United States Patent

Hogrebe

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[54] **WALL BRACKET BASE ASSEMBLY**

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[52] **U.S. Cl.**.....**248/223,** 248/309, 248/316 D

[51] **Int. Cl.**.....**F16m 13/00**

[58] **Field of Search**.....248/201, 223, 300, 311, 313, 248/316 D, DIG. 6

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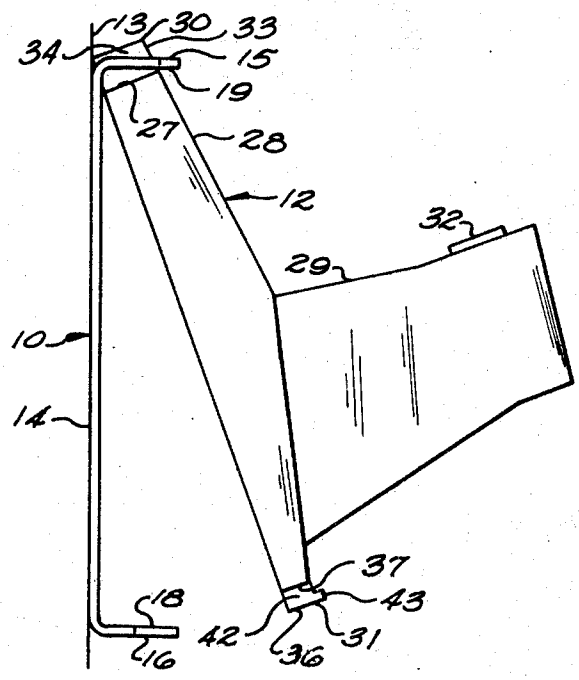
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Primary Examiner—William H. Schultz
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[57] **ABSTRACT**

The assembly includes an adaptor for attachment to a wall and a base detachably mounted to the adaptor. The adaptor is channel-shaped and includes upper and lower flanges each having an aperture. The base includes an upper end received within the upper aperture and a lower end seated upon the lower flange adjacent the lower aperture. The base also includes upper and lower shoulder portions engageable with associated abutment portions on the adaptor to preclude rotation of the base relative to the adaptor in directions both parallel and transverse to the wall.

