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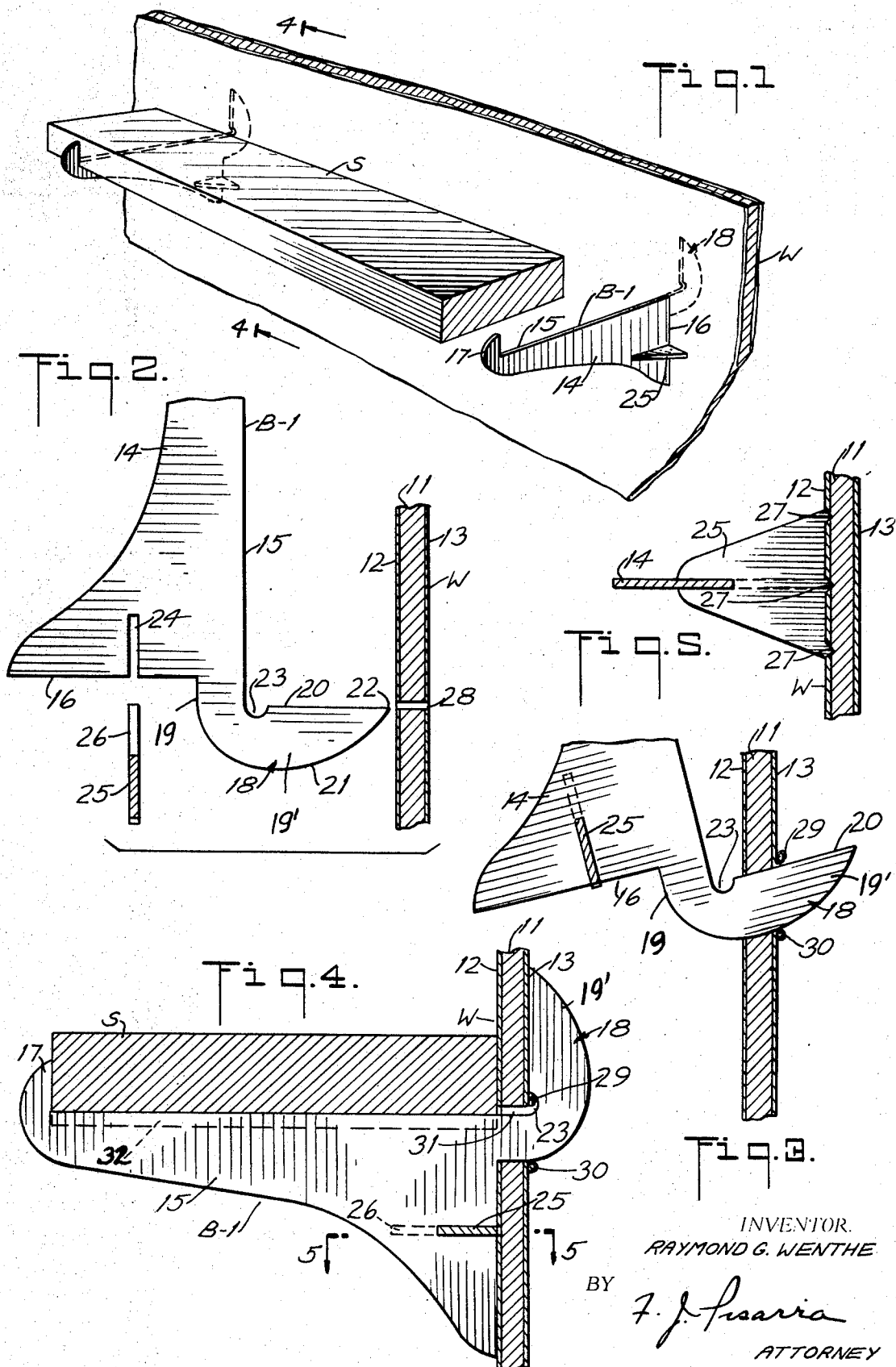
R. G. WENTHE

