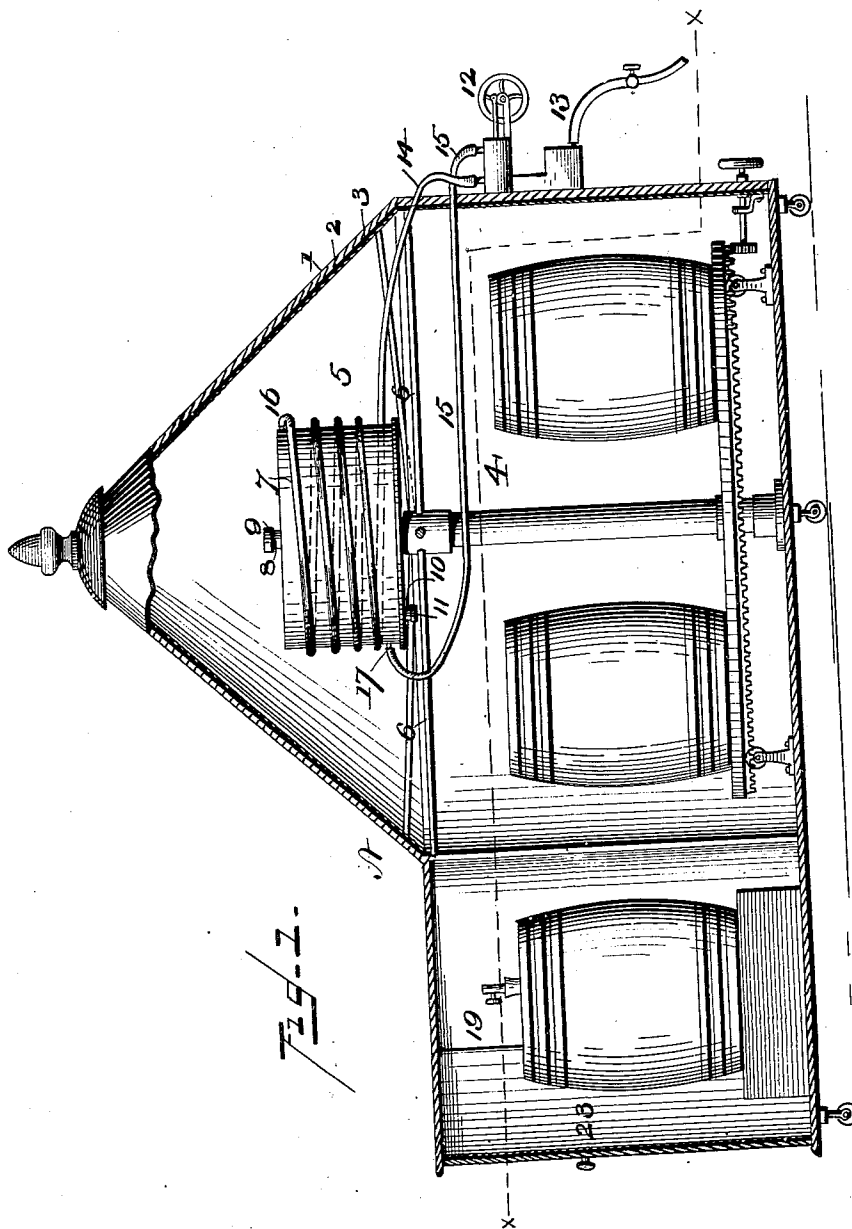


(No Model.)

R. R. GRAF.
REFRIGERATOR.

Patented Aug. 13, 1889.

No. 409,035.



