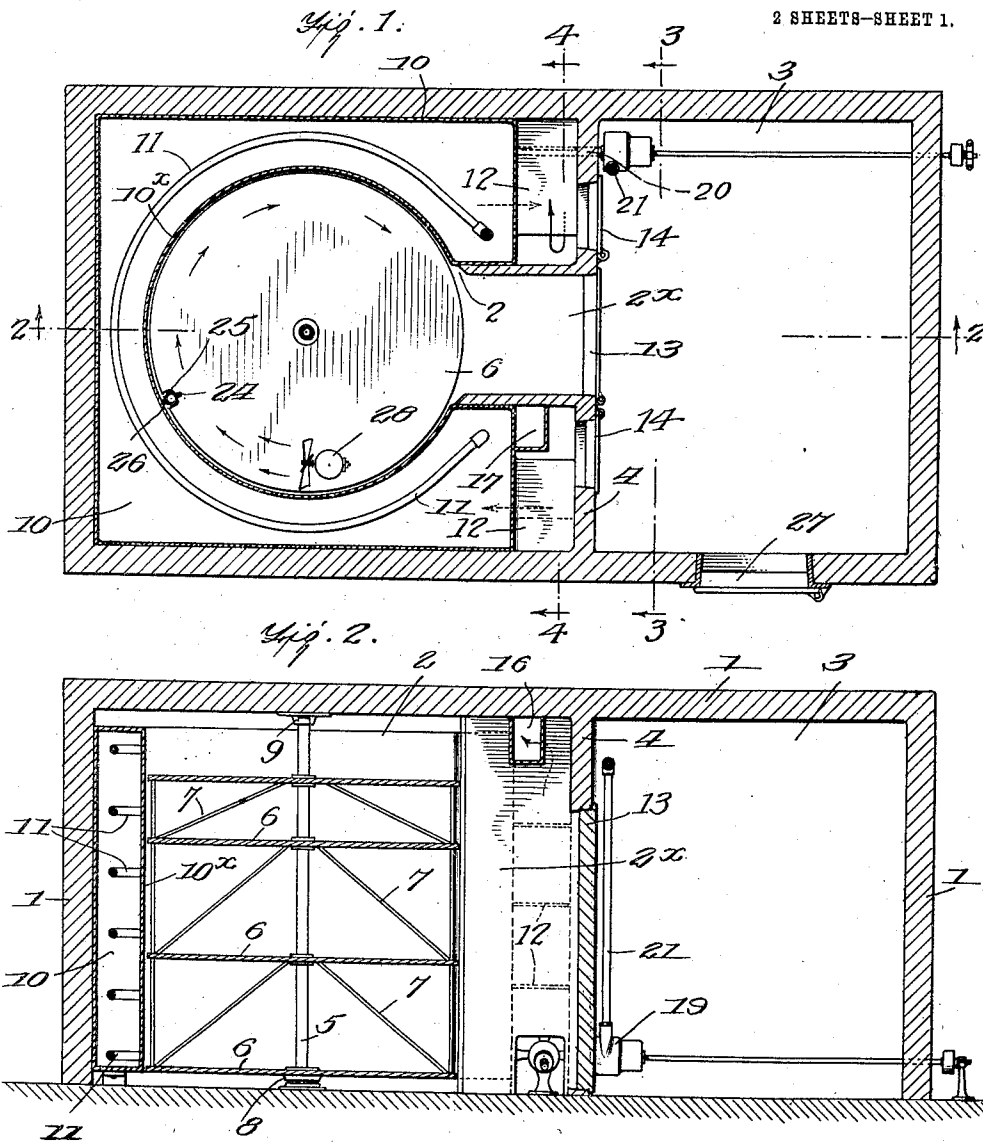


S. MACKIN.
REFRIGERATING APPARATUS.
APPLICATION FILED AUG. 11, 1913.

1,095,008.

Patented Apr. 28, 1914.