3,537,671

BRACKET FOR USE WITH WALLBOARD

Filed Sept. 25, 1967

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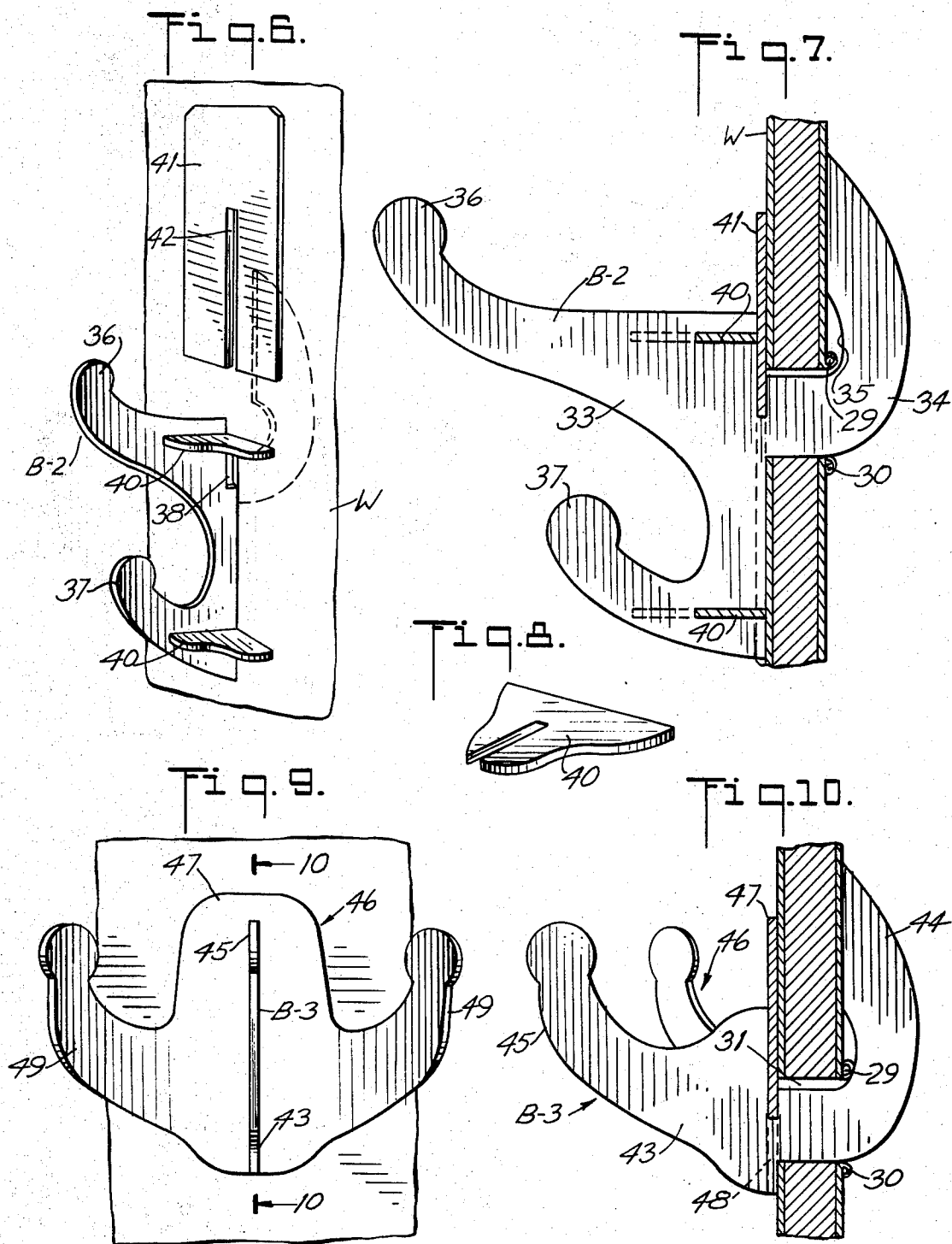
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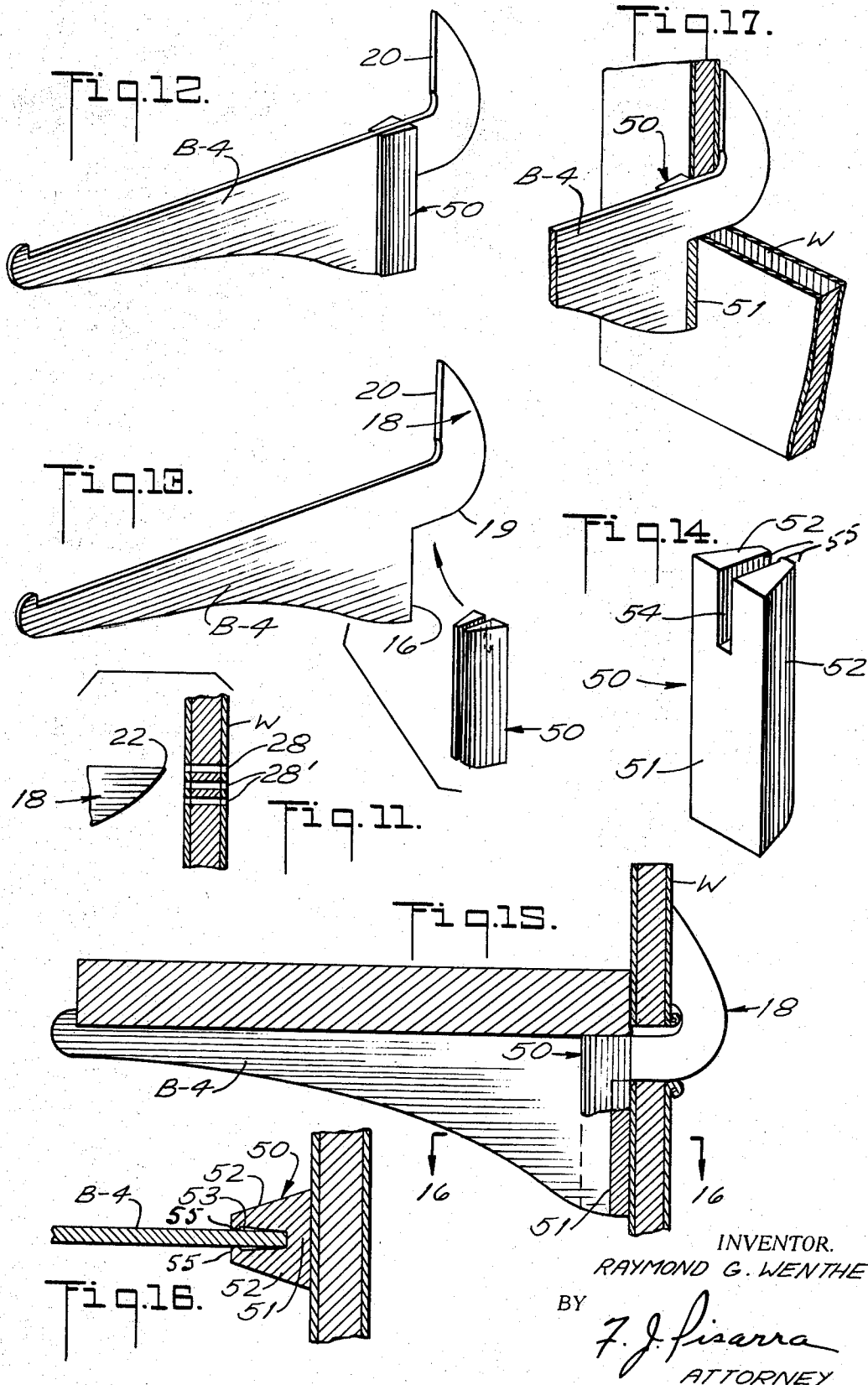
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3,537,671

