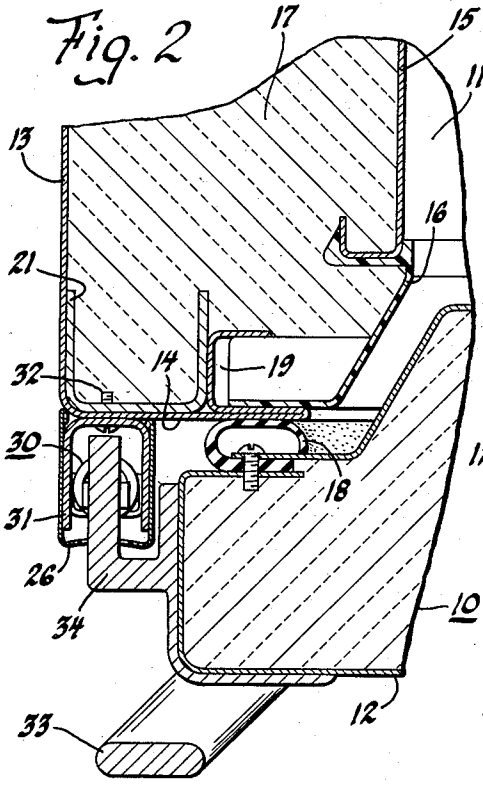
July 29, 1958 O. V. SAUNDERS ET AL 2,845,320

