Sept. 21, 1965 R. C. BECK 3,206,792

HINGE CONSTRUCTION

Filed July 18, 1962

FIG. 1.

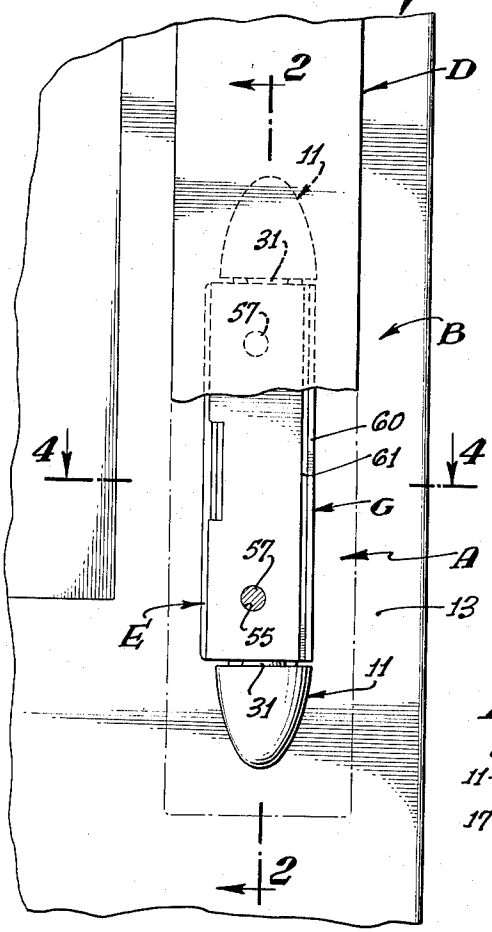


FIG. 2.

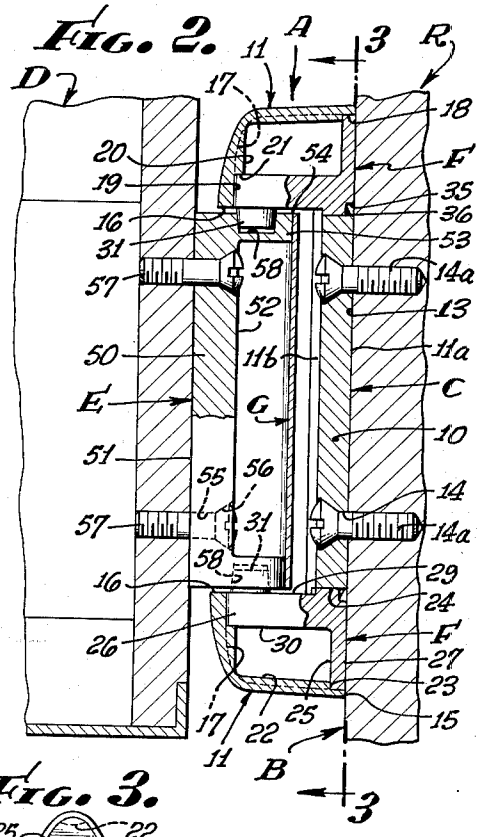


FIG. 3.

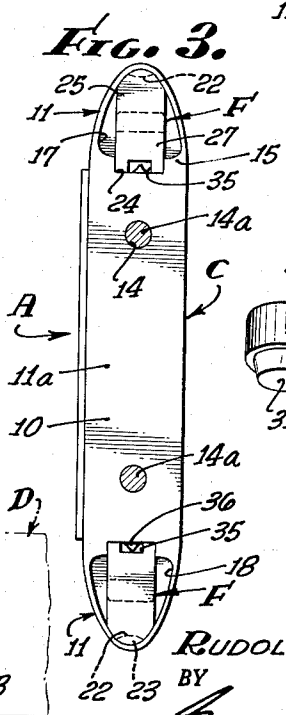


FIG. 4.

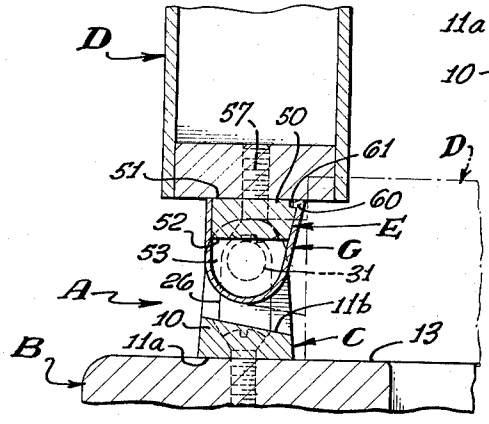
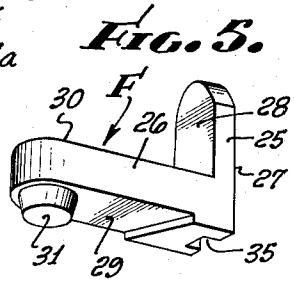


FIG. 5.