5 Claims, 4 Drawing Figures



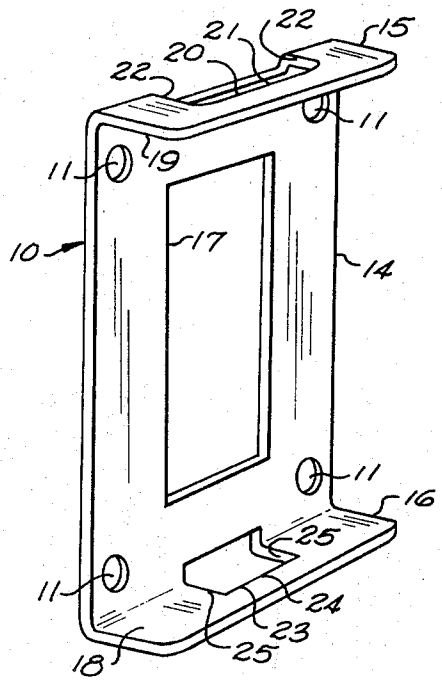


Fig 1

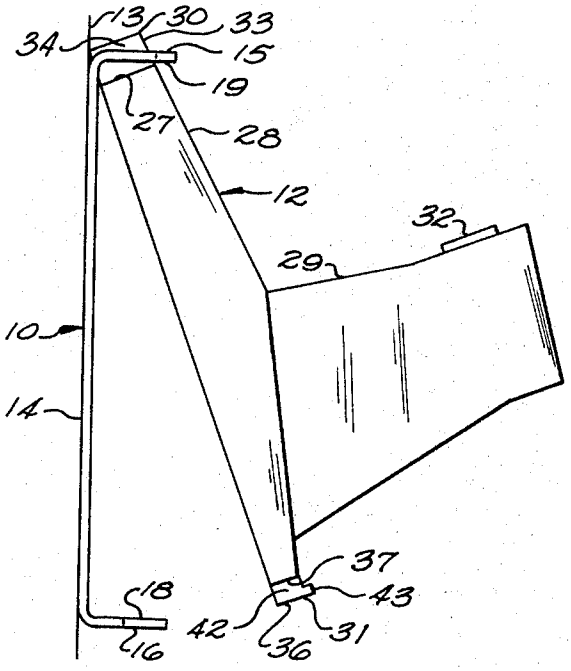


Fig 3

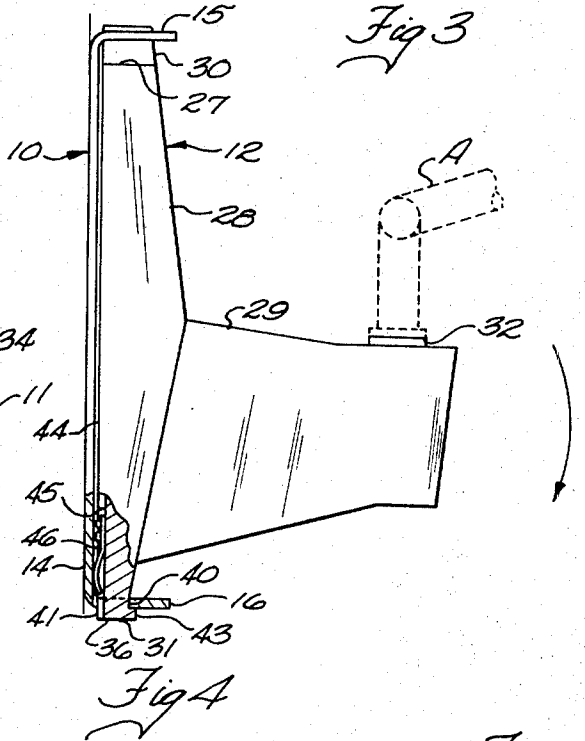


Fig 4

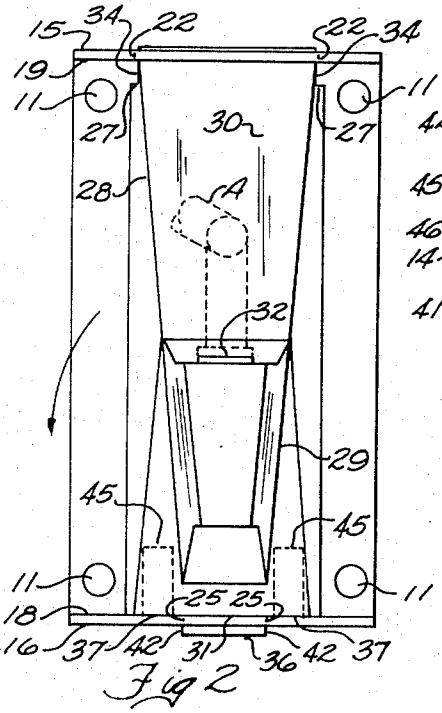


Fig 2

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WALL BRACKET BASE ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates in general to a wall bracket base assembly and particularly to an assembly having a wall adaptor suitable for mounting a detachable base.

There are many instances in which relatively expensive, heavy bases must be wall mounted to support an article which is required in a particular location for only a short period of time. The mounting of such bases directly to a wall causes considerable problems, because the expensive base must either be left in place when the article supported is no longer required or alternatively, considerable time and labor must be expended in detaching the base from the wall and repairing the damage done by the necessarily substantial fasteners by which it was attached. None of these alternatives provides an adequate solution to the problem of relocating relatively heavy wall mounted articles and the result is often that the expense involved in mounting such articles is too high to justify their temporary use.