2 SHEETS-SHEET 1.



WITNESSES
L. H. Schmidt
L. A. Stanley

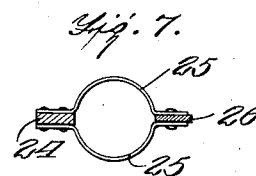
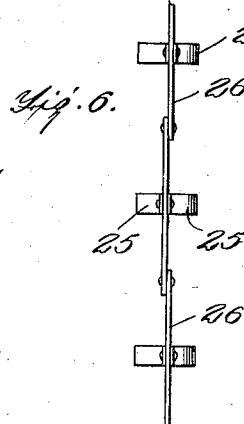
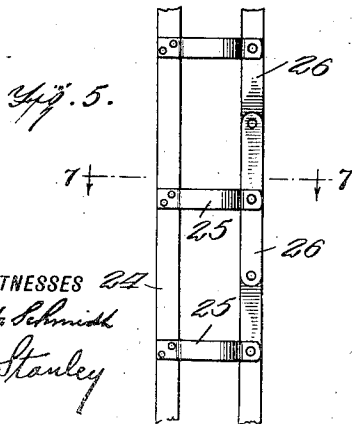
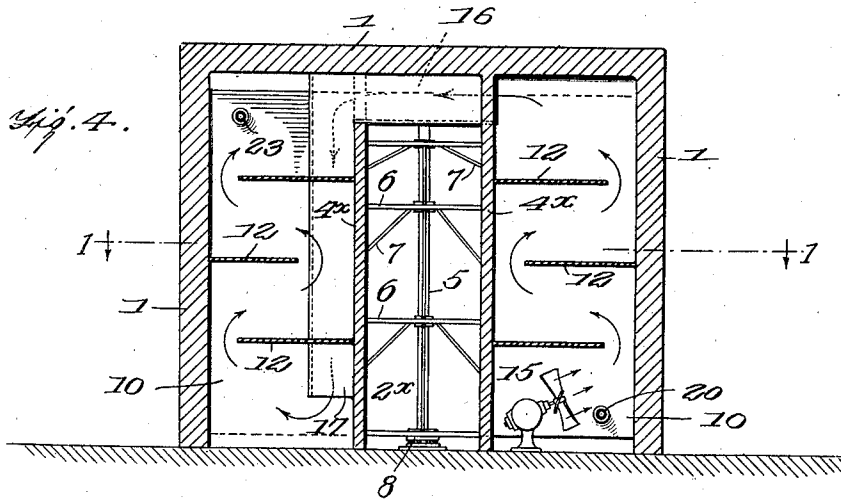
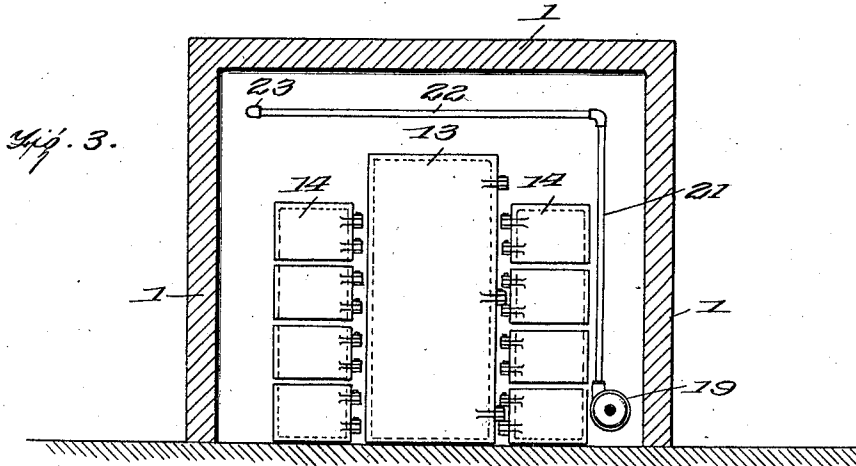
INVENTOR
SAM MACKIN,
BY *Munn & Co.*
ATTORNEYS

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UNITED STATES PATENT OFFICE.

SAM MACKIN, OF LAREDO, TEXAS.

REFRIGERATING APPARATUS.

1,095,008.

Specification of Letters Patent.

Patented Apr. 28, 1914.

Application filed August 11, 1913. Serial No. 784,215.

To all whom it may concern:

Be it known that I, SAM MACKIN, a citizen of the United States, and a resident of Laredo, in the county of Webb and State of Texas, have made certain new and useful Improvements in Refrigerating Apparatus, of which the following is a specification.

My invention relates to improvements in refrigerating apparatuses, more particularly to those for the purpose of hardening ice cream, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a device of the type mentioned in which a series of shelves is provided with means for revolving these shelves and bringing them into position whereby the contents of the shelves may be removed or replaced.

