J. E. STAFFORD.

REFRIGERATOR.

APPLICATION FILED APR. 4, 1910.

1,028,298.

Patented June 4, 1912.

2 SHEETS—SHEET 1.

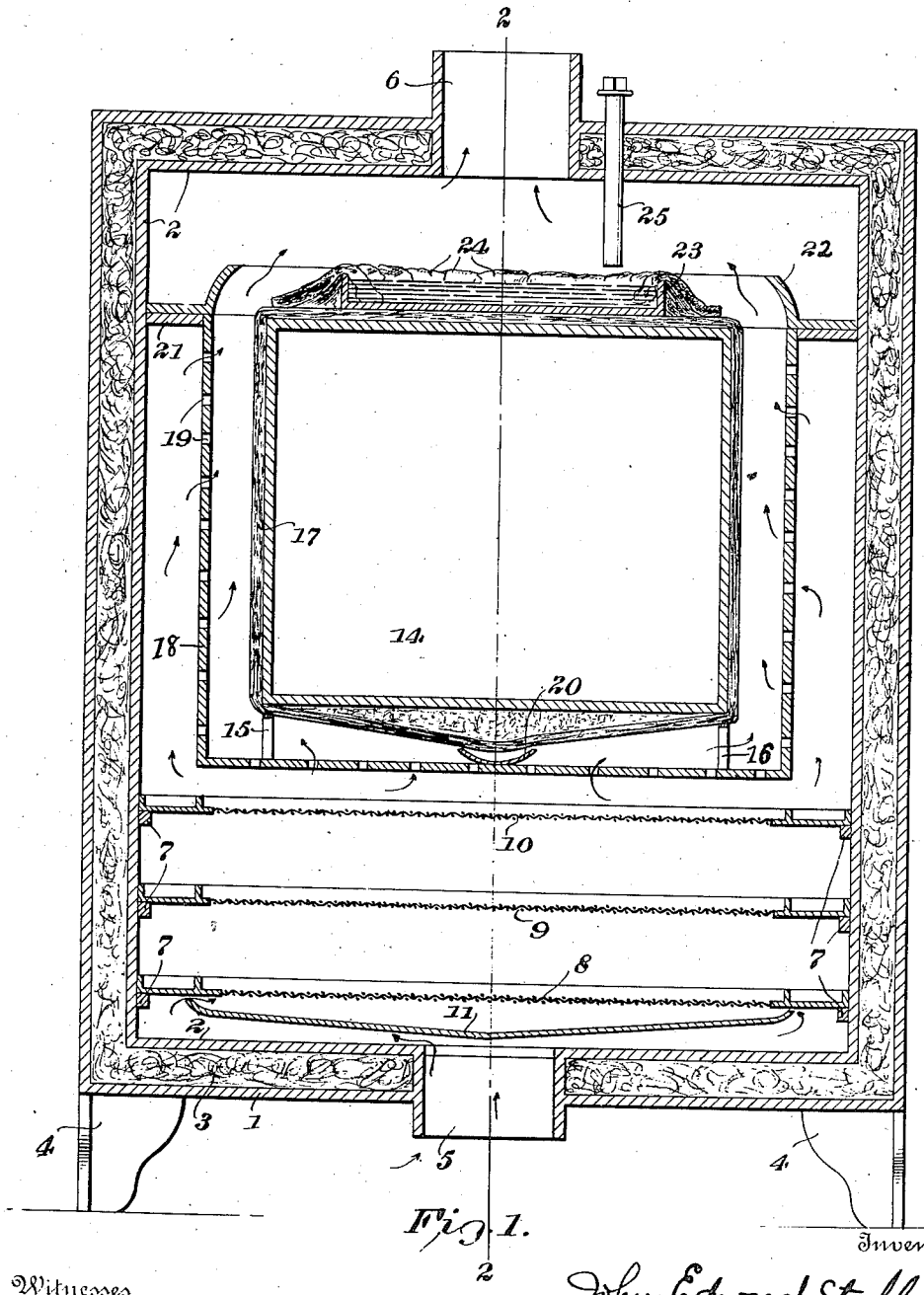

Fig. 1.

