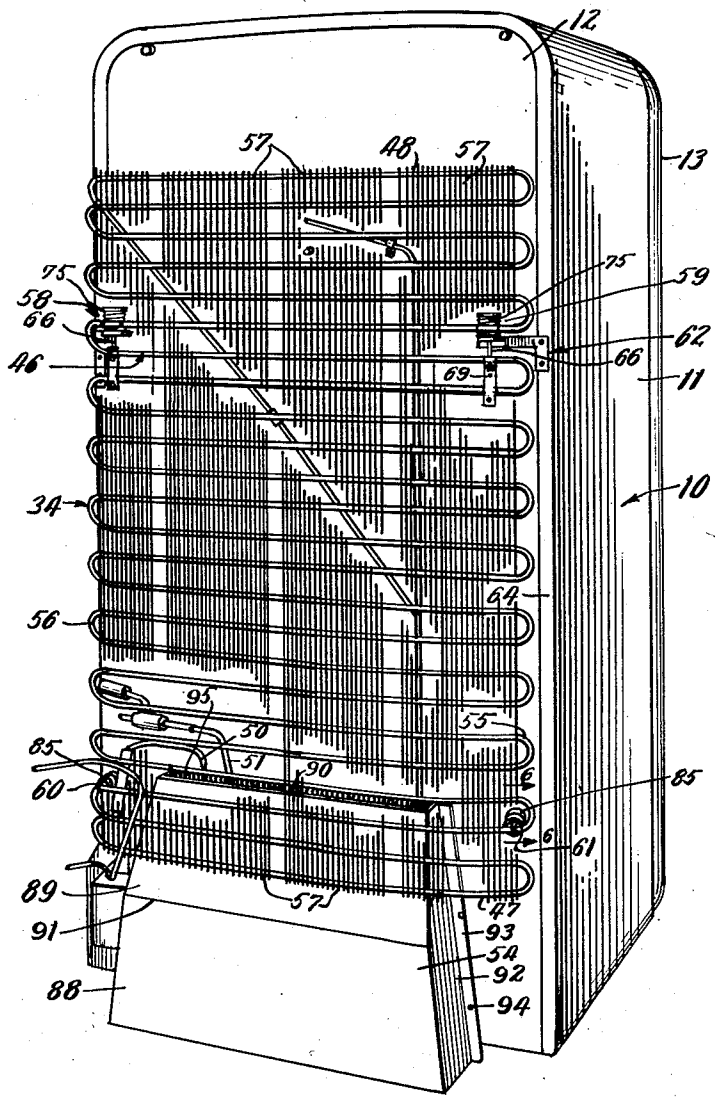
July 2, 1957 E. A. BAILLIF 2,797,553

HOUSEHOLD REFRIGERATOR ASSEMBLY

Filed March 23, 1955 4 Sheets-Sheet 1

Fig-1

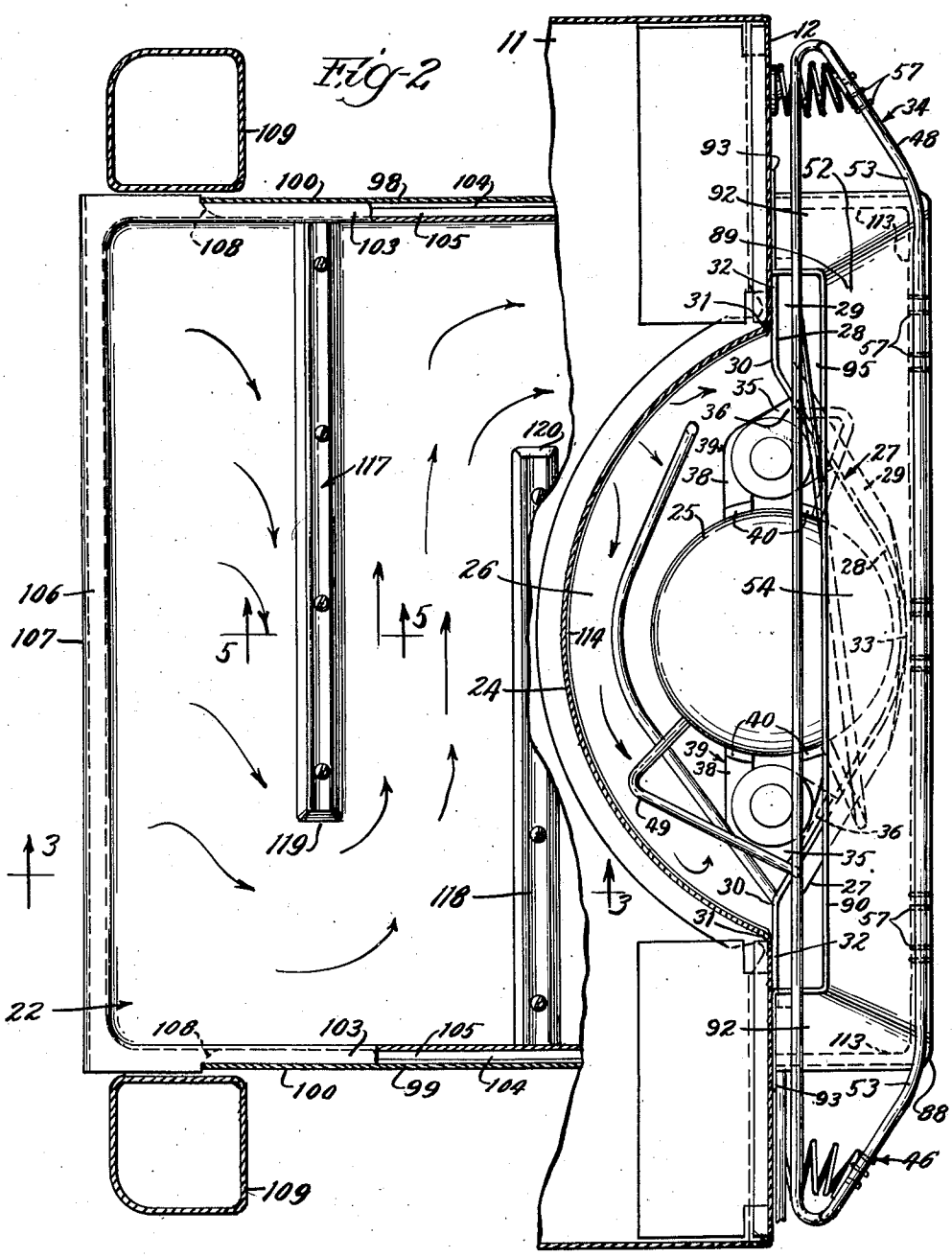


