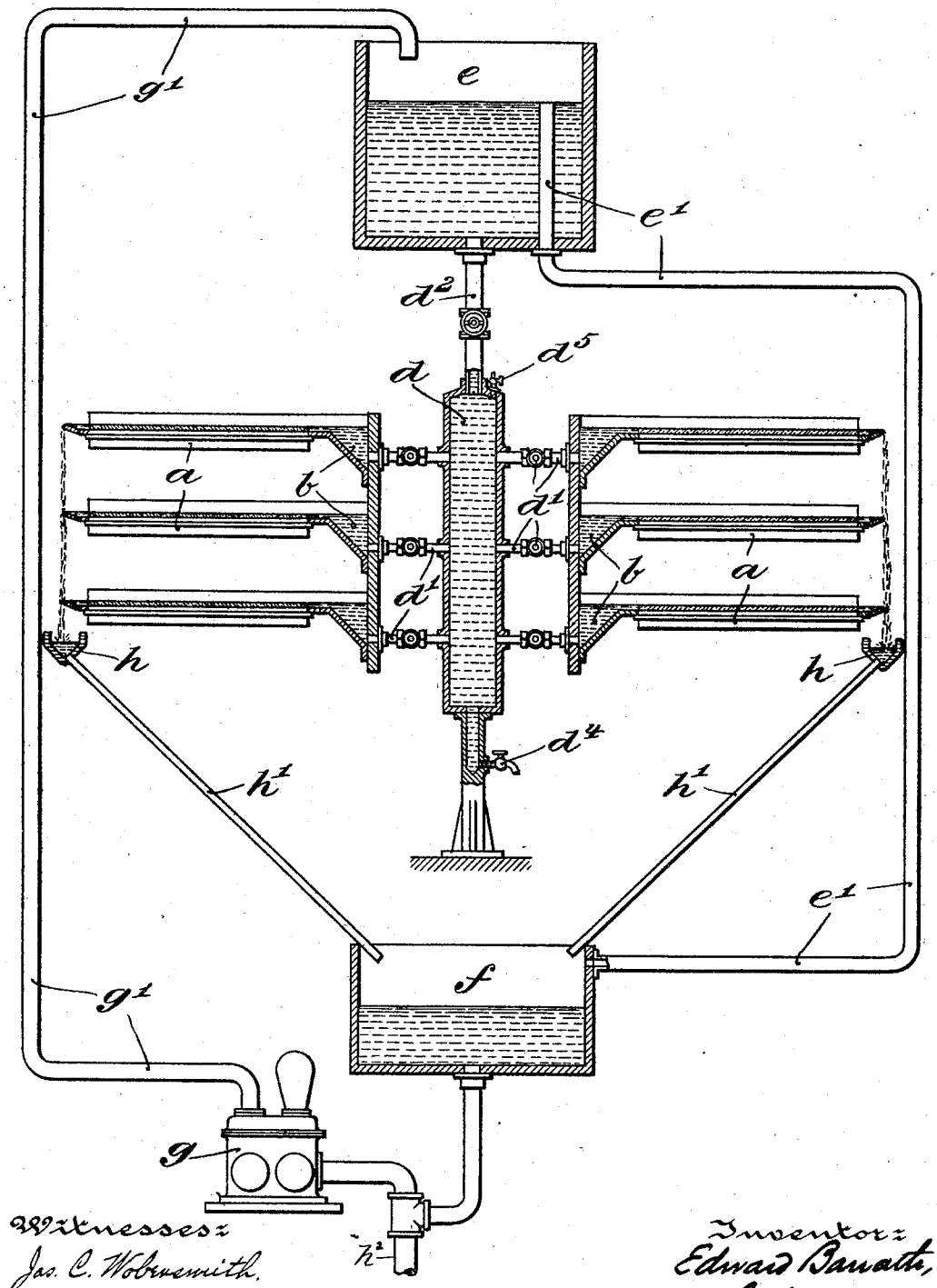
No. 795,753. PATENTED JULY 25, 1905.