WITNESSES
H. L. Curand
R. W. Everett

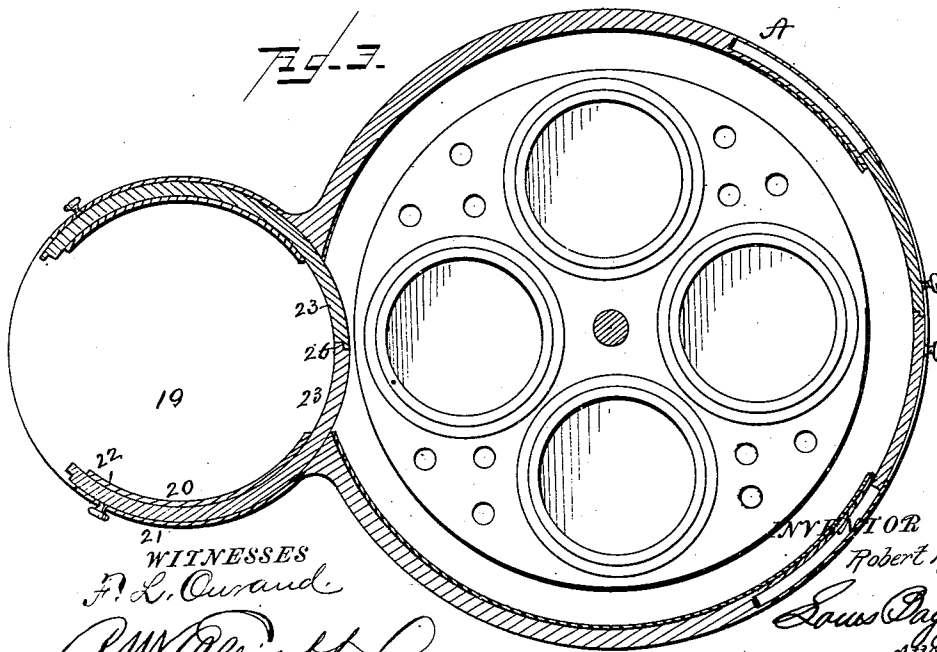
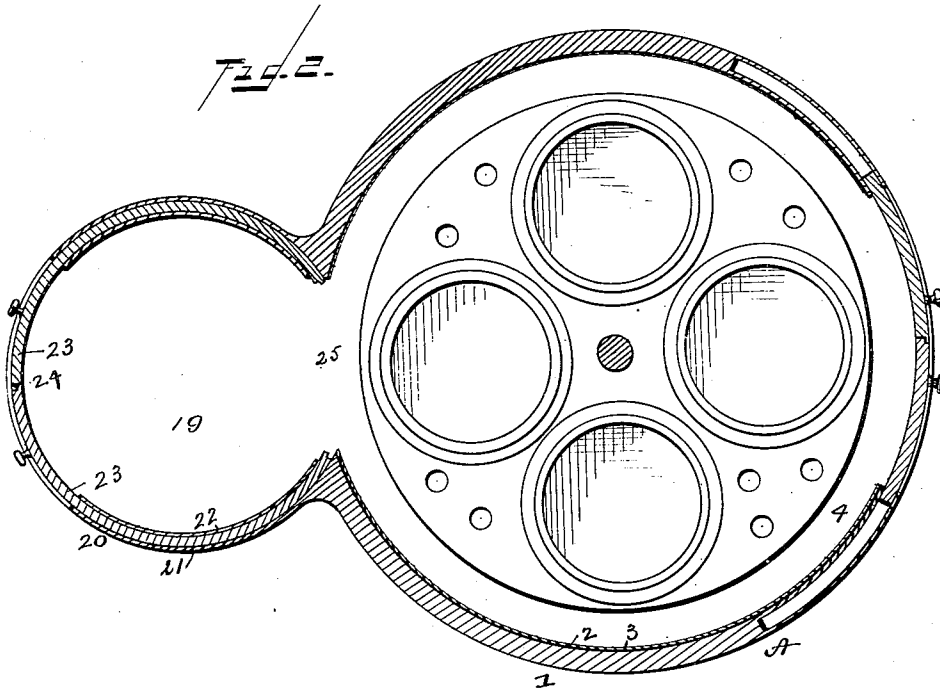
INVENTOR
Robert R. Graf
 by *J. Davis Packer & Co.*
 Attorneys.

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WITNESSES
F. L. Curand
R. W. Elliott, Jr.

INVENTOR
Robert R. Graf
Louis Duggert Co.,
Attorneys.

UNITED STATES PATENT OFFICE.

ROBERT R. GRAF, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NATIONAL REFRIGERATING COMPANY, OF SAME PLACE.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 409,035, dated August 13, 1889.

Application filed February 18, 1889. Serial No. 300,263. (No model.)

To all whom it may concern:

Be it known that I, ROBERT R. GRAF, a citizen of the United States, and a resident of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Refrigerators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to refrigerators; and it consists in the novel construction herein-after described, and set forth in the claim.