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HOUSEHOLD REFRIGERATOR ASSEMBLY

Filed March 23, 1955 4 Sheets-Sheet 2



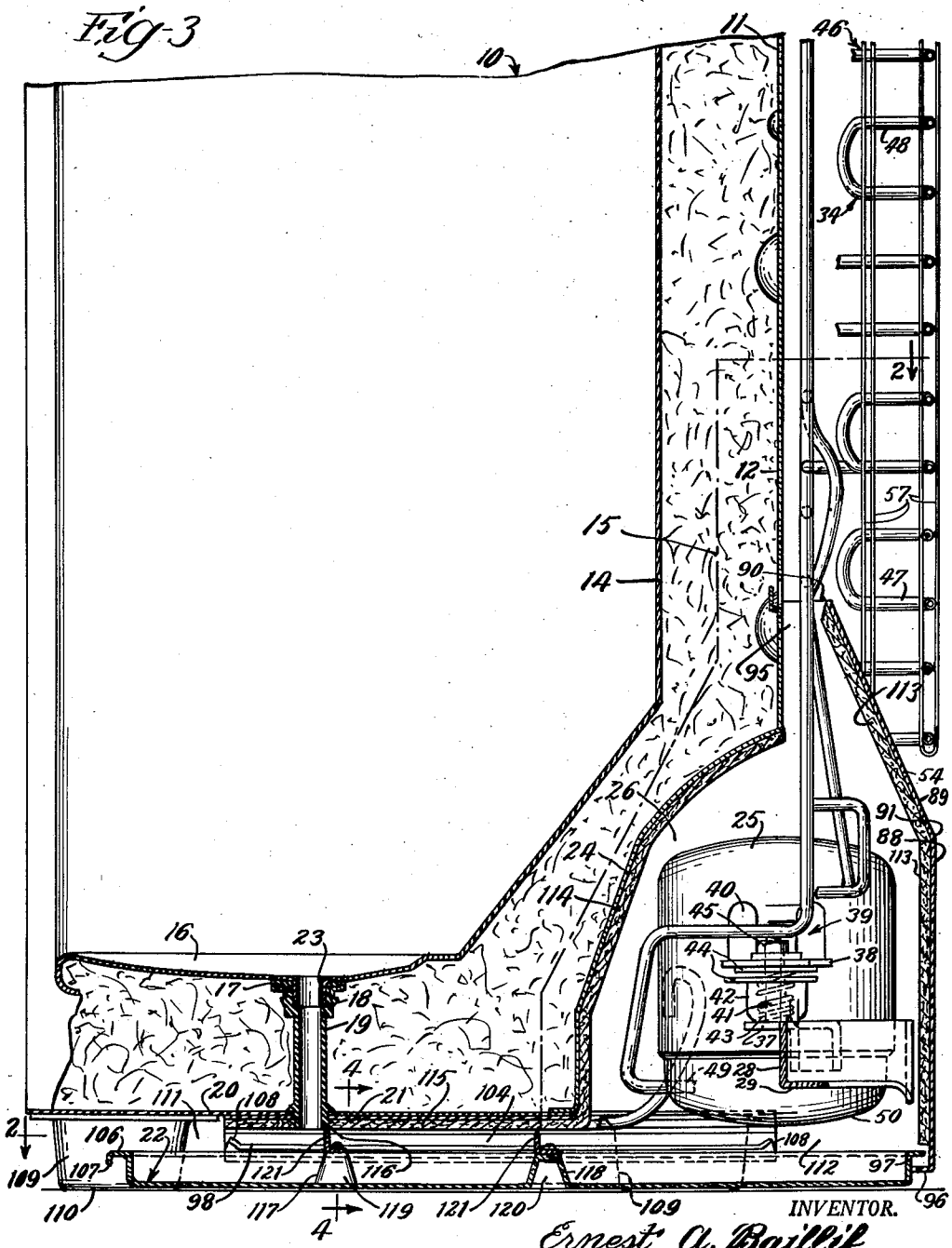
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HOUSEHOLD REFRIGERATOR ASSEMBLY

