

Sept. 5, 1939.

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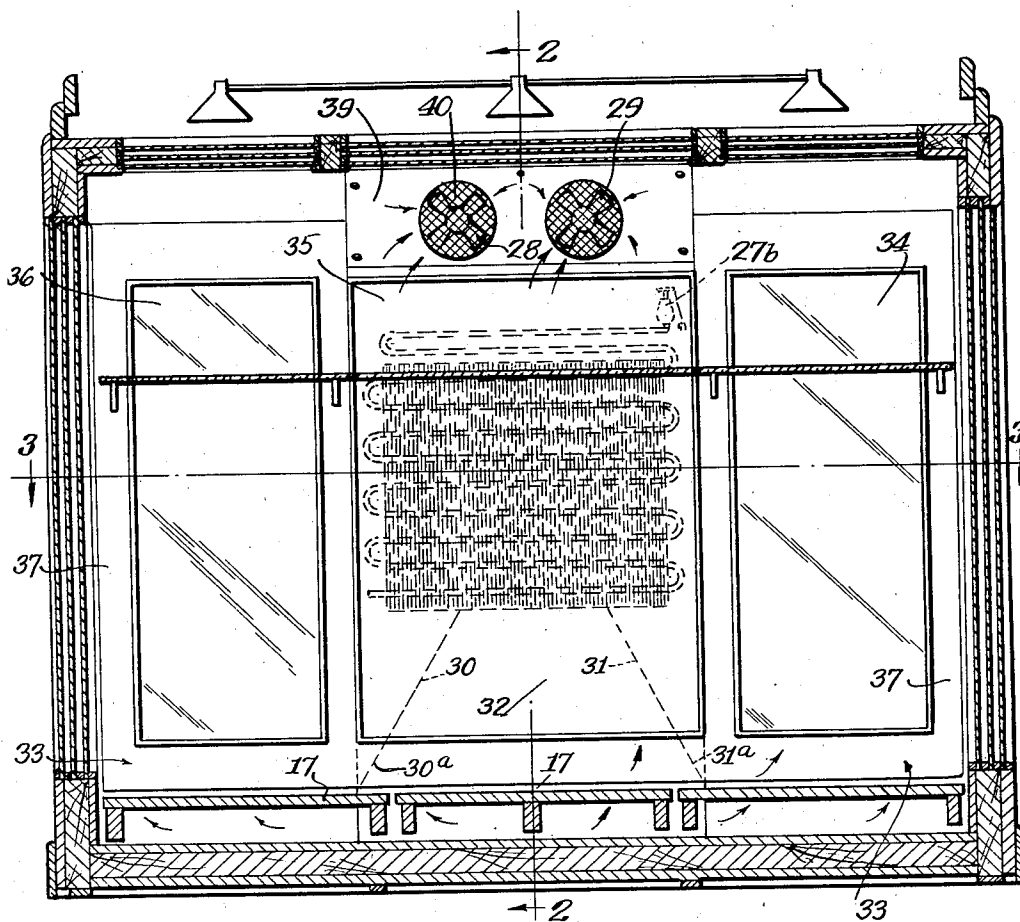
2,172,284

REFRIGERATOR

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2 Sheets-Sheet 1

Fig. 1.



