Oct. 30, 1962 A. J. GRENIER 3,061,258

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Filed Aug. 26, 1960 2 Sheets-Sheet 1

FIG. 1.

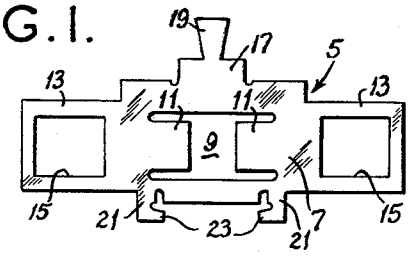


FIG. 3.

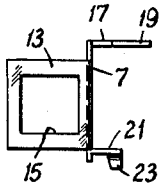


FIG. 2.

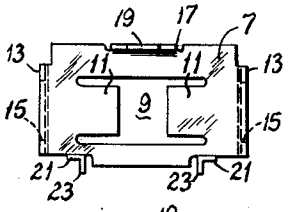


FIG. 4.

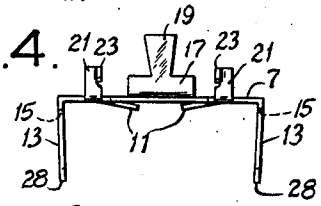


FIG. 5.

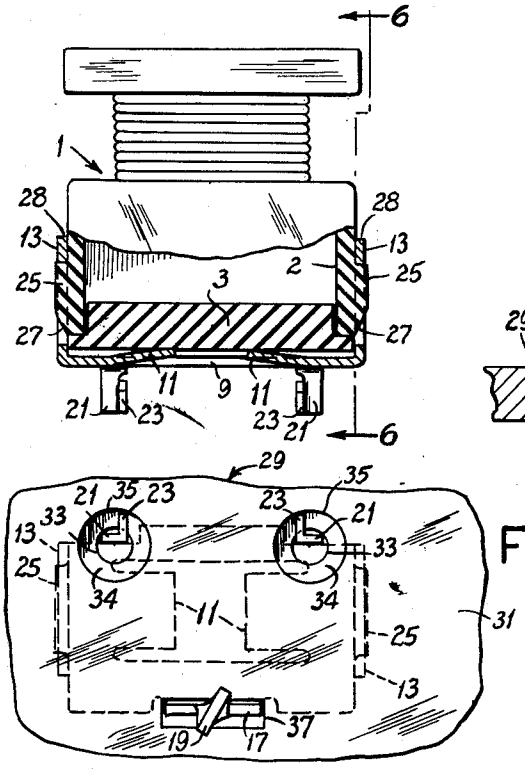


FIG. 6.

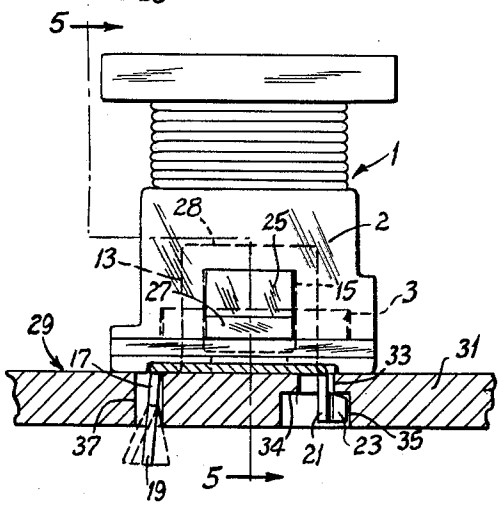


FIG. 7.

Aimé J. Grenier,
Inventor.
Koenig and Pope,
Attorneys.

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FIG. 8.

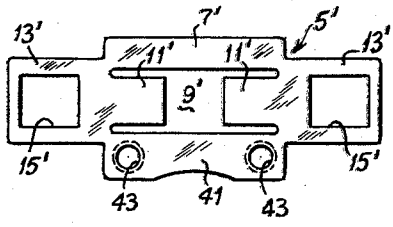


FIG. 10.

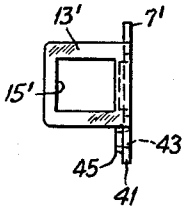


FIG. 9.

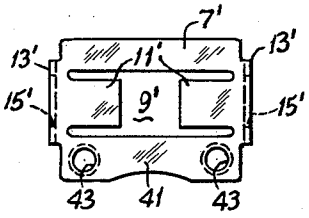


FIG. 15.