E. BARRATH.

MEANS FOR SUPPLYING WATER UNDER CONSTANT PRESSURE TO FREEZING PLATES.

APPLICATION FILED JULY 28, 1904.



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UNITED STATES PATENT OFFICE.

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MEANS FOR SUPPLYING WATER UNDER CONSTANT PRESSURE TO FREEZING-PLATES.

No. 795,753. Specification of Letters Patent. Patented July 25, 1905.

Application filed July 28, 1904. Serial No. 218,463.

To all whom it may concern:

Be it known that I, EDWARD BARRATH, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Means for Supplying Water Under Constant Pressure to Freezing-Plates, of which the following is a specification.

My invention has relation to a means for supplying water under pressure and in substantially a quiescent or unagitated state to freezing-plates in the manufacture of ice by a system of substantially the type illustrated and described in United States Letters Patent No. 710,656, granted to me under date of October 7, 1902. In the system described in said Patent No. 710,656 water from a receptacle flows in a thin film over a freezing-plate and the block or plate of ice is formed on the freezing-plate by successive accretions. In such a system where a series of freezing-plates or even a single freezing-plate was used some difficulty has been experienced in maintaining a constant pressure of water in the receptacle or receptacles, as well as a constant flow thereto, and hence the formation of the block of ice has not been regulated to economically utilize the power.

The object of my present invention is to provide a means whereby the pressure and flow of water to the receptacle or receptacles may be maintained constant; and to this end my invention consists, essentially, in feeding the water to the receptacle or receptacles through valve-controlled inlets from a main reservoir in which the water is maintained under uniform pressure, the main reservoir being fed from a source of supply, such as an elevated tank, into which the water-feed pump discharges.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawing, forming part hereof, which illustrates, partly in elevation and partly in vertical section, an apparatus for embodying main features of my invention.

Referring to the drawing, *a* represents the freezing-plate, and *b* the receptacle adjacent to one end of said plate and containing the liquid adapted to overflow upon said plate *a* to form by successive accretions the block of ice. As illustrated in the drawing, two series of these plates *a* and receptacles *b* are connected with a centrally-disposed reservoir *d* by valve-controlled pipes *d'*. The reservoir *d* is supplied and held continually filled with liquid through a valve-controlled pipe d^2, leading from a tank *e*, elevated by preference some distance above the plates *a*. In the tank *e* is arranged an overflow stand-pipe *e'*, leading to a collecting tank or reservoir *f*, from which and a supply-pipe h^2 the pump *g* receives its liquid-supply. The liquid in the elevated tank *e* maintains the liquid in the reservoir *d*, arranged between and extending slightly above and below the freezing-plates *a*, under a constant and uniform pressure. Furthermore, by this arrangement of the reservoir *d* below the tank *e*, receiving the liquid-supply from the pump *g* directly, the liquid in the reservoir will be held in substantially a quiescent or unagitated state, as the disturbance of the liquid in the tank *e* cannot be transmitted to the reservoir *d* and from the same to the receptacles or containers *b*. The reservoir *d*, being always filled with liquid from the tank *e*, will act as an equalizer of the variation of the pressures produced by the varying levels of liquid in the tank *e*. The pump *g* forces the liquid from the reservoir *f* and the supply-pipe h^2 through the pipe *g'* into the tank *e*. The inflow of the fluid into the tank *e* by means of the pump *g* is such as that the fluid in this tank is always under more or less constant agitation, especially about the upper portion of the body of fluid therein. This agitation would naturally prevent a regular or constant pressure being maintained in the reservoir *d* and receptacles *b*, and if this agitation were transmitted to the reservoir *d* would seriously interfere with the rapid freezing of the fluid into ice on the freezing-plates *a*. It is therefore necessary that the fluid should be stilled or brought to a substantially quiescent or unagitated condition before reaching these plates for insuring a proper freezing or congealing of the fluid into needleless and clear plate-ice. The water in the tank *e* will be stilled, due to the fact that the agitation diminishes in the direction of the bottom of the tank and prior to its discharge through the contracted pipe d^2 to the stilled fluid-reservoir *d*, in which the fluid is permitted to spread out therein prior to its flow

through the pipes d' to the receptacles b and thence over the series of plates a. The overflow from the plates a is collected in troughs h and led by the pipes h' to the collecting-tank or reservoir f. At the base of the reservoir d is arranged a draw-off cock d^4, through which sediment or impure water may be discharged when the reservoir d is to be cleaned. At the top of the reservoir d is arranged an air-outlet d^5, through which air in the reservoir d may escape, so as to insure the complete filling of the same with liquid.