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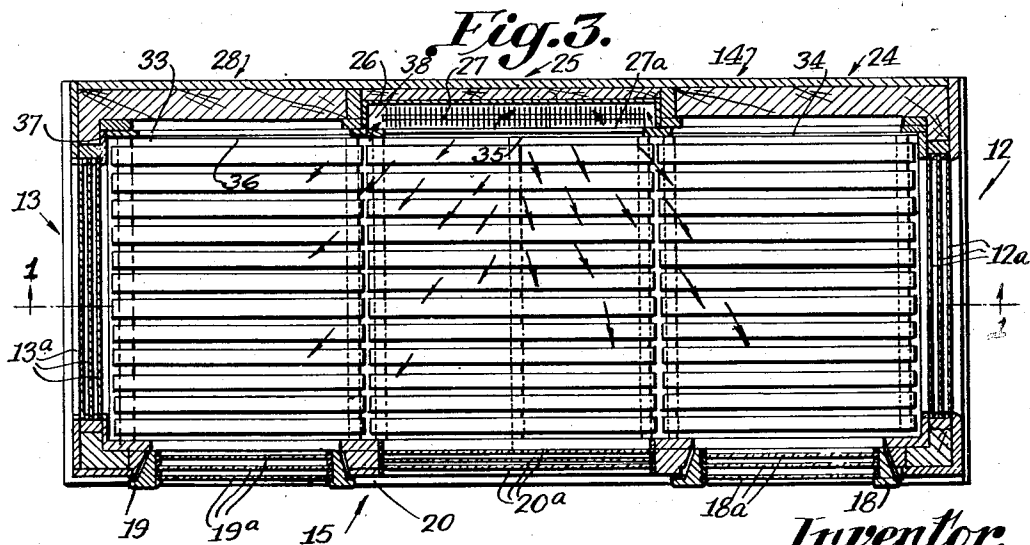
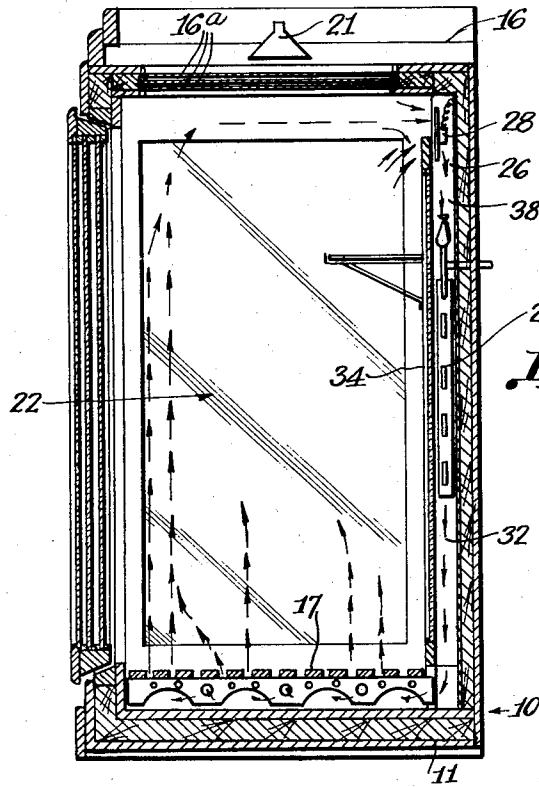
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,172,284

REFRIGERATOR

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3 Claims. (Cl. 62-89)

This invention relates to refrigerators and has for its primary object to provide an improved manner of mounting the cooling unit so as to obtain the maximum space within the interior of the compartment and the greatest efficient uniform temperature capable of being produced by said cooling unit.

Another object is to provide a refrigerator cabinet having a cooling unit mounted in a recess formed in the rear wall of the cabinet, with means for withdrawing the air from the interior of the cabinet, passing it through the recess and over cooling unit and expelling same to the interior of the cabinet.

Another object is to provide an improved manner of directing the circulating flow of the air within a refrigerator.

Another object is to provide an improved manner of housing a cooling unit within a cabinet and controlling the circulation therewithin so that the cooling of the air is intensified and increased, thereby permitting the use of smaller cooling units than possible on prior art constructions.

Other objects will become apparent as this description progresses.

In the drawings:

Fig. 1 is a cross sectional view of my refrigerator taken on lines 1-1 of Figure 3.

Fig. 2 is a cross sectional view taken on lines 2-2 of Fig. 1 and

Fig. 3 is a cross sectional view taken on lines 3-3 of Fig. 1.

The refrigerator has a cabinet generally indicated at 10, which is formed of a base 11, sides 12 and 13, back 14, front 15 and top 16. On the bottom of the cabinet, I provide a slatted floor 17. A plurality of transparent glass panels 12a spaced from each other are positioned in the side 12, while similarly spaced transparent glass panels 13a are positioned in the other side wall 13.

Forming the front section 15 of the cabinet are a pair of hinged doors 18 and 19 separated by an intervening section 20. The doors and intervening sections are each provided with a plurality of transparent glass panels 18a, 19a and 20a respectively, similarly to those of the sides. The top of the cabinet likewise has similarly mounted spaced glass panels 16a. Illuminating means 21 are overhangingly positioned to illuminate the interior 22 of the cabinet.

