

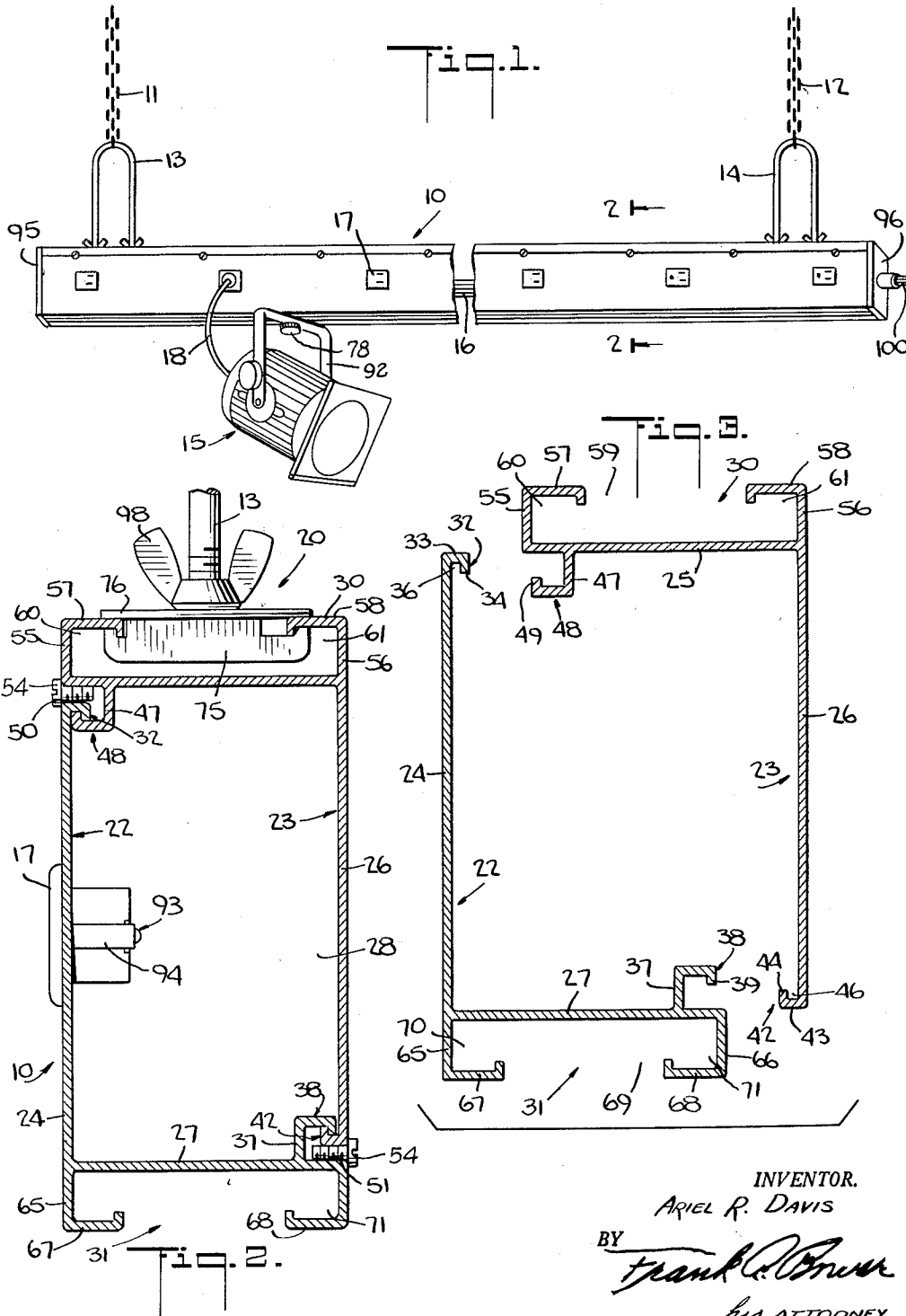
Aug. 28, 1962

A. R. DAVIS
MOUNTING STRIP

3,051,772

Filed Dec. 7, 1960

3 Sheets-Sheet 1



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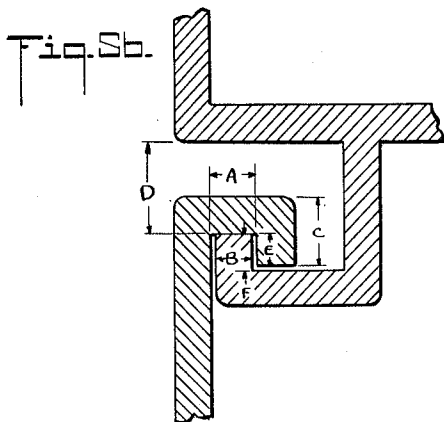
