A. KLEINE.

REFRIGERATING PLANT.

APPLICATION FILED JAN. 5, 1909.

947,445. Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

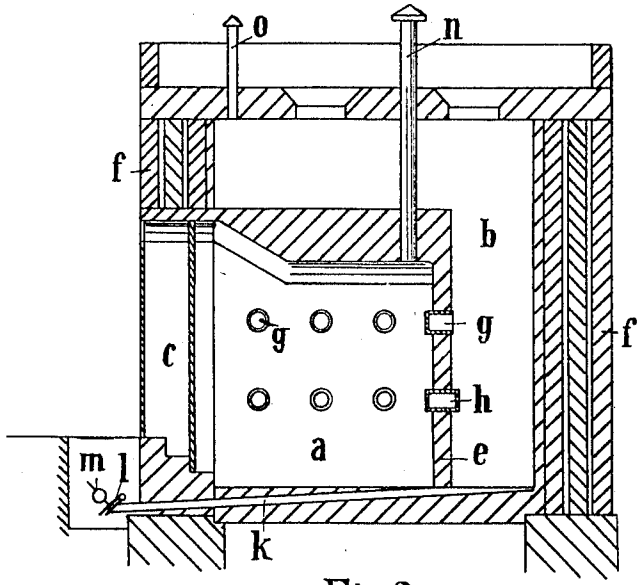
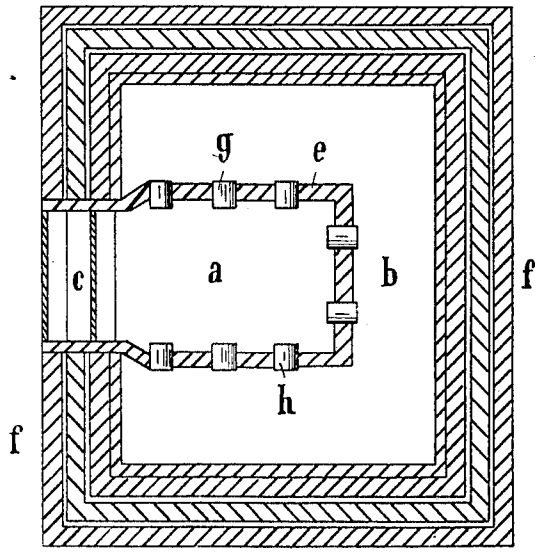


Fig. 2.



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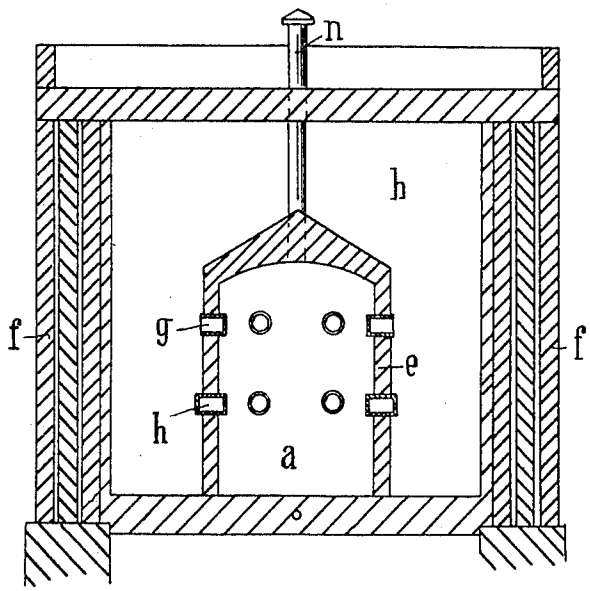
2 SHEETS—SHEET 2.

Fig.3.



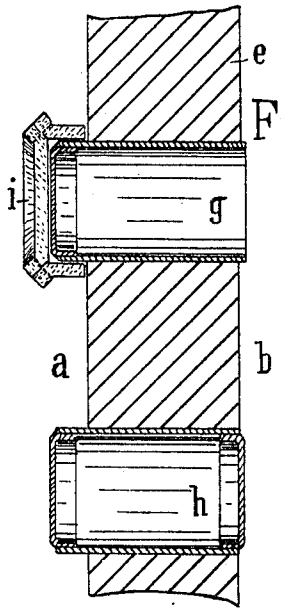
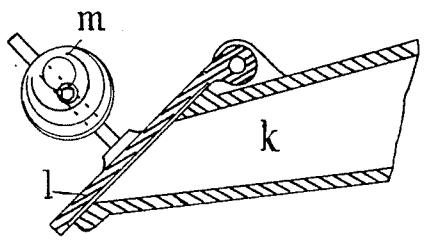


Fig.4.

