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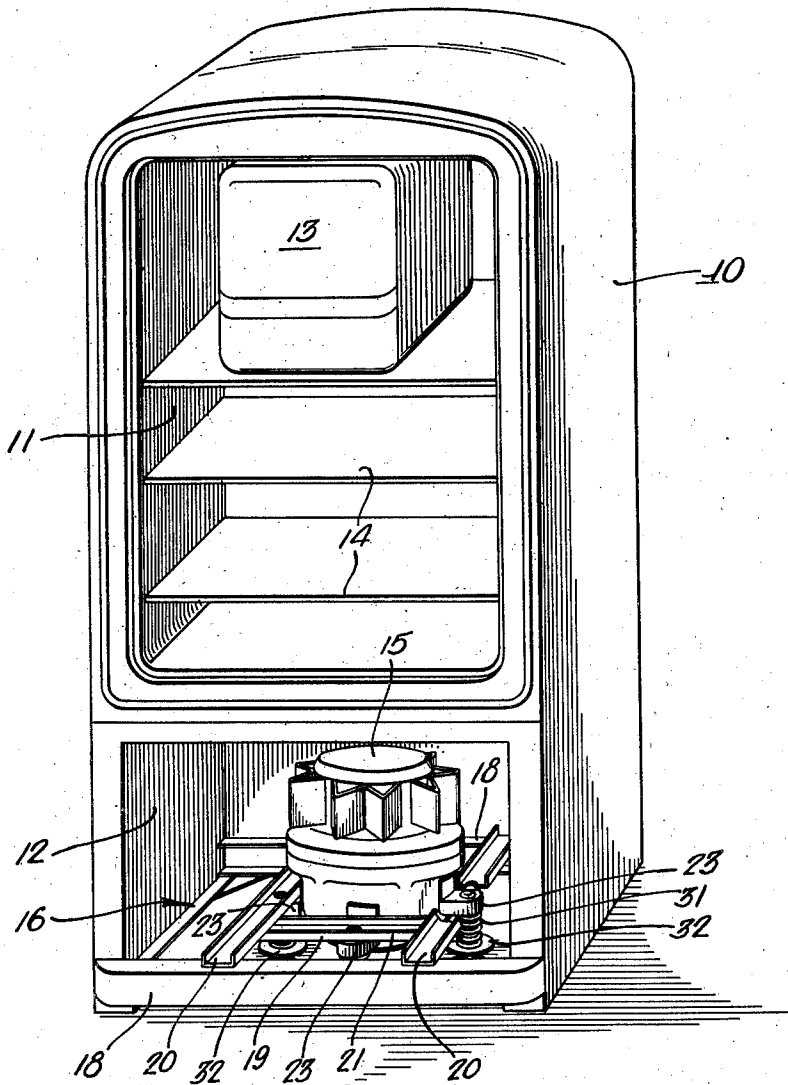
2,407,014

REFRIGERATOR MOTOR-COMPRESSOR MOUNTING

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2 Sheets-Sheet 1

FIG. 1.



