Aug. 25, 1959 J. A. BUELOW 2,900,750

DEVICE FOR MOUNTING SHEET MATERIAL ON A WALL

Filed May 16, 1956 2 Sheets-Sheet 1

FIG. 1

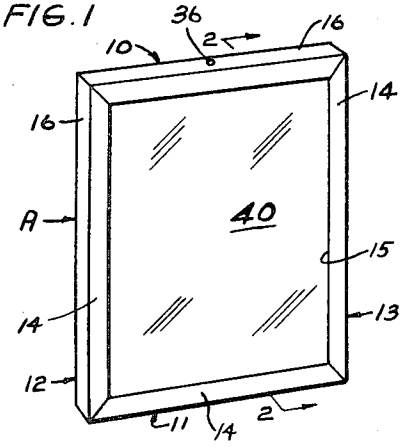


FIG. 2

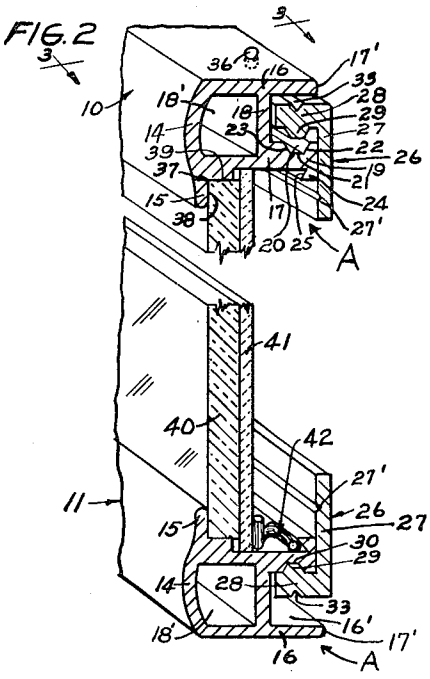


FIG. 3

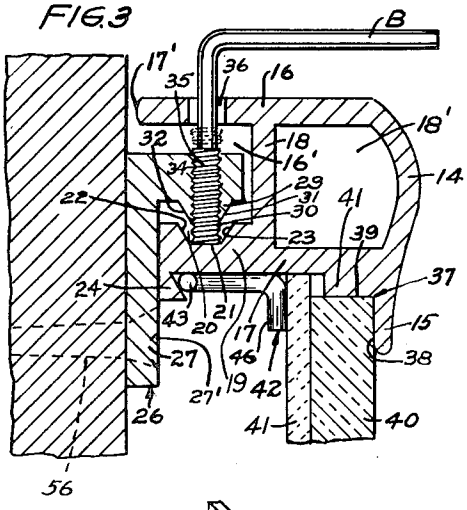


FIG. 4

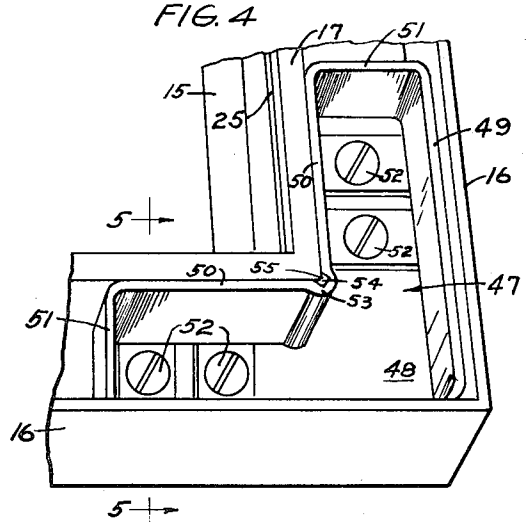


FIG. 10

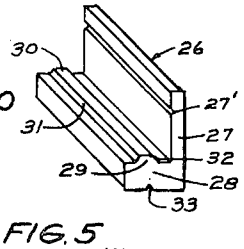
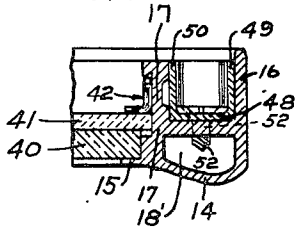