REFRIGERATOR CABINET CONSTRUCTION

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Fig. 2



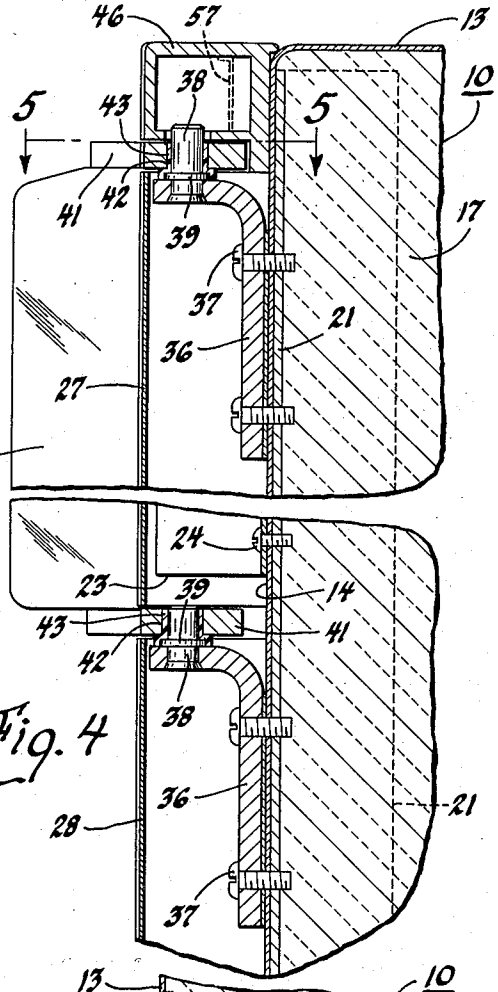


Fig. 4

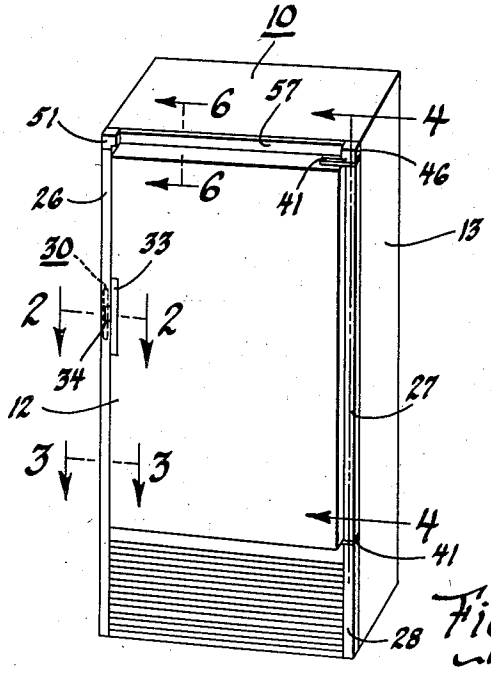


Fig. 1

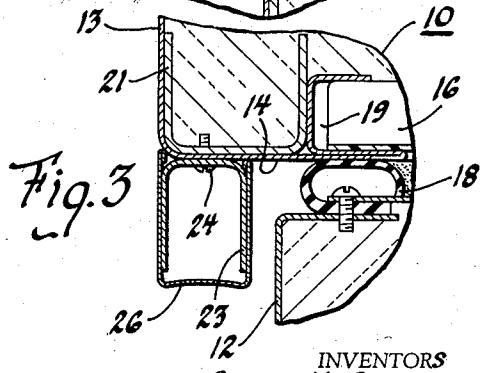


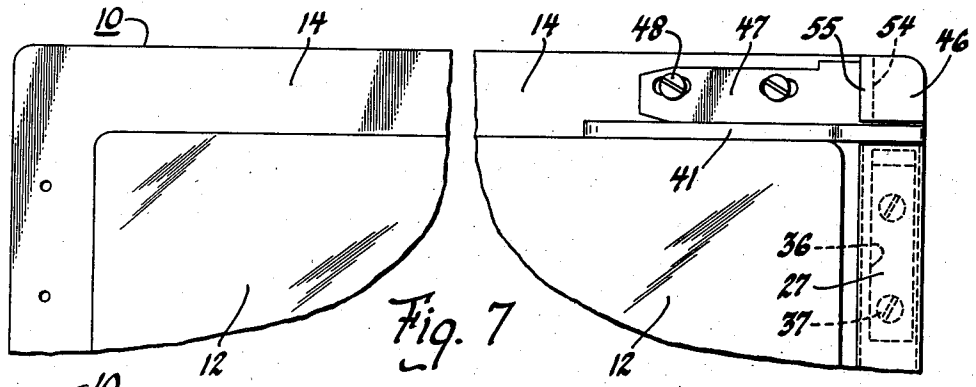
Fig. 3

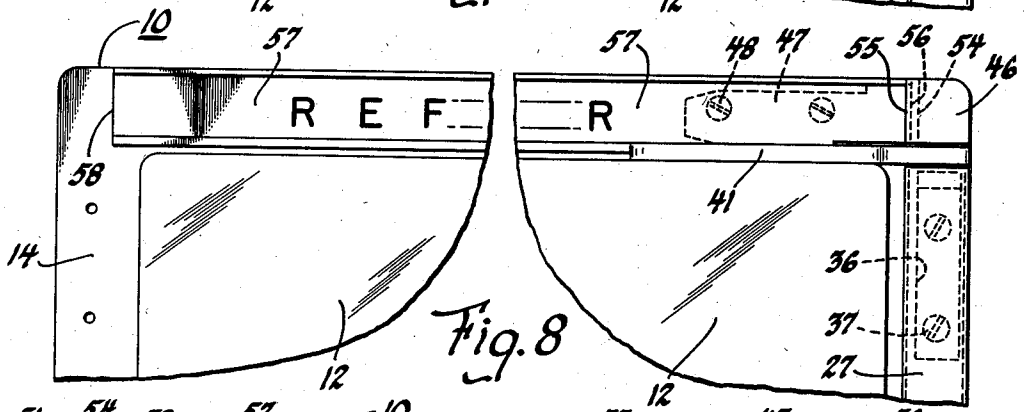
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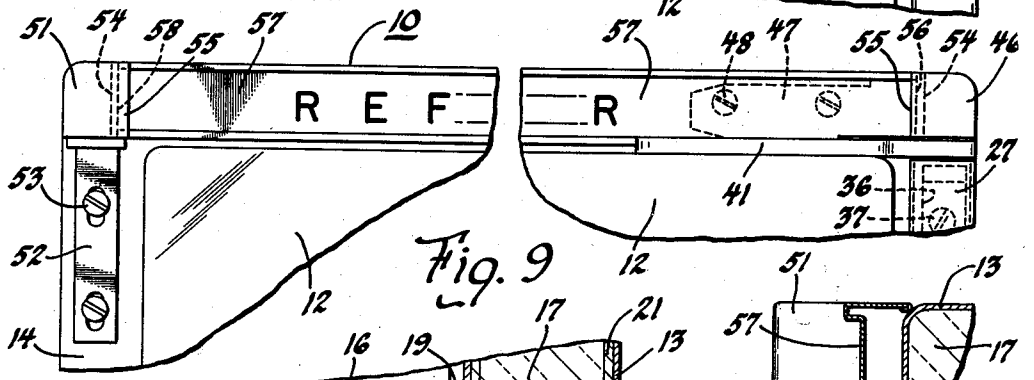
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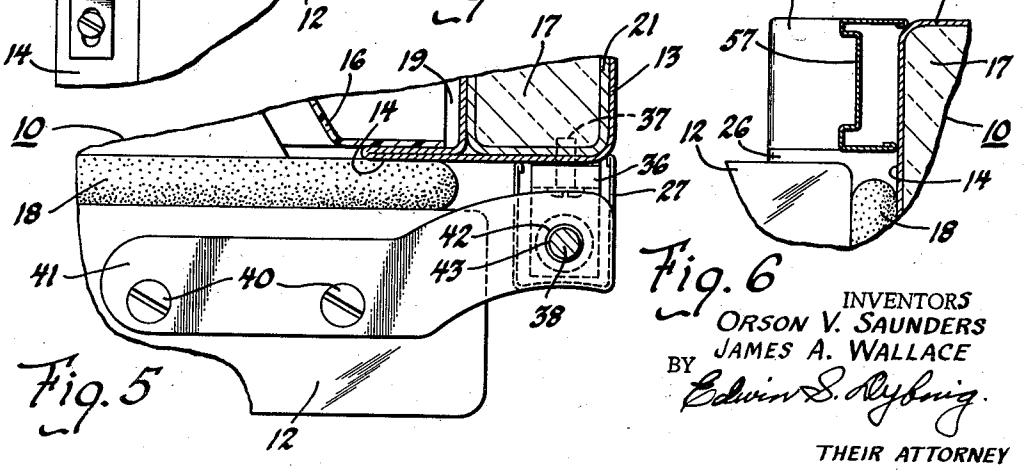
REFRIGERATOR CABINET CONSTRUCTION