A particular example of a wall-mounted article which requires a relatively heavy base is the heavy duty adjustable bracket arm for carrying a television set or similar article disclosed in U. S. Pat. No. 3,498,577. This arm structure is very useful in hospitals, work shops and the like and, to be fully effective, must be relatively simple to mount and dismount so that it can be moved easily from room to room. Obviously, such an arm requires a rigid base support providing considerable couple resistance. Further, because the carried load is intended to be readily rotated to an offset position, any bracket assembly supporting the load, must be capable of resisting couple forces in several different planes.

SUMMARY OF THE INVENTION

This bracket assembly includes an adaptor, which is intended for permanent attachment to a wall, and a base which is detachably mounted to the adaptor without requiring fasteners. The assembly is capable of resisting couple forces in directions both transverse and parallel to the plane of the wall.

The wall mounted adaptor is relatively inexpensive and lightweight in comparison with the detachable base and several adaptors may therefore by provided at different locations to accommodate one base. Thus, an article which requires a heavy base to support it, may be readily relocated and mounted to the adaptor, rather than directly to the wall.

The adaptor means includes upper and lower abutment means disposed in spaced relation to each other. The base means, which is detachably mounted to the adaptor means, includes upper and lower shoulder means interengageable with associated abutment means to provide couple resistance precluding relative rotation between the adaptor means and the base means.

The upper and lower abutment means and the upper and lower shoulder means include mutually engageable transverse portions to preclude rotation of the base means relative to the adaptor means in a plane parallel to the plane of the wall.

The adaptor means includes spaced apertured flanges providing the abutment means, said flanges

being interconnected by a back portion. The upper shoulder means includes a front shoulder portion and the lower shoulder means includes an end shoulder portion defining a tongue and adjacent seating portions. The upper flange aperture operatively receives the upper front shoulder portion to resist outward movement thereof and the lower flange aperture operatively receives the tongue to seat said base means. Engagement between the base means and the apertures precludes rotation of the base means relative to the adaptor means in a plane perpendicular to the plane of the wall.

Resilient means between the base means and the back portion of the adaptor means tends to resist inward movement of the base means and the tongue includes an outwardly extending lip engaging the underside of the lower flange to preclude inadvertent upward movement of the base means.

The base means includes an outstanding cantilever support portion adapted to carry a heavy article.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of the adaptor plate;

FIG. 2 is a front elevational view of the adaptor plate with the base unit mounted in position;

FIG. 3 is a side elevational view of the wall plate illustrating the base unit in the process of being mounted, and

FIG. 4 is a similar view to FIG. 3, shown partly in cross section and illustrating the base unit mounted to the adaptor plate.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now characters characters of reference to the drawing and first to FIGS. 1 and 3, it will be understood that the wall bracket assembly includes an adaptor plate **10** which is attached to a wall **13** or similar structure by means of a plurality of fasteners. The adaptor plate **10** includes a plurality of holes **11** provided for this purpose and when mounted to the wall **13** provides a mounting for a base unit **12**.

The adaptor plate **10** is substantially channel- shaped and includes a back portion **14** interconnecting upper and lower outstanding flange elements **15** and **16**. The back portion **14** includes a rectangular cut-out portion **17**, which facilitates the connection of said adaptor plate **10** to the wall **13**. The upper flange **15** of the adaptor plate **10** includes an aperture **20** having a front margin **21** and opposed side margins **22**, together constituting a first, upper abutment means. The lower flange **16** includes an aperture **23** having a front margin **24** and opposed side margins **25**. The lower flange **16** also includes an upper face **18**, which provides a seat for the base unit **12**. Said upper face **18**, the aperture margins **24** and **25** and the lower part of the back portion **14** constitute a second, lower abutment means. It will be understood that the channel-shaped adaptor plate **10** is preferably integrally formed from a single plate.

The base unit **12** includes a body portion **28** and an outstanding support portion **29** preferably integrally cast with said body portion **28**. The base unit **12** also includes upper and lower ends **30** and **31**, which are adapted to be received within the upper and lower

apertures 20 and 23 respectively. The support portion 29 is adapted to carry a heavy article, such as a heavy-duty adjustable bracket structure, generally indicated by A and of the type disclosed in U. S. Pat. No. 3,498,577, and said support portion 29 includes a bushing 32 suitable for supporting this heavy-duty bracket.

