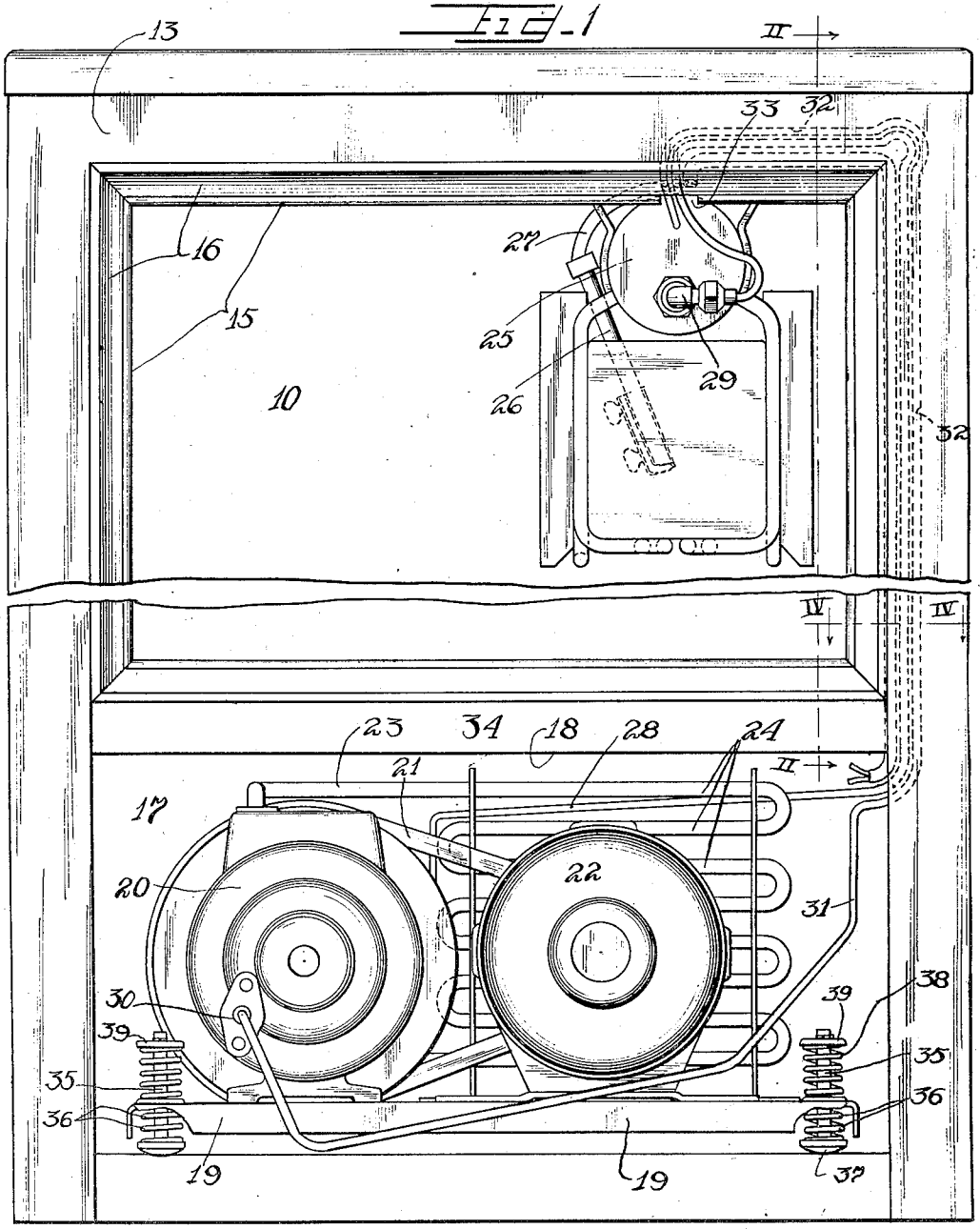
Aug. 27, 1935. H. E. BLOOD 2,012,494

ELECTRIC REFRIGERATOR ASSEMBLY

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Fig. 1