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REFRIGERATOR CABINET CONSTRUCTION

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Application May 10, 1957, Serial No. 658,414

11 Claims. (Cl. 312—204)

This invention relates to refrigerating apparatus and particularly to a refrigerator cabinet construction.

There has recently been placed on the market refrigerator cabinets in which the door latch mechanism and the door hinges are mounted in a metal door guard or trim strip arrangement on the cabinet about sides of the door thereof which in effect gives the appearance that the door is inset or counter-sunk into the face of the cabinet without actually counter-sinking the door into insulated wall portions of the cabinet. The trim strip or door guard along sides of the door and flush with sides of the cabinet walls forms a picture-like frame about the front of the cabinet and along sides of the door which improves or enhances the apearance of the refrigerator. The picture-like frame also provides hollow or non-insulated wall spaces at the front of the cabinet in which the door latch mechanism and door hinges can be mounted on the cabinet and concealed by the frame. While these cabinets have been favorably accepted by the public users thereof have advanced certain objections thereto. In such cabinets a part or section of the door guard or trim strip is mounted on and movable with the swingable portion or wing of the door hinges when the cabinet door was moved to and from open and closed positions. This not only caused interference between end edges of sections of the trim strip but also rendered same rather unsightly at least during the time the cabinet door is open.

It is an object of our invention to provide an improved refrigerator cabinet construction of the general type above described having insulated walls forming a food storage compartment therein and having an uninsulated relatively thin wall-like projection secured at the front of the cabinet insulated walls and forming a space in which some of the door accessories can be mounted and concealed and serving as a barrier against room air circulating into the vicinity of the door seal.

Another object of our invention is to provide a novel and improved method of or arrangement for attaching portions or segments of a trim strip or wall-like extension on the front of a refrigerator cabinet in a manner that will form neat matching connections or joints and yet permit easier and simplier assembly under varying manufacturing tolerances.

Still another object of our invention is to provide a wall projection trim strip on the front of a refrigerator cabinet portions of which are not moved relative to other portions thereof when the cabinet door is opened and that will cover and conceal parts of the door hinge means from view irrespective of the position of the door.