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3,206,792 HINGE CONSTRUCTION

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4 Claims. (Cl. 16—128)

This invention relates to a novel hinge construction and is particularly concerned with a decorative or ornamental hinge construction for use on appliances such as ice boxes, and the like.

It is common practice to provide outside or exposed hinges on many different types of structures which are, or have ornamental value and where it is essential that the hinges be as pleasing in appearance as possible. In the past, hinge constructions having a minimum lateral extent and provided with bright, ornamental housing structures have been developed and have become widely used. These hinge constructions involved, generally, two elongate U-shaped bases adapted to be secured to suitable structure, such as a door and a door frame, outwardly projecting end legs, the legs of each element occurring adjacent the legs of the other element, and pivot pins extending through and pivotally connecting the legs together.

It is essential that the elements be U-shaped and that thereby provided two pivot pins in order that access to the base portions of the elements can be had to facilitate securing the said elements to their related supporting structures. In addition to the foregoing, this general type of hinge is provided with stamped or drawn sheet metal housing elements which are suitably engaged about and secured to the U-shaped members to shroud the U-shaped members and to overlie and obscure the means provided to secure the said members to their related supporting structures, which means are normally in the form of screw fasteners.

It has been found that the general type of construction referred to above requires a considerable number of parts, is difficult and costly to manufacture and assemble and is oftentimes rather unsubstantial, or "tiny," in appearance.

An object of my invention is to provide a novel decorative hinge construction of the general type referred to above wherein the several parts comprising the hinge can be advantageously formed by die casting and as a result are easy and economical to manufacture and are uniform and substantial in appearance.

Another object of the present invention is to provide a novel hinge construction of the general type or class referred to wherein the two relatively movable elements are pivotally connected by means of block-like inserts having trunnions thereon, thereby eliminating the necessity of providing and applying pivot pins as has been the practice in the past.

Still another object of the invention is to provide a construction of the character referred to which is easy to assemble and apply, and which is highly effective and dependable in operation.

The various objects and features of my invention will be fully understood from the following detailed description of a typical preferred form and application of my invention, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a front elevational view of a portion of a refrigerator or the like, and showing the hinge construction provided by the present invention, related thereto.

FIG. 2 is a view taken substantially as indicated by line 2—2 on FIG. 1, showing certain parts in a difference position.

FIG. 3 is a view taken as indicated by line 3—3 on FIG. 2.

FIG. 4 is a view taken as indicated by line 4—4 on FIG. 1.

FIG. 5 is a perspective view of a part of the construction provided.

The hinge construction A provided by the present invention is adapted to be applied to a refrigerator R, or the like, to pivotally secure the door D to the box-like body B.

The hinge construction A provided by the invention includes, generally, two primary parts, one a base member C adapted to be engaged on the body B of the refrigerator R and a support member E adapted to be engaged on the door D of the refrigerator. The construction further includes a pair of carrier blocks F engaged on and carried by the base member C and rotatably engaging and supporting the support member and a cover member G engageable with the support member.

The base member C is an elongate unitary die cast part having an elongate central portion **10** and end portions **11**. The central portion **10** has a flat outer surface **11a** adapted to establish flat bearing engagement on the outer surface **13** of the body B of the refrigerator R, and a flat, inner surface **11b**. The surface **11b** can be in a plane parallel with the outer surface **11a**, or can, as illustrated, be inclined relative to the surface **11a** and so as to allow for better nesting together of certain of the parts of the construction, as will be clearly apparent from an examination of FIG. 4 of the drawings. The central portion **10** is provided with a plurality of screw receiving openings **15** extending between the inner and outer surfaces, which openings are provided with counter-sinks at their outer ends.

The base member C is secured to the refrigerator R by suitable flat-head screw fasteners **14a** engaged in the openings **14** and in the refrigerator body, as clearly illustrated in the drawings.

The end portions **11** of the base member C are shell-like portions formed integrally with the central portion **10** of the base member and project longitudinally from the ends of the central portion and outwardly from the plane of the outer surface **13**. The end portions **11** have flat inner surfaces **15**, flush with the inner surface of the central portion **10** and flat, longitudinally inwardly disposed, opposing, end faces **16** occurring in planes normal to the plane of the said inner surfaces.

The remainder of the exterior surface of the end portions **11** is suitably contoured and finished to provide a smooth graceful design.

Each end portion **11** is provided with a cavity **17** which cavity opens at the inner surface **15** to define an opening **18** and which opens at the end face **16** to define an opening **19**.

The outermost portion of each end portion is provided with a rib-like projection **20** which projection establishes a longitudinally inwardly disposed stop shoulder **21** in the cavity and spaced longitudinally outwardly from and parallel to the end face **16** and/or the opening **19**.

