Oct. 12, 1926. 1,602,890

C. H. EVANS

REFRIGERATOR

Filed July 25, 1922 2 Sheets-Sheet 1

Fig 1

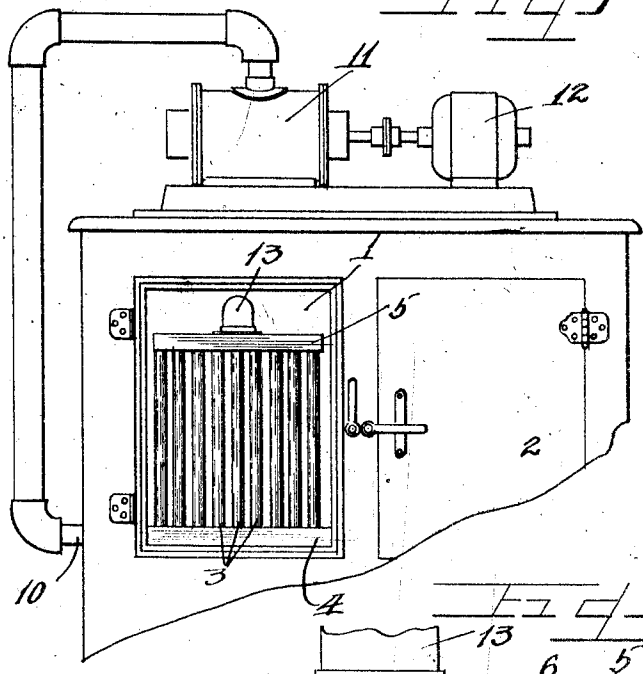
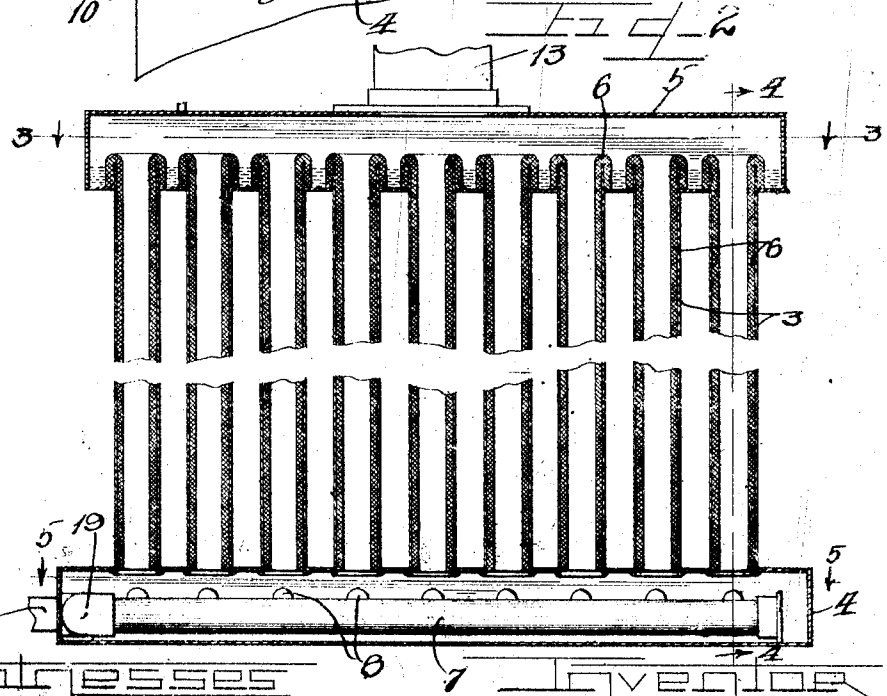


Fig 2



Witnesses

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Filed July 25, 1922 2 Sheets-Sheet 2