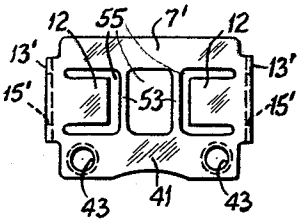


FIG. 11.

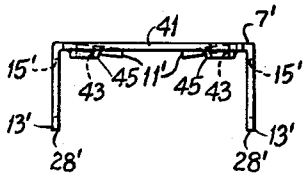


FIG. 12.

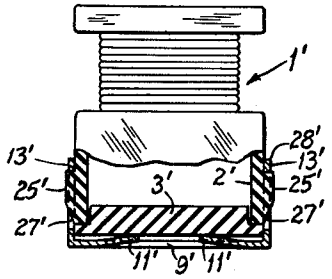


FIG. 13.

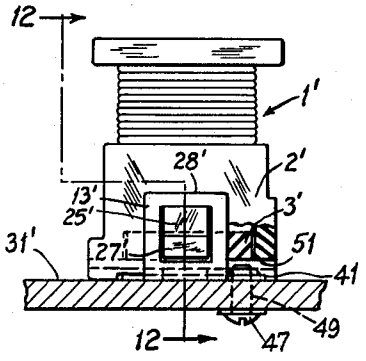
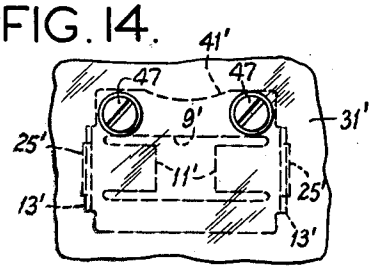


FIG. 14.



Aime' J. Grenier,
Inventor.
Koenig and Pope,
Attorneys.

United States Patent Office 3,061,258 Patented Oct. 30, 1962

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Aimé J. Grenier, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Aug. 26, 1960, Ser. No. 53,586
5 Claims. (Cl. 248—223)

This invention relates to brackets, and with regard to certain more specific features, to brackets for rapid attachment of auxiliary devices on appliances which the devices serve.

This application is a continuation-in-part of my United States patent application Serial No. 782,261, filed December 22, 1958, for Bracket, and now abandoned.

Among the several objects of the invention may be noted the provision of low-cost, rapidly producible brackets for mounting devices such as relays on items which the devices serve, for example, garbage disposal units; the provision of brackets of the class described which will also hold in place any covers of the devices mounted; the provision of brackets of the class described which permit of rapid mountings in some cases without the use of separate rivets, screws or like fasteners and which in any case eliminate the need for any threaded holes either in the devices to be mounted or in the surfaces upon which they are supported; the provision of brackets of this class by which rigid mountings may be rapidly effected; and the provision of a bracket of this class constructed to prevent tangling and facilitate handling thereof during processing. Other objects and features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of which will be indicated in the following claims.

In the accompanying drawings, in which several of various possible embodiments of the invention are illustrated,

FIG. 1 is a plan view of a blank from which one embodiment of the bracket of the invention is formed;

FIG. 2 is a plan view of the blank of FIG. 1 in final shape;

FIG. 3 is a left side elevation of FIG. 2;

FIG. 4 is a front elevation of FIG. 2;

FIG. 5 is an enlarged side elevation, partly in section, of a relay showing application thereto of the bracket of FIGS. 2–4, the view being on line 5—5 of FIG. 6, some internal parts being omitted;

FIG. 6 is a right side elevation, partly in section, as viewed on line 6—6 of FIG. 5;

FIG. 7 is a bottom plan view of FIG. 6;

FIGS. 8–14 are views corresponding to FIGS. 1–7, respectively, showing a second form of the invention, FIG. 12 being viewed on line 12—12 of FIG. 13; and

FIG. 15 is a view similar to FIG. 9, showing a third form of bracket made according to the invention.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

In the construction of various appliances, such as for example garbage disposal units, it is required that certain auxiliary parts, such as relays and the like, be supported thereon. An example of such a relay part is shown at 1 in FIGS. 5 and 6. In some instances such relays include removable covers, such as shown at 3, enclosing box-like portions 2. By means of the present invention the cover 3 may be conveniently held in place and the entire relay part 1 rapidly mounted with its enclosing cover upon a suitable supporting surface on the appliance (see surface 31; FIGS. 6 and 7).

