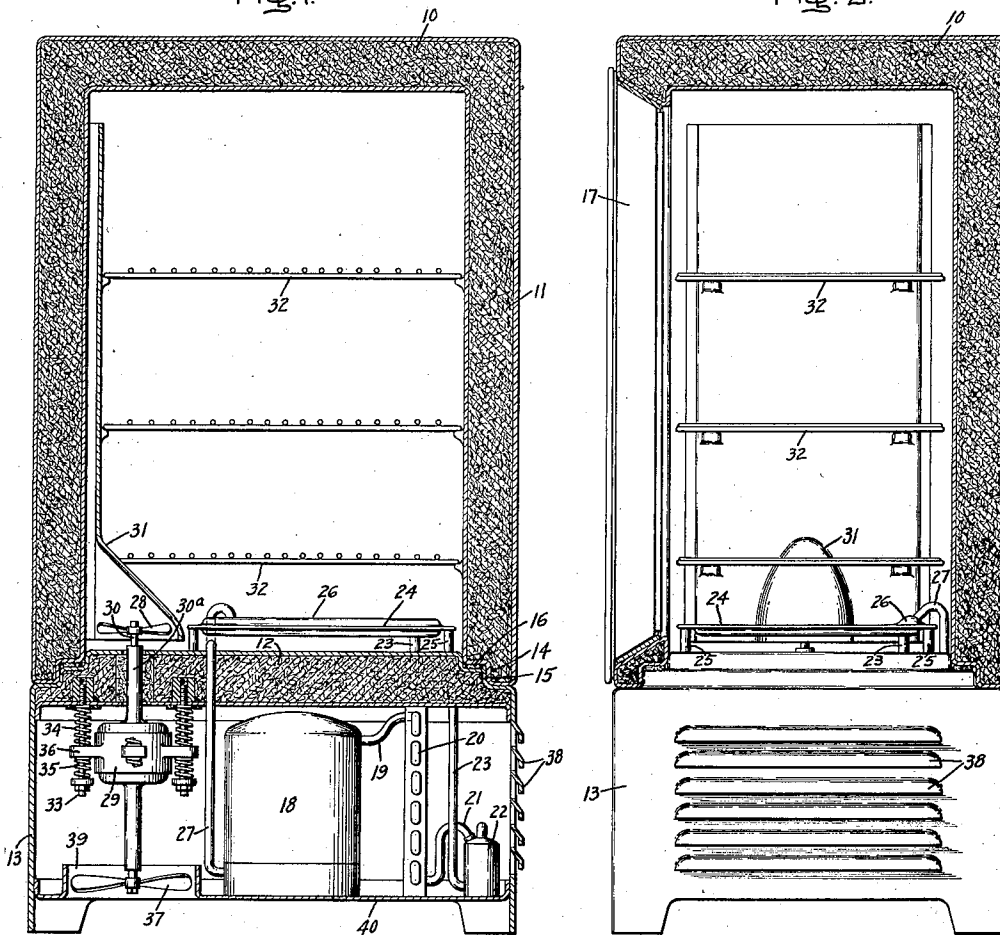


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REFRIGERATING MACHINE

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Fig. 2.



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REFRIGERATING MACHINE

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My invention relates to refrigerating machines.

In refrigerating machines it is common practice to locate the evaporator or cooling unit in the upper portion of the cabinet and to rely upon the natural circulation of air produced thereby for maintaining proper temperatures through the cabinet. Occasionally, however, such cabinets are so filled with articles to be cooled that the circulation is impaired. It is also necessary in these cabinets having the evaporator located in the upper portion to provide some arrangement for collecting water which drips from the evaporator when it is defrosted so as to prevent damage to the foodstuffs.

It is an object of my invention to provide a simple and efficient refrigerating machine having forced circulation of air and having an evaporator or cooling unit located in the bottom of the refrigerator cabinet.

Another object of my invention is to provide a household refrigerating machine having a refrigerating unit located in the base thereof and having the cabinet removable from the base without disconnection of any portion of the refrigerant circulating system.

Further objects and advantages of my invention will become apparent as the following description proceeds, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of my invention reference may be had to the accompanying drawing in which Fig. 1 is a sectional elevation of a household refrigerator embodying my invention, and Fig. 2 is a side elevation partly in section of the refrigerator shown in Fig. 1.