A further object of our invention is to shape an exposed pivotally mounted end part of a wing of a refrigerator cabinet door hinge means so that it will conform to the contour of certain outer surfaces of a metal wall extension trim strip mounted on the front face of the cabinet and register therewith in a manner to form a substantially unbroken continuation of the trim strip at least while the refrigerator cabinet door is closed.

In carrying out the foregoing objects it is a still further object of our invention to mount caps on the front of a refrigerator cabinet at the upper end of vertical wall extension trim strips thereon which caps cooperate to receive and lock a horizontally extending wall extension name plate decorative strip on the cabinet.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawings:

Figure 1 is a perspective view of a refrigerator cabinet constructed in accordance with our invention;

Figure 2 is an enlarged fragmentary sectional view taken on the line 2—2 of Figure 1 showing the door jamb structure of the cabinet at the latch for the door thereof;

Figure 3 is a view similar to Figure 2 showing the mounting of a wall extension trim strip on a supporting bracket secured to the front of the cabinet;

Figure 4 is an enlarged fragmentary broken sectional view taken on the line 4—4 of Figure 1 showing the cabinet door supporting hinge means;

Figure 5 is a fragmentary sectional view taken on the line 5—5 of Figure 4 showing portions of the door hinge wing shaped to conform to certain outer wall surfaces of the cabinet wall extension trim strip;

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 1 showing the contour of a name plate trim strip secured to the front of the cabinet;

Figure 7 is a fragmentary broken front view of the upper portion of the refrigerator cabinet showing a cap mounted on the cabinet at the upper front corner thereof above a door hinge wing and the trim strip therebelow;

Figure 8 is a view similar to Figure 7 showing a name plate trim strip placed on the cabinet with its one end fitted under a portion of the cap; and

Figure 9 is a view similar to Figures 7 and 8 showing another cap mounted on the cabinet at the upper opposite front corner with a portion thereof receiving and overlapping the other end of the name plate trim strip.

Referring to the drawings, for illustrating our invention, reference numeral 10, in Figure 1 thereof, generally designates a household refrigerator cabinet having insulated walls defining a food compartment 11 therein (see Figure 2) having a front access opening normally closed by an insulated door 12 pivotally mounted on the cabinet by hinge means for horizontally swinging movement relative thereto. Compartment 11 is adapted to be cooled by a cooling unit of a refrigerating system as is conventional in the art for preserving food products stored therein. As best shown in Figure 2 of the drawings, cabinet 10 includes an outer metal shell 13 having an inturned flange 14 at its front edge and an inner metal liner 15 spaced from shell 13 by a non-metallic breaker strip 16. The space between outer shell 13 and liner 15 contains insulating material 17 of any suitable or desirable character to provide thermally insulated cabinet walls. The inturned flange 14 of shell 13 forms a flat front face for the insulated wall portions of cabinet 10 and a resilient gasket 18 carried by door 12 is adapted to sealingly engage this cabinet front face about and adjacent the access opening of food compartment 11. Liner 15 is preferably spaced from shell 13 and supported in cabinet 10 by means other than the breaker strip or throat collar 16 such, for example, as by rigid supports spaced apart around the compartment opening as is also conventional in this art. The inturned flange 14 on metal shell 13 has an edge part bent back upon itself and thence inwardly and laterally to increase the structural strength of shell 13 and to provide a channel 19 in which one edge of breaker strip 16, which closes the gap between the

shell and liner **15**, is mounted. A metal reinforcing channel **21** is disposed behind flange **14** of shell **13** as shown.

