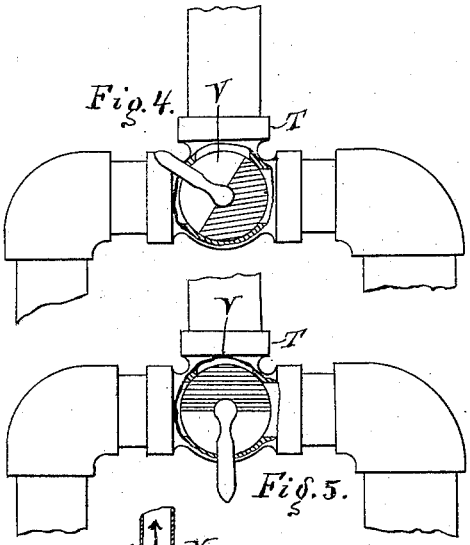
(No Model.)

L. F. LONGMORE.

LIQUID COOLER.

No. 307,206. Patented Oct. 28, 1884.



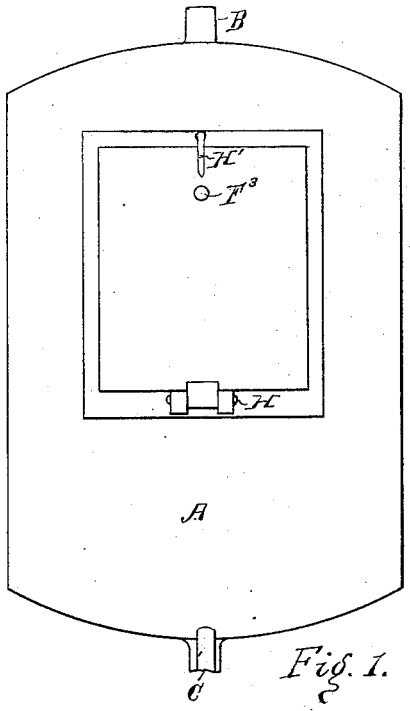


Fig. 1.

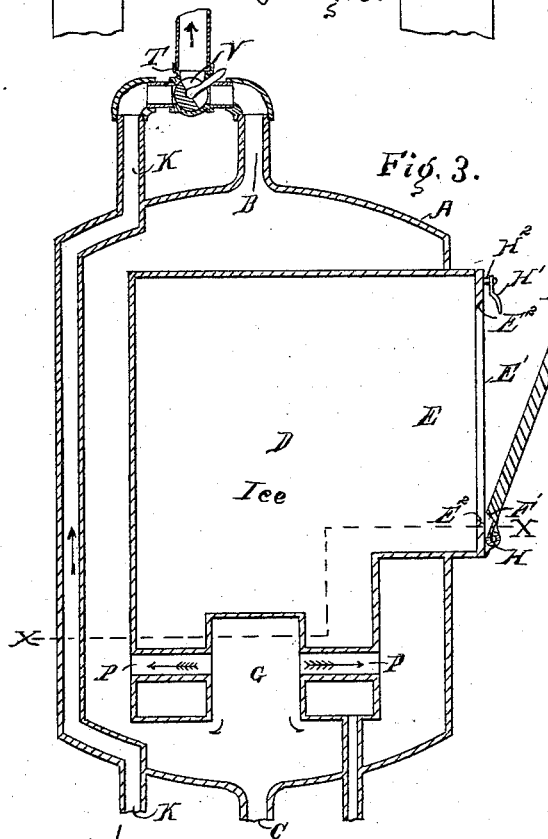


Fig. 3.

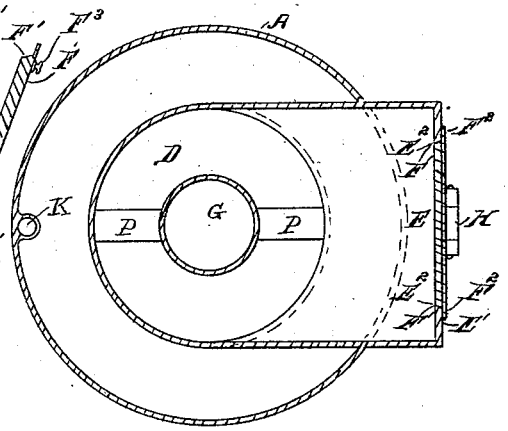


Fig. 2.

Witnesses—
Kirkley & Cyrus.
Edward W. Thompson

Inventor—
Lewis F. Longmore,
By Albert M. Moore,
His Attorney.

UNITED STATES PATENT OFFICE.

LEWIS F. LONGMORE, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO CHARLES W. MOREY, OF SAME PLACE, AND GEORGE A. BYAM, OF CHELMSFORD, MASSACHUSETTS.

LIQUID-COOLER.

SPECIFICATION forming part of Letters Patent No. 307,206, dated October 28, 1884.

