Oct. 23, 1928. 1,688,897

C. C. SPREEN

SUPPORTING MEANS FOR VAPORIZERS

Filed Jan. 31, 1927 2 Sheets-Sheet 1

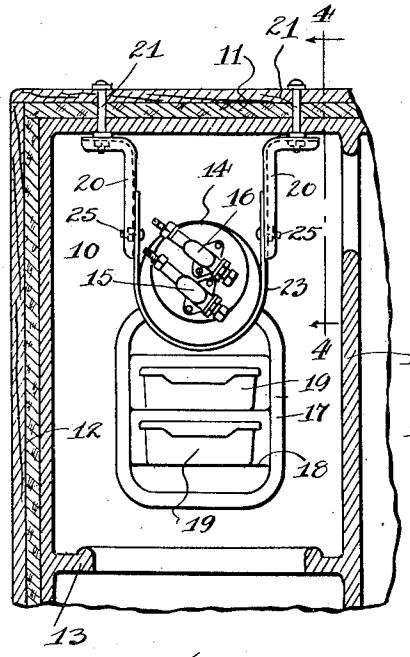


Fig. 1

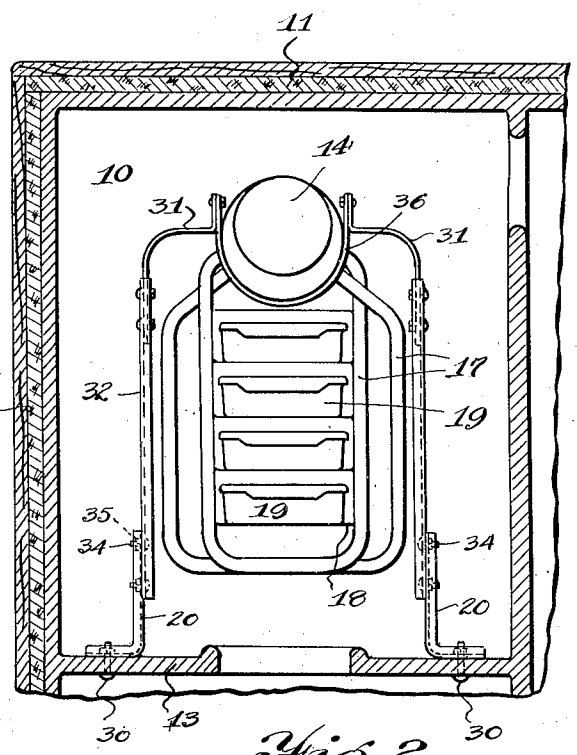
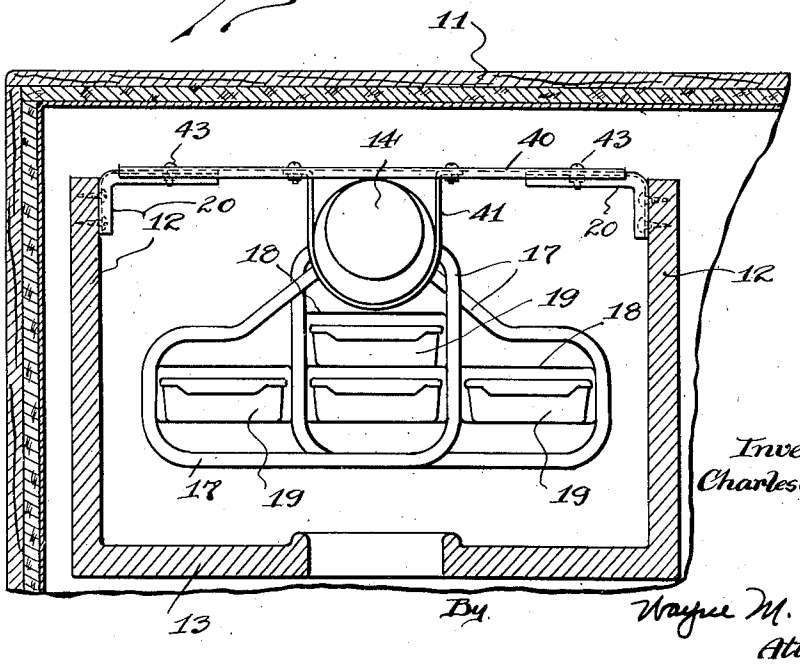