FIG. 5



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FIG. 6

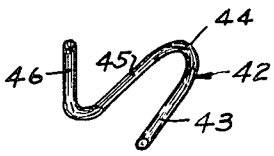


FIG. 8

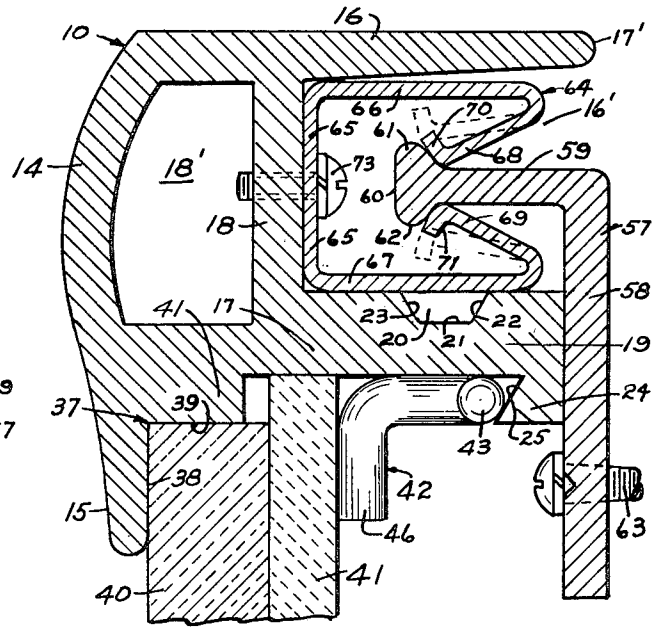


FIG. 7

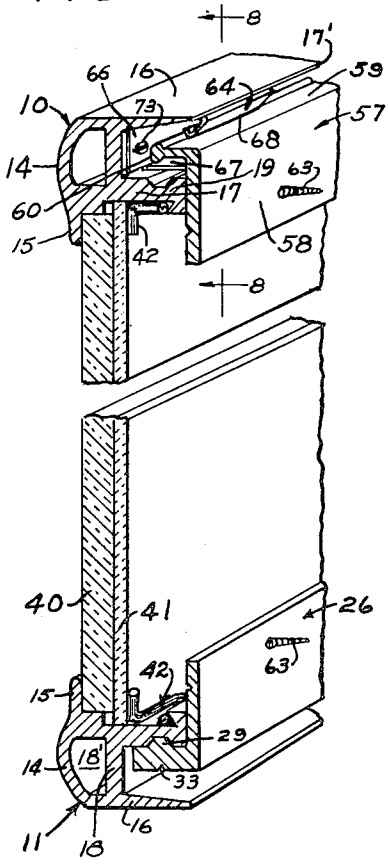
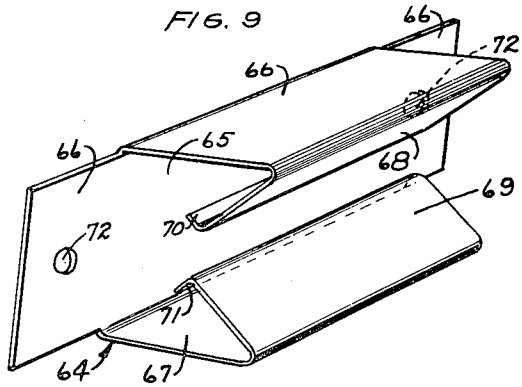


FIG. 9



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DEVICE FOR MOUNTING SHEET MATERIAL ON A WALL

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Application May 16, 1956, Serial No. 585,218

12 Claims. (Cl. 40—152.1)

My invention relates to an improvement in a frame and support unit for sheet material and more particularly to such a device for mounting a mirror or the like on a wall.