BRACKET FOR USE WITH WALLBOARD

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Continuation-in-part of application Ser. No. 606,404, Dec. 30, 1966. This application Sept. 25, 1967, Ser. No. 675,737

Int. Cl. A47b 96/06

U.S. Cl. 248—220.5

14 Claims

ABSTRACT OF THE DISCLOSURE

Bracket means for use with wallboard including a planar bracket comprising a body having a forward edge and a hook member projecting upwardly from the body and terminating in a pointed tip. The hook member has a rearward edge which extends above the forward edge, these edges lying in corresponding parallel planes which may be spaced apart a distance equal to or greater than the thickness of the wallboard. The bracket is mounted on the wallboard by inserting a portion of the hook member through and beyond a slot in the wallboard and then disposing the bracket so that the forward edge of the body is positioned along the front surface of the wallboard and the rear edge of the hook member is positioned along the rear surface of the wallboard when said distance between the edges is substantially equally to the thickness of the wallboard. One form of the bracket means includes a clip associated with the bracket to prevent movement of the bracket relative to the wallboard about an axis parallel to its edges. Another form of the bracket means includes a U-shaped shim which engages the bracket body and which is adapted for use therewith when said distance between the edges is greater than the thickness of the wallboard.

This application is a continuation-in-part of my pending application Ser. No. 606,404, filed Dec. 30, 1966, and now abandoned.

This invention relates to the art of supports generally and, more particularly, to a novel and simplified bracket which is adapted to be readily mounted and properly retained on wallboard and the like.

