United States Patent [19]

Roberts

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[54] **HANDLE ASSEMBLY**

[75] Inventor: **Edward H. Roberts,** Jeffersontown, Ky.

[73] Assignee: **General Electric Company,** Louisville, Ky.

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[52] **U.S. Cl.** **16/125**

[51] **Int. Cl.** **A47b 95/02**

[58] **Field of Search** 16/110, 125, 126, 16/116, 111, 114; 312/214

[56] **References Cited**

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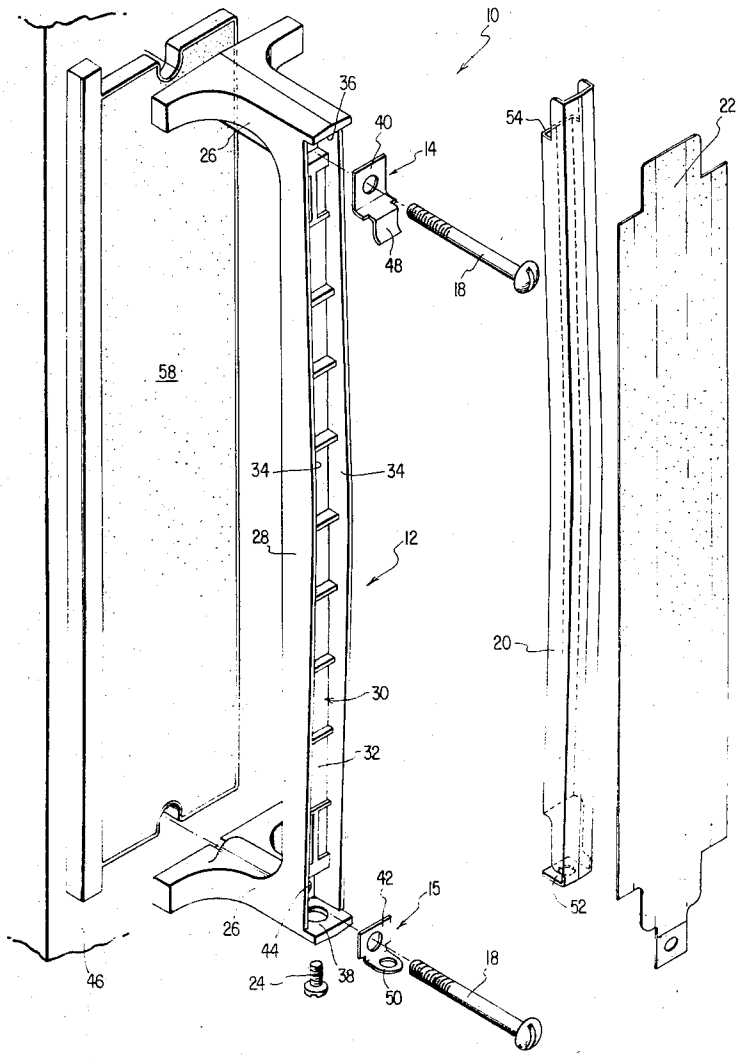
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Primary Examiner—Bernard A. Gelak
Assistant Examiner—Doris L. Troutman
Attorney—Walter E. Rule et al.

[57] **ABSTRACT**

A handle assembly includes a relatively small infrangible insert which performs the dual functions of isolating a relatively large frangible hand pull structure from excessive pull forces and providing support for a decorative, flaccid trim structure. A pair of insert mounting clips coacting among the usual closure mounting fasteners, the frangible hand pull and the insert permit the insert to be assembled with the hand pull with a single insert mounting fastener, and additionally, spread the compressive loads applied to the frangible hand pull by the closure mounting fasteners.