Filed March 23, 1955 4 Sheets-Sheet 3

Fig 3



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July 2, 1957 E. A. BAILLIF 2,797,553

HOUSEHOLD REFRIGERATOR ASSEMBLY

Filed March 23, 1955 4 Sheets-Sheet 4

Fig-4

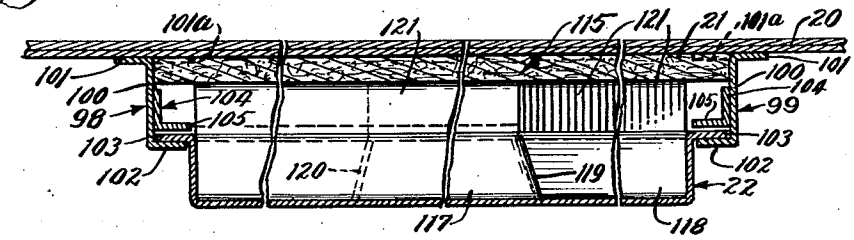


Fig-5

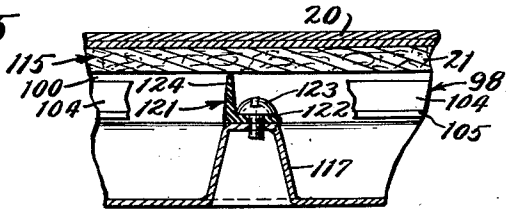


Fig-6

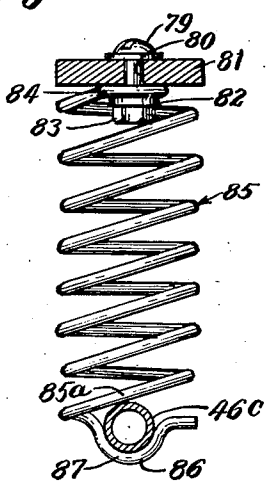
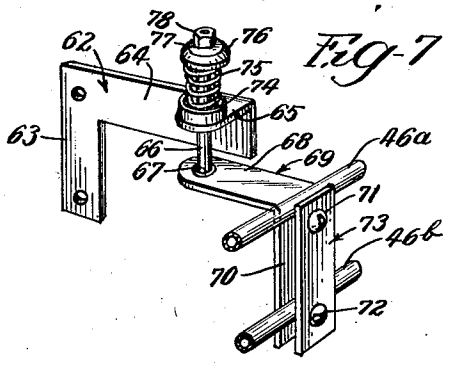


Fig-7



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United States Patent Office

2,797,553

Patented July 2, 1957

2,797,553.

HOUSEHOLD REFRIGERATOR ASSEMBLY

Ernest A. Baillif, Evansville, Ind., assignor, by mesne assignments, to Whirlpool-Seeger Corporation, a corporation of Delaware

Application March 23, 1955, Serial No. 496,135

12 Claims. (Cl. 62—117.4)

The present invention relates to household refrigerator assemblies, and is particularly concerned with improvements in such assemblies, by means of which they are adapted to operate at a lower sound level.

One of the objects of the invention is the provision of an improved assembly for the machine compartment of a household refrigerator which is adapted to accomplish a quieter operation, lower compressor temperatures, and higher condensate evaporation rates.

Another object of the invention is the provision of an improved construction for the rear part of the refrigerator, which is adapted to be kept in a sanitary condition, and an improved arrangement for collecting condensate and eliminating the possibility of the spilling of condensate resulting from defrost.

Another object of the invention is the provision of an improved construction for the machine compartment of a household refrigerator, including a specially shaped cover provided with sound absorbent material and adapted to so enclose the compressor that satisfactory sound deadening qualities are provided.

Another object of the invention is the provision of an improved construction with a more effective path for the air passing over the evaporation pan for condensate, which results in improved evaporation rates and the muffling of sound from the compressor in its noise path from the compressor to the front of the cabinet.

Another object of the invention is the provision of an improved enclosure for the motor compressor, which is adapted to direct the warm air from the motor compressor away from the pre-cooler so that the pre-cooler is subjected to an entrained stream of relatively cool air, resulting in more effective cooling of the pre-cooler and more effective cooling of the motor and compressor by the revaporization of refrigerant in the motor housing.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, in which similar characters of reference indicate similar parts throughout the several views.

Referring to the four sheets of drawings accompanying this specification,

Fig. 1 is a view in perspective of the rear of a household refrigerator embodying the invention, showing the compressor cover and condenser assembly;

Fig. 2 is a sectional view taken on the plane of the line 2—2 of Fig. 3, looking in the direction of the arrows, and showing the details of construction of the condensate pan, motor compressor mounting, and condenser;

Fig. 3 is a fragmentary sectional view taken on the plane of the line 3—3 of Fig. 2, showing a vertical section through the lower part of the cabinet and the arrangements for collecting condensate and muffling sound;

Fig. 4 is a fragmentary sectional view taken on the plane of the line 4—4 of Fig. 3, looking in the direction of the arrows;

Fig. 5 is a fragmentary sectional view taken on the plane of the line 5—5 of Fig. 2, looking in the direction of the arrows;

Fig. 6 is a fragmentary sectional view taken on the plane of the line 6—6 of Fig. 1, showing the spring supports for the lower end of the condenser;

Fig. 7 is a fragmentary view in perspective of the supports for the upper part of the condenser, as shown in Fig. 1.