A plurality of U-shaped brackets **23** (see Figures 3 and 4) are mounted in vertically spaced apart relationship upon the front face of cabinet **10** along the sides of door **12** by screws **24**. These brackets **23** receive and support on one side of the front of cabinet **10** a continuous door edge guard or trim strip **26** and on the other or door hinged side of cabinet **10** another door edge guard or trim strip in the form of upper and lower sections **27** and **28** respectively (see Figures 1 and 4). The trim strips **26**, **27** and **28** are U-shaped in cross sectional contour, are constructed of spring metal and may be painted a contrasting color to the color of other portions of the refrigerator cabinet but are preferably of lightweight metal polished or chrome plated. Legs of the strips **26**, **27** and **28** are spread apart and fitted over the U-shaped brackets **23** and are then slipped rearwardly thereover until reversely bent end portions on the legs abut the front face of cabinet **10** and register with the rounded corner portions of the U-shaped brackets **23** whereby the strips are removably attached to the cabinet. It will be noted that the bight portion of the U-shaped trim strips **26**, **27** and **28** are arced inwardly toward the ends of the legs thereof for the purpose of maintaining spring tension in the strips while they are on the brackets **23** so as to firmly lock the strips upon the cabinet. These trim strips form hollow insulated wall extensions on the front of the cabinet insulated walls and after being sprung into straddling frictionally locked engagement with the brackets **23** a special service tool is required to detach same and remove them from the brackets so as not to mar or damage surfaces of the cabinet adjacent thereto. It is to be noted that the outer leg of both trim strip **26** and the outer leg of segments **27** and **28** of the other or sectional trim strip are substantially flush with the outer surface of side walls of cabinet **10** and provide extensions of these walls in the form of forwardly directed continuations thereof. The wall extension trim strips **26**, **27** and **28** form picture-like frame portions along sides of the cabinet door **12** to enhance the appearance of the cabinet and to prevent air ambient thereto from flowing across the cabinet in the vicinity of the door seal **18**. As a safe-guard against the wall extension trim strips slipping downwardly relative to or along the front of cabinet **10** upon bumping or jarring the cabinet during shipping thereof they may be locked in place by screws or the like at their bottoms which screws would be located in back of the panel at the lower portion of the cabinet and pass through the inner side of the strips and be threaded into channel **21**.

As indicated at **30** in Figures 1 and 2 the latch mechanism for cabinet door **12** is located within a casing **31** which casing is secured by screws **32** to the front face of cabinet **10** prior to assembling strip **26** onto the brackets **23**. This latch mechanism as well as the brackets on the latch side of the cabinet are covered and concealed by the wall extension trim strip **26**. Door **12** of cabinet **10** has a handle **33** stationarily mounted thereon and a striker **34** is mounted on the door so as to enter the latching mechanism **30** through a front aperture provided in trim strip **26**. The latch mechanism **30** and striker **34** for holding the door closed may be of any suitable or desirable construction and is preferably of the type disclosed in the copending application Docket No. F–2446 entitled "Door Latch" of Orson V. Saunders and assigned to the assignee of the present application. Reference is made to said application for the sake of brevity herein since the latch mechanism and striker per se form no part of the present invention.

The hinge means for mounting door **12** on cabinet **10** includes upper and lower hinges each comprising a metal door supporting or hanging element or member **36** rigidly secured to the front face of cabinet **10** by screws or the like **37** as best shown in Figure 4 of the drawings. A portion of each of the door supporting elements **36** is directed outwardly from cabinet **10** and has a metal hinge pin **38** staked or welded thereto and spaced forwardly of the front face of the cabinet. The hinge pins **38** are each provided with a shoulder **39** for a purpose to be presently described. Each of the hinges or hinge means also comprise a flat metal hinge wing member **41** which wings are mounted, by counter-sunk flat headed screws **40** (see Figure 5), on the horizontal top and bottom edge portions of door **12** and have a rounded opening **42** in their outer end surrounding hinge pin **38**. The hinge wing members **41** are preferably secured to door **12** in a manner that will permit adjustment of the wings relative to the door for properly aligning the door with the access opening of compartment **11**. A rigid non-metallic bushing **43** is interposed between the wall of opening **42** and hinge pin **38** and is counterbored to fit over the shoulder **39** on the hinge pin. The bushings **43** are preferably formed of super poly-amide material which is sold under the trade name of Nylon. Bushings **43** break the metal-to-metal contact between the hinge wings **41** and the hinge pins **38** and also between the hinge wings **41** and the door supporting elements **36**. They eliminate friction between these metal hinge parts so as to render the door **12** easily and quietly swingable about the hinge pins relative to cabinet **10** when access to the food storage compartment **11** is desired. It is to be noted (see Figure 5) that the end of hinge wings **41**, disposed between segments of the sectional wall extension trim strip on the door hinged side of cabinet **10**, substantially fills the space between ends of the trim strip sections and is shaped to conform to the contour of surfaces of the strips such, for example, as the front and outer side surfaces thereof. This shaping of hinge wings **41** forms a smooth registering and matching continuation of certain surfaces of the sectional wall extension trim strip in the vicinity of the hinge means so that the end portions of the hinge wings conform to the strip and are substantially unnoticeable while the cabinet door **12** is closed.