Figure 1 is a vertical sectional view of a refrigerator embodying my invention. Fig. 2 is a longitudinal sectional view taken on the line xx of Fig. 1, showing the auxiliary chamber attached thereto for containing barreled beer or other spirituous liquors and the means for cutting off communication between the main chamber and the said auxiliary chamber, the doors being closed; and Fig. 3 is a similar view showing the doors of the auxiliary chamber open, thereby cutting off communication between the main chamber and the auxiliary chamber.

Referring to the drawings, A designates the casing of the refrigerator, which may be made of any suitable material, but preferably, in this instance, of an outer casing 1, of wood, a lining 2, which may be of any suitable damp-proof material, but preferably of tarred felt, and an inner lining 3 of zinc or any other non-corrosive material. This casing is divided into two compartments 4 and 5, separated by a rack 6, so as to allow a complete circulation of the air between the two compartments. The lower compartment 4, which is the cold-air chamber, may be provided with any suitable means for holding articles, but preferably, in this instance, with a revoluble table, and the upper compartment or refrigerating-chamber with any refrigerating-receptacle, but preferably a receptacle such as 7, in which are placed refrigerating-chemicals. This receptacle may be made of any suitable material, but preferably of zinc, and is provided on its upper surface with an inlet 8, through which the chemicals are placed, the said inlet being

covered by a cap 9. The bottom is provided with an outlet 10, provided with a similar cap 11.

To one side of the refrigerator, and either upon the interior or exterior, is placed a pump 12, which is operated by means of water fed thereto through a pipe 13. In this instance a water-motor is shown; but, if desired, a motor operated by clock-work, electricity, or steam may be employed. Connecting with the pump are two pipes 14 and 15. The pipe 14 is coiled around and incloses the receptacle containing the refrigerating-chemicals and enters the same at the point 16, which is preferably at the top of the side. The pipe 15 connects with the lower side of the receptacle at 17 and connects with the pump, as shown.

Having now described the different parts of my device, I will proceed to show the manner in which it operates.

A suitable quantity of refrigerating-chemicals is first placed in the receptacle through the inlet 8, and the same is mixed with water until brought to the proper consistency. The cap 9 is then screwed on to prevent the entrance of the outside air, which would tend to exhaust the chemicals more rapidly than is desired. The pipe 13 is then connected with a suitable water-supply; but, if desired, the same may be previously attached to a water-supply and provided with a cock 18, which, when turned, will allow the water to flow to the pump and thus start the same. As soon as the pump operates, the mixture of chemicals and water is rapidly drawn from the receptacle through the pipe 15 to the pump, from which point it is forced through the pipe 14 around the exterior of the receptacle and into the receptacle again at the top. As long as the motor operates, this circulation will be kept up, thereby presenting a constant cold surface to the atmosphere within the refrigerator. After the chemicals have become exhausted, or, in other words, have lost their cooling properties, the mixture is removed by unscrewing the cap 11, when the contents may be readily removed and the receptacle replenished.

The auxiliary chamber consists of a cylin-

drical housing or casing 19, secured to the refrigerator proper and preferably at its back. The walls 20 of this cylinder are made in two sections 21 and 22, and between these sections 5 move sliding semicircular doors 23, which, when pushed out, as shown in Fig. 2, meet at the point 24, and thus leave a space 25, through which the cold air from the cold-air chamber enters the auxiliary chamber; but when it is 10 desired to open the auxiliary chamber for the purpose of placing articles therein or removing them therefrom the doors are slid back, and thus meet at the point 26, thereby effectually preventing the air from the cold-air 15 chamber escaping or the warm air from the outside entering.

As before stated, only one form of refrigerator has been shown, which, by preference, is cylindrical; but I will have it understood that 20 I do not confine myself to any particular shape or size, nor to any particular material or materials in constructing the same, but may avail myself of those forms and materials that

are best adapted to my purpose. It will thus be seen from the foregoing description that, 25 although this form of refrigerator is exceedingly simple of construction, it will be found of the highest efficiency and durability in use.

Having thus fully described my invention, what I claim as new, and desire to secure by 30 Letters Patent, is—

The combination, in a refrigerator, of the cooling-chamber proper, a substantially cylindrical chamber communicating therewith 35 and provided with double walls and a front opening, and the curved doors sliding in said walls, as described, so as to close either the front opening or the communication between the chambers, substantially as set forth.

In testimony that I claim the foregoing as 40 my own I have hereunto affixed my signature in presence of two witnesses.

ROBERT R. GRAF.

Witnesses:

ROBERT M. ELLIOTT,
BENNETT S. JONES.