Wallboard has been utilized extensively for many years as the material for interior walls in homes, apartment houses and various commercial establishments. The term "wallboard," as used herein and in the appended claims, has reference to the several materials and compositions commonly employed in fabricating interior walls, including gypsum board, plywood, fiber board and composition board, which are formed in relatively thin sheets, usually 4 feet wide by 8 feet long.

It has long been recognized that wallboard has a major inherent disadvantage in that it has, in the past, been difficult, time-consuming and expensive to effectively mount brackets and the like directly thereto. This is due to the fact that wallboard, because of its composition and/or thinness, is incapable of properly retaining nails and screws which are commonly employed to anchor brackets and similar devices to upright structures. As a consequence, it has usually been necessary heretofore to imbed screw-receiving plugs in the wallboard or to affix brackets to the wallboard by means of toggle bolts. An-

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other alternative has been the use of sheet metal supporting members of channel-shape cross section which are provided with spaced openings to receive bracket parts. Here also, it is necessary to mount the supporting members to the wallboard by means of plug-engaging screws or toggle bolts.

It will be appreciated that known methods of installing brackets to wallboard are tedious and costly in time and materials. Also, errors in determining the location of openings in the wallboard for plugs and toggle bolts frequently result in permanently defacing the wall.

As will be evident to persons trained in the art from the detailed description that follows and from the accompanying drawings, the bracket of this invention eliminates the difficulties experienced in the past and affords a number of worthwhile advantages over conventional brackets for use with wallboard. For one thing, the bracket of this invention is so configured as to readily form an opening of requisite size and shape in certain wallboards, such as gypsum board, for reception and retention of certain parts. Moreover, the bracket of this invention is effectively retained in selected position on the wallboard without the aid of nails, screws, toggle bolts or other conventional attaching means.

The primary object of this invention is to provide a simple and inexpensive bracket which is adapted to be readily mounted on wallboard.

Another object of this invention is to provide a novel and improved bracket which may be advantageously employed with wallboard and which is made from a stamping of a suitable sheet metal, such as aluminum.

This invention has for a further object the provision of a bracket which is adapted to be easily and quickly mounted on wallboard and which is effectively retained in selected position on the wallboard without the aid of attaching means, such as nails, screws, toggle bolts or the like.

A still further object of this invention is to provide a bracket of the character indicated that is simple, attractive and light-weight in design; that is sturdy and durable in construction; that is inexpensive in manufacturing and installation costs; and that is capable of performing its intended functions in a satisfactory and dependable manner.

These objects are accomplished in accordance with a preferred embodiment of this invention by a bracket having a wall-engaging body portion and a hook projecting upwardly from the body portion. The hook has a rectilinear rearward edge that is adapted to bear against the rear surface of a sheet of wallboard and has a curved forward edge that intersects the rectilinear edge to form a pointed end on the hook. The body portion also has a downwardly projecting edge that is substantially parallel to and spaced from the hook rearward edge, and is adapted to engage the front surface of the wallboard. A lateral brace may be applied at the downwardly projecting edge to minimize transverse bending of the bracket. In another embodiment, a retaining clip is inserted over the body portion and engages an upwardly projecting edge that is in opposed relation to the hook rectilinear edge. The retaining clip is positioned against the front surface of the wallboard and urges the hook against the rear surface of the wallboard.

A further embodiment of the invention contemplates equipping the bracket with a U-shaped shim which en-

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gages the body and bears against the front surface of the wallboard. By the use of such a shim having requisite effective thickness, the brackets may be properly and advantageously mounted on a section of wallboard which is thinner than the distance between the downwardly projecting edge of the body portion and the rearward edge of the hook.

The enumerated objects and additional objects together with the advantages of the invention, will be readily understood by persons skilled in the art from the following detailed description and the annexed drawings which respectively describe and illustrate several brackets constructed in accordance with this invention.

In the drawings, wherein like reference characters denote corresponding parts throughout the several views:

FIG. 1 is an isometric view of a bracket according to this invention mounted on a section of wallboard and supporting a shelf;

FIG. 2 is an exploded view of portions of the bracket and wallboard appearing in FIG. 1, certain parts being shown in cross section, and illustrates the relative position of the bracket and wallboard at the start of applying the bracket to the wallboard;

FIG. 3 corresponds to FIG. 2 and shows the relative position of the parts during another stage of applying the bracket to the wallboard;

FIG. 4 is an enlarged vertical cross sectional view taken along line 4—4 of FIG. 1;

FIG. 5 is a fragmentary view taken along line 5—5 of FIG. 4;