In order to continue the provision of a picture-like frame for door **12** of cabinet **10** along another side of the door we mount a wall extension decorative name plate trim strip on the front face of the cabinet above door **12** in a manner which is believed to be unique in the art. A cast metal cap **46** (see Figure 1), which is polished or suitably plated, having a laterally extending mounting foot **47** thereon (see Figure 7) is secured by screws **48** to the front face of cabinet **10** so that the hollow cap **46** is located above the uppermost hinge wing **41** of the door hinging means at the one upper corner of the cabinet. A similar cap **51** (see Figure 1) having a downwardly directed foot **52** (see Figure 9) is secured to the other or opposite upper corner of cabinet **10** by screws **53**. The sides of each cap **46** and **51** which face one another is suitably cut out and shaped to provide an opening therein of a contour substantially the same as the cross sectional contour of a name plate trim or decorative strip to be mounted on the cabinet. The outer end of the opening in sides of caps **46** and **51** is shouldered as at **54** and a lip **55** (see Figures 7, 8 and 9) extends laterally from shoulder **54** along the front side of the caps. One end **56** of a substantially U-shaped in cross section wall extension name plate strip **57** is positioned under the lip **55** of cap **46** and the other end **58** of this strip **57** is positioned under the lip **55** of cap **51**. A portion of cap **56** is cut out to receive the hinge pin **38** of the upper hinge means on the cabinet and a portion of both this cap **46** and name plate strip **57** is cut away so as not to interfere with the uppermost hinge wing during swinging thereof upon opening and closing movements of door **12**. A predetermined word and/or indicia may be placed on or inscribed in the front face of name plate strip **57** to indi-

cate the brand name of the refrigerator and/or its manufacturer.

In Figures 7, 8 and 9 we show steps in the process of assembling the wall extension trim strips **27** and **28**, cap **46**, name plate trim or decorative strip **57**, cap **51** and wall extension trim strip **26** onto cabinet **10**. The sections **27** and **28** of the sectional wall extension trim strip at the hinged side of door **12** are first applied to cabinet **10** and then cap **46** is mounted thereon by the screws **48** (see Figure 7). The end **56** of name plate decorative strip **57** is now inserted into the side opening of cap **46** against its shoulder **54** and under lip **55** and when so positioned strip **57** conceals the foot **47** and screws **48** which mount cap **46** onto the cabinet. The cap **51** is then moved into cooperation with strip **57** with the end **58** of this strip being received in the side opening of cap **51** and positioned under the lip **55** thereof. Cap **51** is now secured to cabinet **10** by the screws **53** and the lips **55** which overlap ends **56** and **58** of strip **57** removably lock this name plate strip upon the cabinet. The wall extension trip strip **26** for the latch side of cabinet **10** is thereafter assembled over the latch casing **31** and the brackets **23** to complete the assembling operation of the picture-like frame along sides of door **12**. By the assembling operations described we have provided means for locking the name plate **57** onto cabinet **10** which allows for manufacturing tolerances between parts of the assembly. If the length of name plate strip **57** is considerably shorter than the fixed distance between the shoulders **54** in caps **46** and **51** the strip **57** may be slid outwardly away from shoulder **54** in cap **56** to insure that its one end **58** will be positioned beneath the lip **55** of cap **51** when this cap is clamped to the cabinet **10** as is illustrated in Figures 7, 8 and 9 of the drawings. It is to be noted that the legs of the U-shaped name plate strip **57** (see Figure 6) are of slightly different length as are the legs of the wall extension trim strips **26**, **27** and **28** so that the one bent over end thereof fits in and abuts the rounded front corners of shell **13** of cabinet **10**. The caps **46** and **51** are also provided with a rounded bead so as to fit in the rounded corners of the shell of cabinet **10**. This permits these elements to form substantially straight line forwardly directed continuations of the cabinet outer walls.