More specifically, the base unit 12 is configurated at its upper end 30 to provided a front face 33 and opposed transverse faces 34, together constituting a first, upper shoulder means. The lower end 31 is narrowed into a central alignment tongue 36 flanked by adjacent shoulder seating portions 37. The tongue 36 includes front and rear faces 40 and 41 and opposed transverse faces 42, which together with portions 37 constitute a second, lower shoulder means. At its extremity, the tongue is outwardly turned into a lip portion 43.

The rear face 44 of the base unit 12 includes a pair of recesses 45 accommodating associated spring elements 46. These spring elements 46 constitute resilient means which, in their free condition, project outwardly beyond said rear face 44 and tend to urge the front face 40 of the tongue 36 into engagement with the front margin 24 of the lower flange aperture 23. Thus, said spring elements 46 provide a resilient means resisting the reaction of the weight of the base unit 12 and the weight of the article A.

Unless restrained, the base unit 12 will pivot in a plane perpendicular to the plane of the wall 13 about the lower flange 16 because of the eccentricity of the weight of the base unit 12 and of the article A. The tendency of the upper portion of the base unit 12 to move outwardly is resisted by engagement of the upper end front face 33 against the upper aperture front margin 21. The tendency of the lower portion of the base unit 12 to move inwardly is resisted by engagement of the spring elements 46 against the lower portion of the adaptor plate 10. If the inward force is sufficiently great, the rear face 41 of the tongue 36 will engage with the lower portion of the adaptor plate 10.

Any tendency of the base unit 12 to pivot in a plane parallel with the plane of the wall 13 because of a moment caused by an eccentric load from the article A, as shown in FIG. 2, is resisted by engagement between the base unit upper and lower transverse faces 34 and 42 respectively, and the associated upper and lower aperture side margins 22 and 25 respectively. It will be understood that the vertical force from the base unit 12, as opposed to the force due to the eccentricity of the loads, is carried by the upper seating face 18 of the flange 16 on which the base unit shoulder seating portions 37, flanking the tongue 36, are seated.

It is thought that the structural features and functional advantages of this bracket assembly have become fully apparent from the foregoing description of parts, but for completeness of disclosure, the operation and installation of the assembly will be briefly summarized.

The weight of the base unit 12, particularly when considered in conjunction with an article A, such as a heavy-duty adjustable bracket, is considerable. The adaptor plate 10, by which the unit 12 is mounted to the wall 13, is subjected to rotational forces in a plane perpendicular to the face of the wall 13, as indicated by the arrow in FIG. 4, as well as downward forces. Further, if the weight of the article A is offset, as indicated in FIG. 2, the resulting imbalance will cause rotational forces in a plane parallel with the face of the wall 13, as indicated by the arrow shown in FIG. 2. The inter-relationship between the base unit 12 and the adaptor plate 10 is such that these moments and downward forces are resisted without the need for fasteners and the disposition of parts is such that the base unit 12 may be mounted and removed from the adaptor plate 10 by simple hand movements. However, once mounted to the adaptor plate 10, the base unit 12 is held securely in place.

As shown clearly in FIG. 3, the base unit 12 is mounted by simply inserting the upper end 30 into the upper flange aperture 20, which is slightly oversize to facilitate such insertion. Shoulders 27 at the upper end 30 provide a limit means and are placed to permit the base unit 12 to be swung into position so that the tongue 36 clears the lower flange 16. Upon release of the base unit 12, the tongue 35 is received within the lower flange aperture 23 and the shoulder seating portions 37 flanking the tongue 36 come to rest upon the upper face 18 of the lower flange 16. The distance between the shoulder seating portions 37 and the remote upper end of the base unit 12 is greater than the clear distance between the upper and lower flanges 15 and 16 so that, as shown in FIG. 4, the upper end 30 remains inserted within the upper flange aperture 20 when the lower end 31 is seated. Thus, the front margin 21 provides an abutment precluding outward movement of the base unit 12 as said base unit 12 tends to pivot about its lower end 31. The tendency of said lower end 31 to move in the direction of the wall 13 is precluded by engagement of said base unit 12 with the back portion 14 of the adaptor plate 10.