1 Claim, 3 Drawing Figures



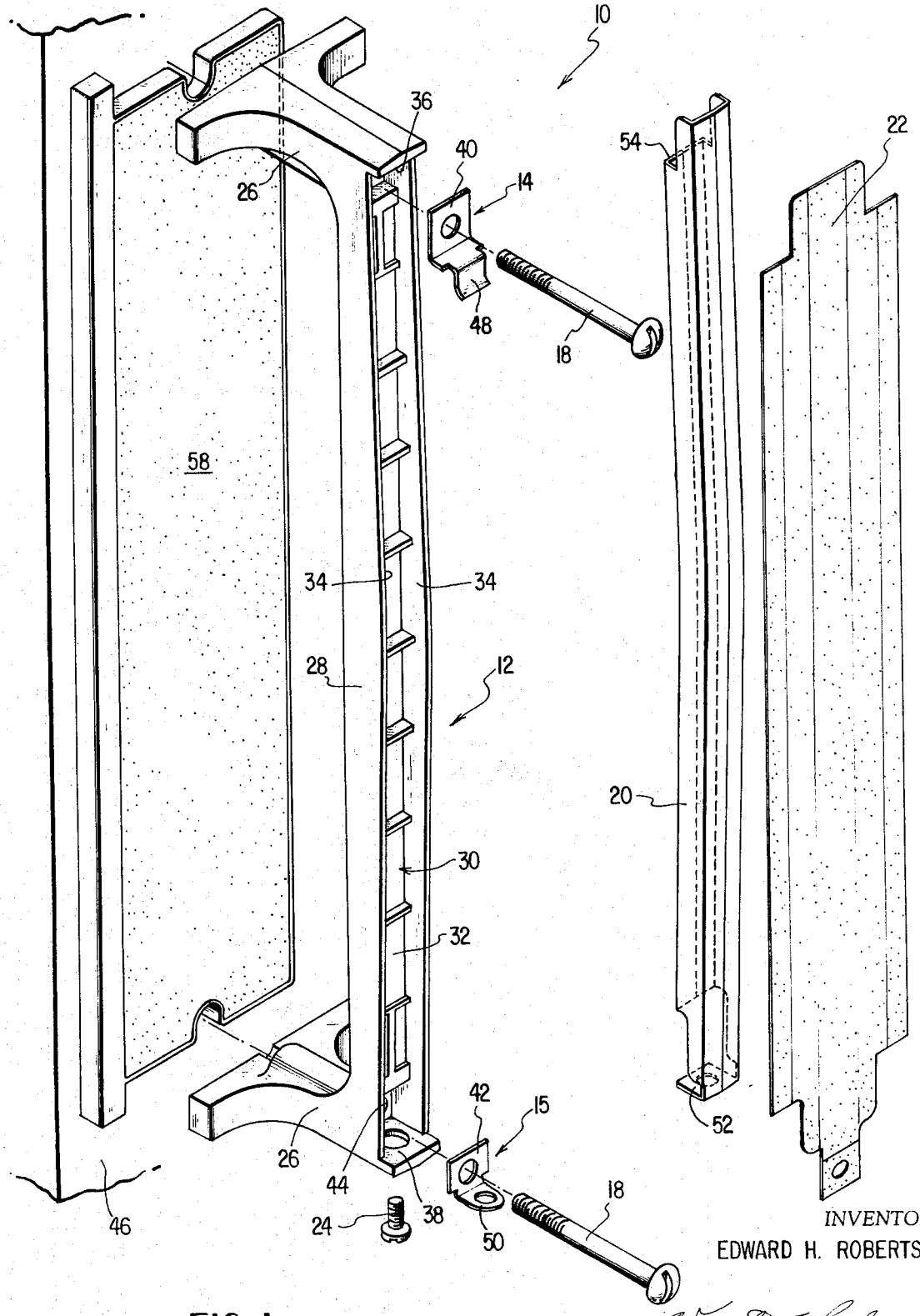


FIG. 1

INVENTOR
EDWARD H. ROBERTS

BY

ATTORNEY

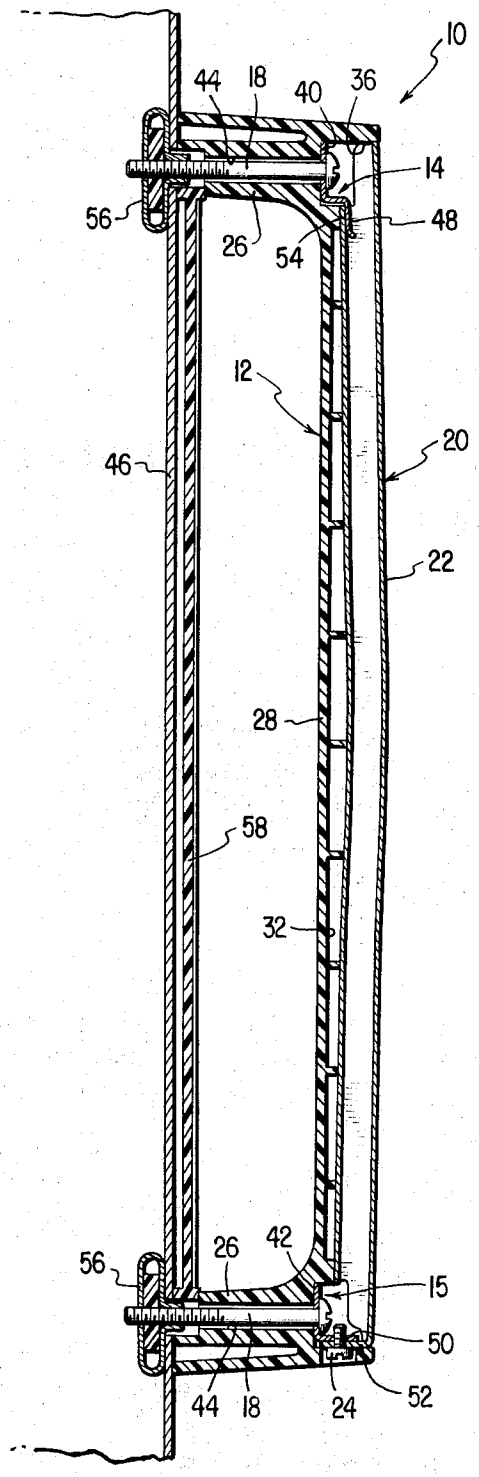


FIG. 2

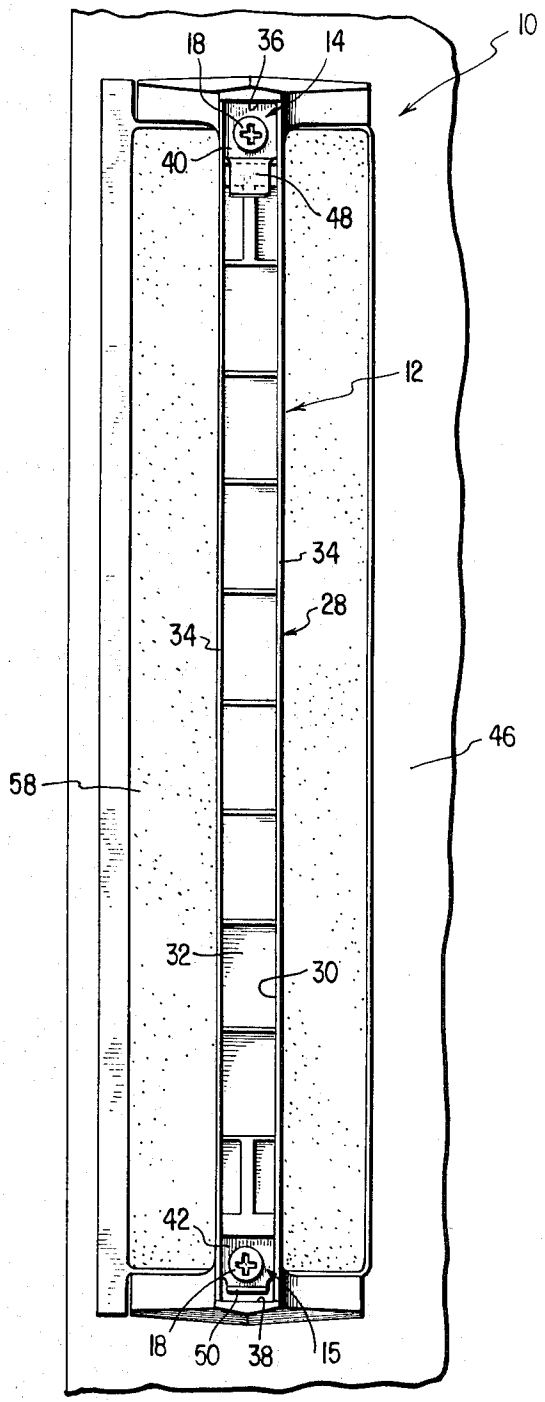


FIG. 3

INVENTOR
EDWARD H. ROBERTS

BY

ATTORNEY

HANDLE ASSEMBLY

BACKGROUND OF THE INVENTION

Those vertically oriented handle assemblies typically employed for the larger appliances, such as refrigerators, are quite large both from the standpoint of utility in affording ready access to the same by children as well as adults and design considerations relative to the overall symmetry of the appliance closure. Two such handle assemblies are, of course, required for the upright refrigerator-freezer combination units. It goes without saying that these handle assemblies must be totally resistant to fracture and it is obviously desirable that the same blend aesthetically with the overall cabinet structure. Those metal hand pulls having a chrome or stainless appearance have long been used for major appliances since they not only provide the requisite strength and decorative appearance but, also, give a utilitarian appearance of massive strength. Large stainless or chromed metal hand pulls are, of course, expensive; nevertheless, the use of those materials which even might be subject to fracture in normal use could not be tolerated if for no reason other than customer relations in the highly competitive major appliance field.

A composite handle structure utilizing low cost materials, such as cast plastic for example, to provide a major portion of the handle body and a relatively small high strength reinforcement would appear to present an attractive alternative. Such a handle structure must possess both the fracture resistant and decorative characteristics of prior handles and must not involve any appreciable increase in assembly time if substantial cost savings are to be realized. It is also highly desirable that a plurality of changeable trim structures be susceptible of usage with the same basic handle assembly to accommodate the various decorator colors.

