T. E. FRY.

LIQUID COOLING DEVICE.

APPLICATION FILED JAN. 21, 1908.

929,577. Patented July 27, 1909.

Fig. 1.

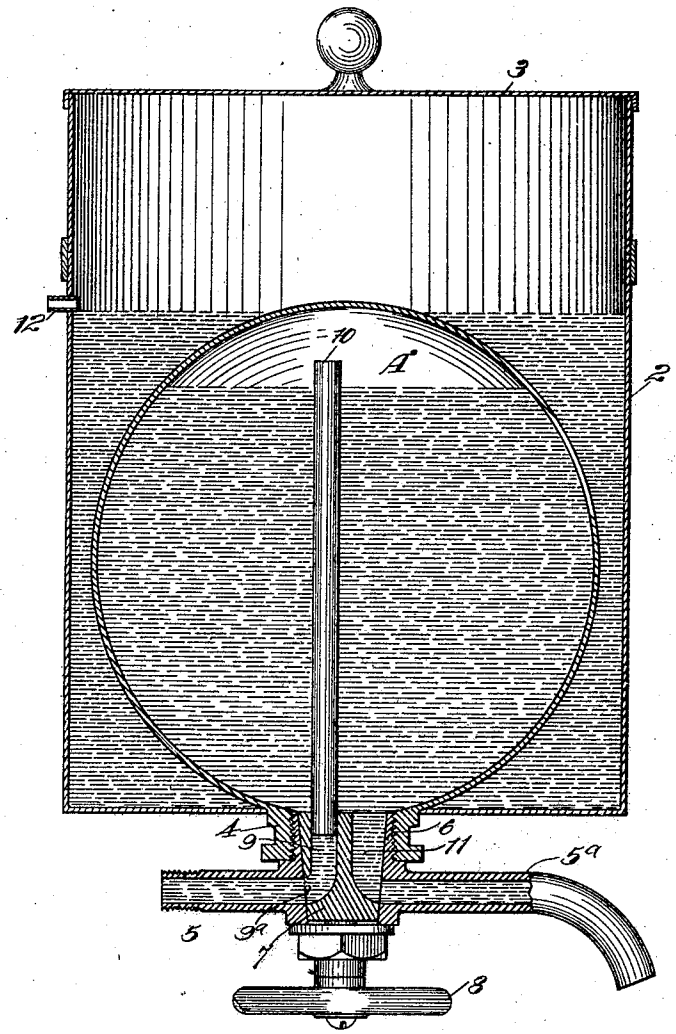
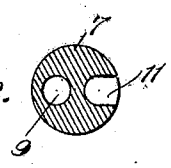


Fig. 2.



WITNESSES:

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THOMAS E. FRY, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF TO CHARLES W. HAMERTON, OF OAKLAND, CALIFORNIA.

LIQUID-COOLING DEVICE.

No. 929,577. Specification of Letters Patent. Patented July 27, 1909.

Application filed January 21, 1908. Serial No. 411,921.

To all whom it may concern:

Be it known that I, THOMAS E. FRY, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Liquid-Cooling Devices, of which the following is a specification.

My invention relates to a continuous liquid cooling apparatus.

It consists in the combination of parts, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical sectional view. Fig. 2 is a cross section of the plug.

It is the object of my invention to provide an economical apparatus for continuous cooling of liquids. In the present device I have shown it adapted to cool a liquid which may be transferred under pressure from one receptacle to another.

A is a cooling chamber which may be made globular in form, in order to resist any degree of pressure that it may be desirable or necessary to apply to the passing liquid. This container is fitted into an exterior chamber 2 having a removable upper portion and a cover 3. The chamber A has an opening upon the lower side with an interior screw-threaded extension 4. The inlet passage 5, and the exit passage 5^a are connected with a screw-threaded portion 6, projecting at right angles and adapted to be removably connected with the flanged extension 4. Through the central portion of this part 6 is made the tapering hole, into which the plug 7 is fitted. This plug 7 has an extension downward upon which the turning arm or handle 8 is fixed. A hole 9 is made in the upper part of the plug which extends downwardly to a point opposite the inlet passage 5, then turns at right angles, forming an opening 9^a in line with the passage 5. A pipe 10 connects with the upper end of this passage and extends vertically upward into the chamber A so that liquid entering through the passage 5 is conveyed up into the interior, and out the top in the chamber A. The opposite side of the plug 9 has a segmental channel 11 cut out of it, the upper end of which channel communicates with the interior and lower part of the chamber A, and the lower end of it connects with the discharge passage 5^a so that by turning the plug 7 to such position that its passage 9—9^a is in line with the inlet passage 5, the groove or passage 11 will also be in line with the discharge passage 5^a which will be controlled by the usual draw-off cock. By turning the plug 7 so that the passages 9^a and 11 are midway between the passages 5—5^a, the flow of liquid will be cut off.

The upper part of the exterior inclosing chamber 2 may be filled with ice or other refrigerant so that the chamber A will be surrounded by ice-cold liquid arising from the melting of the ice.

The chamber A is designed to hold a sufficient amount so that if liquid is being drawn by the glass, the drawing of one glass will admit enough into the chamber to keep it continually cooled to the proper degree.

A suitable overflow pipe 12 may be connected with the exterior chamber to carry off surplus liquid therefrom.

When the liquid to be drawn carries more gas in solution than it is desirable to have therein after the liquid has been drawn, it can be drawn off by reversing the plug 9 so that the connecting passage 10 will communicate through the passage 9^a with the discharge passage 5^a, and the grooved channel 11 will communicate with the inlet passage 5. This allows the liquid to flow directly into the chamber A, and the gas expanding and leaving the liquid, will pass out through the pipe 10 and the passage 9^a until the pressure is reduced to any desired degree.

By the use of this device it will be seen that a separate draw-off cock in the discharge passage 5^a may be omitted, and the whole control of the liquid flow can be effected through the plug 7.

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

A liquid transferring and cooling device, a refrigerating casing, a receiver contained therein, a downwardly projecting fitting detachably connected with the bottom of the receiver horizontal inlet and discharge pipes connected axially in line with opposite sides of the fitting, a plug turnable vertically in said fitting, having a tubular passage on one side of its axis and a pipe connected therewith extending to the upper part of the receiver, and an open channel on the opposite side of its axis connecting with the bottom

of the receiver and means for turning the plug to admit liquid under pressure to the receiver through said passage and to reduce the gas pressure when the interior receiver pipe is in connection with the discharge pipe of the fitting.

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

THOMAS E. FRY.

Witnesses:
CHARLES A. PENFIELD,
T. W. FOWLER.