The operation of the device is as follows: The main reservoir d is filled with liquid from the tank e, in which tank the liquid is maintained at prescribed height (and consequent pressure) by the overflow-pipe e'. When the reservoir d is once filled, the valve on the pipe d^2 is set and the valves on the pipes d' are opened to admit the water to the receptacles b in required quantities. With this arrangement, no matter what the fluctuation in the pump g may be, it is corrected primarily in the tank e and secondarily in the main reservoir d, so that water under constant pressure and in required volume enters a receptacle or receptacles b.

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

1. An apparatus for the manufacture of plate-ice, comprising a series of freezing-plates, a receptacle for fluid arranged adjacent to one end of each of said plates, a reservoir for containing fluid under constant pressure and in substantially a quiescent or unagitated state for supplying the same in such condition to said plates, and a tank for the fluid in an agitated state in communication with said reservoir, said tank arranged to control the pressure of the fluid in said reservoir and to still the same prior to its delivery to said reservoir, receptacles and plates.

2. An apparatus for the manufacture of plate-ice, comprising freezing-plates, a receptacle for fluid arranged adjacent to one end of each of said plates, a reservoir for containing fluid under a constant pressure and in substantially a quiescent or unagitated state for supplying the same in such condition to said plates, a valve-controlled inlet leading from said reservoir to each of said receptacles, a tank for containing the fluid in an agitated condition in connection with said reservoir and said tank arranged to control the pressure of the fluid in said reservoir and to still the same prior to its delivery to said reservoir, receptacles and plates.

3. An apparatus for the manufacture of plate-ice, comprising freezing-plates, a receptacle for fluid arranged adjacent to one end of each of said plates, a reservoir for containing fluid under a constant pressure and in substantially a quiescent or unagitated state for supplying the same in such condition to said plates, a valve-controlled inlet leading from said reservoir to each of said receptacles, a tank for containing the fluid in an agitated condition in connection with said reservoir and said tank arranged to control the pressure of the fluid in said reservoir and to still the same prior to its delivery to said reservoir, receptacles and plates, and means for forcing the fluid into said tank and for maintaining the fluid at a constant level therein.

4. An apparatus for the manufacture of plate-ice, comprising a series of freezing-plates and a receptacle for fluid arranged adjacent to one end of each of said plates and connected with a reservoir adapted to contain a fluid under constant pressure and in substantially a quiescent or unagitated state for supplying the same in such condition to said plates, valve-controlled inlets leading from said reservoir to said receptacles, a tank for the fluid in an agitated state, in communication with said reservoir, said tank arranged to control the pressure of the fluid in said reservoir and to still the same prior to its delivery to said reservoir, receptacles and plates, means for forcing the fluid into said reservoir and for maintaining the same at a constant level therein, and means for receiving the overflow of fluid from said plates and of utilizing in said tank.

5. An apparatus for the manufacture of plate-ice, comprising a series of freezing-plates having a receptacle for fluid arranged adjacent to one end of each of said plates, a reservoir disposed between the series of plates, valve-controlled inlets leading from said reservoir to said receptacles, an elevated tank adapted to contain the fluid in an agitated state and in communication with said reservoir, the fluid in said reservoir being held under a constant pressure by the fluid in said tank and maintained in a substantially quiescent or unagitated state therein prior to its delivery to said plates, means leading to and from a collecting-tank as an overflow from said plates and elevated tank, and means for forcing the fluid into said elevated tank, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

EDWARD BARRATH.

Witnesses:

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