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FIG. 2

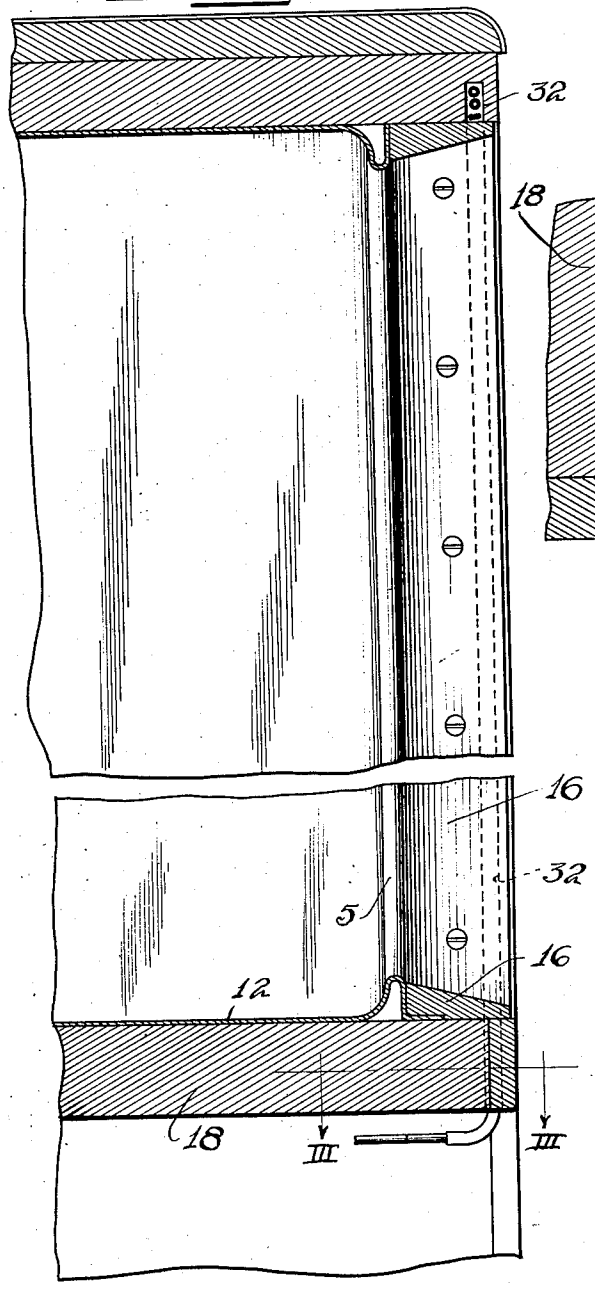


FIG. 3

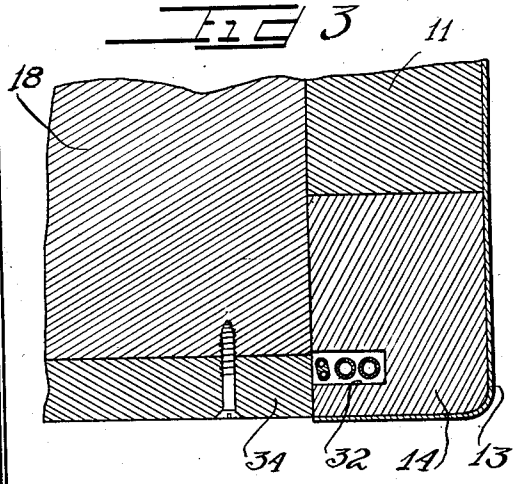
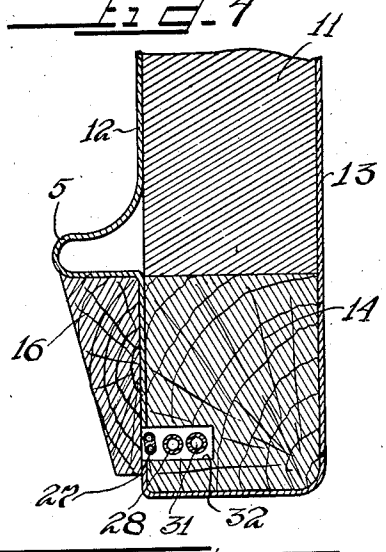