Fig.5.



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UNITED STATES PATENT OFFICE.

AUGUST KLEINE, OF ATZENDORF, GERMANY.

REFRIGERATING PLANT.

947,445. Specification of Letters Patent. Patented Jan. 25, 1910.

Application filed January 5, 1909. Serial No. 470,798.

To all whom it may concern:

Be it known that I, AUGUST KLEINE, a subject of the King of Prussia, German Emperor, and resident of Atzendorf, Germany, have invented certain new and useful Improvements in Refrigerating Plants, of which the following is a specification.

The present invention relates to refrigerating plants which are composed of a refrigerating chamber and of a reservoir for the ice, the materials to be cooled, such as meat, milk, etc., being stored in the refrigerating room.

The refrigerating plants of known construction are generally constructed so that the cooling of the refrigerating chamber is effected by means of currents of cold air which circulate from the ice-reservoir to the cooling-chamber and vice versa. This construction however suffers from the inconvenience that the ice melts very quickly, that the temperature in the cooling room can be regulated only with great difficulty and that the air in the cooling room being continually in contact with the ice, is moist.

The present invention has the purpose to overcome said inconveniences by an improved construction of the refrigerating plant. The air of the cooling room is always quite cool and dry, the degree of cold in said room can be exactly regulated and the working expenses of the plant are comparatively moderate.

In the accompanying drawings an improved refrigerating plant is shown by way of example in Figure 1 in longitudinal section; in Fig. 2 in horizontal section, in Fig. 3 in a vertical cross section. Fig. 4 represents in section the partition wall between the ice room and the cooling room. Fig. 5 shows the device for regulating the outflow of the water produced by the melting of the ice.

According to the present invention the cooling room is completely separate of the ice-room so that neither the air of the ice room can get into the cooling room nor the materials to be cooled be exposed to the direct radiation of the ice.

The cooling room *a* is completely surrounded by the ice room with the exception of the door *c* and the floor. The walls *e* of the cooling room *a* are built of concrete which is a bad conductor of heat and the walls *f* of the ice room *b* are insulated and protected from the outer temperature in the well known manner.

The cold of the ice room is transmitted to the cooling room by means of metal parts inserted in the wall *e*, said parts consisting preferably of metal cylinders, which are either closed at one end like the cylinders *g* or at both ends like the cylinders *h*. The number of said metal cylinders varies according to the temperature to be obtained in the cooling room. The temperature of the cooling room can further be regulated by insulating the ends of a certain number of metal cylinders which project into the ice room. The insulating of said cylinders is effected by means of lids or caps *i* of felt or other suitable material which completely cover the projecting ends of said cylinders.

The cold contained in the water produced by the melting of the ice is utilized in the following manner:—The open end of the outflow pipe *k* for said water is obstructed by a device which permits the outflow of the water only after it has risen in the ice room up to a certain predetermined level. This device can be of any suitable construction and it may, for example, consist of a sliding door *l* which is under the influence of a counterweight *m* adapted to be adjusted with regard to the axle around which said sliding door pivots. Instead of the sliding door and the counterweight a valve may be used which is influenced by a spring. The cooling room is further provided with a double door *e* and with a ventilating tube *n*

which communicates with the outer air; a similar ventilating tube *o* is provided for the ice room.

I claim:—

A refrigerating plant comprising in combination with the ice room, the cooling room located in said ice room, the walls of said cooling room made of a material which is a bad conductor of the cold, metal cylinders in said walls so that their ends project in the ice room, and insulating caps of felt removably placed upon said projecting ends of the metal cylinders for regulating the temperature of the cooling room, substantially as described and shown and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

AUGUST KLEINE.

Witnesses:

ERICK PETERS,

JAMES L. A. BURRELL.