Witnesses

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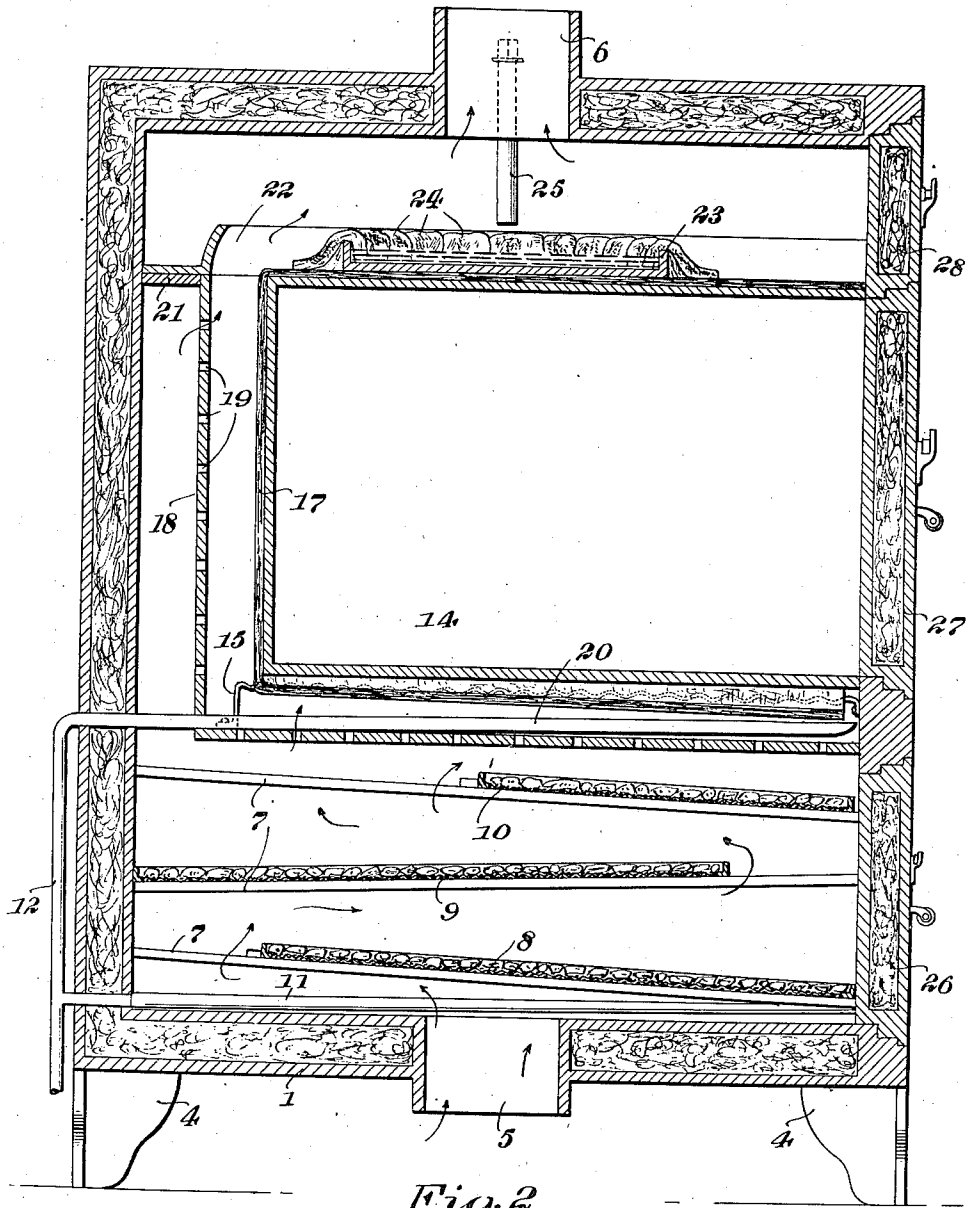

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN EDWARD STAFFORD, OF GILBERT, WEST VIRGINIA.

REFRIGERATOR.

1,028,298. Specification of Letters Patent. Patented June 4, 1912.

Application filed April 4, 1910. Serial No. 553,397.

To all whom it may concern:

Be it known that I, JOHN EDWARD STAFFORD, a citizen of the United States, and a resident of Gilbert, county of Mingo, State of West Virginia, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

My invention relates to refrigerators and more particularly to portable refrigerators adapted for house-hold purposes, and especially constructed for use where ice is not readily obtainable.

The object of my invention is to provide a simple means of reducing temperature within a refrigerator without the use of ice, but by making use of a well known principle of evaporation in which atmospheric air is used as a vehicle for carrying on the process of evaporation.

A still further object of the invention is to provide a refrigerator arranged and constructed in such manner that atmospheric air is directed against a wetted surface in such manner as to form an even circulation around the cooling chamber.

A still further object of the invention is to provide a refrigerator with a refrigeration chamber surrounded by absorbent material, and a chamber containing a fluid container, in such manner that all of said chambers are easily accessible for repairs or cleaning.

A still further object of the invention is to construct a portable refrigerator which operates upon the evaporation principle and which is efficient in very damp climates.

Other objects of the invention will in part be obvious and in part pointed out in the specific description of structure which follows hereinafter.

This invention will be more specifically described hereinafter by reference to the accompanying drawings which form a part of this application, and the scope of the invention will be indicated by the appended claims; in the drawings like numerals represent like parts throughout the specification.

Figure 1 is a vertical sectional view taken across the longitudinal center of the device. Fig. 2 is a section taken upon line 2—2 of Fig. 1.

Referring to the figures of the drawings, the refrigerator consists of an outer wall 1 and an inner wall 2; the space between the outer and inner walls being filled with any suitable non-conductor of heat 3, such as mineral wool, asbestos packing, cement or any other well known material commonly used for this purpose. The outer casing is supported upon legs 4—4 and is provided in its bottom portion with a draft opening 5, and at its upper portion with a similar draft tube 6. In the drawings I have illustrated the upper draft tube 6 as opening immediately into the atmosphere, however, it often times is desirable to connect this draft tube 6 with a chimney in order to insure that a current of air will continually flow through the refrigerator. In some cases where it is desirable to have a strong current of air passing through the refrigerator, it is necessary to connect the draft tube 6 with an exhaust fan.