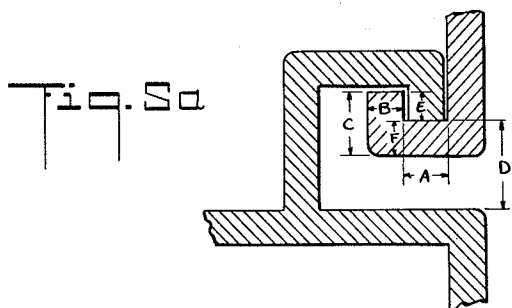
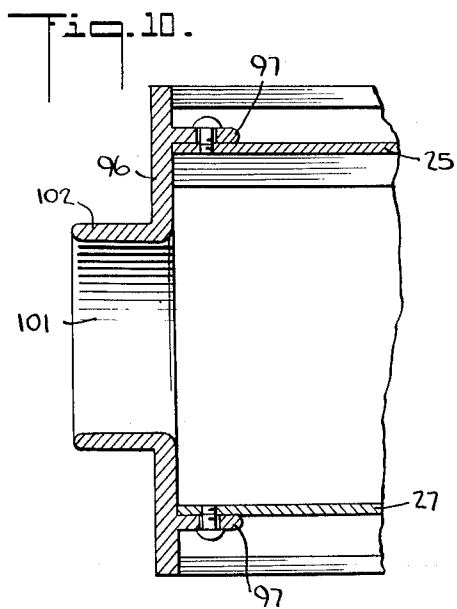
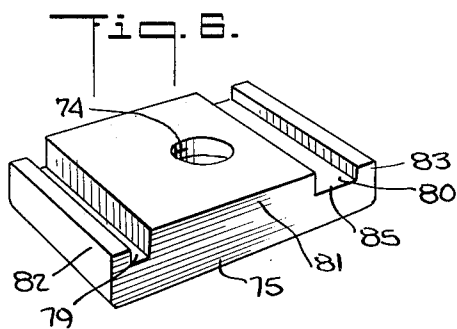
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Fig. 7.

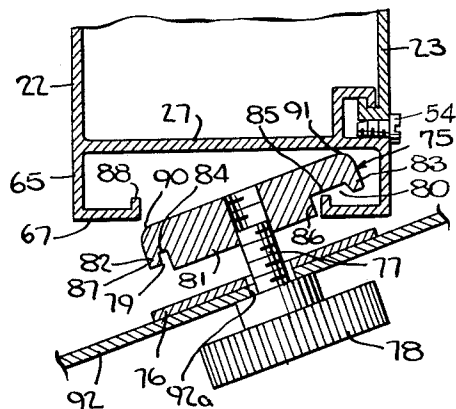


Fig. 8.

