J. G. RICHERT.

REFRIGERATING APPARATUS.

APPLICATION FILED DEC. 18, 1913.

1,118,583.

Patented Nov. 24, 1914.

Fig. 1.

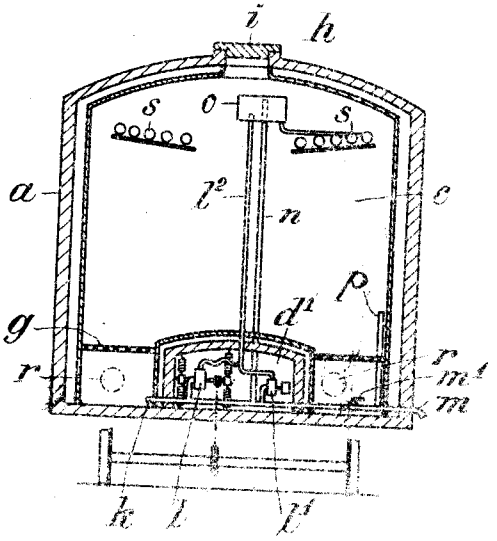


Fig. 2.

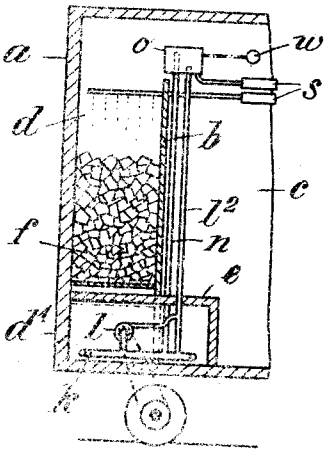


Fig. 3.

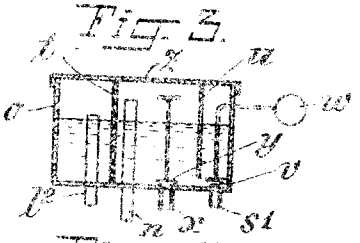
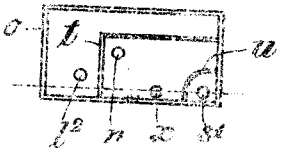


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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REFRIGERATING APPARATUS.

1,118,583. Specification of Letters Patent. Patented Nov. 24, 1914.

Application filed December 18, 1913. Serial No. 807,479.

To all whom it may concern:

Be it known that I, JOHAN GUSTAF RICHERT, a subject of the King of Sweden, residing at No. 16 Norrmalmstorg, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Refrigerating Apparatus, of which the following is a specification.

In refrigerating apparatus comprising in combination an ice receptacle, a salt receptacle, a refrigerating member for instance a refrigerating pipe and a liquid circulating through the said parts during the action of a pump, it is necessary to arrange strainers of some kind for preventing the dirt, sawdust or such like, which may be on the ice when placed in the ice receptacle from passing into the pipe system. The said strainers have hitherto in most cases been arranged in the bottom of the ice receptacle, which has made it very inconvenient to clean the strainers, as they are always put under the pressure of the circulating liquid in the pipes and receptacles. This inconvenience is avoided by the present invention, which consists therein, that the strainer is arranged in a special receptacle, located above the refrigerating member, containing the refrigerating liquid. By this a free water surface is established in the strainer receptacle, so that same can be inspected even during the run of the whole installation and the strainer can be cleaned without the installation being stopped and without the refrigerating liquid being drawn off. From the receptacle the liquid flows into the pipe system by gravity.

The invention further consists in a device for preventing the refrigerating liquid, when the temperature has reached the desired low point, from circulating through the refrigerating members. This is established by means of a thermostat operating the outlet opening from the strainer receptacle to the refrigerating members. When the temperature is normal, the thermostat leaves the said opening free, when the temperature reaches the lowest point desired the thermostat closes the opening, so that no part of the refrigerating medium can flow into the refrigerating pipes. The liquid as forced by the pump to the strainer receptacle will then flow through a special pipe back to the pump.

One embodiment of the invention is shown on the annexed drawing, where—

Figures 1 and 2 are diagrammatic views of a refrigerating car respectively in cross and longitudinal section. Figs. 3 and 4 show respectively in longitudinal section and in plan on a greater scale the strainer receptacle.

a is the refrigerating car, b a partition dividing it into the two compartments c and d, whereof, c forms the refrigerating room and d the generator room. The bottom and center part of said generator room is by means of the partition e divided into two parts including a special pump compartment d^1.

f is the generator, which is filled with ice, and salt or salt ice. The ice rests upon the grate or lattice g and is admitted to the generator by means of the opening h in the roof of the car, said opening being closed by the insulated cover i.