It will be observed from FIG. 2 that the side margins 22 of the upper flange aperture 20 and the side margins 25 of the lower flange aperture 23 provide adaptor plate abutment faces engageable by the base unit upper end transverse faces 34 and the tongue transverse faces 42 respectively, to preclude rotation of the base unit 12 relative to the adaptor plate 10 in a clockwise or counterclockwise direction parallel to the plane of the wall 13. The provision of spring elements 46 at the rear of the base unit 12 tends to urge the lip 43 into overlapping disposition with the lower flange aperture 23, thereby precluding inadvertent upward movement of the base unit 12.

Thus, the base unit 12 is connected firmly to the wall mounted adaptor plate 10 and couple resistance is provided against any tendency for said unit to rotate in a plane, either transverse or parallel to the plane of the wall 13. In addition, the adaptor plate 10 firmly seats the base unit 12 and provides resistance against both downward movement and inadvertent upward movement. This secure connection is achieved without the need for fasteners between the base unit 12 and the adaptor plate 10 and in consequence, the base unit 12 can be quickly and easily moved to a new location as required and there connected to another wall mounted adaptor plate 10.

I claim as my invention:

1. A wall bracket assembly for supporting an article, the assembly comprising:

a. adaptor means adapted to be attached to a wall and including:

1. a back portion,

2. an upper outstanding element providing an upper abutment means spaced from the back portion, and

3. a lower outstanding element providing a lower abutment means spaced below the upper abutment means,

b. base means detachably mounted to the adaptor means and including:

1. upper shoulder means operatively disposed between the back portion and the upper abutment means in engageable relation with said upper abutment means,

2. lower shoulder means operatively disposed in seating engagement on the lower abutment means whereby to transfer vertical load from the base means to the adaptor means, and

3. an outstanding support portion intermediate the upper and lower shoulder means adapted to carry the article,

c. interengagement between associated shoulder and abutment means substantially precluding relative rotation between the adaptor means and the base means.

2. A base assembly as defined in claim 1, in which:

d. the base means includes an alignment tongue providing transverse portions of the lower shoulder means, and

e. the lower element includes a flange having an aperture operatively receiving the tongue and providing transverse portions of the lower abutment means engageable by associated transverse portions of the lower shoulder means.

3. A bracket assembly as defined in claim 1, in which:

d. the upper shoulder means includes a front portion and opposed transverse portions,

e. the lower shoulder means includes an end portion and opposed transverse portions defining a tongue,

f. the upper element includes a flange having an aperture operatively receiving the upper shoulder means and having a front margin portion and opposed transverse margin portions operatively engageable by associated front and transverse portions of the upper shoulder means,

g. the lower element includes a flange having a seating portion engageable by the end portion and an aperture operatively receiving the tongue and having opposed transverse margin portions engageable by associated transverse portions of the lower shoulder means, and

h. transverse margin portions are operatively engageable by associated transverse shoulder portions to preclude rotation of the base means relative to the adaptor means in a plane substantially parallel to the plane of the wall.

4. A bracket assembly as defined in claim 1, in which:

d. resilient means is disposed between the base means and the back portion of the adaptor means tending to operatively urge the lower shoulder means outwardly in resisting relation to the downward load of the outstanding support portion of the base means.

5. A bracket assembly as defined in claim 2, in which:

f. spring means is disposed between the base means and the adaptor means,

g. the lower flange includes an underside, and

h. the tongue includes an outwardly extending lip urged outwardly by said spring into overlapping engageable relation with said flange underside to preclude upward movement of the base means.

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