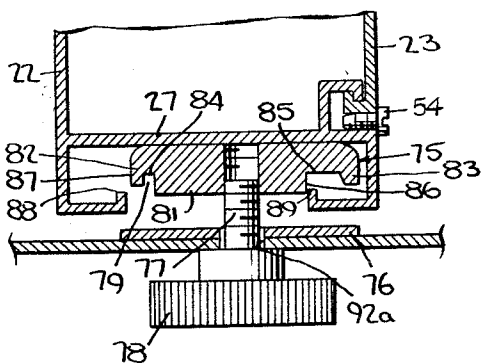
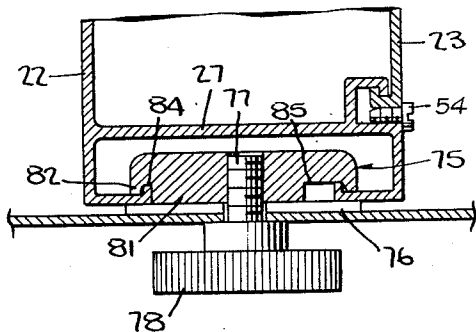
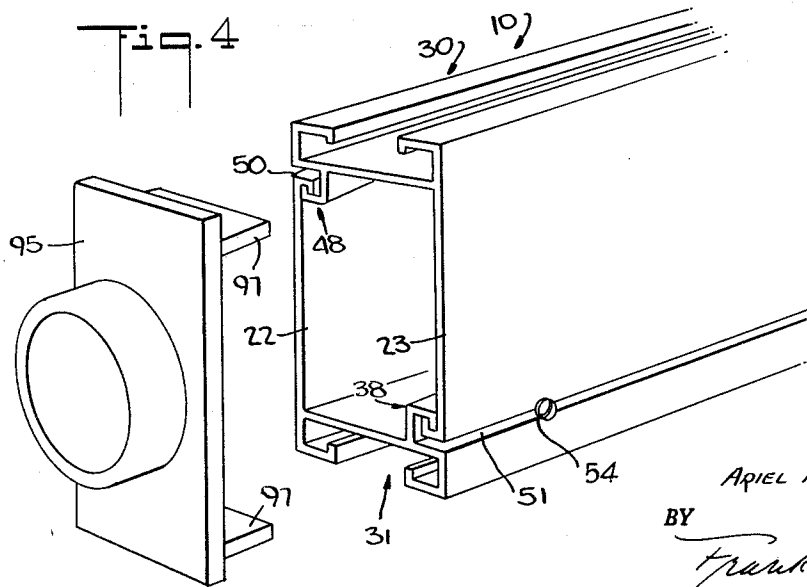


Fig. 9.

Fig. 4.



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3,051,772

MOUNTING STRIP

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4 Claims. (Cl. 174—61)

This invention relates to mounting strips for supporting a plurality of electrical fixtures and for supplying separately controlled current to each fixture.

In lighting of stages or display areas large numbers of lights having different lighting characteristics are often required. The lights are usually clustered in a given space in order to facilitate the handling of the lights and reduce interference with other equipment. The lights are often secured to mounting strips or battens which may be suspended to extend horizontally above a stage or the like. The intensity of illumination of the lights is controlled by dimming apparatus usually located on one side of the stage. The lights are either connected individually or in groups to the dimming apparatus by cables supported by the mounting strips or battens.

An object of the invention is directed to a new mounting strip that is light in weight, rigid and strong and that provides for the easy mounting, removal or adjustment of the lights or other electrical fixtures on the strip.

Another object of the invention is to provide a lightweight, rigid mounting strip having a minimum of parts and being inexpensive to manufacture and easy to assemble.

Another object of the invention is to provide means for easily attaching fixtures and the like to the mounting strip.

Another object of the invention is to require a minimum of threaded members to lock the members of the strip together in the interlocking relationship.

Other and further objects of the invention will be apparent from the following description taken in connection with the drawings in which:

FIG. 1 is a perspective view of the mounting strip supported by chains and having a spotlight mounted on the strip;

FIG. 2 is a sectional view taken along lines 2—2 of FIG. 1;

FIG. 3 is an exploded sectional view of the two members forming the strip;

FIG. 4 is a perspective end view of the strip and one of the end plates in position to fit on the end of the strip;

FIGS. 5a, 5b are enlarged views of the interlocking of the two members;

FIG. 6 is a perspective view of the clamping block;

FIGS. 7-9 illustrate the fastening of the attaching means to the strip; and

FIG. 10 is a sectional view of the end plate and mounting strip.

Referring to the drawings, the mounting strip 10 is primarily intended for supporting spotlights 15 or other types of lamps and for providing electricity to the spotlight by means of cables 16 supported in the strip. The mounting strip is rectangular in cross section. The lamps are supported on opposite sides of the strip and connected to the supply cables 16 through sockets 17 mounted in the other pair of opposite sides extending between the lamp supporting sides. The mounting strip may be supported in a number of different positions depending on the location of the strip in relation to the lighted area.