A further object of my invention is to provide a novel form of vault for receiving the shelves and novel means for maintaining the vault in a cold condition.

A further object of my invention is to provide a device which will economize storage room.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a horizontal section through the device, Fig. 2 is a section along the line 2—2 of Fig. 1, Fig. 3 is a section along the line 3—3 of Fig. 1, Fig. 4 is a section along the line 4—4 of Fig. 1, Fig. 5 is a detail face view of a scraping device, Fig. 6 is a rear view of the scraping device, and Fig. 7 is a section along the line 7—7 of Fig. 5.

In carrying out my invention I provide a vault or inclosure having non-conducting walls 1. As will be seen from Fig. 1 the vault is divided into two compartments 2 and 3 respectively by means of the partition 4. Within the compartment 2 is disposed a central shaft 5 which supports a series of circular shelves 6, these shelves being braced by means of brace rods 7. Suitable thrust bearings 8 are provided at the bottom and bearings 9 are also provided at the top for keeping the shaft in alinement.

In the compartment 2 is disposed a rectangular tank 10 which is made of any suitable material, this tank being provided with

a cylindrical recess arranged to receive the circular shelves, and being raised from the floor.

As will be seen from Fig. 1 the shelves 6 extend into close proximity to the walls 10* of the tank, only enough space being left to provide clearance. Disposed within the tank 10 is an ammonia coil 11. As will be seen from Fig. 1 the tank 10 terminates short of the wall 4 so as to leave a space on each side of the central extension 2* of the compartment 2. This space I utilize as cold closets by providing therein shelves such as those shown at 12 in Fig. 4. Alternate shelves are supported by the inner partitions 4* while intermediate shelves are supported by the outer walls 1. A central door 13 is provided for permitting access to the revoluble frame bearing the shelves 6, while side doors 14 are provided for the cold closets.

As will be seen from Fig. 4 a fan 15 is provided at the bottom of one of the closets and this fan draws in air from underneath the tank 10 out of the compartment 2 in which the revolving shelves are located, the air passing upwardly around the shelves 12 thence across the top of the extension 2* and the conduit 16 provided for that purpose, thence downwardly through the conduit 17 to the bottom of the opposite closet, thence oppositely around the shelves in the second closet and above the tank 10 in the compartment 2. It will be seen that owing to the circular shape of the compartment 2 and the fact that the air is drawn out from the compartment at the bottom on one side and forced into the compartment at the top on the other a revolving current of air is set up in the compartment 2. A complete circulation of air in the cold closets is thus assured.

In order to provide for the circulation of the brine in the tank 10 I may use a pump 19 (see Fig. 3). This pump communicates with the bottom of the tank 10 on one side by means of a pipe 20, thus drawing the brine through the pipe and forcing it upwardly through the pipes 21 and 22 into the top of the tank 10 through a pipe 23.

Carried by the frame which is composed of the shelves, the shaft 5, and the brace members, is a scraping device like that shown in Fig. 5. This is composed preferably of a strip 24 which is disposed vertically and to which is secured at intervals curved spring members 25 (see Figs. 6 and 7). On the opposite side of the curved

spring members are secured strips 26, these strips being pivoted to each other and to the springs, as shown in Figs. 5, 6 and 7. The members 26 are arranged to engage the wall of the tank 10 or the inner wall of the circular inclosure formed by the recess in the tank.

From the foregoing description of the various parts of the device the operation thereof is readily understood.

The chamber 3 forms an entrance chamber and is closed by a door 27. Access may be had to the shelves 6 for placing thereon articles such as bricks of ice cream designed to be hardened or any other commodity which it is desired to maintain in a cold condition. The shelves may be easily revolved so as to bring any of the articles into easy reach of the user. The constant circulation of air tends to thoroughly cool the articles and to effect the uniform temperature not only within the inner circular portion of the vault, but in the cold closets as well. In order to facilitate this equal distribution of temperature I may mount an electric fan 28 (see Fig. 1) on any of the shelves. Access may be had to the cold closets by means of the doors 14.