The compartments d and d^1 are connected with each other by means of the pipe k, from which the inlet pipes lead to the pumps l and l^1, the cleaning pipe m, with the valve m^1 and the overflow pipe n from the strainer receptacle o.

p is an overflow pipe for the surplus of the water.

r are openings, closed by watertight covers, by means of which openings the lattice or grate g as well as the bottom of the generator can be cleaned.

The strainer receptacle o is arranged above the refrigerating pipes s, which are arranged in two groups on each side of the car and end above the ice receptacle. Into said receptacle lead the pressure pipe l^2, common to the pumps l and l^1 and the overflow pipe n. The pump l is a centrifugal pump driven from the wheel axle and provided with straight vanes in order that it may rotate in either direction.

The pump l^1 is motordriven and is used when the car is resting in a station or such like. Of course only one pump may be used, which by means of suitable couplings can be coupled to the wheel axle or to a motor, as desired.

The strainer receptacle o is shown in detail in Figs. 3 and 4.

As described above the two pipes l^2 and n abut into the said receptacle. Between

said pipes the strainer t is arranged, for instance in the manner shown, so that the refrigerating liquid, when arriving from the pumps through the pressure pipe l^2 will have to pass the strainer t. Under normal conditions, however, the liquid, after having passed the strainer, will flow through the pipe s^1 to the refrigerating pipes s, said pipe s^1 ending in the bottom of the receptacle o in a chamber, separated from the other part of the receptacle by means of the partition u.

The mouth of the pipe s^1 is provided with a valve v, which is normally held open by a suitable thermostat w, so that the liquid will have free access to the refrigerating pipes. If, however, the temperature should fall below the predetermined minimum, the thermostat will act upon the valve v so that it closes the pipe s^1, whereby the liquid will fill the receptacle up to the mouth of the overflow pipe n, the surplus of liquid flowing back to the pump. By arranging it this way the valve v can be easily inspected and cleaned.

x is a pipe with a valve y, which pipe is used when the receptacle o is to be cleaned, whereby a water-jet is forced into the receptacle o inside the strainer, the water escaping through the pipe x.

z is a cover on the receptacle o.

Having now described and ascertained the nature of my said invention, what I claim and desire to secure by Letters Patent is:—

1. In a refrigerating apparatus comprising in combination a refrigerating member, an ice receptacle with which the said member is connected, and a pump for causing a refrigerating liquid to circulate through the said member and receptacle, a strainer for the said liquid arranged at the upper end of the pump pressure pipe and located above the said refrigerating member.

2. In a refrigerating apparatus comprising in combination a refrigerating member, an ice receptacle with which the said member is connected, and a pump for causing a refrigerating liquid to circulate through the said member and receptacle, a strainer receptacle containing a strainer, the said receptacle being arranged between the ice receptacle and the refrigerating member and located above the said refrigerating member, the said strainer dividing the strainer receptacle in two compartments, into one of which leads the pressure pipe from the pump, while the other communicates with the refrigerating member.

3. In a refrigerating apparatus comprising in combination a refrigerating member, an ice receptacle with which the said member is connected, and a pump for causing a refrigerating liquid to circulate through the said member and receptacle, a strainer receptacle containing a strainer, the said receptacle being arranged between the ice receptacle and the refrigerating member and located above the said refrigerating member, the said strainer dividing the strainer receptacle in two compartments into one of which leads the pressure pipe from the pump while the other communicates with the refrigerating member and by means of an overflow pipe with the pump.

4. In a refrigerating apparatus comprising in combination a refrigerating member, an ice receptacle with which the said member is connected, and a pump for causing a refrigerating liquid to circulate through the said member and receptacle, a strainer receptacle containing a strainer, the said receptacle being arranged between the ice receptacle and the refrigerating member and located above the said refrigerating member, the said strainer dividing the strainer receptacle in two compartments into one of which leads the pressure pipe from the pump while the other communicates with the refrigerating member by means of a pipe, provided with a valve operated by a thermostat.

5. In a refrigerating apparatus comprising in combination a refrigerating member, an ice receptacle with which the said member is connected, and a pump for causing a refrigerating liquid to circulate through the said member and receptacle, a strainer receptacle containing a strainer, the said receptacle being arranged between the ice receptacle and the refrigerating member and located above the said refrigerating member, the said strainer dividing the strainer receptacle in two compartments into one of which leads the pressure pipe from the pump while the other communicates with the refrigerating member by means of a pipe provided with a valve operated by a thermostat and further communicating with the pump by means of an overflow pipe.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHAN GUSTAF RICHERT.

Witnesses:
GERTA PRIEN.
HARRY ALBITZ.