Referring now to the drawing, I have shown a household refrigerator comprising a cabinet having top and side walls 10 and 11 respectively, and a bottom wall 12. The bottom wall 12 is supported on a frame 13 which forms the base of the refrigerator cabinet. The top and side walls 10 and 11 are removable bodily from the bottom wall on the base 13, the side walls 11 and the bottom wall 12 having complementary stepped portions 14 and 15 respectively which locate the cabinet formed by the walls 10 and 11 securely in place on the base 12. A gasket 16 of sponge rubber or other suitable insulating material is provided to seal the cabinet against leakage of air between the side and bottom walls. The cabinet is provided with a door 17 to provide access to the food storage compartment therein.

In accordance with my invention, I mount the

refrigerating machine, including the evaporator, on the base of the cabinet and provide a fan for directing the cold air upwardly from the evaporator and for circulating it about the cabinet. This arrangement makes it possible to remove the upper walls or main portion of the cabinet, and makes it possible to remove the base as a unit for repairing or servicing.

In the embodiment of my invention illustrated in the drawing, I have shown an enclosed casing 18 within which is arranged a motor and a refrigerant compressor. Gaseous refrigerant is compressed within the casing 18 and flows out through a connection 19 to an aircooled condenser 20. The refrigerant is liquefied in the condenser 20 and flows out through a connection 21 to a receiver 22 within which is arranged a float valve or other flow controlling device. Liquid refrigerant flows from the flow controlling device through a connection 23 to an evaporator 24 supported on the base 12 by legs 25. The evaporator 24 is thin and flat and therefore takes up only a small space in the compartment. Freezing trays may be placed on top of the evaporator. The liquid refrigerant within the evaporator vaporizes upon absorbing heat from the refrigerated compartment and the vapor collects in a header 26 on the evaporator 24. The vapor is withdrawn from the evaporator through a suction connection 27 and returns to the compressor 30 within the casing 18. In order to circulate air cooled by the evaporator 24 within the refrigerator cabinet, I provide a fan 28 arranged in substantially the plane of the evaporator 24 and driven by a motor 29 through a shaft 30, which passes through the wall 12 within the bushing or sleeve 30a. The fan 28 is offset from the evaporator 24 and draws air from the bottom of the refrigerator cabinet around the evaporator 24 and discharges it upwardly through a passage formed by a baffle 31 closely adjacent the side wall of the cabinet, the cold air flowing out from the baffle near the top of the cabinet and returning to the bottom of the evaporator after passing about and cooling the articles arranged on the shelves 32. It will be understood, of course, that the circulation of air may be produced by any other suitable arrangement. The forced air circulation produced in the above described manner is sufficient to insure proper circulation at all times even though the shelves are heavily loaded with foodstuffs. The motor 29 is resiliently mounted on the bottom wall 12 of the cabinet on rods 33 between upper and lower helical springs 34 and 35 respectively, which engages the upper and

lower sides of motor supporting lugs 36 formed on the casing of the motor 29. Cooling air may be circulated about the compression casing and the condenser in any suitable manner. In the illustrative embodiment of my invention, the refrigerating unit arranged within the base 13, and including the casing 18 and the condenser 20, is cooled by air circulated by a fan 37 carried by the lower end of the shaft 30 of the motor 29. The housing formed by the base 13 is provided with louvers 38 at one side thereof and with an opening 39 in a bottom plate 40 on which the casing 18, the condenser 20 and the receiver 22 are mounted. The fan 37 is arranged within the opening 39 and draws air through the louvers 38 over the condenser and the compression casing and discharges the air out through the opening 39 toward the floor which effectively cools the condenser and compressor casing.

During the operation of the refrigerating machine illustrated in the drawing the motor 29 driving the fan 28 is run continuously to provide an adequate circulation of air within the refrigerated compartment at all times. The air circulated by the fan 28 is drawn beneath the evaporator 24 and forced upwardly between the baffle 31 and the wall 11 of the cabinet. The air then circulates around the foodstuffs on the shelves 32 as it returns to the bottom of the cabinet where the heat absorbed from the foodstuffs is given up to the evaporator. When it is desired to defrost the evaporator 24 the motor and compressor unit is stopped, and the temperature of the evaporator allowed to rise. Any water dripping from the evaporator when the frost thereon is melted will fall to the bottom of the cabinet, which may be provided with a drain to remove the water, so that it is unnecessary to provide a drip pan below the evaporator. Should it be necessary at any time to remove the refrigerating machine for repairing or servicing, the cabinet can be lifted off the base 13 which can then be transported to a service shop while a substitute base may be employed with the cabinet until the necessary repairs have been made. In this manner the refrigerator may be used continuously and it is not necessary to allow it to remain idle while the mechanism is being repaired.