FIG. 6 is an isometric view of another bracket according to the invention mounted on a section of wall board, one element of the bracket being shown in raised position relative to other elements for better illustration;

FIG. 7 is a central vertical cross sectional view of FIG. 6 and illustrates the parts in fully assembled condition;

FIG. 8 is an isometric view of an element of the bracket shown in FIGS. 6 and 7;

FIG. 9 is a front elevation view of still another bracket according to this invention mounted on a section of wallboard;

FIG. 10 is a view taken along line 10—10 of FIG. 9;

FIG. 11 is a fragmentary view corresponding to a portion of FIG. 2 and illustrates a section of wallboard having a plurality of openings to facilitate mounting the bracket thereon;

FIG. 12 is an isometric view of a bracket similar to that of FIGS. 1—4 and equipped with a removable shim;

FIG. 13 is an exploded view of the parts shown in FIG. 12;

FIG. 14 is an enlarged isometric view of the shim which is also shown in FIGS. 12 and 13;

FIG. 15 is an enlarged view of the bracket and shim arrangement of FIG. 12 operatively mounted on a section of wallboard, one part of the shim being broken away and another part being shown in cross section for better illustration;

FIG. 16 is a view in enlargement taken along line 16—16 of FIG. 15; and

FIG. 17 is an isometric view of a portion of FIG. 15, parts being shown in cross section for better illustration.

Referring initially to FIGS. 1 through 5 of the drawings, there is illustrated in FIGS. 1 and 4 a bracket B-1 operatively mounted on a section of wallboard W and supporting a wood shelf S.

Wallboard W, for purposes of illustration, comprises a section of gypsum board of uniform thickness, such as $\frac{3}{8}$ inch, and consists of a gypsum core 11 and outer paper layers 12 and 13 that are bonded to the core.

Bracket B-1 preferably consists of a flat stamping of a suitable sheet metal, such as aluminum, and comprises a body 14 having a rectilinear upper edge 15 and a rectilinear forward edge 16 which is normal to edge 15. Projecting upwardly from the body are a rear hook member 17 and a front hook member 18.

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The hook member 18 includes a shank portion 19 and a blade portion 19'. The blade portion 19' extends substantially at right angles to the shank portion 19 and has opposite lateral edges 20 and 21. The blade edge 20 is substantially straight. The blade edge 21 is curved and intersects the straight edge 20 at the sharply pointed end 22. The end 22 is approximately coincident with the straight edge 20, so that in piercing the wallboard W, most of the wallboard material is displaced downwardly by the curved edge 21. Whatever material or splinters remain above the slot formed by the blade portion 19' is received in a recess 23. The recess 23 interconnects the straight blade edge 20 and the straight shank edge 23' and is curved in the same direction as the blade edge 21. Also, body 14 is provided with a slot 24 which extends inwardly from edge 16 and is normal thereto.

The bracket is equipped with a removable planar clip 25 which is preferably made from a stamping of the same sheet metal as the bracket. This clip is formed at its rear end with an inwardly extending slot 26 and at its forward end with a plurality of projections or teeth 27 (FIG. 5). The width of slots 24 and 26 is slightly greater than the thickness of the metal of the bracket and the clip. This permits interlocking engagement of the bracket and the clip with these parts disposed at right angles to each other, as shown in the drawings.

Preliminary to mounting bracket B-1 on wallboard W, it is recommended that a pilot opening 28 (FIG. 2) be formed in the wallboard at the desired location for mounting the bracket on the wallboard. This opening may be readily formed by driving a nail through the wallboard and then withdrawing it. The bracket is then held in the position shown in FIG. 2 relative to the wallboard and moved toward the right until tip 22 is introduced in pilot hole 28. The portion of hook member 18 which is remote from tip 22 is subjected to a series of blows with a hammer or other suitable tool, causing hook member 18 to move toward the right from the position shown in FIG. 2 to that shown in FIG. 3, thereby cutting through the wallboard. Clip 25 is mounted on the bracket and the bracket is then turned in a counter-clockwise direction relative to the wallboard until it assumes the position shown in FIG. 4. In the course of applying the bracket to the wallboard, hook member 18 forms a vertical slot 31 in the wallboard and the inner paper layer is torn and curled forming upper and lower burrs 29 and 30, respectively. Upper burr 29 is accommodated in recess 23. The size of the burr 29 ordinarily will be smaller than the burr 30, since the curved edge 21 tends to displace most of the wallboard material downwardly. Also, the location of the pointed end 22 in alignment with the straight edge 20 assures that the burr 29 will be smaller than the burr 30. This permits edge 20 of hook member 18 to bear against the rear face of the wallboard and edge 16 of the bracket body to bear against the front face of the wallboard, as shown in FIG. 4. Also, teeth 27 of clip 25 pierce paper layer 12 of the wallboard. It will be observed that the arrangement of the clip 25 and the bracket prevents bodily movement of the bracket about an axis parallel to edges 16 and 20.