Application filed January 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, LEWIS F. LONGMORE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Liquid-Coolers, of which the following is a specification.

My invention relates to means whereby the efficiency and convenience of such coolers are increased.

In the accompanying drawings, Figure 1 is a front elevation of the cooler. Fig. 2 is a horizontal cross-section of the same on the line *x x* in Fig. 3. Fig. 3 is a vertical central cross-section at right angles to the door of the ice-chamber; Figs. 4 and 5, elevations of the discharge-pipe connected to a T, which is provided with a three-way cock, the valve-case being in section.

A is an outer chamber, preferably of nearly cylindrical form, to contain and be filled with water, beer, or other fluid, which may be introduced under pressure to the same through the pipe or passage C, and discharged through the pipe or passage B, after being cooled in said chamber, as hereinafter described.

D is a chamber, preferably as nearly cylindrical as the door-place will allow of, and placed about concentrically within the chamber A. The chamber D is provided with a passage, E, which leads out through the outer chamber, A, and projects slightly from the same. A door, F, is hinged at H to the door-place or outer end of the passage E, and shuts against the flange E′ thereof, the flange being beveled at E^2, and the door being provided with a corresponding bevel, F′, which shuts into and against the bevel E^2. The door also has a flange, F^2, which shuts over the front of the door-place, and which may be packed with felt or other non-conductor of heat; or a sheet of felt may cover the entire inner surface of the door, to preserve as long as possible the ice, which, in the form of blocks or pounded up into pieces, is placed within the chamber D, the door F being securely closed by means of a handle nut or cam, H′, which turns on a stud, H^2, projecting from the door-frame. The door is provided with a knob, F^3. The chamber D is provided in its lower end with a recess, G, placed directly over the inlet-pipe C, the inlet-pipe and the recess being preferably in the center of their respective chambers. From the recess G there are two or more radial passages, P, which lead out through the annular lower part of the chamber D into the space between the two chambers, in order that water or other liquids of the ordinary temperature, and warmer than the contents of the chamber A, may not, when admitted through the pipe C, rise directly to the top of said chamber A, but may be first cooled by striking the bottom of the ice-chamber and remaining some time in contact with it, as will necessarily happen when the water is obliged to pass through the radial passages or to spread out from the recess in all directions under the lowest part of the ice-chamber, as shown by the arrows. The water from the melting ice runs through the waste-pipe I to any convenient receptacle, and does not come in contact with the water, which is considered an advantage, as the ice commonly sold is apt to contain sawdust, sticks, and settlings. As above intimated, the liquid is forced into the space between the chambers at the bottom and drawn from the top, and the pipe C may be connected with a receptacle of beer or similar beverages, or, if used to cool water, may be connected directly to the city water or other supply pipe by any suitable well-known joints or couplings. If desired, another water-passage, K, may be formed in the outer chamber, through which water may be drawn for other purposes than drinking, this passage being of so small capacity, as compared with the water-chamber, as not greatly to raise the temperature of the water within the latter, and being connected with the same source of supply as the pipe C. If both of the pipes B K are used, they may be united above the cooler to a T, which contains a three-way cock, V, by turning which into different positions the water may be drawn from the cooler, (see Fig. 3,) or from the pipe K, (see Fig. 4,) or entirely shut off, as shown in Fig. 5, so that in very cold weather, when ice is not required

to cool the water, or when for any reason it becomes desirable, the water may be taken wholly from the water-main or other source without passing it through the cooler. The water in all cases is drawn through a faucet connected to the stem of the T.

The entire cooler is intended to be cast in a single piece, from iron, when the cooler is intended to be used for water merely; but the cooler may be formed in several parts, when it is desirable to tin the inside thereof, to prevent the inner surface from being acted on by the liquids contained therein.

I claim as my invention—

1. The combination of the external liquid-chamber and the internal ice-chamber, provided with an opening at the side thereof, said liquid-chamber extending above said ice-chamber and arranged to allow the liquid to be cooled to circulate over the top of said ice-chamber, as and for the purpose specified.

2. The combination of the liquid-chamber, surrounding the ice-chamber and provided with an outlet-pipe, the ice-chamber provided with a recess in the bottom of the same, and the inlet-pipe arranged below said recess, as and for the purpose specified.

3. The combination of the liquid-chamber, surrounding the ice-chamber and provided with an outlet-pipe, the ice-chamber provided with a recess in the bottom of the same, and passages leading from said recess outward through the lower part of said ice-chamber, and an inlet pipe arranged below said recess, as and for the purpose specified.

4. The combination of the liquid-chamber, provided with an outlet-pipe and an inlet-pipe, and an ice-chamber placed within said liquid-chamber, and a side pipe connecting with said inlet-pipe and outlet-pipe below and above said liquid-chamber, as and for the purpose specified.

LEWIS F. LONGMORE.

Witnesses:

E. W. THOMPSON,

ALBERT M. MOORE.