A device of this kind will keep articles in a cold state without the necessity of using ice. The provision of the circular shelves permits the placing of the wall of the cooling tank 10 into close proximity to the shelves so that great economy of space is gained. As the shelves are turned on their central axis the members 26 come in contact with the wall 10* of the tank and scrape therefrom any frost which tends to accumulate. In view of the fact that the frost tends to act as a heat insulator it will be seen that the provision of this scraping device is important, since it removes the frost thereby leaving the shelves bare to the circulating air and thus permitting the rapid cooling of the device by convection currents. The purpose of joining the strips 26 is to provide means whereby the springs will give to any inequalities on the wall 10* of the tank. The springs 25 also tend to give when the obstruction is met and will spring back immediately into place, thus the scraping apparatus is self adjusting.

It should be noted that the air has a tendency to move in a straight line and thus the air which is driven in at the top of the compartment 2 impinges on the cold wall of the tank and hugs the wall from one side of the compartment to the other, thus thoroughly chilling the air.

The circular form of the tank permits of the scraper removing all frost from the cooling surface of the tank, while merely revolving the shelves in the act of placing articles on to be cooled or frozen. This virtually makes the action of the scrapers automatic

and does away with the necessity of additional apparatus to turn the scrapers.

I am aware that other forms of the device based upon the same general plan might be made, but I consider as my own all such modifications as fairly fall within the spirit and scope of the invention.

I claim:

1. In a refrigerating vault, an outer casing having non-conducting walls, a brine tank disposed within said casing, said brine tank having a cylindrical recess and an extension of said recess on one side thereof, a partition disposed within said casing and spaced from one side of said brine tank, the space between said partition and said brine tank constituting cold closets, a shaft disposed within the recess in said brine tank, and a series of circular shelves carried by said shaft, the edges of said shelves being in close proximity to the walls of said tank.

2. In a refrigerating vault, an outer casing having non-conducting walls, a brine tank disposed within said casing, said brine tank having a cylindrical recess and an extension of said recess on one side thereof, a partition disposed within said casing and spaced from one side of said brine tank, the space between said partition and said brine tank constituting cold closets, a shaft disposed within the recess in said brine tank, a series of circular shelves carried by said shaft, the edges of said shelves being in close proximity to the walls of said tank, means for cooling the brine in the tank, means for causing a circulation of the brine in the tank, and means for causing a circulation of air in said cold closets.

3. In a refrigerating vault, a casing having non-conducting walls, a brine tank disposed within said casing at one end thereof, said brine tank having a central cylindrical recess and being provided with an extension of said recess on one side, a transverse main partition disposed within said casing and spaced from said brine tank, auxiliary partitions extending from said first mentioned partitions toward said central recess, the space between said main partition and the wall of said brine tank, and the auxiliary partition and the wall of the casing constituting cold closets, a central shaft disposed in the recess in said brine tank, circular shelves secured to and carried by said shaft, and a scraping device carried by said shelves and arranged to engage the cylindrical wall of said brine tank.

4. In a refrigerating vault, a casing having non-conducting walls, a brine tank disposed within said casing at one end thereof, said brine tank having a central cylindrical recess and being provided with an extension of said recess on one side, a transverse main partition disposed within said casing and spaced from said brine tank, auxiliary

partitions extending from said first mentioned partitions toward said central recess, the space between said main partition and the wall of said brine tank, and the auxiliary partition and the wall of the casing constituting cold closets, a central shaft disposed in the recess in said brine tank, circular shelves secured to and carried by said shaft, a scraping device carried by said shelves and arranged to engage the cylindrical wall of said brine tank, means for carrying said brine tank, means for causing a circulation of the brine in the brine tank, and means for causing a circulation of air through the cold closets and through the cylindrical recess containing the shelves.

5. In a refrigerating vault, a casing having non-conducting walls, a brine tank disposed within said casing at one end thereof, said brine tank having a central cylindrical recess and being provided with an extension of said recess on one side, a transverse main partition disposed within said casing and

spaced from said brine tank, auxiliary partitions extending from said first mentioned partitions toward said central recess, the space between said main partition and the wall of said brine tank, and the auxiliary partition and the wall of the casing constituting cold closets, a central shaft disposed in the recess in said brine tank, circular shelves secured to and carried by said shaft, a scraping device carried by said shelves and arranged to engage the cylindrical wall of said brine tank, means for carrying said brine tank, means for causing a circulation of the brine in the brine tank, means for causing a circulation of air through the cold closets and through the cylindrical recess containing the shelves, and doors for said cold closets and for the extension of said cylindrical recess.

SAM MACKIN.

Witnesses:

R. A. MILLAR,
LUIS F. MARTINEZ.