Referring now more particularly to FIG. 1, there is shown at numeral 5 a flat, punched, sheet-metal blank having a central frame or face portion 7 surrounding an opening 9 of generally I-shape, thus forming two opposed tongues 11. The blank is provided on two sides of the central frame with transverse extensions or wings 13 punched out to form openings or windows 15 therein. The blank is also formed on a third side of frame 7 with a lateral extension 17. From this extends a flared or key-shaped tongue 19. On the fourth side of frame 7 the blank is provided with hook-shaped extensions 21. From the above, it is apparent that the blank may be formed by a single stamping operation, if desired.

After the blank is stamped out as shown in FIG. 1, it is formed by bending into the shape shown in FIGS. 2–4. Thus the lateral extensions 13 are bent downwardly and inwardly as shown in FIG. 4, thus placing the windows 15 opposite one another. The result is a U-shape, of which extensions 13 are the legs and frame 7 is its cross member. The tongues 11 are slightly deformed in a direction placing them between the extensions 13. The extension constituted by parts 17 and 19 is bent outward from the U-shape as are also the hook-shaped extensions 21. Next, the hooks 23 on extensions 21 are bent transversely parallel to members 13. Tongue 19 and extensions 21 are thus triangulated, as is apparent from FIG. 7.

Referring again to the relay member 1, it will be seen that opposite sides thereof are provided with raised protuberances or lands 25. These are rectangular and marginally beveled as shown at 27 for the purpose of slidably accepting in a springing manner the U-legs or windowed extensions 13. Thus the outer margins 28 of the extensions 13 may be pushed into springing engagement with the beveled portions 27 and slipped over the lands 25 until the windows 15 snap around the lands. The bracket is applied as described after the cover 3 of the relay part (if it has such a cover as shown) has been applied thereto. The tongues 11 then hold the cover in place. The dimensions are such that when the lands 25 enter the windows 15, the tongues 11 are springingly pressed against the cover 3 to hold it in place. Even if the cover is simply an irremovable closure, the tongues 11 spring against it. This brings about a tight holding reaction of the windows 15 on the lands 25. As a result, the closed relay becomes provided with a rigidly mounted bracket having the extensions (17, 19) and (21, 23).

Referring now more particularly to FIGS. 6 and 7, there is shown at 29 a part of the appliance on which the relay is to be supported. The desired supporting surface is shown at 31. In the surface 31 are provided holes 33, counterbored as shown at 35. A slot 37 is also provided opposite to and transversely between the holes. As shown in FIG. 7, the holes 33 and slot 37 are triangulated. The holes 33 are of a diameter sufficient to accept the bent hooked ends 21, 23 when offset from the positions shown in FIGS. 6 and 7. The slot 37 is wide enough so that under such conditions the extension (17, 19) may be pushed therethrough. Then, by moving the relay 1 transversely (to the right in FIG. 6 or up in FIG. 7) the hooks 23 will engage the shelves 34 of the counterbores 35. The width of the slot 37 permits this transverse movement. Then pliers may be applied to the flaring tongue

19 to twist it. Thus, its tapering sides wedgingly engage the edge of the slot 37. This rocks the hooks 23 into tight engagement with the shelves 34 of the openings 33, 35. By reaction where the twist occurs, all mounting slack is taken up by reason of the triangulated three-point support which is effected. The result is a rapidly accomplished mounting for the relay, while at the same time the removable cover 3 of the relay (if there is such a cover) is held in place. If ever the relay needs to be dismounted, this can easily be accomplished by twisting back the tongue 19 and reversing the attachment movements above described. It is then an easy matter to remove the bracket from the relay by springing the extensions 13 out from the lands 25 and pulling off the bracket as a whole. This releases the cover 3. It will be noted that the ends of the opposed tongues 11 provide a symmetrical reaction within the area defined by the three-point support afforded by the hooks 23 and twist member 19.

In view of the above, it will be seen that by means of one simply-formed shape as shown in FIGS. 2–4, a low-cost, easily applicable and effective mounting bracket is obtained, both for holding the relay in attachment on the surface 31 and for holding the cover 3 in place.

It will be understood from what has been said that in some applications the cover 3 may be molded monolithically with the remainder of the relay casing. In such event the tongues 11 still perform the function of providing a springing reaction for tightly holding an edge of each window 13 in tight engagement with an edge of its cooperating land 25.

A feature of importance in this form of the invention is the rigid three-point support afforded by the members 19 and 23 when in their final positions in their respective openings. These prevent rocking of the supported part around any axis without redundancy of support, which might otherwise (as in the case of a number of supports greater than three) require careful alignment.