Referring to Figs. 1–3, the household refrigerators embodying the present invention are preferably embodied in a cabinet 10 having an outer shell 11 which is closed by a back panel 12, and which is open at the front and closed by a pivoted door 13.

The outer shell has an inner liner 14 separated by insulation 15 from the outer shell; and the liner 14 has its bottom 16 sloping toward a drain aperture 17.

The drain aperture 17 is adapted to receive the end 18 of a condensate hose 19, which extends through the bottom panel 20 and through the sound insulation 21 to discharge condensate into a condensate pan 22. A rubber bushing 23 fits in the discharge aperture 17 and leads to the conduit 19.

In order to provide space for the motor compressor the outer shell 11 has an inwardly bulging metal formation 24 at the rear bottom corner of the shell to provide space for approximately half of the motor compressor 25, which is supported in the recess 26 that is formed by this inward bulge 24.

The rear panel 12 is adapted to support a transverse frame member 27 (Fig. 2), which is of angle shape, having a vertical flange 28 and a horizontal flange 29; and the frame member 27 is bent outwardly at 30 near each of its ends and near the corners 31 of the shell, which bound the cavity 26.

The end portions 32 of the frame member 27 are welded, riveted, or otherwise secured to the back panel 12 on the opposite sides of the cavity 26, with the frame member 27 extending horizontally.

The frame member 27 bulges outwardly at its central portion 23 (Fig. 2) where its horizontal flange 29 is turned in such manner as to reduce the front-to-back thickness of the frame member, which thus requires less room between the motor compressor 25 and the condenser 34.

The transverse frame member 27 is located toward the bottom of cavity 26 and is provided with a pair of angle brackets 35, each of which has a vertical flange 36 welded to the vertical flange 28 of frame member 27, and each of which has a horizontal flange 37 for motor compressor support.

The horizontal flange 37 is in alignment with a horizontal flange 38 on motor housing brackets 39, which are secured to the motor housing by attaching flanges 40. Bolts 41 extend through cups 42, housing coil spring 43, engaging washer 44, and supporting flange 38. The bolts also pass through the washers 44 and the horizontal flange 38 and are provided with nuts 45, which may be tightened to clamp the horizontal flange 38 to the cup during shipment. The nuts are loosened to permit the springs to support the motor compressor housing during operation.

The rear panel of the cabinet supports a condenser structure 46, which is divided into a pre-cooler portion 47 and a main condenser portion 48. The pre-cooler portion of the condenser comprises a plurality of the lower horizontal passes of the tubing 47, the inlet of which is connected directly to the motor compressor outlet by tube 49, which extends through the sump housing 50 to carry away the compressed and heated liquid refrigerant from the compressor to the pre-cooler 47.

From the pre-cooler the refrigerant is conducted to the top of the motor housing 25 by a tube 50; and a second tube 51, extending from the top of the motor housing, carries the refrigerant vapor to the lowermost main condenser coils 48. The condenser tubing for the main con-

denser and the pre-cooler extends horizontally and forms a chimney 52 between the back panel and the coils 47, 48, each of which is bent inward at 53 above the corners of a motor compressor cover 54 (Fig. 1); and the tubing is bent back to substantially U shape at 55 and 56 at the corners of the cabinet to connect the horizontal passes together in two separate series of tubing, one of which forms the lower pre-cooler and the upper the main condenser 48.

All of the tubes which form the pre-cooler and the main condenser are preferably secured together by a multiplicity of vertically extending heat radiating wires 57 located on the inside and on the outside of the tubing which forms the condensers, the wires being spaced from each other, but close to each other, and parallel to each other on the opposite sides of the tubing, to which the wires are welded at each part of the tubing which the wires cross.

The wires are thus in intimate heat conducting relation with the tubing to which they are welded; and they form a substantially rigid frame for maintaining the shape of the condensers and supporting the tubing.

The condenser assembly, comprising the wires and tubes, and forming the main condenser and pre-cooler condenser, are preferably supported at four points, indicated at 58, 59, 60, and 61 on Fig. 1, by spring supports further to be described.

The two upper spring supported assemblies 58 and 59 have their details shown in Fig. 7. Each of these spring condenser supports comprises an angular bracket 62 having a vertical flange 63, which is welded or screwed to the back panel at the inwardly extending flanges 64 of the outer shell 11.

The vertical flange 63 supports a transversely extending vertical flange 64, which may also be secured to the back panel 12, and which carries a horizontally extending flange 65 having a through bore for a bolt 66.

The bolt 66 has its lower end staked in or welded in an aperture 67 in the horizontal flange 68 of a condenser supporting bracket 69. This bracket comprises an angle member having the horizontal flange 68 and the vertical flange 70. The vertical flange 70 has threaded bores for the screw bolts 71, 72, the bores being located so that the screw bolts will be immediately under a pair of horizontal passes 46*a* and 46*b* of tubing, forming the main condenser.

The clamping plate 73 has a pair of registering bores for receiving the screw bolts 71, 72; and when the bolts are threaded home, the two condenser passes are clamped between the flange 70 and the plate 73 and also rest transversely on the bolts. The flange 65 of angle bracket 62 supports a cylindrical metal cup 74 having an aperture for passing the bolt 66 and of sufficient size to house the end of helical coil spring 75.