Fig. 2

Fig. 3



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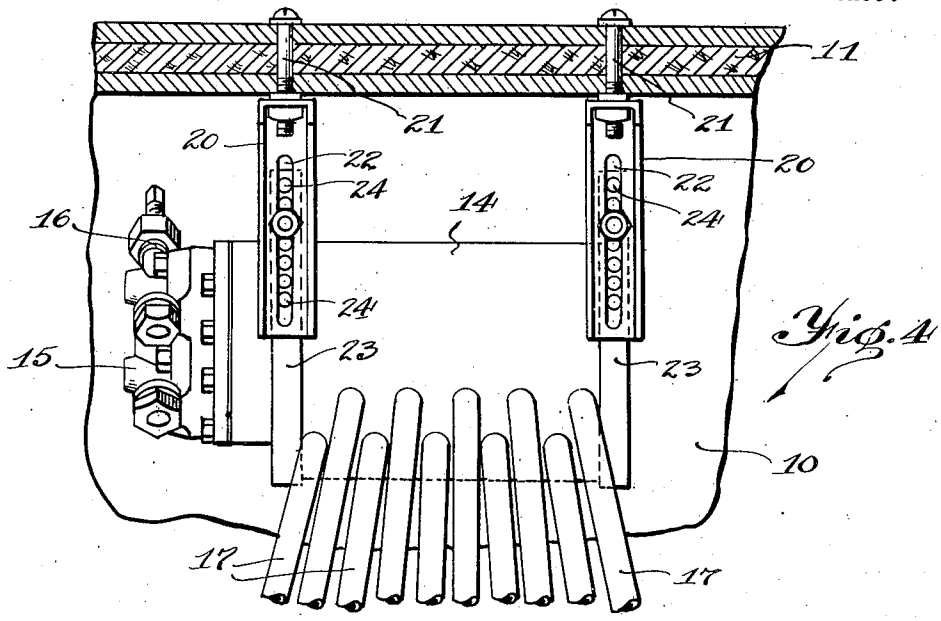


Fig. 4

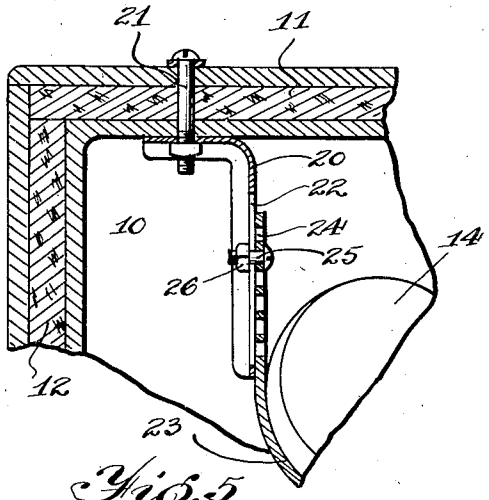


Fig. 5

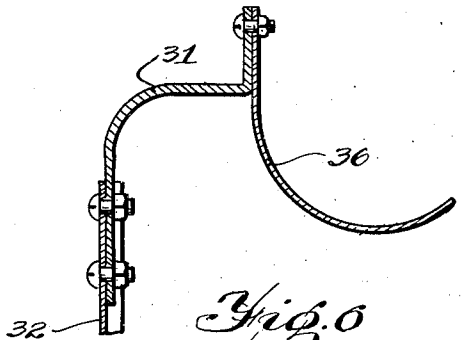


Fig. 6

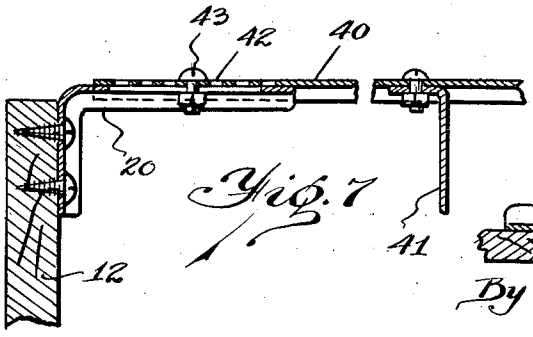
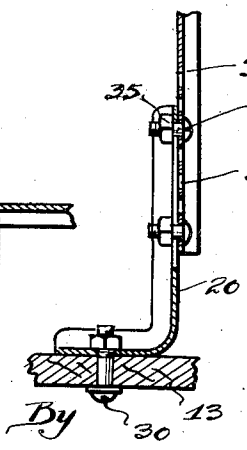


Fig. 7



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Patented Oct. 23, 1928. 1,688,897

UNITED STATES PATENT OFFICE.

