April 28, 1942. P. E. WALLEY 2,281,398

REFRIGERATION UNIT

Filed Nov. 6, 1939

Fig. 1

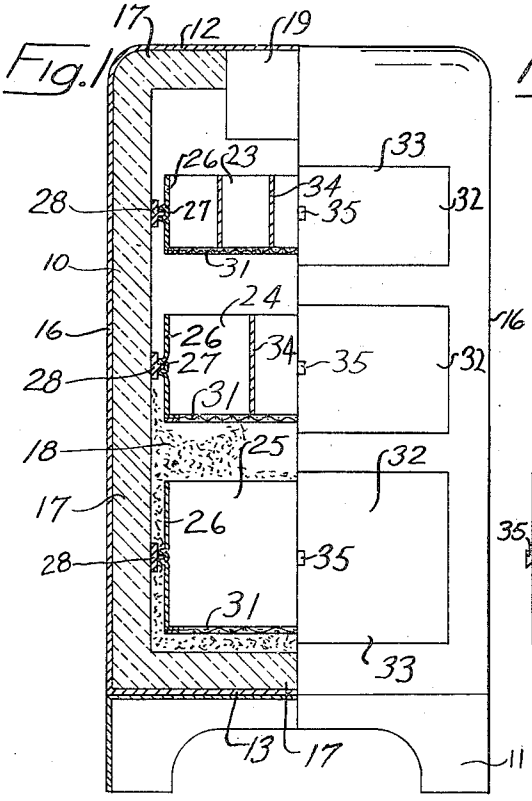


Fig. 2

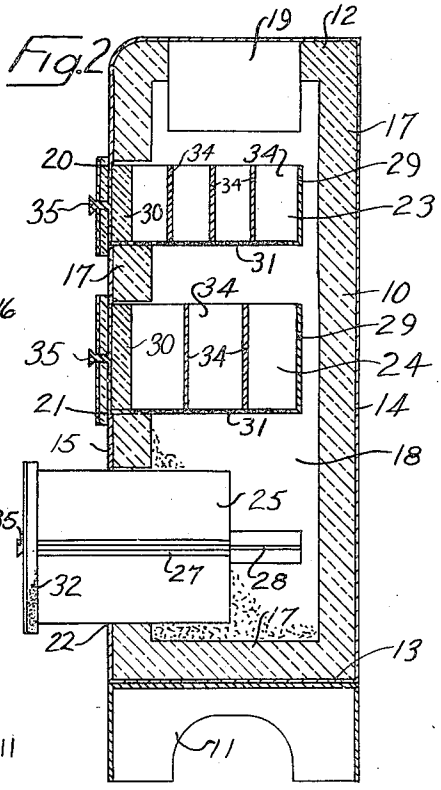


Fig. 3

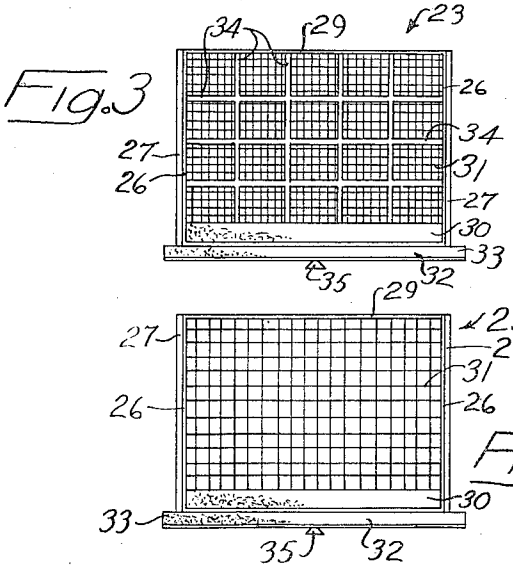


Fig. 4

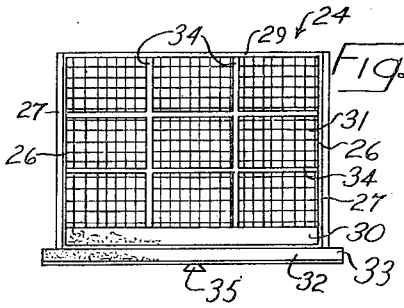


Fig. 5

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REFRIGERATION UNIT

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Application November 6, 1939, Serial No. 303,042

1 Claim. (Cl. 62—89)

This invention has relation to a refrigeration unit.