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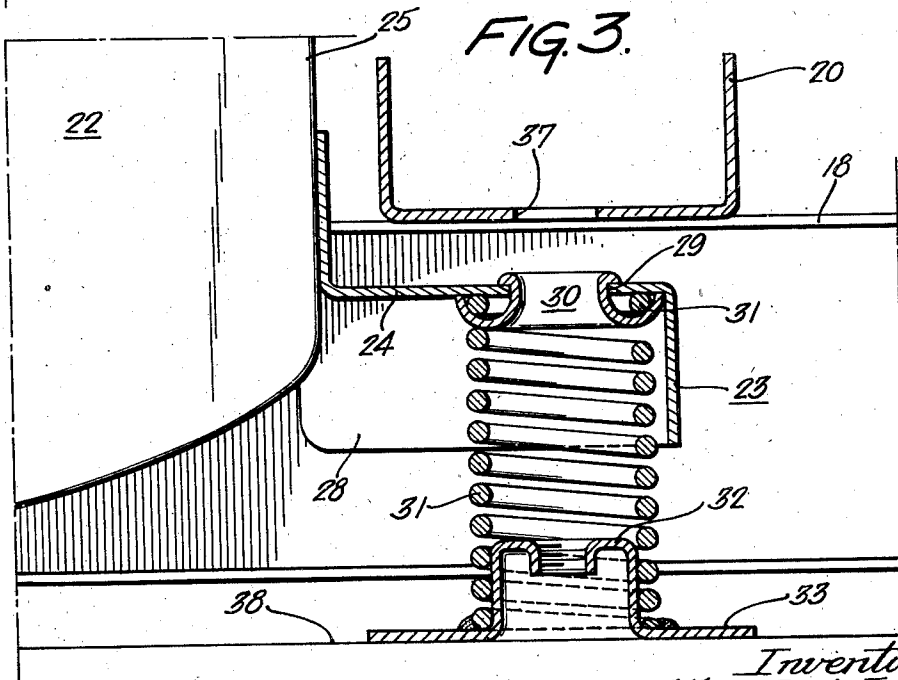
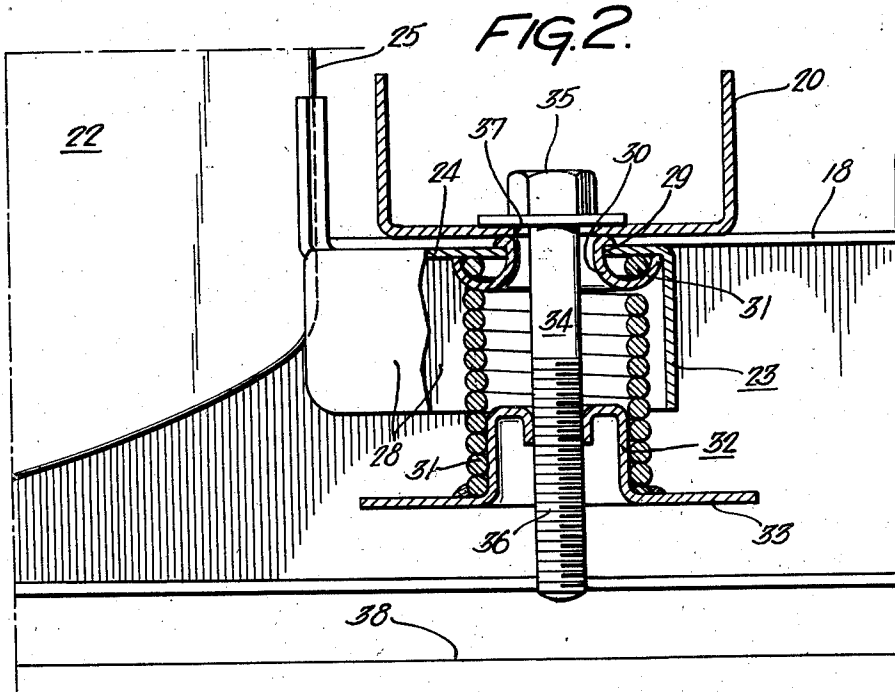
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2 Sheets-Sheet 2



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REFRIGERATOR MOTOR-COMPRESSOR
MOUNTING

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10 Claims. (Cl. 248—21)

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This invention relates to refrigerators and more particularly to a novel mounting for the motor compressor unit thereof.

It has been the custom heretofore to mount the motor-compressor unit of a refrigerator upon a fixed portion of the refrigerator cabinet structure with some interposed shock absorbing means therebetween. For instance, in some refrigerators the motor-compressor unit has been mounted upon a platform member suspended from a fixed portion of the cabinet structure by coil springs which are intended to absorb the vibrations of the unit during operation thereof, but which, in effect, afford a direct connection between the unit and the cabinet structure and while actually absorbing a great deal of the vibration, still transmit a considerable portion thereof to the cabinet structure. Other prior types of motor-compressor unit mountings include resilient rubber grommets interposed between the unit and the cabinet structure, which act similarly to the aforesaid spring mounting. Briefly, motor-compressor unit mountings previously known in the refrigeration art have all afforded some objectionable transmission of operational vibrations therethrough to the cabinet structure.

Therefore, it is the principal object of the present invention to provide in a refrigerator a motor-compressor unit mounting which may be completely disconnected from the cabinet to thereby vibrationally isolate the unit completely from the refrigerator when it is installed for operation.

A further object of the invention is to provide a refrigerator cabinet having a machine compartment in which the motor-compressor unit is releasably fixed to the cabinet structure during shipment and at such other times that the refrigerator is not being used for refrigerating purposes.