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SUPPORTING MEANS FOR VAPORIZERS.

Application filed January 31, 1927. Serial No. 164,981.

This invention relates to a mechanical refrigerating apparatus, and is directed more particularly to the means for supporting the cooling unit within the cooling chamber of a refrigerator cabinet.

An object of the present invention is to effect the maximum amount of heat exchange between the air, circulating through a refrigerated cabinet, and the cooling unit of a mechanical refrigerating apparatus by providing supporting structure with which the cooling unit within the cooling chamber of the cabinet is positioned in the most advantageous position with respect to the air flow therethrough.

A further object of the invention is to decrease the manufacturing and servicing costs of mechanical refrigerating apparatus to a minimum by providing standardized equipment parts which can be associated together for supporting and positioning various styles and sizes of cooling units within cooling chambers of different sizes and designs.

These and other objects of the invention will be more apparent as the description progresses, in which like characters designate like parts in the accompanying drawings illustrating a preferred embodiment of the invention.

In the drawings:

Figs. 1, 2 and 3 are partial sectional views, each illustrating one form of supporting equipment for supporting a cooling unit within a cooling compartment of a mechanically refrigerated cabinet.

Fig. 4 is a side elevation of the cooling unit and support as illustrated in Fig. 1, and taken substantially on the line 4—4 of Fig. 1.

Fig. 5 is an enlarged sectional detail of the support for the cooling unit as illustrated in Fig. 2.

Fig. 6 is an enlarged sectional detail of the support for the cooling unit as illustrated in Fig. 2.

Fig. 7 is an enlarged sectional detail of the support for the cooling unit as illustrated in Fig. 3.

In the manufacture of mechanically refrigerated cabinets it is highly important that the cooling unit or vaporizer be supported within the cooling chamber of the refrigerator in the most advantageous position with respect to the air flow. The vaporizer supporting equipment hereinafter described includes standardized parts which permit vaporizers of various styles and sizes to be economically positioned in the most advantageous position to effect the maximum amount of heat exchange.

The refrigerators illustrated in Figs. 1 to 3 inclusive show three different styles of cabinets, all of which include chambers 10, top walls 11, side walls 12 and bottom walls 13. A cooling unit or vaporizer having a header 14 is located within these cooling chambers, and is provided with suitable refrigerant inlet and outlet valved service couplings 15 and 16 at one end of the header. Depending pipe loops 17 form a part of the vaporizer and are secured in open communication with the interior of the header, said pipe loops being arranged to enclose the ice sleeves 18 in which the ice trays 19 are inserted.

Fig. 1 illustrates a mechanically refrigerated cabinet, and a vaporizer is arranged to be suspended within the cooling chamber 10 by means of a very simple and quickly attachable supporting structure. Such structure includes the brackets 20 arranged in pairs and secured by means of bolts 21 to the top wall or ceiling of the cooling chamber, the downwardly extending arms of the brackets being provided with elongated slots 22. A U-shaped stirrup 23 is looped under each end of the header of the vaporizer, the upright ends of the U-shaped stirrups being provided with a series of perforations 24, and a bolt 25 is passed through one of these perforations in each stirrup arm and through the elongated slot 22 in each of the adjacent brackets, the nuts 26 being tightened down on the bolts to clamp the stirrups to the brackets. This structure permits the vaporizer to be secured with standard fixtures in the most advantageous position within said cooling chamber with respect to the air flow circulating therethrough.

Fig. 2 illustrates a vaporizer of a larger size, which is arranged to be suspended within a larger cooling chamber than that illustrated in Fig. 1. Brackets 20 similar to that used in the structure illustrated in Fig. 1 are used in this modified showing illustrated in Fig. 2, but these brackets are secured by means of the bolts 30 to the bottom wall or floor 13 of the cooling chamber. The brackets are arranged in pairs and a stirrup structure is secured to each pair of brackets, there being a stirrup structure for supporting each end of the va-

porizer header. Each stirrup comprises a U-shaped strap 36 looped under the header, outwardly and downwardly extending extensions 31 which are secured to each arm of the U-shaped strap, and the struts 32 to which these extensions are secured. The lower end of each strut is provided with the perforations 33, and bolts 34 are passed through some of these perforations and through the slots 22 in the brackets, the nuts 35 being tightened down to clamp the stirrup to the brackets. This structure also permits the advantageous positioning of the vaporizer within the cooling chamber to effect the maximum amount of heat exchange between the air circulating therethrough and the vaporizer.