An object of the invention is to provide a refrigeration unit which will be of novel and improved construction.

A further object is to provide a refrigeration unit wherein will be incorporated various improved features and characteristics of construction novel both as individual entities of the refrigeration unit and in combination with each other.

A further object is to provide a refrigeration unit which will be useful for many purposes but which has been designed especially for the purpose of storing and preserving medicines, etc., in vials, or other containers.

A further object is to provide a novel and improved refrigeration unit which will be entirely suitable for storing and preserving medicines, etc. intended for use from time to time as occasion demands.

A further object is to provide a refrigeration unit of the present general character which will include a plurality of separate, spaced apart cooling areas or zones for storing articles, such as vials containing medicines, etc., and a construction and arrangement whereby articles selectively can be placed in and removed from any one of said separate, spaced apart cooling areas or zones independently of others of said cooling areas or zones.

And a further object is to provide a refrigeration unit which will include a plurality of separate, spaced apart cooling areas or zones each adapted independently to house small articles, such as vials containing medicines, etc., placed in said refrigeration unit for storage, and a construction and arrangement whereby small articles selectively and from time to time can be placed in and removed from any one of said separate, spaced apart cooling areas or zones with resultant entry of but inconsequential amounts of heat to others of said cooling areas or zones and articles housed thereby, or, in fact, to said refrigeration unit.

With the above objects in view, as well as others which will appear as the specification proceeds, the invention comprises the construction, arrangement and combination of parts as now to be fully described and as hereinafter to be specifically claimed, it being understood that the disclosure herein is merely illustrative and intended in no way in a limiting sense, changes in details of construction and arrangement of parts being permissible so long as within the spirit of the invention and the scope of the claim which follows.

In the accompanying drawing forming a part of this specification:

Fig. 1 is a front view, partially in elevation and partially in section, of a refrigeration unit including the principles of the invention;

Fig. 2 is a vertical sectional view of the refrigeration unit disclosing the lower drawer thereof as when partially withdrawn;

Fig. 3 is a top plan view of the upper drawer of the refrigeration unit of Figs. 1 and 2 as when removed from said refrigeration unit;

Fig. 4 is a top plan view of the middle drawer of the refrigeration unit of Figs. 1 and 2 as when removed from said refrigeration unit; and

Fig. 5 is a top plan view of the lower drawer of the refrigeration unit of Figs. 1 and 2 as when removed from said refrigeration unit.

Doctors, nurses and other individuals often are required continuously to keep certain medicines and the like, intended for use as occasion requires, at relatively low temperature. Otherwise, the medicines and the like are liable to become unfit to the accomplishment of their intended purposes. Also, medicines frequently are required to be applied to use, especially in emergency cases, at locations where there are at present no proper facilities for permanently accomplishing refrigeration or cooling of the medicines. For instance, in the office of a doctor there usually are no facilities for permanent retention of medicines, etc. at temperature lower than ordinary room temperature. In many instances, medicines which are liable to become spoiled when subjected to temperature ordinarily prevailing in building structures are stored by doctors in the refrigerators of druggists, and, sometimes, emergency use of medicines so stored is impossible because the medicines temporarily are unavailable. And, too, nurses do not on all occasions when emergencies arise have present and at hand needed medicines of the type required to be kept cool to remain useful.