It is an object of my invention to provide a support for mounting sheet material on a wall which has a minimum of parts. It is also an object of my invention to provide a device for mounting sheet material flat upon a wall with no visible means of support.

It is a further object of my invention to provide a framing and support for mounting sheets of glass, bulletin boards, etc. flat upon a wall with a minimum of clearance between the same and the wall. It is an additional object to provide a device for mounting sheet material on a wall which may be easily locked in position to prevent undesired removal.

A still further object of my invention is to provide a frame-support for mounting sheet material on a wall which may be removably secured in position by simply pressing the frame portion against the support portion where it is spring engaged.

It is an additional object to provide means for mounting sheet material on a wall made up of only three different pieces, namely, the frame construction, the support brackets, and the corner angle brackets which may be easily cut and assembled for any size sheet material.

It is still a further object to provide means for mounting sheet material on a wall where the load is uniformly carried on the lower wall bracket.

I shall not here attempt to set forth and indicate all of the various objects and advantages incident to my invention, but other objects and advantages will be referred to in or else will become apparent from that which follows.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings, showing by way of example preferred embodiments of the inventive idea.

In the drawings forming part of this application:

Figure 1 is a perspective front view of my device with a mirror in position thereon.

Figure 2 is an enlarged sectional view on the line 2—2 of Figure 1 with a portion thereof broken away.

Figure 3 is an enlarged sectional view on the line 3—3 of Figure 2 including the lock mechanism.

Figure 4 is an enlarged perspective view of the corner bracket in position on the frame, only a portion of the frame being shown.

Figure 5 is a sectional view on the line 5—5 of Figure 4.

Figure 6 is a perspective view of the glass retaining spring clip.

Figure 7 is a sectional view through an alternative form of my device similar to that illustrated in Figure 2 with a portion of the same being broken away.

Figure 8 is an enlarged sectional view on the line 8—8 of Figure 7.

Figure 9 is an enlarged perspective view of the spring clip shown in Figures 7 and 8.

Figure 10 is a perspective view of my wall bracket.

Referring to the drawings in detail, my frame and support A includes the upper and lower frame members 10 and 11 respectively and the side frame members 12 and 13. The frame members 10—13 are identical in cross section and consequently all may be extruded of aluminum from a single die.

The frame member formation includes the arcuated front wall portion 14 formed with the lip portion 15. Extending at substantially right angles to the front wall portion 14 is the outer rail portion 16, and extending at substantially right angles to the front wall portion and inwardly of the outer rail portion is the inner rail portion 17. The numeral 18 designates the web or wall portion which connects the outer rail 16 to the inner rail 17 substantially centrally thereof. The positioning of the wall 18 provides the chamber space 18' which receives the ends of screws secured through the wall 18 hereinafter referred to. The space between the ends of the rails 16 and 17 and defined by the web 18 provides a recess 16' which receives an extended portion of the wall bracket, corner angle members, and clips hereinafter defined.

The inner portion of the inner rail 17 is enlarged as at 19, and formed therein is the elongated channel 20 having the bottom portion 21 and the angularly disposed sides 22 and 23. The channel 20 receives the locking screw hereinafter described. The enlarged portion 19 of the inner rail 17 has formed thereon the depending portion 24 having the angularly cut groove 25. The length of the rail 17 is such that when combined with the thickness of the wall bracket hereinafter mentioned the two elements are of a dimension slightly greater than the extension of the rail 16 whereby the inner edge of the rail 16 as at 17' does not contact the wall but is close to the same.

I further provide the wall bracket member 26 which is the same formation in the upper and lower brackets of the embodiment shown in Figures 2 and 3 and the lower bracket of the embodiment shown in Figure 7. In Figure 2 the lower bracket 26 is identical to the upper but in reversed position. The bracket 26 includes the vertical plate portion 27 which is formed with the right angularly extending extremity 28. Formed on the inner side of the right angle extremity 28 is the elongated rib portion 29 having the flat top portion 30 and the angularly disposed side portions 31 and 32. The numeral 33 designates a V-groove for easy positioning and drilling of a hole 34 which is tapped for receiving the Allen screw 35 which may be extended through the rib 29 and placed in contact with the bottom 21 of the channel 20 as hereinafter set forth. It will be seen that the channel 20 performs a dual function, for in the upper frame 10 it receives the screw member 35 and in the lower frame 11 of the frame member 10 it received the rib 29.