Shelf S is adapted to be placed on a pair of spaced brackets B-1, as indicated in FIG. 2, and disposed between corresponding hook members 17 and the front face of the wallboard. The shelf may be provided with transverse bottom grooves 32 (FIG. 4) for receiving the upper portions of the bracket body. This prevents movement of the shelf in a longitudinal direction relative to the brackets and also covers a substantial portion of the bracket body to enhance the aesthetic appearance of the mounted shelf.

The procedure in applying bracket B-1 to the wallboard may, depending on the material of the wallboard, be facilitated by first forming a plurality of nail holes, as indicated at 28' in FIG. 11 in the wallboard. These nail holes may include or be in addition to earlier-described pilot hole 28. The nail holes are substantially

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parallel and are spaced vertically, as shown. The pointed tip 22 is inserted into pilot hole 28 and the bracket is applied to the wallboard, as described above. The provision of the nail holes permits hook member 18 to be more readily driven through the wallboard. This affords the further advantage of reducing splintering on the rear side of wall board composed of plywood. Moreover, it eliminates the need for cutting a slot by means of a saw in the plywood.

Reference is next had to FIGS. 6, 7 and 8 which illustrate another form of bracket means, including a bracket B-2, according to this invention. Bracket B-2 is also preferably made of a stamping of a suitable sheet metal and comprises a body 33 corresponding to body 14 and a hook member 34 corresponding to hook member 18. This hook member is provided with a recess 35 corresponding to recess 23. Bracket B-2 is configured to form an upper hook member 36 and a lower hook member 37 for supporting wearing apparel, hangers or other articles, as desired.

Bracket B-2 is provided with a slot 38 which extends downwardly from its upper edge and is formed with a pair of spaced slots (not shown) corresponding to slot 24 of bracket B-1. A pair of clips 40 which are the same as or similar to clip 25 cooperate with the bracket in the region of said slots. A retaining clip 41 is provided with a slot 42 that extends upwardly from its lower edge. The clip is adapted to be placed against the outer face of the wallboard and interlock with bracket B-2, as shown, to prevent undesired movement of the bracket relative to the wallboard when the parts are mounted and assembled, as illustrated in FIG. 7.

Bracket B-2 is applied to the wallboard in the manner described earlier, prior to inserting clip 41 in place.

FIGS. 9 and 10 illustrate a further form of bracket means according to this invention. The bracket means shown in these views includes a bracket B-3 which is also preferably made of a stamping of a suitable sheet metal. This bracket is configured to obtain a body 43, a front hook member 44 and a rear hook member 45. Hook member 44 is preferably the same as earlier described hook member 34.

Bracket B-3 is adapted to be mounted on the wallboard in the manner earlier described and is retained in the position shown in FIG. 10 by a clip 46 which prevents lateral movement of the bracket relative to the wallboard. Clip 46 includes a planar central portion 47 having a slot 48 for effecting locking engagement with the bracket when the parts are in assembled position, as shown in FIG. 10. This clip also includes a pair of wing or hook portions 49 which project forwardly and outwardly from portion 47.

When the bracket means of this invention is to be mounted on certain other types of wallboard, such as plywood, it is recommended that a slot, corresponding to slot 31, be preformed by first making a pilot opening, such as opening 28 (FIG. 2), and then cutting the slot by means of a suitable saw. Experience has demonstrated that even when the slot is formed by sawing through plywood and the like, splinters or irregularities corresponding to burrs 29 and 30 are created. Thus, regardless of the material of the wallboard or whether the hook-receiving slot is formed as described earlier herein or by sawing, it is necessary to accommodate certain of the burrs or splinters in recess 23 of bracket B-1 or recess 35 of the remaining brackets to thereby permit the parts to be properly mounted in place.

Another embodiment of the invention is illustrated in FIGS. 12 through 17 to which reference is now had. In this embodiment, the bracket means consists of a bracket B-4 and a shim 50. Bracket B-4 is the same as earlier described bracket B-1 except that it is devoid of slot 24.