A cupped washer 76 is mounted on the upper end of bolt 66 for receiving and engaging spring 75; and the cupped washer 76 is engaged by a second washer 77 and a threaded nut 78. The bolt 66 passes through the spring and all washers; and the spring is initially compressed by means of the nut 78 during operation, but carries the weight of the condenser, which depends from bolt 66.

During shipment the nut 78 may be screwed down until the spring is so compressed that both cups engage each other and the flange 65 engages flange 68 and the condenser is rigidly mounted for shipment.

As the cabinet bracket 62 is mounted adjacent the rear, the lateral corners extend inwardly from the left and the right. This locates the bolt 66 in each case at that part of the condenser tubing which is inwardly curved. However, the brackets 69 and 73 may be so located on the tube that the flange 68 extends in proper direction to support the bolt 66 in alignment with the aperture in the horizontal flange 65 of bracket 62.

The upper part of the condenser is thus supported in

spaced relation to the rear panel 12 by a pair of assemblies shown in Fig. 7 at the two points 58 and 59.

The lower part of the condenser assembly tends to swing inward and is supported adjacent its bottom at the points 60 and 61 by spring arrangements of the type shown in Fig. 6. Each of these spring arrangements comprises a screw bolt 79 located in a bore 80 in the rear panel 81 and provided with a washer 82 and nut 83. The bolt 80 passes through a circular loop 84 formed in one end of the helical coil spring 85, which is the type that has its coils spaced from each other.

The loop 84 of the coil spring is tightly clamped between the washer 82 and back panel 81 by tightening the nut 83, causing the spring to project outwardly at substantially right angles to the back panel.

At its other end the spring 85 is formed with a diametrically extending transverse end portion 86, which has a half cylindrical bend 87 midway between its ends and adapted to receive one of the condenser tubes 46 *c*. The transverse spring portion 87 is bent toward the last adjacent turns 85*a* of the coil spring 85 so that it may be spread apart and placed around the tube 46*c*, which is tightly clamped between arm 87 and coil 85*a*.

As the springs 85 are located at that portion of the condenser tubing which is bent laterally, the spring can be bent laterally into proper position so that its end extends transversely to the curved part of the condenser in each case. The spring coils being initially spaced from each other, when the weight of the condenser is placed upon them, they are compressed into closer position; but they are strong enough to maintain the condenser in spaced relation to the back panel and out of contact with the compressor cover 54.

In order to reduce the noise level of compressor operation the motor compressor is preferably covered at the back by a cover 50, which is wide enough to span the rear opening of the cavity 26, as well as the ends of the frame member 27. This cover 54 has a flat, vertical back wall 88, which is trapezoidal, being slightly narrower at the top than at the bottom.

The back wall 88 is integrally joined to an inwardly sloping upper rear wall 89 also trapezoidal, which terminates at an upper straight edge 90 and which has an obtuse bend at 91 joining it to the back wall 88.

The cover 54 has two side walls 92, which are identical in shape, each of which has a lower rectangular portion and an upper tapered portion joined to the two rear walls 88 and 89. The two side walls 92 of the cover 54 are provided with outwardly turned attaching flanges 93 extending from top to bottom of the cover and angularly engaging the rear panel 12, to which the cover is secured by a plurality of screw bolts 94 passing through the attaching flange 93; and these may be screws of the self-threading type, threading into apertures in the back panel.

The inward slope of the upper rear wall 89 permits its open upper end 95 to be located inside the condenser assembly and permits the location of the pre-cooler passes of the condenser below and outside the air opening 95 of cover 54. Thus the pre-cooler is subjected to convection currents of cold air outside the cover 54 and is kept out of contact with the partially heated air that comes upward from the motor compressor through the opening 95.

The cover 54 is formed at the lower edge of its back wall 88 with an inwardly extending flange 96 (Fig. 3), which overlaps a rearwardly extending top flange 97 on the condensate pan 22. Thus the air, which has access to the lower open end of the motor compressor cover 54, must pass over the condensate pan 22.

The bottom panel 20 of the cabinet shell is provided with suitable guides for the condensate pan 22, which are indicated at 98, 99. Each of these guides may comprise a metal member having a relatively wide web 100 and an angular attaching flange 101 at the top. The attaching

and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation.

2. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with inwardly extending back flanges, a back panel carried by said back flanges and enclosing the rear of said shell, a condenser assembly comprising a plurality of horizontally extending passes of tubing joined together at the lateral edges of the assembly by U-shaped formations, the said horizontal passes being connected together by a multiplicity of vertically extending wires welded to the outside of said horizontal passes of tubing at the intersections of said wires and tubing and welded to the inside of said tubing at said intersections for radiating heat from said tubing, the said shell supporting a pair of upper laterally projecting brackets having horizontal flanges provided with through bores, guide members clamped to the condenser assembly adjacent each of said brackets and extending through said bores, said guide members having upper shoulders resting on compression coil springs engaging said flanges for resiliently supporting the weight of said compressor assembly adjacent its upper end, the said back panel being formed at its lower end with a central inwardly bulging cavity formation for receiving a motor compressor, a transversely extending frame member bulged outwardly and having spring means for supporting said motor compressor, and a motor compressor located in said cavity inside said frame member, and an auxiliary cover closed at the back, bottom and both sides, its lateral edges engaging said back panel inside said compressor assembly for directing air upwardly out of the open top of the said cover inside said condenser assembly.

3. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with inwardly extending back flanges, a back panel carried by said back flanges and enclosing the rear of said shell, a condenser assembly comprising a plurality of horizontally extending passes of tubing joined together at the lateral edges of the assembly by U-shaped formations, the said horizontal passes being connected together by a multiplicity of vertically extending wires welded to the outside of said horizontal passes of tubing at the intersections of said wires and tubing and welded to the inside of said tubing at said intersections for radiating heat from said tubing, the said shell supporting a pair of upper laterally projecting brackets having horizontal flanges provided with through bores, guide members clamped to the condenser assembly adjacent each of said brackets and extending through said bores, said guide members having upper shoulders resting on compression coil springs engaging said flanges for resiliently supporting the weight of said compressor assembly adjacent its upper end, the said back panel being formed at its lower end with a central inwardly bulging cavity formation for receiving a motor compressor, a transversely extending frame member bulged outwardly and having spring means for supporting said motor compressor, and a motor compressor located in said cavity inside said frame member, and an auxiliary cover closed at the back, bottom and both sides, its lateral edges engaging said back panel inside said compressor assembly for directing air upwardly out of the open top of the said cover inside said condenser assembly, and sound insulation adhesively attached to the walls of said cavity and to said cover for absorbing sound from said motor compressor and reducing the sound level.

4. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with inwardly extending back flanges, a back panel carried by said back flanges and enclosing the rear of said shell, a condenser assembly comprising a plurality of horizontally extending passes of tubing joined together at the lateral edges of the assembly by U-shaped formations, the said horizontal passes being connected together by a multiplicity of vertically extending wires welded to the outside of said horizontal passes of tubing at the intersections of said wires and tubing and welded to the inside of said tubing at said intersections for radiating heat from said tubing, the said shell supporting a pair of upper laterally projecting brackets having horizontal flanges provided with through bores, guide members clamped to the condenser assembly adjacent each of said brackets and extending through said bores, said guide members having upper shoulders resting on compression coil springs engaging said flanges for resiliently supporting the weight of said compressor assembly adjacent its upper end, the said back panel being formed at its lower end with a central inwardly bulging cavity formation for receiving a motor compressor, a transversely extending frame member bulged outwardly and having spring means for supporting said motor compressor, and a motor compressor located in said cavity inside said frame member, and an auxiliary cover closed at the back, bottom and both sides, its lateral edges engaging said back panel inside said compressor assembly for directing air upwardly out of the open top of the said cover inside said condenser assembly, a condensate evaporation pan located beneath said cabinet and extending into engagement with said cover at its rear edge, guide means for said condensate pan at each side extending downwardly from the cabinet and closing the sides, the front end of the condensation pan being spaced from the bottom of the cabinet for admission of air.

5. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with inwardly extending back flanges, a back panel carried by said back flanges and enclosing the rear of said shell, a condenser assembly comprising a plurality of horizontally extending passes of tubing joined together at the lateral edges of the assembly by U-shaped formations, the said horizontal passes being connected together by a multiplicity of vertically extending wires welded to the outside of said horizontal passes of tubing at the intersections of said wires and tubing and welded to the inside of said tubing at said intersections for radiating heat from said tubing, the said shell supporting a pair of upper laterally projecting brackets having horizontal flanges provided with through bores, guide members clamped to the condenser assembly adjacent each of said brackets and extending through said bores, said guide members having upper shoulders resting on compression coil springs engaging said flanges for resiliently supporting the weight of said compressor assembly adjacent its upper end, the said back panel being formed at its lower end with a central inwardly bulging cavity formation for receiving a motor compressor, a transversely extending frame member bulged outwardly and having spring means for supporting said motor compressor, and a motor compressor located in said cavity inside said frame member, and an auxiliary cover closed at the back, bottom and

flange **101** may be split and may have parts **101***a* turned inwardly, thereby giving it attachment on both sides of the web.

The attaching flanges **101**, **101***a* are welded or otherwise fixedly secured to the bottom panel **20** with the two webs of the guides **98**, **99** parallel to each other and spaced sufficiently to receive the condensate pan **22**.

The two webs **100** of the guides are provided with inwardly directed guide flanges **102** extending toward each other at right angles to the webs and adapted to be engaged by the outwardly extending guide flanges **103**, forming an integral part of the condensate pan **22**. The web **100** in each case has an angle member **104** with its vertical flange welded to the web and its horizontal flange **105** spaced from the guide flange **102** to permit the condensate pan to slide freely between these two flanges.

The condensate pan **22** may comprise a substantially rectangular pressed sheet metal pan, which is formed on three sides with the projecting flanges **105**, **106**, and **97**; but at its front end the projecting flange **106** has a downwardly turned portion **107**, forming a lower handle groove for receiving the fingers, permitting the pan to be manipulated.

The angle members **104**, forming the upper guides, have their horizontal flange **105** bent upwardly at **108**, thus forming a tapered opening for receiving the pan flange **103**. Although the pan will never be inserted from the rear ends of the guides, both ends of the angle member **104** are turned up so that they may be identical for left hand and right hand guides.