The top outer rail portion 16 has formed therein one or more holes such as 36 through which the hole 34 is drilled and through which the Allen wrench is positioned to tighten or loosen the Allen screw 35. Formed at the juncture of the lip 15 and the inner rail 17 is the right angular recess 37 having the side walls 38 and 39 against which the mirror glass 40 or other sheet material rests when in position. Formed on the inner rail 17 is the raised shoulder portion 41, the top surface of which is the wall 39. The numeral 41 designates a stiff flat backing member positioned against the back of the mirror glass 40.

To maintain the glass 40 in position I provide the spacing clip member 42 which includes the horizontal leg portion 43, the bight 44, the leg-body portion 45 terminating in the upturned or vertical ear portion 46. The leg portion 43 of the clip 42 is placed in the groove 25 with the ear 46 pressing against the backing member 41 which

in turn positions the glass 40 tightly against the wall 38 of the recess 37 which is actually part of the lip 15. The clip 42 allows for variable thickness of backing 41 and also provides a shock mounting due to the spring resiliency of the same.

The frame members 10, 11, 12 and 13 are joined securely, effectively and simply at the corners by means of the channel angle members 47, Figure 4, formed of the right angular flat base portion 48 together with the upstanding outer walls 49, the inner walls 50, and end walls 51. The corner brackets 47 are secured in the four corners of the frame portion by means of the self-tapping screws 52. The bracket fits snugly between the outer rail 16 and the inner rail 17, and the screws 52 extend slightly into the chamber space 18'. The angle formed by the inner walls 50 is reinforced by the lug portion 53 which has formed therein the recess 54 adapted to receive the extreme corner portion 55 formed by the joinder of the inner rails 50 for a close fit of the angle member 47 in the corner formed by the frame members.

The plate portion 27 of the bracket 26 is formed with the V-groove 27' for easy and quick location of the drilling of holes for the mounting screws 56 which secure the brackets 26 on a wall as illustrated in Figure 3. The upper and lower brackets 26 may be formed relatively short in length for a small frame or in extended length sufficient to support a frame of any given length. In addition, a hole 36 and screw 35 may be provided for each upper bracket 26 if more than one section of the same is used.

In mounting the mirror glass 40 of Figures 2 and 3, the same is placed in the recess 37 against the wall 38 of the lip 15. The backing 41 is then positioned on the back of the glass 40, and the clips 42 snapped into position as hereinbefore described. A section of the upper bracket 26 is then secured to the wall, and a lower bracket section 26 is secured to the wall reversed in position to that of the upper bracket. Then the lower frame member 11 is manipulated so that the rib 29 rests in the channel 20 on the bottom 21 thereof to thereby support the glass 40. Following this, the mirror is tilted toward and against the wall so that the inner edge of the rail 17 contacts the upper bracket 26 which positions the rib portion 29 of the extremity 28 over the channel 20. Following this the Allen wrench B is inserted through the hole 36 and into the Allen screw 35, and the screw tightened against the bottom 21 of the channel 20. In this position the frame and glass mirror 40 cannot be removed due to the positioning of the screw 35 in the channel 20. The wrench B is removed, and the mirror 40 and frame cannot be removed without the wrench B.

In Figure 7 I have illustrated a further embodiment of my invention for resiliently and removably holding the upper frame portion 10 of the frame. The lower support bracket 26 and entire frame of Figure 7 is identical with that illustrated in Figures 2 and 3. The upper bracket 57 is composed of the vertical plate portion 58 and formed at right angles thereto is the extended portion 59. Formed on the end of the portion 59 is the bead 60 having the arcuate upper ridge portion 61 and the lower ridge portion 62. The bracket 57 is secured to the wall by means of one or more screws such as 63. The upper frame member 10 of Figures 7 and 8 is identical to that shown in Figure 2.