FIG. 4



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UNITED STATES PATENT OFFICE

2,012,494

ELECTRIC REFRIGERATOR ASSEMBLY

Howard E. Blood, Detroit, Mich., assignor, by mesne assignments, to Borg-Warner Corporation, a corporation of Illinois

Application March 29, 1930, Serial No. 439,931

3 Claims. (Cl. 62—116)

This invention relates to the construction of refrigerators of the mechanical type and has particular reference to the convenient manufacture and assembly of refrigerating apparatus in small domestic refrigerators.

It is an object of this invention to provide a refrigerator box and cooperating refrigerating apparatus that is easily and simply assembled in and removed from the box as a unit without breaking any fluid connections between the mechanical apparatus, preferably located beneath the refrigerator compartment proper, and the freezer or evaporator unit mounted within the refrigerated compartment. It has heretofore been proposed to removably mount the mechanical apparatus in a separate compartment to assist in servicing the same, but the disposal of the connecting tubing has been a serious problem due to the liability to injury and leakage thereof, and it has heretofore been necessary to disconnect the tubing and drain the refrigerant from the system. The present invention relates in part to mounting this tubing in a channel provided in the box structure which channel is normally covered by removable trim applied about the door opening for sealing engagement with the door.

It is another object of this invention to provide a refrigeration apparatus wherein the compressor driving motor and condenser are mounted as a unit on a yieldingly suspended frame, the various connections to the freezing or evaporator unit being sealed and the whole being removable as a completely operable unit.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a fragmentary front elevation of a refrigerator embodying the features of this invention, the usual closures being omitted for clearness.

Figure 2 is a section on the line II—II of Figure 1.

Figure 3 is a fragmentary cross section on the line III—III of Figure 2.

Figure 4 is a fragmentary cross section on the line IV—IV of Figure 1.

As shown on the drawings:

A refrigerator cabinet or box of the metal clad type has been chosen for illustrative purposes. Such a box comprises a refrigerating chamber or compartment 10 surrounded, except in front, by suitable insulating material 11 between the inner lining 12 and the outer metal cover 13. The front is practically fully open and defined by a suitable door framework 14, a shoulder 15 being formed in the lining 12 to form a doorstop. Beveled paneling or heat sealing trim 16 extends around the door opening adjacent the shoulder 15 to cooperate in heat sealing relationship with similarly beveled surfaces on the door when closed.

A second or machinery compartment 17 is formed in the box beneath the bottom 18 of the refrigerating compartment, and may be open front and back to facilitate air cooling of the apparatus therein.

The compartment 17 contains a unit base 19 on which is mounted a rotary compressor 20 driven by a belt 21 from a motor 22. The compressor discharges through a pipe 23 into condenser coils 24 also mounted on the unit base, which thus carries all the units of a complete refrigerating apparatus with the exception of an evaporator or freezer unit 25 which is normally positioned in one upper corner of the refrigerating compartment to assure the best conditions of air circulation therein. A conventional thermostat 26 is shown associated with the evaporator unit and controls the operation of the driving motor 22 by means of a double electrical conductor indicated by the reference numeral 27. Since details of the thermostatic control and motor circuit forms no part of this invention, it has been thought preferable to omit them from the drawings.

As previously stated, the compressor discharges into the condenser. The condenser in turn supplies condensed refrigerant through a tube or conduit 28 to the evaporator inlet 29, and the compressor suction connection 30 is connected by a similar tubing or conduit 31 to the evaporator to draw off vaporized refrigerant therefrom.