The bottom panel **20** of the shell carries pressed metal foot pads **109**, one of which is welded to the bottom panel at each corner; and these foot pads carry leveling screws (not shown). The depth of the foot pads relative to the depth of the webs **100** and the depth of the pan **22** is such that the pan **22** is located with its bottom above the lower surface **110** of the foot pads so that the condensate pan is supported above the floor under all conditions.

The guides **98**, **99** close the space **111** between the condensate pan **22** and the bottom panel **20** at each of the lateral edges of the space **111**. There is an opening between the bottom panel **20** and the pan **22** at its front edge, which extends rearwardly to the space below the motor compressor in front of the cover **54**, communicating with the cavity **26**.

Thus the air, which is required for cooling the motor compressor and associated parts, must pass in at the front of the cabinet below the bottom panel **20** between the foot pads **109** and above the condensate pan **22**.

The air is heated by the motor compressor housing **25**, **50** and tends to pass upwardly between cover **54** and back panel **12**, drawing fresh and cooler air inward from the front.

The width of the cover at the bottom is such that it engages beneath the lateral flanges **103** of the condensate pan and blocks off the access of any air to the space **112** below the compressor, except that air which comes from the front.

The cover **54** and rear part of the condensate pan and cavity walls **24** form a machine compartment for the motor compressor. In order to reduce the noise level of the noise of operation of the motor compressor the cover **54** is provided with a layer **113** of noise absorbent material, which is adhesively secured to the inside of the cover **54** at its rear walls **88**, **89** and its side walls **92**. This noise absorbent material may be felt or fiber-glass, or any suitable fibrous sound absorbent material cemented to the cabinet by rubber cement or similar adhesive, one example of the sound absorbent material being sheets of the material sold on the market under the trade name "Tufflex."

The same sound absorbent material is suitably cut, shaped, and fitted to the concave wall **24** on the outside, adjacent the motor compressor housing **25**, and is indicated by the number **114**. The sound absorbent material also extends at **115** forwardly under the bottom panel **20**, to which it is cemented and provided with an aperture **116** for the rubber condensate tube **19**.

The condensate pan **22** is preferably provided with a pair of transversely extending air baffles **117**, **118** (Fig. 2). These baffles comprise downwardly open channels. The baffles **117**, **118** extend from opposite sides of the pan with their ends **119**, **120** spaced from the opposite wall, thus providing a zigzag path for the air which must pass longitudinally of the baffles around the ends and again along the baffle or transversely to the pan.

The baffles **117** may comprise upwardly tapered, flat topped pressed ribs formed in the bottom of the pan; and they are each provided at their upper edge with rubber tips **121**, as shown in Fig. 5. Each rubber tip comprises a resilient, angular rubber member having a horizontal flange **122** secured by screw bolts **123** to the baffles **117**, **118**.

Each rubber tip has an upwardly extending, resilient, tapered rubber flange **124**, which engages the sound insulation **115**, which is cemented to the bottom of the bottom panel **20**. The sound insulation **115** extends forwardly to such a point that it extends over the baffles **117**, as well as the baffle **118**. By this arrangement the sound of the motor compressor is attenuated and absorbed and prevented from raising the noise level at the front of the cabinet.

The operation of the present refrigeration system at lower sound level is carried on as follows:

The motor compressor is spring mounted on a frame carried by the back panel, the springs absorbing much of the vibration; and the condenser is spring mounted on the back panel by means of four springs adapted to absorb vibration of the condenser.

The auxiliary cover for the motor compressor being lined with sound insulation and the cavity being lined with sound insulation, much of the noise is absorbed and attenuated by this sound insulation, which also extends forwardly under the bottom panel to absorb and attenuate sound which might otherwise escape in that direction.

The auxiliary cover directs heated air by convection currents upwardly inside the chimney, which is formed by the outwardly bowed condenser assembly with its multiple wires and transverse tubes.

The precooler coils which receive the hottest refrigerant directly from the compressor, without passing into the motor housing, are disposed below the outlet **95** of the auxiliary cover so that the precooler is not exposed to heated air coming from the motor compressor but is exposed to fresh and cooler air outside the auxiliary cover.

Condensate gathering in the bottom of the liner is conducted by the tube **19** to the condensate pan **22** and other condensate from an upper evaporator (not shown) is likewise directed to the condensate pan.

Air is drawn in at the front of the cabinet between the feet **109**, over the condensate in the pan, following the baffles back and forth sidewise to absorb a maximum of moisture from the surface of the condensate; and the air is then directed upwardly by convection air currents about the motor compressor.

The present assembly operates at a substantially lower sound level than the devices of the prior art, and this result is attributed to the construction described, including the sound insulation and arrangement of parts.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of all changes within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel

both sides, its lateral edges engaging said back panel inside said compressor assembly for directing air upwardly out of the open top of the said cover inside said condenser assembly, a condensate evaporation pan located beneath said cabinet and extending into engagement with said cover at its rear edge, guide means for said condensate pan at each side extending downwardly from the cabinet and closing the sides, the front end of the condensate pan being spaced from the bottom of the cabinet for admission of air, the bottom of said cabinet being provided with sound insulation adhesively attached thereto for absorbing sound emanating from the motor compressor.

6. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with inwardly extending back flanges, a back panel carried by said back flanges and enclosing the rear of said shell, a condenser assembly comprising a plurality of horizontally extending passes of tubing joined together at the lateral edges of the assembly by U-shaped formations, the said horizontal passes being connected together by a multiplicity of vertically extending wires welded to the outside of said horizontal passes of tubing at the intersections of said wires and tubing and welded to the inside of said tubing at said intersections for radiating heat from said tubing, the said shell supporting a pair of upper laterally projecting brackets having horizontal flanges provided with through bores, guide members clamped to the condenser assembly adjacent each of said brackets and extending through said bores, said guide members having upper shoulders resting on compression coil springs engaging said flanges for resiliently supporting the weight of said compressor assembly adjacent its upper end, the said back panel being formed at its lower end with a central inwardly bulging cavity formation for receiving a motor compressor, a transversely extending frame member bulged outwardly and having spring means for supporting said motor compressor, and a motor compressor located in said cavity inside said frame member, and an auxiliary cover closed at the back, bottom and both sides, its lateral edges engaging said back panel inside said compressor assembly for directing air upwardly out of the open top of the said cover inside said condenser assembly, a condensate evaporation pan located beneath said cabinet and extending into engagement with said cover at its rear edge, guide means for said condensate pan at each side extending downwardly from the cabinet and closing the sides, the front end of the condensation pan being spaced from the bottom of the cabinet for admission of air, the bottom of said cabinet being provided with sound insulation adhesively attached thereto for absorbing sound emanating from the motor compressor, the said condensation pan having upwardly extending baffles provided with resilient extensions engaging the sound insulation, the baffles extending from opposite walls of said condensation pan, leaving an opening at the end of each baffle and providing a zig zag path for air over the condensate.

7. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation, the said bottom panel being provided with a pair of depending guide members having guide flanges extending toward each other, and a condensate pan comprising a metal member adapted to extend from one guide to another between the feet of said cabinet and to extend backwardly to said latter housing, said condensate pan having laterally projecting flanges at its upper side edges for engagement on said guide flanges to support the pan above the floor level.

8. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation, the said bottom panel being provided with a pair of depending guide members having guide flanges extending toward each other, and a condensate pan comprising a metal member adapted to extend from one guide to another between the feet of said cabinet and to extend backwardly to said latter housing, said condensate pan having laterally projecting flanges at its upper side edges for engagement on said guide flanges to support the pan above the floor level, the said sound absorbing material also extending forwardly on the bottom of the bottom panel above said pan.

9. In a household refrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation, the said bottom panel being provided with a pair of depending guide members having guide flanges extending toward each other, and a condensate pan comprising a metal member adapted to extend from one guide

to another between the feet of said cabinet and to extend backwardly to said latter housing, said condensate pan having laterally projecting flanges at its upper side edges for engagement on said guide flanges to support the pan above the floor level, said pan being formed with a plurality of upwardly projecting ribs, each extending from an alternate side of the pan, and terminating short of the opposite side of the pan for providing a sinuous path for air passing over condensate in said pan toward the motor compressor unit.

10. In a household regrigerator, the combination of a cabinet and a compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation, the said bottom panel being provided with a pair of depending guide members having guide flanges extending toward each other, and a condensate pan comprising a metal member adapted to extend from one guide to another between the feet of said cabinet and to extend backwardly to said latter housing, said condensate pan having laterally projecting flanges at its upper side edges for engagement on said guide flanges to support the pan above the floor level, said pan being formed with a plurality of upwardly projecting ribs, each extending from an alternate side of the pan, and terminating short of the opposite side of the pan for providing a sinuous path for air passing over condensate in said pan toward the motor compressor unit, the said ribs supporting upwardly extending flanges of resilient material engaging the sound absorbing material on the bottom panel to close the spaces between the ribs and bottom panel.

11. In a houshold refrigerator, the combination of a cabinet and compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation, the said bottom panel being provided with a pair of depending guide members having guide flanges extending toward each other, and a condensate pan comprising a metal member adapted to extend from one guide to another between the feet of said cabinet and to extend backwardly to said latter housing, said condensate pan having laterally projecting flanges at its upper side edges for engagement on said guide flanges to support the pan above the floor level, the said guides also being provided with upper retaining flanges for engaging above the pan flanges, and said upper flanges being belled outwardly at their forward edges.

12. In a houshold refrigerator, the combination of a cabinet and compressor-condenser assembly comprising a cabinet having an outer shell provided with a back panel and a bottom panel, the said bottom panel being held in spaced relation to the floor supporting the cabinet by a plurality of feet located adjacent the side edges of the cabinet, said cabinet enclosing a liner, and the liner and shell being formed to provide a cavity at the lower rear corner of the cabinet for receiving a portion of a motor compressor unit, a condenser comprising a multiplicity of outwardly bowed portions of tubing secured to upwardly extending heat radiating members, and forming an air chimney carried by the back of said cabinet, a motor compressor unit mounted in said cavity and projecting rearwardly therefrom, a motor compressor enclosing housing comprising a member having side walls secured to the back panel, a rear wall located below said condenser, and an air directing wall extending upwardly and inwardly of said condenser toward the back panel, the said latter housing and cavity being covered with sound absorbent material for absorbing sound from the motor compressor unit and reducing the sound level under operation, and resilient metal spring means between said cabinet and said condenser for reducing the transmission of sound from one to the other of the cabinet and condenser and reducing the sound level.

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