Composite handle assemblies employing both frangible and infrangible components are well known as are composite handle assemblies utilizing separable hand pull and decorative subassemblies as exemplified by the respective disclosures in U.S. Pat. Nos. 2,407,763 and 3,393,423. Such prior art disclosures have not been concerned with the objectives of this invention which include the use of a relatively small reinforcing insert as compared to the overall size of the handle assembly; the use of the reinforcing insert, itself, to support an otherwise flaccid trim structure; and the necessary positionment of the reinforcing insert upon a fully exposed portion of the hand pull so that the decorative trim will be prominently displayed. The problems presented in the attainment of these objectives include isolation of the frangible component from excessive pull forces, ready assembly and disassembly of the insert with respect to the remainder of the assembly and the avoidance of fracture load impositions upon the frangible component as a function of the application of the closure mounting fasteners which must, necessarily, provide a rigid handle mounting structure.

SUMMARY OF THE INVENTION

A chrome plated plastic body having substantially the overall dimensions of a desired handle assembly is cast or otherwise formed with an outwardly opening recess on the side thereof opposite the mounting brackets. The usual headed closure mounting fasteners are then inserted through a pair of metal clips, the base of the outwardly opening recess and the mounting brackets to secure the plastic body to a closure. The bearing surfaces of the clips are large in comparison to the heads of the threaded fasteners so that they act as washers to spread the compressive load, exerted by the fasteners, over a substantial area of the frangible plastic