While I have shown my invention as embodied in a household refrigerator employing a compression type refrigerating machine, other uses will readily be apparent to those skilled in the art, and I do not desire my invention to be limited to the specific embodiment shown and described, and I intend in the appended claims to cover all modifications within the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A refrigerating machine including a cabinet having a food storage compartment therein, means including a base having side and bottom walls for supporting said cabinet, an evaporator within said food storage compartment supported near and spaced from the bottom wall thereof, means including a condenser arranged within said base for supplying refrigerant to said evaporator, means including a motor having a shaft and resiliently mounted within said base below said cabinet, said shaft passing through the bottom wall of said cabinet, a bushing carried by said bottom wall and surrounding said shaft, means including a fan carried by said shaft within said food storage compartment for circulating air within said food storage compartment and below said evaporator,

said base having an opening in the side wall thereof and an opening in the bottom wall thereof, and a second fan carried by said shaft and arranged in said base for circulating air through said openings and over the surface of said condenser.

2. A refrigerator including a base having an insulated top, a cabinet having insulated top and side walls removably supported on said base and forming a closed compartment, a thin flat evaporator supported on the insulated top of said base and arranged substantially parallel thereto and spaced a short distance therefrom, means including a refrigerating machine supported within said base for supplying refrigerant to said evaporator, means including a motor independent of said refrigerating machine and having a shaft and a fan carried by said shaft and driven thereby for circulating air within said compartment and between said evaporator and said insulated top of said base, and means including a second fan carried by said shaft and driven by said motor for circulating air around said refrigerating machine.

3. A refrigerating machine including a cabinet having side, top and bottom walls forming a food storage compartment, a thin flat evaporator in said food storage compartment having a surface for supporting freezing trays and arranged substantially parallel to and spaced a short distance from said bottom wall, means for supplying refrigerant to said evaporator, means including a motor driven fan for circulating air between said evaporator and said bottom wall, and means including an upwardly extending baffle for directing air from said circulating means upwardly in said food storage compartment.

4. A refrigerating machine including a cabinet having side, top and bottom walls forming a food storage compartment, a thin flat evaporator in said food storage compartment having a surface for supporting freezing trays and arranged substantially parallel to and spaced a short distance from said bottom wall, means for supplying refrigerant to said evaporator, and means including a fan arranged in said food storage compartment offset from and substantially in the plane of said evaporator for circulating the air within said food storage compartment between said evaporator and said bottom wall and through said food storage compartment.

5. A refrigerating machine including a cabinet base comprising an insulated top wall and side and bottom walls forming a housing, a thin flat evaporator supported on said housing above said insulated top wall and substantially parallel thereto, means including a compressor and a condenser for supplying refrigerant to said evaporator, means including a motor and a fan driven thereby for circulating cooling air about said compressor and said condenser, means including a cabinet having insulated side and top walls cooperating with said insulated top wall of said base for forming a food storage compartment, said cabinet being removable from said base, means including a motor driven fan for circulating air within said food storage compartment and between said evaporator and said insulated top wall of said base, and means including an upwardly extending baffle for directing air from said circulating means upwardly in said food storage compartment.

6. A refrigerating machine including a cabinet having a food storage compartment therein,

means including a base having side and bottom walls for supporting said cabinet, a thin flat evaporator within said food storage compartment supported substantially parallel to and spaced a short distance from the bottom wall thereof, means including a condenser arranged within said base for supplying refrigerant to said evaporator, means including a motor having a shaft and a fan carried by said shaft for circulating air within said food storage compartment and between said evaporator and said bottom wall of said food storage compartment, an opening in the side wall of said base, an opening in the bottom wall of said base, and means including a second fan carried by said shaft and arranged

adjacent the opening in said bottom wall for circulating air over the surface of said condenser.

7. A refrigerating machine including a cabinet having side, top and bottom walls forming a food storage compartment, a thin flat evaporator in said food storage compartment and arranged substantially parallel to and spaced a short distance from said bottom wall, means for supplying refrigerant to said evaporator, and means including a fan arranged in said food storage compartment offset from and substantially in the plane of said evaporator for circulating the air within said food storage compartment and between said evaporator and said bottom wall.

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