Fig. 3

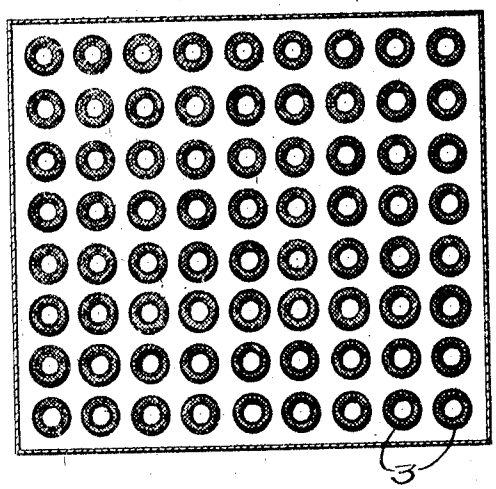


Fig. 4

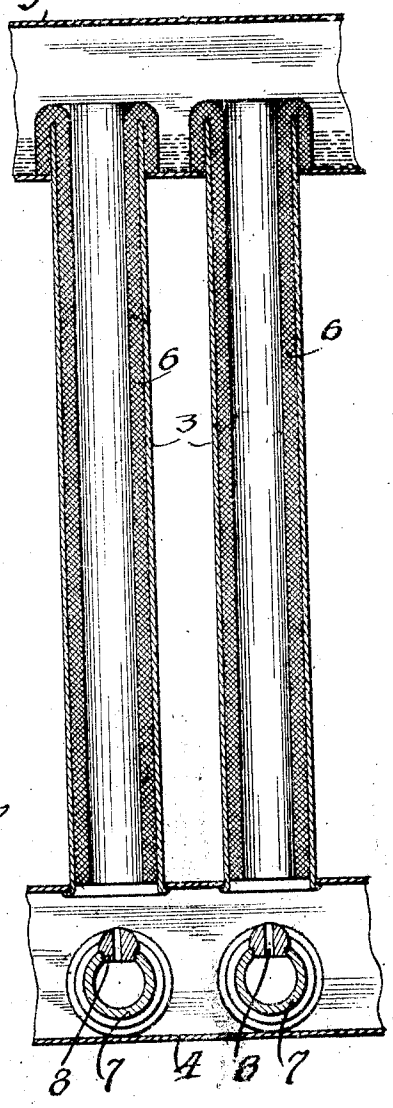
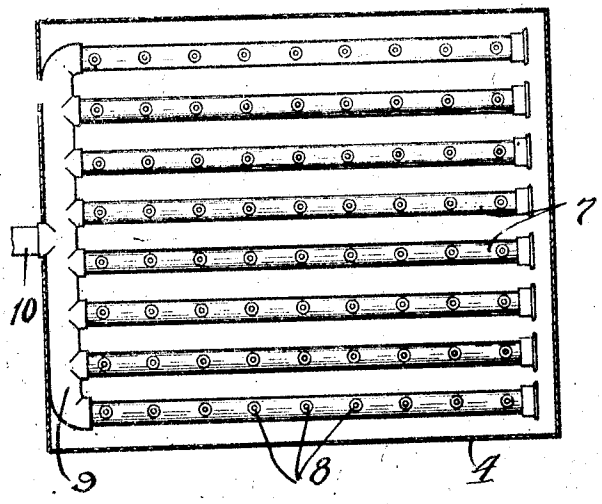


Fig. 5



Witnesses
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Patented Oct. 12, 1926. 1,602,890

UNITED STATES PATENT OFFICE.

CHARLES H. EVANS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JAMES E. KEITH, OF CHICAGO, ILLINOIS.

REFRIGERATOR.

Application filed July 25, 1922. Serial No. 577,282.

This invention relates to a refrigerator and concerns itself primarily with a novel form of refrigerator in which the refrigeration is caused by the rapid evaporation of a fluid which absorbs the heat and reduces the temperature of a cooling chamber, and in which the evaporating agent is preferably a current of air.

This invention comprises the novel mechanism and combinations hereinafter described and more particularly pointed out and defined in the appended claim.

In the accompanying drawings, which illustrate a preferred embodiment of this invention, and in which similar reference numerals refer to similar features in the different views:

Figure 1 is a fragmentary elevational view of the novel form of refrigerator with the door of the cooling chamber cut away.

Figure 2 is an enlarged sectional view through a row of cooling tubes with an air blast pipe in elevation and located therebeneath.

Figure 3 is a horizontal section through the cooling chamber upon an enlarged scale upon the line 3—3 of Figure 2.

Figure 4 is an enlarged sectional view through a pair of cooling tubes and the air blast pipes.

Figure 5 is a horizontal section through the cooling chamber taken substantially on the line 5—5 of Figure 2 upon an enlarged scale.

As shown on the drawings:

In the specification of this invention, there is illustrated a refrigerator having a cooling chamber 1 formed therein which is adapted to cool the compartments in which articles are kept, one of such compartments being illustrated in Figure 1 as closed by a door 2.

Within the cooling chamber, a bank of vertical tubes 3 are located. The lower ends of these tubes are soldered or secured in the top of a substantially closed casing 4, and the upper ends of these tubes extend some distance into a water or fluid containing casing 5, and are soldered or secured thereln to prevent leakage. These tubes are arranged in rows as shown in Figure 3, and they are interiorly lined with some fibrous material 6 susceptible of strong capillary action. This material 6 may be in the form of tubes fitting within the tubes 3 and folded over the upper ends of said tubes 3 that project into the fluid container 5 so as to become immersed in the fluid, which is usually of shallow depth in the container and necessarily below the top of the tubes 3.

Below each longitudinal row of tubes 3, there is an air blast pipe 7 closed at one end and provided with a plurality of spaced tuyères 8 corresponding to the spacing of the tubes 3 and located directly therebeneath. The open ends of these pipes 7 are coupled or connected to an air distributing pipe 9. The pipes 7 and the air distributing pipe 9 are located in the casing 4, and an air supply pipe 10 extends through an aperture in the end of the casing 4 and is connected or coupled to the air distributing pipe 9. The air supply pipe 10 comprises a number of sections coupled together, with the upper section secured to a rotary blower 11 or the like which is operatively connected to a motor 12, both of which may be located on the top of the refrigerator.

The operation of the blower will force blasts by means of the pipe 10 through the tuyère pipes 7 which will direct the air through the bank of cooling tubes 3. As the lining of these tubes dips into the fluid in the container 5, the fluid, which is preferably water, will be drawn up by capillary attraction for moistening the said lining, and as the blasts of air rush through these cooling tubes, the moisture in the linings will evaporate. It is, of course, well known that heat units are consumed in this evaporation process with the consequent result of lowering the temperature. The spent air blasts will escape from the cooling chamber through an exhaust or discharge pipe 14. It will be apparent that the rotary blower will maintain a continuous circulation of air through the cooling chamber so that the latter will always remain cool and in a good state of refrigeration.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles

of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:—

In a refrigerator, a cooling chamber, a bank of cooling tubes located therein, an upper inclosed fluid containing casing into which said tubes extend, a lower casing in which said tubes are secured, tuyère pipes arranged in said lower casing under said tubes, means for conducting fluid from said upper casing into said tubes, and means for forcing air through said tuyère pipes.

In testimony whereof I have hereunto subscribed my name.

CHARLES H. EVANS.