body. The clips serve a secondary function as the reinforcing insert retaining means whose retaining function is independent of the closure mounting fasteners. Each clip consists of a first flange which coacts with the closure mounting fastener to spread the compressive loads and a second flange configured to provide a positive retention of the insert with the use of a single additional fastener.

The insert may comprise any desired high strength material such as rolled steel, for example. A desired trim in the form of a normally flaccid sheet material is laminated to the insert making it unnecessary to chrome or otherwise surface finish the reinforcing insert. The sheet material trim is normally a decorative vinyl having a desired surface appearance which may include various colors, a wood grain finish, or the like. The laminated insert is a generally hollow body which is fitted into the recess in the plastic body and telescoped over one of the clip retaining flanges while a projection in the form of a nut clip projects from the insert at the other end thereof to coact with the other insert retaining flange to receive a threaded fastener therethrough.

The completed assembly this presents an infrangible framework opposing pull forces applied to the plastic body which framework comprises the appliance closure, the closure fasteners, the clips and the reinforcing insert. The insert may be readily exchanged to provide a different trim by removing a single fastener while leaving the closure fasteners in place.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective of a handle assembly, including a decorative backing member, of a handle assembly constructed in accordance with the invention;

FIG. 2 is longitudinal sectional view of the handle assembly as applied to a closure member; and

FIG. 3 is top elevational view of the handle assembly as mounted on a closure member but with the infrangible insert removed to disclose underlying structure.