I further provide the elongated spring clip 64 which is composed of the back portion 65 including the extended ear members 66. Extending parallel from and at substantially right angles to the back portion 65 are the extended upper and lower body members 66 and 67. Formed on the outer edges of the upper and lower members 66 and 67 are the turned in and angularly disposed spring portions 68 and 69 respectively. The spring portions 68 and 69 have formed on the inner ends thereof the turned in end portions 70 and 71 which are shown in sprung position in broken lines in Figure 8.

The ear members 66 have formed therethrough the

holes 72 which receive the self-tapping screws such as 73 which are threadedly engaged in the web or wall 18 to thereby secure the clip 64 in position between the inner rail 17 and the outer rail 16.

In mounting the frame and mirror 40 of Figure 7, the lower frame portion 11 is positioned on the bracket 26 in the same manner as in Figure 2 hereinbefore described. Then the top of the frame as a whole is moved toward the upper bracket 57 and the bead 60 forced between the spring portions 68 and 69 into the position shown in Figures 7 and 8. In this position the mirror 40 and frame assembly cannot be removed from the wall without considerable pressure to disengage the bead 60 from the grip of the spring members 68 and 69.

It will thus be noted that the construction of Figures 2 and 3 requires but one extruding die for the frame, one die for both upper and lower brackets which are identical, and one die for the corner brackets. The only additional die needed for the further embodiment of Figures 7 and 8 is the upper bracket 57 and with such a simple change either embodiment may be offered.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, that which I claim as new and desired to secure by Letters Patent is:

1. In a unit for mounting sheet material on a wall, a rectangular frame, a portion of the upper and lower opposed frame members each having a channel formed therein, upper and lower wall bracket members identical in transverse cross section and each having an extremity formed with an upstanding portion thereon which in the case of said lower bracket, said extremity thereof positioned in said channel of the lower frame member and under the upper portion forming part of said channel to support the load of said frame, and means for locking said extremity of said upper bracket within said channel of said upper frame member.

2. In a unit for mounting sheet material on a wall, a rectangular body formed of upper, lower and side frame members identical in cross section and joined at the outer ends thereof, each frame member including a front wall portion, an outer rail portion and an inner rail portion connected to said front wall portion, a web member connecting said inner and outer rail portions and spaced from said front wall portion thereby forming an enclosed chamber, said inner rail portion having a channel formed therein, an upper and a lower wall bracket member identical in cross section, each bracket including a plate portion, having an extremity extending therefrom, said extremity having a rib formed thereon adapted to be positioned in said channel of said inner rail portion of said lower frame member to support the weight of the unit, adjustable locking means extending through said extremity of said upper bracket for engagement with the bottom of said channel of said inner rail portion of said upper frame member, the outer rail portion of the upper of said frame members having at least one opening formed therethrough for access to said adjustable locking means.

3. In a unit for mounting sheet material on a wall, a rectangular frame formed of upper, lower, and side frame members, the construction of each of said frame members being identical in cross section and including an inner and an outer rail portion, an outer front wall connecting said rail portions, an inner web portion connecting said rail portions and spaced from said front wall, said inner rail having a channel formed therein, upper and lower wall brackets identical in cross section and each having an extremity formed with an upstanding rib portion thereon adapted to be positioned in said channel of said lower frame member in the case of said lower bracket member, and means for connecting said extremity of said upper bracket between said inner and outer rail portions of said upper frame member.

