movement of the tank.

8. The combination, in an ice-discharging

apparatus, of a tilting tank, distributing-pipes 20 connected therewith, a feed-pipe, trunnions on which the tank turns, and cocks adapted to be opened and closed by a trunnion.

9. In sprinkling apparatus for ice-cans, the combination of a can-receiver axially sup- 25 ported and adapted to be partially rotated, and a check-piece disposed to arrest the rotation at a fixed point, whereby a can containing ice may be brought to an inclined position and retained in such position during the 30 period of discharging the ice therefrom, substantially as set forth.

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Witnesses:

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