DESCRIPTION OF THE PREFERRED EMBODIMENT

An exploded perspective of a handle assembly **10** embodying the present invention is illustrated in FIG. **1** and includes a chrome plated plastic body **12**, a pair of mounting clips **14, 15**, a pair of closure mounting fasteners **18**, a rolled steel reinforcing insert **20**, a flaccid sheet material trim blank **22** and an insert mounting fastener **24**. The plastic body **12** is cast with integral mounting brackets **26** at opposite ends thereof defining a hand grip portion **28** therebetween which hand grip portion includes an outwardly opening recess **30** having a generally channel shape defined by base **32** and side walls **34**. The ends of recess **30** are delimited by an imperforate end wall **36** and an apertured end wall **38**.

Each mounting clip **14, 15** includes an apertured base mounting flange **40, 42**, the surface area of which is large in comparison to the heads of the closure mounting fasteners **18**. The heads of fasteners **18** are

retained by the respective base mounting flanges **40, 42** acting in the nature of washers to spread the compressive loads applied to frangible body **12** by fasteners **18** extending through mounting openings **44** in mounting brackets **26** and into retaining engagement with a closure member **46.**

Each mounting clip **14, 15** also includes an insert retaining flange **48, 50** which, respectively, extend in closely spaced relation to the base **32** of recess **30** and the inner wall of apertured end wall **38** when the clips are assembled with the plastic body **12** and closure mounting fasteners **18** as indicated in FIG. **3.** Insert retaining flange **50** is provided with an aperture adapted to align with the aperture in end wall **38** and an aperture in an end wall **52** provided at one end of the hollow reinforcing insert **20** when the parts are assembled as shown in FIG. **2.** The other end of insert **20** is cut away along a lower edge **54** thereof a distance approximately equal to the length of insert retaining flange **48.**

A pair of fastener retaining nuts **56** engageable with the threaded ends of fasteners **18** may be employed to maintain the assembled relationship of parts prior to mounting the handle assembly on a closure. These same nuts **56** may be subsequently used to secure the handle assembly to a closure as shown in FIG. **2.**

A decorative back panel **58** which may comprise a vinyl laminated, chromed plastic body may be mounted conjointly with the handle assembly, if desired.

Following lamination of sheet material trim **22** with insert **20** and the initial assembly of parts illustrated in FIG. **3**; the open end of insert **20,** opposite end wall **52,** is telescoped over insert retaining flange **48** of clip **14** with the lower wall **43** of insert **20** received within the space between the retaining flange **48** and base **32** of recess **30.** Thereafter, the other end of insert **20** is pressed into recess **30** with the end wall **52** on insert **20** entering the space defined between the plastic body end wall **38** and retaining flange **50.** The insertion of an insert retaining fastener **24** through the aligned apertures in end walls **38** and **52** and retaining flange **50** completes the assembly as shown in FIG. **2.**

Inasmuch as hand grip portion **28** is closely backed by the infrangible insert, pull forces applied thereto are transmitted directly to the closure via insert **20,** clips **14, 15,** fasteners **18** and nuts **56.**

The insert **20** is thus seen to perform the dual functions of isolating the frangible body member from fracture forces and providing a rigid support for an otherwise flaccid trim structure.

I claim:

1. A handle assembly, comprising; a frangible body having an elongate generally channel shaped hand grip portion terminating at opposite ends thereof in mounting brackets having fastener openings extending therethrough and opening into the base of said channel shaped portion; one end of said channel shaped portion including an apertured end wall bridging the sides thereof; a first insert mounting clip including an apertured insert retaining flange and an angularly related apertured base mounting flange; a headed fastener extending through said base mounting flange and a bracket fastener opening at said one end of said channel shaped portion for clamping said one end of said frangible body to a closure member and said base mounting flange to the base of said channel portion with the insert retaining flange in closely spaced substantially parallel relation to said apertured end wall; a second insert mounting clip including an apertured base mounting flange and an offset insert retaining flange; a headed fastener extending through said base mounting flange and a bracket fastener opening at the other end of said channel shaped portion for clamping the other end of said frangible body to a closure member and said base mounting flange of said second mounting clip to the base of said channel portion with the offset insert retaining flange extending in closely spaced substantially parallel relation to the base of said channel portion in the direction of said first clip; a hollow, infrangible insert telescopically engaged with said offset insert retaining clip at one end thereof and including an apertured end wall at the other end thereof sandwiched between the apertured insert retaining flange on said first clip and the apertured end wall bridging the sides of said channel portion; and a fastener extending through said end walls and retaining flange for securing said insert closely adjacent the base of said channel portion for transmitted forces applied to said handle grip portion to a closure member through said insert and headed fasteners.

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