4. In a unit for mounting sheet material on a wall, a

frame including an upper member and an opposed lower member the outer ends of which are connected to opposed side members, said upper and lower frame members having substantially the same cross sectional formation including an outer rail portion and an inner rail portion spaced from said outer rail portion, a front wall portion connecting said rail portions, and a web portion connecting said rail portions and spaced inwardly from said front wall portion, said inner rail portion having a channel formed therein, a lower wall bracket formed with an upstanding portion and an extremity having an upstanding rib thereon adapted to be positioned in said channel of the inner rail portion of said lower frame member to support the weight of the unit and position the same, an upper wall bracket identical in cross section to said lower bracket but mounted in reverse position, a screw member threadedly engaged in said extremity of said upper bracket and adapted to contact the bottom of said channel of said upper frame member to secure said unit in position, and an opening formed in said outer rail of said upper frame member opposite said screw member to allow access to said screw member.

5. In a unit for mounting sheet material on a wall, a substantially rectangular frame member, said frame having a recess formed on the upper and lower members of said frame, a lower bracket having an extremity extending therefrom adapted to extend into said recess of said lower frame member, means for positioning said extremity of said lower bracket in said recess of said lower frame member to support the weight of said unit, an upper bracket having a cross section identical with that of said lower bracket and positioned in reverse position to that of said lower bracket with said extremity thereof extending into said recess of said upper frame member, and means for securing said extremity of said upper bracket within said recess of said upper frame member.

6. The structure of claim 5 wherein said means for securing said upper frame to said extended portion of said upper bracket is composed of a spring clip mounted in said recess of said upper frame member and said extremity of said upper bracket having a rib portion formed thereon engageable by said spring clip.

7. The structure of claim 5 wherein said frame member is formed with a lip portion against which sheet material is positioned, said frame having recess means formed therein, and a spring clip engageable with said recess means and against sheet material positioned in said frame and against said lip to thereby maintain the sheet in the frame.

8. A substantially rectangular frame for mounting sheet material on a wall comprising upper, lower, and connecting side members, said upper and lower members being identical in cross section and including an outer rail portion and an inner rail portion spaced therefrom, a front wall connecting the front edges of said rail portions, a web portion connecting said rail portions and spaced substantially centrally of said rail portions thereby forming an open ended recess in said frame adapted to receive a wall bracket and also a chamber between said web and said front wall adapted to receive the ends of screws inserted through said web portion to conceal the ends of the screws, and means formed in said upper and lower frame members for receiving a projection of wall bracket members.

9. A frame member comprising an outer rail portion, an inner rail portion spaced from said outer rail portion, a front wall portion connected to the outer ends of said rail portions, and a web portion connecting said rail portions spaced from the ends thereof.

10. In a unit for mounting sheet material on a wall, a frame including an upper member and a lower member, the outer ends of which are connected to opposed side members, said upper and lower frames each having a channel formed therein, a lower wall bracket having an extremity formed thereon and adapted to be positioned within said channel of said lower frame member and in contact therewith to carry and position said frame, an upper wall bracket having an extremity formed with a rib portion, a clip connected to said upper frame within the channel thereof adapted to grippingly receive said rib portion of said upper bracket to thereby secure said frame on a supporting member.

11. A panel frame and support including a frame including upper and lower frame members, said frame members being channel shaped in section and including spaced generally parallel flanges connected with a connecting base, the base forming the forward surface of the frame and the flanges forming the inner and outer surfaces of the frame, inwardly directed flanges on the inner flanges of said frame members at a point spaced from the rear of the frame, and a supporting bracket including an angular body having a mounting frame and a right angular supporting frame, said right angular supporting frame being arranged to extend between said flanges of said frame member, the under surface of the inner flange of said lower frame member and the upper surface of the supporting flange of the supporting bracket having cooperable tongue and groove means thereon to hold the lower frame member interlocked with said supporting bracket.

12. The construction described in claim 11 and including means engageable with the upper frame member to hold said surfaces engaged.

References Cited in the file of this patent

UNITED STATES PATENTS

2,075,588 Meyers ---------- Mar. 30, 1937

FOREIGN PATENTS

908,870 France ---------- Oct. 29, 1945