The longitudinal outer portion, that is, the outer terminal end portion of each end portion **11** is provided with a rib-like projection **22**, in the cavity, which projection establishes an inwardly disposed stop shoulder **23** in the cavity, spaced from the inner surface **15** and/or the opening **18** defined of the cavity.

The opening **18** in each end portion **11** is provided with a longitudinally outwardly opening notch **24** where the said end portion joins with the central portion **10**, which notch can, as illustrated, extend into the central portion **10** a short distance, if desired.

The stop shoulders **21** and **23** and the notch **24** in the end portions **11** are adapted to position and support the carrier blocks F, arranged in the cavities **17**, as will hereinafter be described.

The carrier blocks F are simple, unitary L-shaped die cast parts having elongated base portions 25 and elongate arm portions 26 projecting from one end of the base portion.

The base portion 25 of each carrier block is a simple, elongate, plate-like portion having a flat inner surface 27 to occur flush with the inner surfaces 11[a] and 11[b] of the central and end portions 10 and 11 of the base member and a flat outer surface 28. The base portion 25 of each block extends longitudinally of the base section C and is arranged in the opening 18, in the inner surface 15 of the end portions 11 so that the longitudinal inner end of the said portion cooperatively seats in the notch 24 of the cavity 17 with which it is related and so that the outer surface 28, at the longitudinal outer end of the said portion seats upon the shoulder 23 in the cavity, as clearly illustrated in the drawings.

The leg portion 26 of each carrier block F is a simple, flat, plate-like part projecting outwardly from the longitudinal inner end of the base portion 25 and corresponding in plane configuration with the opening 19 in the longitudinal inner end face 16 of the end portion 11 of the base section, with which the block F is related. The block F has a flat, longitudinally inwardly disposed inner end surface 29 which surface is adapted to occur flush with the end face 16 of the end portion 11 of the base section with which it is related and a flat, longitudinally outwardly disposed surface 30, which surface engages and seats on the shoulder 21 provided in the outer portion of the cavity 17, when the block is in position in the cavity and as illustrated in the drawings.

The leg portion 26 of each carrier block F is further provided with a longitudinally inwardly projecting, substantially cylindrical or conical trunnion 31 on the outermost portion of its inner end surface 29, which trunnion extends parallel with the longitudinal axis of the construction and projects into the space defined by the two end portions 11 of the base section C.

In practice, the trunnions can be joined integrally with the block or, if desired, can be in the nature of steel inserts arranged with the blocks at the time of casting.

The trunnions 31 of the two carrier blocks F, at the opposite ends of the base section C are in axial alignment with and are opposed to each other.

With the construction set forth, it will be apparent that the blocks F can be easily and conveniently inserted into engagement in the cavity 17, through the opening 18 in the inner surface 15 of the end portion of the base section.

It will be further apparent that when the base section C of the construction is secured to the surface of the refrigerator with which it is related, the blocks F are held captive in the cavities 17 and in snug seated engagement on the shoulders 21 and 23 and in the notches 24, and so that the said blocks are held tight against movement or displacement.

In order to hold the blocks in position in the base section C, preparatory to mounting the said section on the structure with which it is related, I provide a notch or recess 35 in the base portion at the longitudinal inner end thereof and stake the adjacent edge portions of the opening 17 in the recess, as indicated at 36.

The support member E of my new hinge construction is rotatably supported on the trunnions 31 of the carrier blocks F and is adapted to be secured to the door D of the referigerator R to pivotally support and carry the said door.

The support member E is a unitary, U-shaped die cast part having an elongate central portion 50, flat inner and outer surfaces 51 and 52 and outwardly projecting legs 53 at the ends of the central portion and having flat longitudinally outwardly disposed end faces 54.

The central portion 50 has longitudinally spaced screw receiving openings 55 extending therethrough, which openings are provided with counter sinks 56 at the outer surface 52.

The member E is secured to the door D by means of flat head screw fasteners 57 engaged in the openings 55, as clearly illustrated in the drawings.

The legs 53 project into the space between the end portions 11 of the base section C, with their outer end faces 54 opposing the inner end faces on said end portions 11. The legs 53 are provided with cylindrical or conical recesses or sockets 58 in the end faces 54 and into which the trunnions 31 on the carrier blocks F project to establish sliding rotating engagement.

It will be apparent that the member E is arranged in or with the base section C at the time that the carrier blocks F are engaged in the section C so that the trunnions 31 can be engaged in the sockets 58.

It is highly important that the central portion 50 of the member E be offset from the axis of the trunnions 31 so that access can be had to the central portion of the base section and the screw fasteners employed to secure said section to the body of the refrigerator.

It will be apparent from a study of FIG. 4 of the drawings, accesses can be readily had to the several screw fasteners. It will also be apparent that if the construction was provided with one pivot pin, rather than the trunnions 31, or if the central portion of the member E was not offset, access to the screw fasteners could not be had and application of the hinge construction would be impossible.