In FIG. 1 the mounting strip 10 is supported horizontally above a lighted area or stage by any suitable means such as chains 11, 12 and the U-shaped bolts 13, 14. The spotlights may be mounted on the top of the strip or on the bottom of the strip. The strips usually have a substantial length to mount a number of lamps in side by side relation.

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The strip is hollow and passes the cables 16 lengthwise to supply current to the outlets 17 mounted through the side walls of the strip. The lamps have short cords 18 to plug into the nearest outlet. The lamps may be fastened to the strip by a clamping means 20 (FIGS. 2, and 7-9) that is easily fitted in and tightened to the top or bottom of the mounting strip.

The mounting strip comprises two identical members 22, 23 interconnected to form side walls 24, 26 and top and bottom walls 25, 27. The walls form a conduitlike chamber 28 (FIGS. 2 and 3). On the top and bottom of the mounting strip are supporting means 30 and 31 respectively for receiving the clamping means 20 of a respective fixture.

The member 22 forms the side wall 24 and bottom wall 27. These walls are at right angles to one another. The side wall 24 has an L-shaped or hooked portion 32 extending along the opposite edge of the wall from the bottom wall 27. The L-shaped portion 32 is formed by a flange 33 perpendicular to the side wall and a lip 34 spaced therefrom to form a groove 36 with the piece 33. The groove 36 extends longitudinal to the side wall.

The bottom wall 27 has a flange member 37 spaced from the free edge of the bottom wall and extending normal to the bottom wall. A hooked or L-shaped portion 38 extends toward the free edge parallel to the bottom wall and has a lip 39 extending toward the bottom wall.

The member 23 is formed similar to member 22. The opposite side wall 26 is at right angles to the top wall 25. The side wall 26 has a hooked or L-shaped portion 42 extending longitudinally along its free edge. The member 42 is formed by a flange 43 normal to the side wall and a lip 44 extending parallel to the wall and spaced therefrom to form a groove 46. Similarly, the top wall has a flange 47 normal to the top wall and spaced from the free edge of the wall. A hooked or L-shaped portion 48 extends parallel to the top wall and spaced therefrom. The hooked portion has a lip 49 extending toward the top wall. The hooked portion 32 interlocks with the hooked portion 43 and the hooked portion 42 interlocks with the hooked portion 38.

Considering in detail the relationship of these interlocking members, the grooves 36 and 46 have a width A which is slightly greater than the width B of the lips 39 and 49 so that the lips fit snugly between the respective side walls 24, 26 and respective lips 34, 44 of the respective hooked portions 32, 42. The height E of the lips 34, 44 is less than the height F of the lips 39, 49 so that the flanges 33, 43 rest on the edge of the lips 39, 49. The members 22, 23 are fitted together either by an endwise or longitudinal sliding movement or a lateral movement of the lips 34, 44 inserted between the top and bottom walls and the lips 39, 49 and then interlocked. The height C of the lips 34, 44 is slightly less than the space D between the edge of the lips 39, 49 and the bottom and top walls. The lips 39, 49 are spaced laterally inward from the free edge of the top and bottom walls to position the side walls substantially flush with the edges.

When the hooked portions are interfitted the channels 50, 51 are formed between the interlocked members and the top and bottom walls respectively (FIGS. 4, 5a and 5b). Screws 54 are threaded into the top and bottom walls 25, 27 and the flanges 33, 43 to lock the members in the interlocking relation. These screws may be spaced along the mounting strip as indicated in FIG. 1. Thus the walls are firmly held together to form a rigid thin walled rectangular mounting strip forming a conduitlike chamber or passage 28 for the electrical cables 16.

The clamping means 20 comprises block 75, a ring mem-

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bottom walls respectively. The upper supporting means 30 comprises the flanges 55, 56 extending normal to the top wall 25 along opposite edges of the wall. The flange 56 is an extension of the side wall 26. The flanges have rails 57, 58 respectively extending towards one another and spaced by slot 59. The rails 57, 58 form longitudinally extending recesses 60, 61 with the top wall 25.