Referring particularly to the rear wall 14, I form said wall of two outer end sections 23 and 24 and an intervening section 25, with the transverse cross-sectional area of the intervening section

25 less than that of the outer sections 23 and 24. This forms a recess 26 for mounting of the cooling unit 27 therein. The cooling unit is of the expansion type (any other type of cooling unit can be used) and is mounted so that it is positioned within said recess with the outer face or front 27a of the unit within the plane of the front of the outer sections 23 and 24. The cooling element is provided with the usual expansion bulb 27b. Conduits (not shown) leading to and from a suitable compressor and condenser unit are connected to the cooling unit.

The recess 26 extends substantially the height of the cabinet. Adjacent the top of the cabinet and within the recess 26, I mount a pair of electrically operated suction fans 28 and 29 which are connected to a source of electrical supply. Also mounted within said recess, adjacent the lower end of the cooling unit are two baffle plates 30 and 31 which are mounted so that they diverge outwardly with the lower ends thereof 30a and 31a terminating adjacent the level of the slatted floor. These plates provide within the main recess 26 flaring passage 32 for directing the flow of the cool air from the cooling unit.

Adjacent the front of the entire rear wall, I position a panel or wall generally indicated at 33 which is made up of 3 opaque glass sections 34, 35 and 36 mounted within a framework 37. The central glass section 35 is positioned to the front of the cooling unit 27 and hides same from outside view. In addition said glass section provides with the recess 26, a vertically extending chamber 38 sealed along the vertical walls thereof from the rest of the rear walls, so that the air drawn into the chamber 38 is cooled therein, and passed therefrom along a defined path. In the central section 35, I provide a cutout 39 in which is positioned a grill 40, directly to the front of the fans. This grill provides the inlet connection to the chamber 38.

The circulation of the air within the cabinet is as follows. With the suction fans 28 and 29 and cooling unit 27 in operation, the air in the cabinet 22, will be drawn upwardly as shown by the arrows in Figure 2 and will be drawn in through the grill 40 into the vertical chamber 38 of the rear wall and downwardly over and around the cooling unit 27 to be cooled thereby then continued downwardly through the flaring passage 32 defined by the baffle plates 30 and 31 and outwardly of said chamber into the main section of the cabinet 22.

Due to my particular arrangement of providing a recessed chamber within the rear wall, I

can place the refrigerating or cooling unit, so that side walls of said recess section form in effect baffle plates for directing the flow of the air downwardly and furthermore by so positioning said cooling unit within the recess chamber, the air from the entire cabinet is drawn towards the single channel and cooled within and expelled from said channel, all of which tends to intensify the manner in which the cooling is effected, that is when the warm air directed towards a definite path with the cooling effected as the air travels through said path, the cooling of said air will be accomplished with much greater rapidity than was possible with cooling units mounted in accordance with the teachings of the prior art.

Furthermore, positioning of the unit in this manner conserves space within the cabinet by virtue of the fact that the back section will within is confines support the refrigerating element, all of which is decidedly important considering the fact that maximum space within the cabinet is the result that is desired to be attained in the construction of said cabinets.

Various changes and modifications can be made without departing from the spirit and scope of my invention. What I desire to secure by Letters Patent is:

1. In a refrigerating chamber of the class described, a wall having a centrally positioned recess formed therein, a plate member positioned over said recess to form a duct therewith, re-

frigerating coils disposed in said duct and confined within the surface planes of said wall, circulating means for directing air through said duct whereby the air will pass downwardly over said refrigerating coils and will be distributed uniformly throughout said refrigerating chamber.

2. In a refrigerating chamber of the class described, a rear wall having a vertically extending duct centrally positioned therein, refrigerating coils disposed in said duct and confined within the surface planes of said wall, means for circulating air through said duct and over said refrigerating coils, the flow of air over said coils being thereby concentrated and a rapid cooling thereof effected, a flaring passageway formed at the bottom of said duct and adapted to distribute the cooled air uniformly throughout said refrigerating chamber.

3. In a refrigerating chamber of the class described, a wall having a vertically extending recess forming a compartment therein, refrigerating means mounted in said compartment and confined within the surface planes of said wall, means for circulating air through said compartment whereby an intensified cooling of said air is effected, baffle plates arranged to form a flaring passageway in said compartment and adapted for uniformly distributing the cooled air to all parts of said refrigerating chamber.

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