Fig. 3 illustrates a still different form of vaporizer and stirrup, but in this construction the vaporizer is arranged to have a lateral adjustment instead of a vertical adjustment as in the two previously described structures. The brackets 20 are here illustrated as being secured to the side walls 12 of the cooling chamber. The stirrups each comprise a bar 40, preferably channel-shaped in cross-section, and the depending U-shaped strap 41 looped under the header of the vaporizer, the bar 40 being provided with a plurality of perforations 42 adjacent each end. The brackets 20 are arranged in pairs and are secured on opposite side walls, the bar 40 bridging the gap between each pair of brackets. Stirrup structures are provided for supporting the vaporizer at each end. These stirrups may be adjusted laterally and secured to the brackets in such adjusted position by means of the fastening devices 43.

The three vaporizer supporting structures above described are similar in principle, and each structure permits the vaporizer to be suspended and fixed in the most advantageous position within the cooling chamber of the mechanically refrigerated cabinet. It will be noted that the brackets 20 are identical in all three structures, and these brackets may be readily secured to any wall of the cooling chamber depending upon what style of vaporizer is to be suspended therein. Various forms of stirrup structures may be secured to these brackets depending upon the particular style of vaporizer they are to support. It will thus be seen that I have provided a simple standard form of vaporizer supporting attachment which can be adjustably associated to suit various styles and sizes of vaporizers associated with various styles and sizes of refrigerator cabinets so that economy of production and a reduction of stock sizes are made.

The structures above described are simple in construction, and since they may be standardized and manufactured in large quantities, the production costs of such supporting attachments are materially decreased. The attachments are interchangeable, and are so arranged as to permit the vaporizer to be quickly and properly positioned within the cooling chamber. In addition, such a construction permits economical servicing, as it is a simple matter to disconnect and remove any vaporizer from the cooling chamber.

Various changes can be made in the construction above described without departing from the spirit of my invention and the scope of the appended claims.

What I claim is:

1. A supporting structure for fixing the cooling unit of a mechanical refrigerating apparatus in a chamber of a refrigerator through which air circulates, comprising substantially L shape brackets fixed within said chamber, stirrups for suspending said cooling unit in said chamber, and means for rigidly connecting said stirrups to said brackets, said stirrups being longitudinally adjustable relative to one leg of said fixed brackets to position said cooling unit in desired relation in the air flow in said chamber.

2. A supporting structure for fixing the cooling unit of a mechanical refrigerating apparatus in a chamber of a refrigerator through which air circulates, comprising angular brackets fixed within said chamber, stirrups for suspending said cooling unit in said chamber, and means for rigidly connecting said stirrups to said brackets, said stirrups being vertically adjustable relative to said fixed brackets to position said cooling unit in desired relation in the air flow in said chamber.

3. A supporting structure for fixing the cooling unit of a mechanical refrigerating apparatus in a chamber of a refrigerator through which air circulates, comprising angular brackets fixed within said chamber, one arm of each bracket being slotted and extending interiorly of said chamber, stirrups for suspending said cooling unit in said chamber and provided with a plurality of aligned holes which register with the slots in the brackets, and fastening means extending through the slots and holes for rigidly connecting said stirrups to said brackets, said stirrups being thereby adjustable relative to said fixed brackets to position said cooling unit in desired relation in the air flow in said chamber.

4. A supporting structure for fixing the cooling unit of a mechanical refrigerating apparatus in a chamber of a refrigerator through which air circulates, comprising angular brackets fixed within said chamber, stirrups for suspending said cooling unit in said chamber, said stirrups including extensions, and means for rigidly connecting said stirrup extensions to said brackets, said stirrups being adjustable relative to said fixed brackets to position said cooling unit in desired relation in the air flow in said chamber.

5. A supporting structure for fixing the

cooling unit of a mechanical refrigerating apparatus in a chamber of a refrigerator through which air circulates, comprising angular brackets within said chamber and fixed to a wall thereof, stirrups for suspending said cooling unit in said chamber, and means for rigidly connecting said stirrups to said brackets, said stirrups being adjustable relative to said fixed brackets to position said cooling unit in desired relation in the air flow in said chamber.

In testimony whereof, I hereunto affix my signature.

CHARLES C. SPREEN.