The lower supporting means 31 is similarly formed with flanges 65, 66 extending normal to the bottom wall 27 along opposite edges of the wall. The flange 65 is an extension of the side wall 24. Rails 67, 68 extend parallel to the bottom wall 27 toward one another and are spaced by slot 69. The rails form longitudinally extending recesses 70, 71 with the bottom wall 27.

The clamping means 20 comprises block 75, a ring member or washer 76 and a bolt 77 with a knurled knob 78. The block 75 is rectangular in shape and has two slots 79, 80 formed by a center portion 81 and edge portions 82, 83. The rails 57, 58, 67 and 68 are preferably identical in size and spacing to permit the insertion of the block in either position.

The edge portions 82, 83 set on the rails with the lips 88, 89 of the rails spaced from bottom surfaces 84, 85 of the grooves. The transmission of any force from the block is through the edge portions 82, 83. The center portion 81 has a greater height than the edge portions to fit in the slots 59, 69. The width of the slot 79 is slightly greater than the thickness of the lips so that the block fits snugly on a respective lip to prevent lateral movement of the block when in place.

The slot 80 is wider than the slot 79 positioning the midpoint of the center 81 to one side of the center of the block. This difference in width provides for an easy insertion of the block into the supporting means when loosely fastened to the fixture as illustrated in FIGS. 7 and 8. The block is inserted into the supporting means by partially threading the bolt into the threaded bore 74 in the block, tilting the block at an angle to the top or bottom wall and inserting the edge having the wide slot 80 into one of the longitudinal recesses and overlapping with one of the rails. The wall 86 of the slot engages the lip 89 on the rail. The distance between the wall 86 and the surface 87 on the edge portion 82 is less than the width of slots 59 and 69. This distance is further reduced by rounding edge 90. The block swings into the position illustrated in FIG. 8. The edge 91 is also rounded to clear either wall 25 or 27. The block is then shifted and dropped in place as illustrated in FIG. 9.

The bolt is tightened and the washer grips the outer surface of the hooked members between the edge portions 82, 83 and the rails. The grooves 79, 80 have a greater depth than the height of the lips 88, 89. The lips prevent lateral movement of the clamping means. The frictional force between the hooked members and the washer 76 and block 75 prevents longitudinal movement. The strap 92 forming the supporting part of a spotlight has a hole 92a through which the bolt 77 extends. The knob 78 frictionally grips the strap against the washer to prevent movement of the strap.

In FIGS. 7-9 the clamping means is fastened to the lower supporting means 31. In FIG. 2 the clamping means is illustrated attaching the bolt 13 to the supporting means 30. The clamping means are the same except the winged nut 93 has replaced the knurled knob 78. Since the mounting strip is suspended from bolts 13 and 14 the transmission of the force is the same as supporting a fixture from the bottom. In supporting a fixture on top of the mounting strip the vertical component is transmitted through the washer 76 to the rails 57, 58. Any twisting movement around the mounting strip will produce a pressure by the washer against one hooked portion and the end portion of the block against the other hooked portion.

The members 22, 23 are made of aluminum extruded

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in long pieces through a die and then cut to the desired length. No further shaping or machine operations are required. The two members are interlocked to form the mounting strip with an inner conduitlike chamber. The walls 24-27 have a sufficient thickness and stiffness to form a rigid member that can carry considerable load.

The ends of the members 22, 23 are open and end plates 95, 96 are provided to close a respective end. The plate 95 has flanges 97 that fit between the rails 57, 58 and 67, 68 and the top and bottom walls 25, 27 respectively. The flanges engage the walls and bolts 99 pass through the flanges to thread in the walls 25, 27. The plate 96 has a hole 101 with a cylindrical extension 102 for passing the cables 16.

The sockets or outlets 17 are mounted in rectangular shaped holes punched at spaced locations along the sides 24 and 26. The cables 16 are connected to the sockets 17 and a terminal panel may be provided in the mounting strip at the end with the end plate 96. The feed cables 100 are connected to a respective cable 16 for connecting each socket to a separate dimming circuit. Thus each lamp may be separately controlled.