Moreover, it is an object of the invention to provide a mounting for refrigerator motor-compressor units which may be quickly and easily disconnected when the refrigerator is installed for operation in the home or elsewhere, to thereby render the motor-compressor unit vibrationally isolated from the cabinet structure.

Another object of the invention is to furnish a mounting for the motor-compressor unit which will act to lower the unit to the floor upon which the cabinet rests to thereby condition the refrigerator for operation.

Still another object of the invention is the provision of a resilient mounting means for the motor-compressor unit to rest upon after being

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lowered to a vibrationally isolated position from the cabinet structure.

A still further object is to provide such a mounting which is of sturdy structure and economical manufacture.

The manner in which the above objects are obtained may best be understood from the following description taken with the several views of the illustrated embodiment thereof on the accompanying drawings, in which:

Figure 1 is a perspective view of a refrigerator embodying the invention.

Figure 2 is a fragmentary view showing one of the unit mounting elements of the invention in its shipping position; and

Figure 3 is a view similar to Figure 2 but showing the unit in its vibrationally isolated operative position on a floor after having been lowered to such position from the cabinet structure.

Referring now to the drawings, and more particularly to Figure 1 thereof, numeral 10 designates the cabinet of a domestic refrigerator of the usual type comprising an upper food storage compartment 11 and a lower machine compartment 12, which may assume other relative positions such as side-by-side arrangements, the door or doors of both compartments having been removed for clarity of illustration. The food storage compartment 11 contains the usual evaporator 13 and storage shelves 14, while the machine compartment contains the motor-compressor unit 15 supported on a rigid cabinet frame structure generally indicated at 16 and comprising, for example, a pair of main cross channels 18 which support rigidly therewith, a channel structure indicated at 19. This latter channel structure 19 is substantially H-shaped and comprises a pair of rearwardly extending channel members 20 and a cross channel 21. The motor-compressor unit 15, hereinafter referred to as the unit, is shown releasably secured to this H-shaped channel structure 19 by a plurality of supporting lugs 23.

The manner in which the unit 15 is releasably secured to the channel structure 19 by the lugs 23 is more clearly illustrated in Figure 2 of the drawings and, as there shown, each lug 23 comprises a horizontally extending plate 24, a welded or otherwise secured to the casing 25 of the unit 15, and a depending skirt portion 28. Fixed through an opening 29 in the horizontal plate 24 of each lug 23 is a metal grommet 30 which serves to support a coil spring 31 depending from said plate 24. A threaded collar 32 having a horizontal flange portion 33 on its lower extremity

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is secured to the lower end of the spring 31 by any suitable means, such as welding.

A bolt 34, having its head 35 supported on the channel 20 and its shank 36 extending downwardly through an opening 37 therein, through the grommet 30, and the spring 31, is threaded into the collar 32 to thereby hold the whole lug assembly 23 upwardly against the fixed channel 20 to secure the unit 15 releasably fixed in a depending position relative to the channel 20.

When the refrigerator is installed in a home or elsewhere for operation, the bolts 34 are backed off from the collars 32 to thereby allow the lug assemblies to lower to a position wherein the flanges 33 of the collars 32 are resting on the floor 38 of the room in which the refrigerator is installed. The bolts 34 are then completely removed so as to sever all mechanical connections between the unit 15 and the framing structure 16 and hence the cabinet 10, as illustrated in Figure 3.

The usual refrigerant condenser may be mounted on one of the main cross channels 18 and suitable flexible refrigerant conduits, to and from the motor-compressor unit 15 supplied.

While the foregoing describes the preferred embodiment of the invention, it should be understood that the structural elements may easily assume other suitable shapes without departing from the spirit of the invention. For instance, the flanges 33 of the collars 32 may be provided with apertures through which the flanges may be fastened to the floor 38, if desired. Also, the channel structure 16 may be replaced by a solid platform such as a plate of sheet steel welded to the side walls of the cabinet 10. Then too, the coil spring 31 may be replaced by a tubular rubber bushing or the like. In addition, rubber grommets could be employed under the collars 32 or the under surface of the flange 33 thereof could be roughened to prevent creeping of the unit over the floor surface, and the plate portions 24 of the lugs 23 could be a continuous flange about the unit.