The inner chamber of the refrigerator is divided into several compartments, and is provided upon its interior surfaces with guides or tracks 7, upon which a plurality of sieve bottom trays 8, 9 and 10 are adapted to be supported. Beneath these trays and immediately above the draft opening 5, is located a drip pan 11, which is preferably inclined and connected with a drain pipe 12. The edges of the trays 8, 9 and 10 are preferably formed impervious in order that any moisture which drips from the trays will be caught by the drip pan 11. The trays 8, 9 and 10 are preferably inclined and are set in a staggered relation with reference to the longitudinal length of the refrigerator in order that the air which is drawn in through the draft opening 5, will be forced to pass over and through all of the several trays 8, 9 and 10. The trays 8, 9 and 10 are adapted to hold a de-hydrating chemical. I do not wish to be limited to any particular chemical for de-hydrating the air, but have found in actual practice that sulfid of calcium forms a very good and cheap de-hydrating medium. However, ordinary unslaked lime or calcium chlorid may be also effectually used.

The food chamber or compartment 14, rests upon brackets 15 and 16, which are corrugated upon their upper surfaces in order not to interrupt the capillarity of the absorbent material 17 which surrounds the food compartment. The absorbent material may consist of any soft cloth, porous earthenware plates or any other well known structure for absorbing liquids and presenting a large surface for evaporation. A perfo-

rated wall 18 is arranged around three sides of the food compartment and is formed with openings 19 in such manner that the dehydrated air, after passing over the trays 8, 9 and 10, will be directed most effectively against the evaporation surfaces of the absorbent material 17. The absorbent material on the bottom of the food compartment is preferably formed with a longitudinal V-shaped depending portion in such manner that any excess fluid will be drained toward the middle line and will drop into the drip pan 20, which drains into the drain pipe 12. An upper partition wall 21 is arranged around the perforated walls 18 in such manner that atmospheric air is forced to pass through the openings 19 in order to continue its upward movement. A guide wall 22 is arranged on the upper part of the partition 21 in order to further direct the current of air toward the draft opening 6. A fluid container 23 is adapted to rest upon the absorbent material on the upper portion of the food compartment 14, and is provided with wicks 24, which by capillary attraction gradually feed the fluid in the pan 23 to the absorbent material 17. A supply pipe 25 is passed through the refrigerator walls and is adapted to terminate above the fluid pan 23 in order to form a means for filling said pan without removing it from its position on the food compartment.

The front of the refrigerator is constructed with openings which are closed by the doors 26, 27 and 28. The door 26 closes the opening to the de-hydrating trays, while the door 27 affords accessibility to the food compartment 14. An upper door 28 is provided in order to afford access to the fluid pan 23. This door is so arranged that it may only be opened when the food compartment door 27 has previously been opened. The food compartment 14 can be removed for cleaning, repairing or any other reason, by opening the doors 27 and 28 and lifting the food compartment 14 from its supporting brackets 15 and 16.

I prefer to use water as an evaporating media, but do not wish to be limited to this fluid alone, as many other cheap and well known fluids may be employed where it is desirable to reduce the temperature within the food compartment 14 to a degree much lower than that which could be obtained by the evaporation of water.

As many changes could be made in the herein described structure and many widely different embodiments of this invention might be made without departing from the scope thereof, the matter contained in the above described structure and shown in the accompanying drawings is to be taken as illustrative and not in a limiting sense.

I desire it to be understood also that the language used in the claims is intended to cover all generic and specific features of this invention herein described and all statements of the scope of the invention, which as a matter of language might fall therebetween.

Having described my invention what I claim is:—

1. In a refrigerator, an outer casing, a food compartment within said casing, porous material covering certain sides of the food compartment, means for supplying moisture to said porous material, and a foraminous casing surrounding the covered sides of the food compartment.

2. In a refrigerator, an outer casing, a foraminous casing within said outer casing and having its sides spaced apart therefrom, a food compartment within the foraminous casing and having its sides spaced apart therefrom, porous material on the sides of the food compartment, and means for supplying moisture thereto.

3. In a refrigerator, an outer casing provided with an air inlet and an air outlet, a foraminous casing within said outer casing and having outside communication with the air inlet and inside communication with the air outlet, a food compartment within the foraminous casing, porous material on the sides of the food compartment, and means for supplying moisture to the porous material.

4. In a refrigerator, an outer casing, a foraminous casing within the outer casing, a food compartment within the foraminous casing, porous material on the sides of the food compartment, and corrugated supports between the foraminous casing and the food compartment.

5. In a refrigerator, an outer casing provided with an air inlet and an air outlet, an inner casing within said outer casing having a plurality of foraminous sides spaced apart from the sides of the outer casing, said inner casing having exterior communication with the air inlet and interior communication with the air outlet, a food compartment within the inner casing, porous material on the walls of the food compartment corresponding to the foraminous sides of the inner casing, and means for supplying moisture to the porous material.

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Witnesses:
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