It is thus seen from the foregoing description that a new mounting strip has been provided that may be inexpensively made and each strip formed to a desired length. The strip is formed by two identical strips that are extruded from the same die and assembled into a mounting strip by a single manipulative step and held in the interlocked relationship by a few spaced screws. The lamps may be mounted at any place along the strip and locked in place by a clamping means which may be tightened and loosened by hand. The clamping means may be inserted and secured in place with a few simple movements and while loosely attached to the bracket with the lamp. The numerous sockets mounted in the walls provide for an easy connection of the lamp to a dimming circuit.

The improvements described above are set forth in the appended claims.

I claim:

1. A mounting strip for electrical fixtures and the like comprising a first member having a first side wall and a bottom wall at right angles to the side wall, said first side wall having a hook portion extending longitudinally along the free edge opposite to said bottom wall and forming a groove with said first side wall, said bottom wall having a flange and a hooked member at right angles to the flange and extending toward the free edge of the bottom wall and spaced from the bottom wall, a second member having a second side wall and a top wall at right angles to the second side wall, said second side wall having a second hook portion extending along the free edge of the second side wall opposite to said top wall and forming a second groove with said second side wall, said top wall having a second flange and a hook member at right angles to the second flange and extending toward the free edge of the top wall and spaced from the top wall, said first side hook portion and said top hook member interlocking and said second side hook portion and said bottom hook member interlocking to form a longitudinally extending groove between said top wall and said first side hook portion and a second longitudinally extending groove between said bottom wall and said second hook portion, screws fitted in said grooves at spaced intervals to retain said side first and second members as a unitary mounting strip.

2. A mounting strip comprising two identical members each having a first wall and a second wall at right angles to said first wall, each of said first walls having a hook means, each of said second walls having a flange and a hook portion extending toward a respective first wall and forming grooves with a respective second wall, said hook means fitting in a respective groove and interlocking with a respective hook portion and spaced from a respective second wall, and ridged fastening means

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fitting in said grooves for holding said walls in unitary locking relation.

3. A mounting strip for electrical fixtures and the like comprising two identical supporting members having walls, means for interlocking the members as a unitary mounting strip with said walls in an opposing relation, attaching means on opposite sides of said members and between said opposing walls, each of said attaching means having hook portions extending laterally to said opposing walls and spaced from one another to form a slot, said hook portions each having a flange extending parallel to said slot and defining said slot, clamping means for gripping said hook portions, said clamping means comprising a block, a threaded member and a washer, said block having a narrow groove adjacent one edge and a wider groove adjacent to said other edge and parallel to said narrow groove to permit the initial insertion of the portion of the block with the wide groove into the slot and within a flange of a hook portion and the pivoting of the block through the slot for the fitting of the flange of the other hook portion into the narrow groove, said block setting against said hook portions with said threaded member extending therefrom and said washer held in firm engagement against the opposite side of said hook portions by said threaded member for securely fastening electrical fixtures to the mounting strip.

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4. A mounting means for electrical fixtures and the like comprising two sets of opposing walls with one set extending laterally to the other to define a passage for passing cables and the like, one of said sets of opposing walls having attaching means comprising supporting means and clamping means fastened to said supporting means, said clamping means formed by a thin block having a narrow groove and a wide groove parallel to one another adjacent opposite edges, a washer and a threaded member fastening said washer and block to said supporting means, said supporting means being spaced from a wall and having a slot therein defined by flanges extending towards the adjacent wall and terminating a distance greater than the thickness of said block, said wide groove permitting the insertion of said block and nesting of said flanges in said grooves by movements lateral to said flanges and said slot, said washer and threaded member securely fastening said clamping means to said supporting means for mounting electrical fixtures on said strip.

References Cited in the file of this patent

UNITED STATES PATENTS

1,072,173	Schlaflly	Sept. 2, 1913
2,913,513	Dyer	Nov. 17, 1959

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,051,772

August 28, 1962

Ariel R. Davis

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 2, line 72, strike out "The clamping means 20 comprises block 75, a ring ~~mem~~-" and insert instead -- The supporting means 30, 31 extend from the top and --.

Signed and sealed this 16th day of February 1965.

(SEAL)

Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents

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