Shim 50 is in the form of a U-shaped member comprising a web 51 and a pair of parallel arms 52 which are normal to the web and are spaced apart, as indicated at

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53 (FIG. 16). The web is provided with a slot 54 which extends downwardly from its upper end, as best shown in FIG. 14.

Shim 50 is mounted on bracket B-4 as illustrated in several views including FIGS. 12, 15, 16 and 17. As indicated, the portion of the bracket having forward edge 16 registers with the space 53 between the shim arms and edge 16 bears against the inner surface of the web. Also, shank portion 19 of hook member 18 registers with slot 54. The parts are maintained in assembled position (FIG. 12) by frictional engagement of shim arms 52 with opposite surfaces of the bracket. The shim is preferably made of a suitable synthetic plastic material but may, if desired, be made of metal or wood.

The shim 50 is held in place on the bracket B-4 by friction while the bracket is being installed on a wall. Therefore, it is desirable for the frictional engagement of the shim to be sufficiently strong to resist displacement during installation of the bracket. This may be provided by forming the shim of an integral piece of resilient flexible material, such as hard rubber or high impact strength polystyrene. Also, a pair of beads 55 may be provided along the edges of the slot 53, as shown in FIG. 16. Instead of being continuous, the beads 55 may be interrupted at certain intervals, if desired. The beads bear against the opposite sides of the bracket B-4, adjacent the edge 16 to flex the arms 52 outwardly, thereby increasing resistance to displacement of the shim 50.

This form of the invention is recommended for use in instances where the distance between forward edge 16 of the body and rearward edge 20 of hook member 18 is greater than the thickness of the wallboard. The effective size or thickness of the shim is represented by the thickness of web 51. This is determined by the depth of slot 53.

The bracket and shim are adapted to be readily mounted on wallboard in a manner similar to that described with reference to bracket B-1. These parts, when mounted, assume the relative position shown in FIGS. 15, 16 and 17. When the parts are in place, the shim affords a number of benefits, namely: permitting a particular size bracket to accommodate different wallboard thicknesses improving the load-carrying capacity of the bracket means by distributing the load in the region of greatest pressure; preventing sidewise movement of the bracket; concealing the hook-receiving slot in the wallboard; and enhancing the overall appearance.

From the foregoing, it is believed that the objects, advantages and construction of the present invention will be readily comprehended by persons skilled in the art, without further description. Although the invention has been herein shown and described in several practicable forms, it is recognized that certain parts or elements thereof are representative of other parts or elements which may be used in substantially the same manner to accomplish substantially the same results. Therefore, it is to be understood that this invention is not to be limited to the exact details described herein, but is to be accorded the full scope and protection of the following claims.

I claim:

1. In bracket means for use with wallboard having front and rear surfaces, a planar bracket comprising a body having a forward edge and a hook member including a shank portion and a blade portion projecting upwardly on one side of the shank portion and terminating in a generally pointed tip, said blade portion having a rearward edge, said body forward edge projecting downwardly on the opposite side of said shank portion, said edges lying in corresponding parallel planes which are spaced apart a distance substantially greater than the thickness of the wallboard, a separable shim between said body forward edge and said wallboard front surface, said shim having a web in engagement with said body forward edge on one side and said wallboard front surface on the rear side of said web, the combined thickness of said shim web and said

wallboard being substantially equal to the distance between said bracket parallel edges, said shim web being elongated and extending throughout substantially the entire length of said forward edge, said shim extending upwardly from said body forward edge and substantially enclosing said shank portion, said shim projecting outwardly and gripping opposite sides of said body for retaining said shim on said body, the bracket thereby being adapted to be mounted on the wallboard by inserting a portion of the hook member through and beyond a slot in the wallboard and disposing the bracket so that said forward edge of the body is positioned along the front surface of the wallboard and said rearward edge of the hook member is positioned along the rear surface of the wallboard.

2. Bracket means according to claim 1 wherein the hook member has an arcuate forward edge which intersects said rearward edge.

3. Bracket means according to claim 1 wherein the hook member is provided with a recess that is defined by a portion of the edge thereof which is a continuation of said rearward edge.

4. Bracket means according to claim 1 wherein the hook member has an arcuate forward edge which intersects said rearward edge and wherein the hook member is provided with a recess that is defined by a portion of the edge thereof which is a continuation of said rearward edge.