In FIGS. 8–14 is shown a second form of the invention in which parts which correspond to those in FIGS. 1–7 and described above have like but primed numerals. In this form of the invention, the parts 17, 19, 21 and 23 of the FIGS. 1–7 structure are omitted. Instead, the intermediate frame part 7′ is extended as a strip on one side, as indicated at 41. This extension strip 41 is punched to form openings 43, the punching operation being carried out in such a manner as to form marginal sleeves 45. The openings through the sleeves are then threaded for the reception of screws such as shown at 47. In this case the supporting surface 31′ is provided with correspondingly spaced openings 49 for the acceptance of the screws 47 threading into the sleeves 45, as illustrated in FIGS. 13 and 14. Recesses such as shown at 51 (FIG. 13) are formed in the portions 2′ of device 1′ so as to accept the sleeves 45 and any portions of the screws 47 that may extend therefrom.

In FIG. 15 is shown a third form of the invention substantially like that shown in FIGS. 8–14, like reference numerals thereon corresponding to like parts. In this form of the invention the free ends of the oppositely directed tongues in the intermediate portion 7′ have been shortened in length. Such shortened tongues are lettered 12 in FIG. 15. At the shortened ends of these tongues 12, the generally I-shaped opening means 55 has thin bridging portions 53. The purpose of these is to facilitate handling of the brackets during processing. Ordinarily the brackets are plated, and in plating operations there is a tendency for brackets of FIGS. 1–14 to become entangled. The provision of the cross members 53 eliminates entanglement, especially between the tongue parts 12 when the brackets are massed in containers, baths or the like.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. Bracket means for mounting an object on a supporting member having receiving openings, said object having opposite lands extending from opposite faces thereof; comprising a U-shaped member having a connecting portion between legs extending from opposite ends of the connecting portion, each of said connecting portion and legs having a window opening therein, the window openings in the legs being adapted to receive said lands when the legs are applied to said opposite faces of the object, said window opening in the connecting portion forming a tongue, said tongue being directed out of the plane of its window opening and adapted sparingly to engage a surface of the object which is transversely located between said opposite surfaces having the lands, an extension from one side of the window in the connecting portion including a transverse hook, said extension with its hook being adapted to be thrust through an opening in the mounting surface and to move transversely for hooked engagement of said hook on the margin of said opening, another extension from the other side of the window in said connecting portion including a twistable key member adapted to pass through another opening in the mounting surface so as to place said twistable portion beyond the opening for twisting the locking engagement with an edge thereof with reaction from the engaged hook in the other opening.

2. Bracket means according to claim 1, wherein the hooked extension is duplicated for engagement with another opening in the mounting surface to provide a triangulated three-point support with the key-forming extension.

3. Bracket means according to claim 2, wherein said tongue is duplicated by the form of the opening in the connecting portion to provide tongues extending oppositely toward one another and in a direction transverse to the planes of said legs, adapted symmetrically to provide said reaction across and within the area defined by said triangulated three-point support.

4. A mounting bracket comprising a U-shaped bracket having legs extending in a general direction from opposite ends of an intermediate portion, said legs having openings therein, the openings in the legs being adapted to receive protuberances on opposite sides of the objects to be mounted when said legs are applied to said opposite sides, said connecting portion being provided with opening means generally defined by an I-shape, whereby oppositely directed tongues having free ends are formed, said tongues being directed out of the plane of said connecting portion in the direction of said legs so as resiliently to engage portions of the objects between said sides when the openings in the legs receive said protuberances, and a strip extending from said intermediate portion and having openings therein adapted to receive fastening screw means.

5. A mounting bracket comprising a U-shaped bracket having legs extending in a general direction from opposite ends of an intermediate connecting portion, said legs having openings therein, the openings in the legs being adapted to receive protuberances on opposite sides of the objects to be mounted when said legs are applied to said opposite sides, said connecting portion being provided with opening means generally defined by an I-shape, whereby oppositely directed tongues having free ends are formed, said tongues being directed out of the plane of said connecting portion in the direction of said legs so as resiliently to engage portions

of the objects between said sides when the openings in the legs receive said protuberances, said tongues having free ends directed toward one another, connecting means forming crossover means in the opening means located adjacent the free ends of each tongue to prevent tangling between massed brackets, and strip means connected with said connecting portion having holes for supporting fasteners.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,061,258 October 30, 1962

Aimé J. Grenier

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 20, for "sparingly" read -- springingly --.

Signed and sealed this 9th day of April 1963.

(SEAL)
Attest:

ESTON G. JOHNSON
Attesting Officer

DAVID L. LADD
Commissioner of Patents

UNITED STATES PATENT OFFICE
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