The main purpose of the present invention is to provide a small, compact, inexpensive and inexpensively operated refrigeration unit which will be convenient and suitable for use by doctors, nurses and other individuals to store and thus preserve medicines, etc. at location where the medicines, etc., are intended or likely to be used, thus to obviate difficulties as hereinbefore mentioned.

With respect to the drawing and the numerals of reference thereon, the frame or body 10 of

the refrigeration unit is of general rectilinear conformation, and is supported by a base 11 adapted to rest upon a floor, desk or other member.

Said frame or body 10 is a closed structure and includes a top wall 12, a bottom wall 13, a rear wall 14, a front wall 15 and opposite side walls 16, 16, and each of said walls 12, 13, 14, 15, 16, 16 is suitably and conveniently lined with heat insulating material 17 at the inner sides of the walls. All of said mentioned walls and said heat insulating material together provide an interior, cooling chamber or space 18 of the refrigeration unit.

A cooling unit 19 is disposed in the upper portion of said chamber or space 18. As disclosed, the cooling unit 19 is situated partially within the heat insulating material 17 which lines the top wall 12. Said cooling unit can be supported within and by the refrigeration unit in any suitable and convenient manner. Desirably, the cooling unit 19 will be constituted as an element of an ordinary or preferred refrigerator cooling system several kinds of which are of commerce, but said cooling unit could, instead, contain ice, or even dry ice. Ordinarily, the cooling unit 19 will be a part of an electric refrigerator cooling system.

The front wall 15 of the refrigeration unit and the heat insulating material 17 which lines said front wall are cut away at three spaced apart locations to provide an upper, rectangular opening 20, an intermediate, rectangular opening 21 and a lower, rectangular opening 22. Said rectangular openings 20, 21 and 22 are in the disclosure as made spaced at equal distance apart and arranged in vertical alinement.

The upper, intermediate and lower rectangular openings 20, 21 and 22 are, respectively, for reception of an upper, rectilinear drawer 23, an intermediate, rectilinear drawer 24 and a lower, rectilinear drawer 25. Said drawers 23, 24 and 25 are horizontally disposed in vertical alinement with each other and are also spaced at equal distance apart.

Each of the upper, intermediate or middle and lower rectilinear drawers 23, 24 and 25 is slidably mounted upon and within the refrigeration unit to be moved inwardly and outwardly of the front wall 15 of said refrigeration unit, through the openings 20, 21 and 22, respectively, into and out of the chamber or space 18. To the purpose of slidably mounting said drawers, each drawer is provided at or upon the outer surface of its opposite side walls 26 with a set 27 of oppositely disposed, longitudinally extending guideways adapted to receive a set 28 of oppositely disposed, horizontally extending guides mounted upon the opposite side walls 16, 16, of the refrigeration unit, or, more properly, upon the inner surfaces of the heat insulating material 17 lining said opposite side walls 16, 16. That is to say, there is a set 28 of oppositely disposed, horizontal guides at the rear of each rectangular opening 20, 21, 22 upon the opposite side walls 16, 16 of the refrigeration unit, and each drawer 23, 24, 25 supports a set 27 of oppositely disposed, longitudinal guideways upon its opposite side walls 26, 26 complemental to and slidable upon the corresponding set 28 of guides.

Each drawer 23, 24 and 25 includes a rear, vertical wall 29 which joins with the side walls 26, 26 of the drawer, a front, vertical insulating wall 30 which also joins with the side walls of the drawer, and an open type or screen like bottom 31 which spans the distance between the lower portions of the opposite side walls 26, 26, as well as the distance between the lower portions of the rear and front walls 29 and 30.

When the drawers 23, 24 and 25 are in inserted position, the front, vertical insulating wall 30 of each drawer is in alinement with the heat insulating material 17 lining the front wall 15 of the refrigeration unit, and the front, vertical insulating wall 30 of each drawer desirably substantially fills or closes the area of the rectangular opening 20, 21 or 22 in which arranged when the corresponding drawer is fully inserted, as will be understood.