The cover member G provided by the present invention is a unitary part, formed by diecasting or of sheet metal and is adapted to be releasably engaged with the carrier member E to cover the said member and obscure the screw fasteners and other unattractive features.

The cover G is an elongate member, U-shaped in cross section and coextensive with the longitudinal extent of the member E. The cover G is engaged with the member E to extend about and overlie the edges of the legs 53 and to overlie the opposite side edges of the central portion 50.

The cover G is maintained engaged on the member E by means of a short lip 60 along one edge thereof, which lip engages in a groove 61 provided along the inner edge of the central portion of the member E. The cover is engaged with the member E by springing the cover sufficiently to allow the lip to slide over the central portion of the member and to a point where it enters the groove 61 and is removed from the member by springing the cover so as to disengage the lip from the groove, whereupon the cover can be easily and conveniently removed.

It will be apparent that the cover G must be removed when applying or removing the hinge construction to or from the refrigerator.

Having described only a typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications that may appear to those skilled in the art and fall within the scope of the following claims:

Having described my invention, I claim:

1. A hinge construction of the character referred to including, a base section having an elongate central portion having inner and outer surfaces and end portions projecting laterally outwardly from said central portion and having longitudinally inwardly disposed opposing end faces, flat inner faces flush with the inner surface of the central portion and cavities having inlet openings at the inner faces and outlet openings at the end faces, a support member having an elongate central portion with inner and outer surfaces and legs projecting laterally from the ends and outer surfaces of the central portion, said legs having longitudinally outwardly disposed axially aligned openings, the support member being arranged with the legs between the end portions of the base section with the openings in the legs opposing the outlet openings in said end portions, and L-shaped carrier blocks arranged in the cavities with their base portions in the

inlet openings and their arms in the outlet openings so that cylindrical trunnions projecting therefrom at right angles to the arm portions project into the openings in the legs.

2. A hinge construction of the character referred to including, a base section having an elongate central portion having inner and outer surfaces and end portions projecting laterally outwardly from said central portion and having longitudinally inwardly disposed opposing end faces, flat inner faces flush with the inner surface of the central portion and cavities having inlet openings at the inner faces and outlet openings at the end faces, a support member having an elongate central portion with inner and outer surfaces and legs projecting laterally from the ends and outer surfaces of the central portion, said legs having longitudinally outwardly disposed axially aligned openings, the support member being arranged with the legs between the end portions of the base section with the openings in the legs opposing the outlet openings in said end portions, and L-shaped carrier blocks arranged in the cavities with their base portions in the inlet openings and their arms in the outlet openings so that cylindrcal trunnions projecting therefrom at right angles to the arm portions project into the openings in the legs, said central portions of the base section and carrier member having fastener receiving openings to facilitate securing said section and member to relatively movable structures.

3. A hinge construction of the character referred to including, a base section having an elongate central portion having inner and outer surfaces and end portions projecting laterally outwardly from said central portion and having longitudinally inwardly disposed opposing end faces, flat inner faces flush with the inner surface of the central portion and cavities having inlet openings at the inner faces and outlet openings at the end faces, a support member having an elongate central portion with inner and outer surfaces and legs projecting laterally from the ends and outer surfaces of the central portion, said legs having longitudinally outwardly disposed axially aligned openings, the support member being arranged with the legs between the end portions of the base section with the openings in the legs opposing the outlet openings in said end portions, and L-shaped carrier blocks arranged in the cavities with their base portions in the inlet openings and their arms in the outlet openings so that cylindrical trunnions projecting therefrom at right angles to the arm portions project into the openings in the legs, said central portion of the base section and carrier member being laterally offset from the axis of the trunnions and having fastener receiving openings to facilitate securing said section and member to relatively movable structures.

4. A hinge construction of the character referred to including, a base section having an elongate central portion having inner and outer surfaces and end portions projecting laterally outwardly from said central portion and having longitudinally inwardly disposed opposing end faces, flat inner faces flush with the inner surface of the central portion and cavities having inlet openings at the inner faces and outlet openings at the end faces, a support member having an elongate central portion with inner and outer surfaces and legs projecting laterally from the ends and outer surfaces of the central portion, said legs having longitudinally outwardly disposed axially aligned openings, the support member being arranged with the legs between the end portions of the base section with the openings in the legs opposing the outlet openings in said end portions, and L-shaped carrier blocks arranged in the cavities with their base portions in the inlet openings and their arms in the outlet openings so that cylindrical trunnions projecting therefrom at right angles to the arm portions project into the openings in the legs, said central portions of the base section and carrier member being laterally offset from the axis of the trunnions.

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DONLEY J. STOCKING, *Primary Examiner.*