The disposition of the electrical conductor 27 and fluid conduits 28 and 31, forms an important feature of this invention. As shown in dotted lines in Figures 1 and 2 and in section in Figures 3 and 4, an open channel or groove 32 for the conduit is formed in the door framework 14 on one side of the box beneath the beveled strip 16 so as to be covered thereby. This channel extends from the lower compartment 17 up to and around the upper corner of the door frame emerging adjacent the evaporator location where the lining shoulder 15 is interrupted at 33 to

permit the inward extension of the conduits for connection to the evaporator. A removable strip 34 finishes off the front of the bottom 18 and its removal exposes that portion of the channel 32. With this arrangement the conduits are fully protected from accidental injury, yet are readily accessible for removal without disconnection thereof, by removing the panel strips 16 over the channel.

The unit base 19 is resiliently supported at the corners thereof by inverted bolts 35 with springs 36 interposed between the bolt heads 37 and the base 19, superimposed springs 38 above the base being pinned down on the bolts by caps 39, the superimposed springs being provided to dampen the vibration of the base.

It will thus be seen that I have provided an improved and simplified mechanical refrigerator assembly that will be economical to manufacture and service and free from accidental damage to the fluid conduits during use.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. An electric refrigerator assembly including an apparatus compartment having apparatus including an electric motor therein, a food storage compartment adjacent said apparatus compartment and having an imperforate lining, an evaporator having associated therewith an electric switch for controlling said motor, said evaporator and switch being disposed in said food storage compartment and connected by conduit means to said apparatus and motor, said food storage compartment having a door opening, means for enclosing said conduit means including trim about said door opening, and a conduit formed in that portion of the wall which faces the door opening and beneath said trim and extending between said compartment, said conduit being arranged to receive said conduit means connecting said evaporator and switch with said apparatus and motor in such a manner that upon removal of the trim over said conduit an open side of said conduit will be exposed, whereby said apparatus, motor, evaporator, switch, and conduit means may be removed as a unit from said assembly without necessitating any disconnection of said conduit means from said apparatus, motor, evaporator and switch.

2. A refrigerator box for a self-contained refrigerating system including an apparatus compartment having apparatus therein, an adjoining food storage compartment having an imperforate lining and an evaporator disposed therein, said evaporator and apparatus being connected by conduit means, said food storage compartment having a door opening, means for enclosing said conduit means including trim about said door opening, and a conduit formed in that portion of the vertical wall which faces the door opening and behind said trim and communicating with said apparatus compartment, a conduit formed in that portion of the horizontal wall which faces the door opening behind said trim and communicating with said first named conduit, and a peripheral notch in said lining affording communication between said horizontal conduit and said food storage compartment, said conduits and notch being arranged to receive said conduit means connecting said evaporator to said apparatus in such a manner that upon removal of the trim over said conduits, an open side of the same and said notch will be exposed, whereby said apparatus, evaporator and the conduit means therebetween may be removed as a unit from the box without necessitating any disconnection of said conduit means from said apparatus and said evaporator.

3. A refrigerator assembly of a self-contained refrigerating system including an apparatus compartment having apparatus therein, an adjoining food storage compartment having an imperforate lining, and an evaporator disposed therein, said evaporator and apparatus being connected by conduit means, a passageway between said apparatus compartment and said food storage compartment, one terminal of said passageway being located adjacent the upper wall of said food storage compartment but spaced from the side walls thereof, said passageway including communicating horizontally and vertically disposed portions, and removable covers for said portions, said passageway being arranged to receive said conduit means connecting said evaporator to said apparatus in such a manner that upon removal of said covers said conduit means will be exposed, whereby said apparatus, evaporator and conduit means therebetween may be removed as a unit from said refrigerator assembly without necessitating any disconnection of said conduit means from said evaporator and said apparatus.

HOWARD E. BLOOD