Each drawer 23, 24, 25 also includes a vertical, rectangular, insulating closure member or wall 32 secured to the drawer adjacent the forward surface of the front, vertical insulating wall 30 of the drawer, and each vertical insulating closure member or wall 32 has overall area to provide a rectangular margin or flange 33 projecting beyond the upper, lower and side marginal edges of the front, vertical insulating wall 30. That is, each vertical rectangular insulating closure member or wall 32 is of length and width so that its continuous margin or flange 33 will fit up tightly against the outer surface of the front wall 15, in completely surrounding relation to a rectangular opening 20, 21 or 22, as the case may be, when the drawer is in fully inserted position. Stated otherwise, when the drawers 23, 24 and 25 are inserted to their full depths, the openings 20, 21 and 22 are sealed closed by the vertical closure members or walls 32 and their rectangular margins or flanges 33.

Each of the drawers 23, 24 and 25 is wide open at its top or upper portion. The upper drawer 23 includes numerous vertical intersecting partitions 34 which divide this drawer into relatively small individual compartments for reception of comparatively small articles, such as vials or other containers for medicines, etc. The intermediate or middle drawer 24 includes a smaller number of vertical intersecting partitions 34 which divide this drawer into individual compartments not so small as those of the drawer 23 for reception of larger articles, vials or containers. The drawer 25 is constituted as one single compartment considerably larger than the compartments of the drawers 23 and 24. A knob 35 upon the closure member or wall 32 of each drawer is for actuating the drawer.

It will be seen that said drawers 23, 24 and 25 offer no interference at all to free circulation of cooled air throughout the interior chamber or space 18 of the refrigeration unit. That is, in direction vertically of said chamber or space 18 all of the drawers are substantially open. It also will be seen that the drawers 23, 24 and 25 constitute separate, spaced apart cooling areas or zones of the interior chamber or space 18 of the refrigeration unit for storing articles which are to be kept cool, and that articles selectively can be placed in and removed from any one of said drawers or cooling areas or zones independently of others of the drawers or cooling areas or zones. Each separate drawer or cooling area or zone is adapted independently to house small articles, such, for example, as vials containing medicines, etc., placed in the refrigeration unit for storage, and small articles selectively and from time to time can be placed in and removed from any one of said separate, spaced apart drawers or cooling areas or zones with resultant entry of but inconsequential amounts of heat to others or said

drawers or cooling areas or zones and articles housed thereby. That is, upon withdrawal or opening of any one of the separate, spaced apart drawers, only a minimum amount of heat will enter the chamber or space 18.

The cooling unit 19 of the refrigeration unit will require but a negligible amount of power to effect its constant operation to the performance of its intended function, both because of the relatively small size of the chamber or space 18 to be cooled, and the provision of separate, isolated cooling regions, areas or zones within said chamber or space designed individually to be opened to the outside atmosphere when articles are to be placed in or removed from the refrigeration unit.

What is claimed is:

A small refrigeration unit for preserving medicines, comprising a body providing a normally closed chamber, heat insulation material lining said chamber, a cooling unit in an upper portion of said chamber, a plurality of substantially open containers in said chamber each adapted removably to receive articles such as vials to be cooled, said containers being mounted one above the other in spaced apart cooling areas of the chamber and beneath and in spaced relation to said cooling unit, each of said containers being at least partially removable from said chamber, means constituted as separate and distinct openings in said body and heat insulating material through which each of said substantially open containers individually can be made accessible outside of said body independently of others of said substantially open containers, an insulating wall upon a forward portion of each of said substantially open containers for insertion into one of said openings in said body and heat insulating material in closing relation to the opening, and an insulating closure member upon each container adjacent the corresponding insulating wall for sealing closed the corresponding opening in said body, each insulating closure member having overall area to provide a margin thereof projecting beyond the marginal edges of the corresponding insulating wall adapted to be engaged against the body of said refrigeration unit in surrounding relation to the corresponding opening.

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