Thus, it will be seen that the present invention provides a novel structure for releasably securing the motor-compressor unit of a refrigerator in the machine compartment of the refrigerator cabinet during such times that it is in transit or otherwise idle, and that said unit may easily be completely disconnected and lowered to a position in which it is vibrationally isolated from the cabinet and ready for operation. At the same time the invention provides a resilient mounting for the unit during operation thereof.

It will be understood further that the apparatus described and shown herein is merely illustrative of the inventive principles involved, which may be applied to other physical embodiments without departing from the scope and spirit of the invention claimed.

I claim:

1. In a refrigerator, a frame structure, a motor-compressor unit adjacent said frame structure, and means interconnecting said frame structure and unit to secure the latter to said frame structure, said means being operative when released to disconnect and vibrationally isolate the unit from said frame structure.

2. In a refrigerator adapted to rest upon a flat surface, a compartment open at the bottom and having a fixed support therein, a motor-compressor unit in said compartment, and means providing a substantially rigid connection between said unit and support, said means being releasable to

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disconnect the unit from said support and to simultaneously transfer said unit to a position upon said flat surface substantially vibrationally isolated from the refrigerator and said fixed support.

3. In a refrigerator having a machine compartment open at the bottom, a frame adjacent the bottom of said compartment, a motor-compressor unit in said compartment, support means carried by said motor-compressor unit arranged normally to support said unit in the compartment independently of the frame and vibrationally isolated therefrom, and securing means for providing a substantially rigid connection between said unit and the frame structure to afford a rigid support for said unit during shipment and movement of said refrigerator.

4. In a refrigerator having a food compartment and a machine compartment, a frame structure in said compartment, a motor-compressor unit in the compartment, a plurality of supports for said unit to maintain the unit in a normal operative position, and means releasably connecting said supports to said frame structure to provide a rigid connection therebetween, said means being releasable to completely disconnect said supports and unit from the frame and to thereby substantially vibrationally isolate the unit from said refrigerator when in the said normal operative position.

5. In a refrigerator, a rigid support member, a motor-compressor unit, a plurality of resilient members each comprising a coil spring depending from said unit and having a flanged collar at its lowermost extremity arranged to rest upon an underlying surface and to support said unit within but independently of the refrigerator and of said rigid support, and releasable means coactive with said collar for securing said unit to the support member.

6. In a refrigerating apparatus, a casing, a fixed support attached thereto, a motor-compressor unit arranged to be moved from an inoperative position fixed to said support to an operative position within said casing detached and vibrationally isolated from said support, a plurality of members radially extending from said unit, a coil spring depending from each of said members to support said unit in said operative position, and means associated with said fixed support for moving said unit to its inoperative fixed position.

7. A refrigerator having a motor-compressor compartment, a rigid frame in said compartment forming an integral part of the refrigerator structure, and means affording two different and selective positions for said motor-compressor within the compartment, one in rigid attachment to and the other in detachment and in vibrational isolation from said frame.

8. In a refrigerator, a cabinet having a machine compartment, an elevated frame in said compartment forming an integral part of the refrigerator structure, a motor-compressor unit adapted normally to occupy an operative position in the bottom of said compartment detached from said frame and vibrationally isolated from said structure, and means for rigidly securing the motor-compressor unit in an elevated position to said frame.

9. In a refrigerator, a cabinet having a machine compartment, an elevated frame in said compartment forming an integral part of the refrigerator structure, a motor-compressor unit adapted normally to occupy an operative position

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in the bottom of said compartment detached from said frame and vibrationally isolated from said structure, and means for rigidly securing the motor-compressor unit in an elevated position to said frame, said means consisting of vertically disposed screws engaging the frame and said unit and operative when turned to transfer the said unit from one of said positions to the other.

10. In a refrigerator, a cabinet having a machine compartment, an elevated frame in said compartment forming an integral part of the refrigerator structure, a motor-compressor unit

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adapted normally to occupy an operative position in the bottom of said compartment detached from said frame and vibrationally isolated from said structure, resilient elements on said unit arranged to support the unit resiliently in the said operative position, and means operative vertically on said elements and reactive with the frame to elevate the said unit to a second position suspended from said frame and by compression of said elements to rigidly secure the motor-compressor unit to the frame.

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