From the foregoing it should be apparent that we have provided an improved refrigerator cabinet construction the appearance of which is greatly enhanced by picture-like frame portions that emphasize boundaries of the cabinet door by finishing the trim strips in colors contrasted to the color of other portions of the cabinet. The wall extension trim strips of the present disclosure form guards about the cabinet door and reduce circulation of room air into the region of the main cabinet door seal. In our improved refrigerator construction the trim arrangement is such that it can be readily cleaned to remove finger marks and/or soiled spots. By arranging the wall extension trim strips so that the cabinet door supporting elements of the hinge means are at all times covered and concealed we avoid the creation of an unsightly appearance when the door is opened and since all portions of the wall extension trim strips remain stationary or are immovable as the door is swung relative to the cabinet there is little likelihood that edge portions at the ends of the strips will bind against one another and be bent or damaged.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, as may come within the scope of the claims which follow.

What is claimed is as follows:

1. In a refrigerator, a cabinet having insulated walls forming a food storage compartment therein provided with a front access opening, a door for said opening arranged to seal against a part of the front of said cabinet insulated walls adjacent the compartment opening, hinge means for pivotally mounting said door on said cabinet, said hinge means comprising a door supporting element secured to the front face of said cabinet and carrying a hinge pin spaced forwardly of said face, said hinge means also comprising a wing member secured to said door and surrounding said hinge pin, an uninsulated wall extension trim strip on the front of said cabinet at the hinged side of said door, said wall extension trim strip being in sections above and below the hinge means and each section having an end terminating in close proximity to said hinge wing, brackets mounted on the front face of said cabinet for receiving and removably attaching the sections of said wall extension trim strip upon the cabinet, the sections of said wall extension trim strip being substantially U-shaped in cross-sectional contour and enclosing said door supporting element and the hinge pin thereon to conceal them, and said wing of the hinge means substantially filling the space between ends of the sections of said wall extension trim strip and being shaped to conform to outer wall surfaces of said sections to provide a smooth matching continuation of certain surfaces thereof in the vicinity of said hinge means when said door is closed.

2. In a refrigerator as defined by claim 1 wherein the U-shaped sections of the wall extension trim strip are spring metal and have the leg portions thereof snapped over the attaching brackets therefor.

3. In a refrigerator as defined by claim 1 wherein an outer surface of one of the legs of the U-shaped sections of the wall extension trim strip is flush with the outer surface of a side wall of the cabinet and provides a forwardly directed continuation thereof.

4. In a refrigerator, a cabinet having insulated walls forming a food storage compartment therein providde with a front access opening, a door for said opening arranged to seal against a part of the front of said cabinet insulated walls adjacent the compartment opening, upper and lower hinge means for pivoitally mounting said door on said cabniet, each of said hinge means comprising a door supporting element rigidly secured to the front face of said cabinet and carrying a hinge pin spaced forwardly of said face, said upper and lower hinge means also comprising a flat hinge wing extending along and secured to the upper and lower horizontal peripheral edges of said door respectively and having an end surrounding a hinge pin, an uninsulated wall extension trim strip on the front of said cabinet at the hinged side of said door, said wall extension trim strip being in sections above and below one of the hinge means and each section having an end terminating in close proximity to the hinge wing of said one hinge means, brackets mounted in vertically spaced apart relation on the front face of said cabinet for receiving and attaching the sections of said wall extension trim strip upon the cabinet, the sections of said wall extension trim strip being substantially U-shaped in cross-sectional contour and enclosing said door supporting elements and the hinge pins thereon to conceal them, and the end of said wing of said one hinge means substantially filling the space between ends of the sections of said wall extension trim strip and being shaped to conform to outer wall surfaces of said sections to provide a smooth matching continuation of certain surfaces thereof in the vicinity of said one hinge means.

5. In a refrigerator as defined by claim 4 wherein the U-shaped sections of the wall extension trim strip are spring metal and have the leg portions thereof snapped over the attaching brackets therefor.

6. In a refrigerator as defined by claim 4 wherein an outer surface of one of the legs of the U-shaped sections of the wall extension trim strip is flush with the outer surface of a side wall of the cabinet and provides a forwardly directed continuation thereof.