5. A bracket of the type having a body portion and a hook portion extending rearwardly from said body portion, said hook portion including a shank connected at one end with said body portion and connected at the opposite end with an elongated blade, said blade extending substantially at right angles to said shank, said blade having opposite lateral edges, one of said edges being substantially straight and the other of said edges being curved, the improving comprising:

said blade edges intersecting at the distal end of said blade, said end being sharply pointed,

said shank having opposite lateral edges, one of said shank edges being spaced from said blade straight edge, said shank edges being substantially perpendicular to said blade straight edge, said body portion having a forward edge extending perpendicular to said shank edges and substantially parallel to said blade straight edge, said blade straight edge being spaced from said body forward edge for receiving a portion of a wallboard therebetween.

shim means, said shim means being elongated and including a web portion and a pair of parallel arm portions extending outwardly from said web portion, said arms and said web portion defining a longitudinal slot in said shim means, said slot having approximately the same width as the thickness of said body portion adjacent said forward edge, said shim means having a transverse slot at one end receiving said shank, the adjacent end of said web portion forming a transverse abutment, the length of said web portion between said abutment and the opposite end of said shim means being substantially equal to the length of said body forward edge, and

whereby the pointed end of the blade may be used to pierce a wallboard and said shim means encloses said body forward edge and bears against the outer surface of the wallboard.

6. The bracket according to claim 5 wherein the pointed end is substantially coincident with said blade straight edge.

7. The bracket according to claim 5 wherein said body portion and said hook portion are integral and substantially flat, and said body portion is arranged in substantially coplanar relation with said hook portion.

8. The bracket according to claim 5 wherein said recessed edge is curved and has substantially the same direction of curvature as said curved blade edge.

9. A bracket of the type having a body portion and a hook portion extending rearwardly from said body portion,

said hook portion including a shank connected at one end with said body portion and connected at the opposite end with an elongated blade, said blade extending substantially at right angles to said shank, said blade having opposite lateral edges, one of said edges being substantially straight and the other of said edges being curved, the improvement comprising:

said blade edges intersecting at the distal end of said blade, said end being sharply pointed,

said shank having opposite lateral edges, one of said shank edges being spaced from said blade straight edge, said shank edges being substantially perpendicular to said blade straight edge, said body portion having a forward edge extending perpendicular to said shank edges and substantially parallel to said blade straight edge, said blade straight edge being spaced from said body forward edge for receiving a portion of a wallboard therebetween,

shim means, said shim means including a web portion and a pair of parallel arms extending outwardly from said web portion, said arms and said web portion defining a slot in said shim means, said slot having approximately the same width as the thickness of said body portion adjacent said forward edge, said shim means also including an elongated body, said slot extending longitudinally of said shim body, said shim body having a transverse slot adjacent one end of said shim body, and said transverse slot being aligned with said longitudinal slot,

whereby said shim means may be frictionally applied over said forward edge with said transverse slot being in position for receiving said shank, and the pointed end of the blade may be used to pierce a wallboard.

10. The bracket according to claim 9 including a pair of beads on said arms, said beads projecting into said longitudinal slot and extending longitudinally thereof.

11. In combination with wallboard having front and rear surfaces, a planar bracket comprising a body having a forward edge and a hook member with a shank portion and a blade portion projecting upwardly from the shank portion and terminating in a generally pointed tip, said blade portion having a rearward edge which extends above said shank portion, said forward edge extending downwardly from said shank portion, said body forward edge and said blade rearward edge lying in corresponding parallel planes which are spaced apart a distance that is greater than the thickness of the wallboard, the bracket being mounted on the wallboard with said rearward edge of the blade portion bearing against the rear surface of the wallboard and said forward edge of the body is spaced forwardly of the front surface of the wallboard, and shim means removably mounted on the bracket between said forward edge and the front surface of the wallboard, said shim means being elongated and having a longitudinal slot and a transverse slot, said body forward edge being received in said longitudinal slot and said shank portion being received in said transverse slot, said transverse slot having substantially the same depth as said shank portion, said shim means extending throughout substantially the entire length of said forward edge, the effective thickness of the shim means being substantially equal to the difference between said distance and the thickness of the wallboard.

12. Bracket means according to claim 11 wherein the shim means comprises a generally U-shaped member having a web and a pair of spaced parallel arms, the portion of the bracket having said forward edge being disposed between the arms.

13. Bracket means according to claim 12 wherein the inner surface of the web bears against said forward edge and the outer surface of the web is adapted to bear against the outer surface of the wallboard.

14. Bracket means according to claim 12 wherein the

U-shaped member is removably secured to the bracket by frictional engagement of its arms with opposite surfaces of the bracket.

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