7. In a refrigerator, a cabinet having insulated walls forming a food storage compartment therein provided

with a front access opening, a door for said opening arranged to seal against a part of the front of said cabinet insulated walls adjacent the compartment opening, hinge means for pivotally mounting said door on said cabinet, said hinge means comprising a metal door supporting element secured to the front face of said cabinet and having a metal hinge pin stationarily carried thereby in spaced relation to said face, said hinge means also comprising a metal wing member secured to said door and having an aperture in an end thereof spaced from and surrounding said hinge pin above said door supporting element, a non-metallic collared bushing fitting over said hinge pin and disposed in the aperture of said metal hinge wing member so as to isolate the wing member from said supporting element and said pin for preventing metal-to-metal friction therebetween, an uninsulated metal wall extension trim strip on the front of said cabinet at the hinged side of said door, said metal wall extension trim strip being in sections above and below the hinge means and each section having an end terminating in close proximity to said hinge wing, brackets mounted on the front face of said cabinet for receiving and removably attaching the sections of said wall extension trim strip upon the cabinet, said sections of said wall extension trim strip being of spring metal substantially U-shaped in cross-sectional contour with the legs of the U snapped over said brackets and enclosing said door supporting element and the hinge thereon to conceal them, said apertured end of said hinge wing substantially filling the space between ends of the sections of said wall extension trim strip and being shaped to conform to outer wall surfaces of said sections to provide a smooth matching continuation of certain outer surfaces thereof in the vicinity of said hinge means, and one of the legs of each of the sections of the wall extension trim strip being flush with the outer surface of the side wall of the cabinet at the hinge side thereof to provide a forwardly directed continuation of said cabinet side wall.

8. In a refrigerator, a cabinet having insulated walls defining a food storage compartment therein provided with an access opening in the front of said cabinet, a door on said cabinet arranged to engage a front part of the insulated walls thereof adjacent said compartment access opening for closing same, hinge means on one side of said door for pivotally mounting same upon said cabinet, said hinge means including a door hanging member secured to the front face of said cabinet, a wing member secured to said door and a hinge pin carried by one member and extending into the other of said members, an uninsulated wall extension on the front of said cabinet for the side thereof at said door hinging, said wall extension comprising a hollow trim strip having leg portions abutting said cabinet and a portion intermediate said leg portions thereof projecting forwardly of the cabinet front face along the hinged side of said door, said trim strip being in sections above and below the hinge means with each section having an end terminating in close proximity to said hinge wing member, brackets mounted on the front part of said cabinet for receiving and attaching the sections of said trim strip to the cabinet, said sections of the hollow trim strip enclosing said brackets and said door hanging member to conceal them, and said wing member of the hinge means substantially filling the space between said ends of the trim strip sections and being shaped to conform to the contour of certain outer surfaces of said sections, when said door is closed, whereby to provide a smooth matching continuation of said surfaces in the vicinity of said hinge means.

9. In a refrigerator, a cabinet having insulated walls defining a food storage compartment therein provided with an access opening in the front of said cabinet, a door on said cabinet arranged to engage a front part of the insulated walls thereof adjacent said compartment access opening for closing same, hinge means on one side of said door for pivotally mounting same upon said cabinet, said hinge means including a door hanging member secured to the front face of said cabinet, a wing member secured to said door and a hinge pin carried by one member and extending into the other of said members, uninsulated wall extensions on the front of said cabinet for each upright side thereof, said wall extensions each comprising a hollow trim strip having leg portions abutting said cabinet and a portion intermediate said leg portions thereof projecting forwardly of the cabinet front face along sides of said door, brackets mounted on the front part of said cabinet for receiving and attaching said trim strips to the cabinet, said hollow trim strips enclosing and concealing said brackets and one of them enclosing and concealing said door hanging member, said trim strips terminating short of the top of said cabinet, a cap secured to said cabinet and located above the upper end of each of said trim strips, a name plate extending horizontally across the upper portion of the front of said cabinet and having its ends projected under a part of the opposed caps, and said caps cooperating one with the other to lock said name plate upon said cabinet.

10. In a refrigerator as defined by claim 9 wherein the upper surface of the name plate is flush with the top of the cabinet and the plate together with the trim strips form a picture-like frame on the cabinet front along at least three sides of the door thereon.

11. In a refrigerator as defined by claim 9 wherein the hinge wing member is located between the upper end of one of the trim strips and the cap thereabove and is shaped to conform to the contour of certain outer surfaces of this strip and cap to provide a smooth matching continuation of the surfaces thereof, when the door is closed, in the vicinity of the hinge means.

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