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[56]

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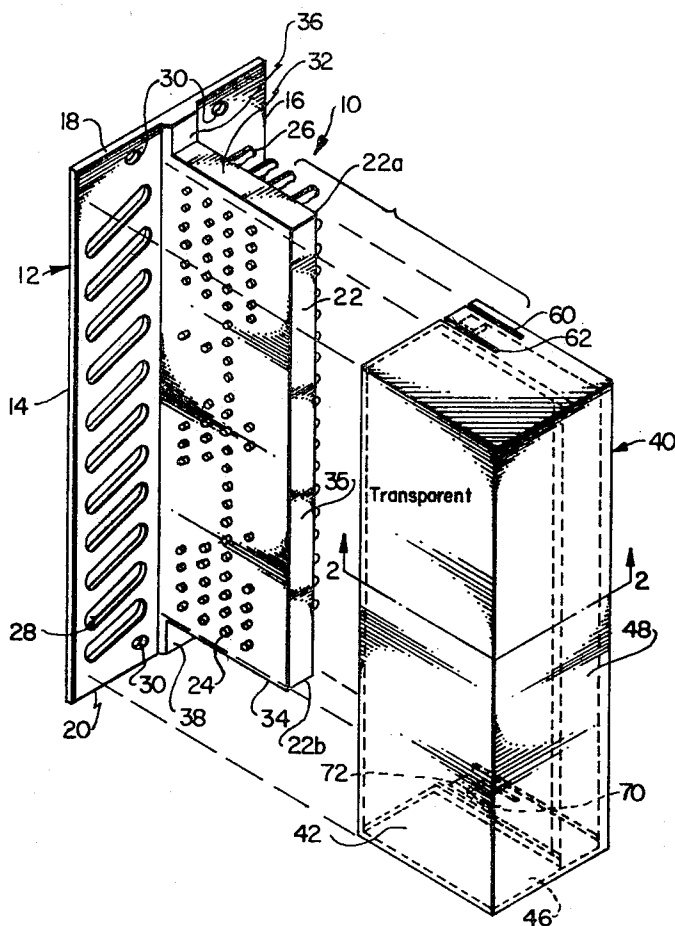
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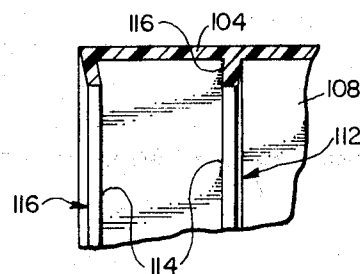
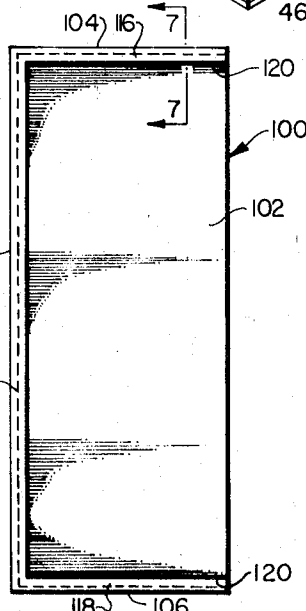
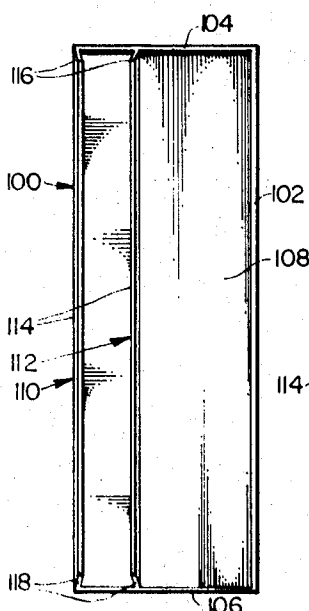
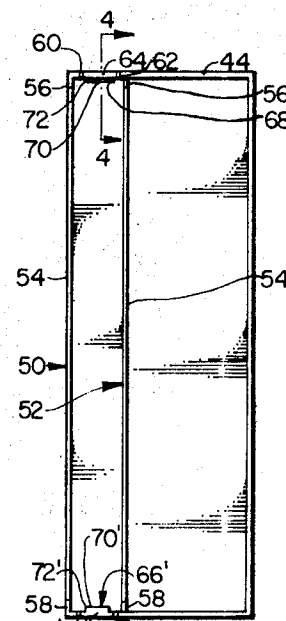
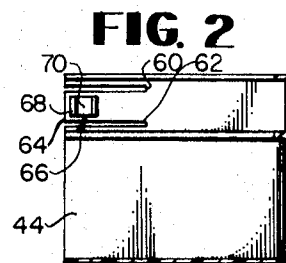
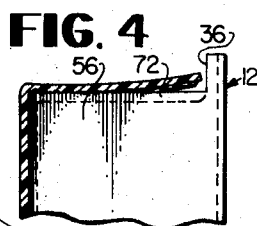
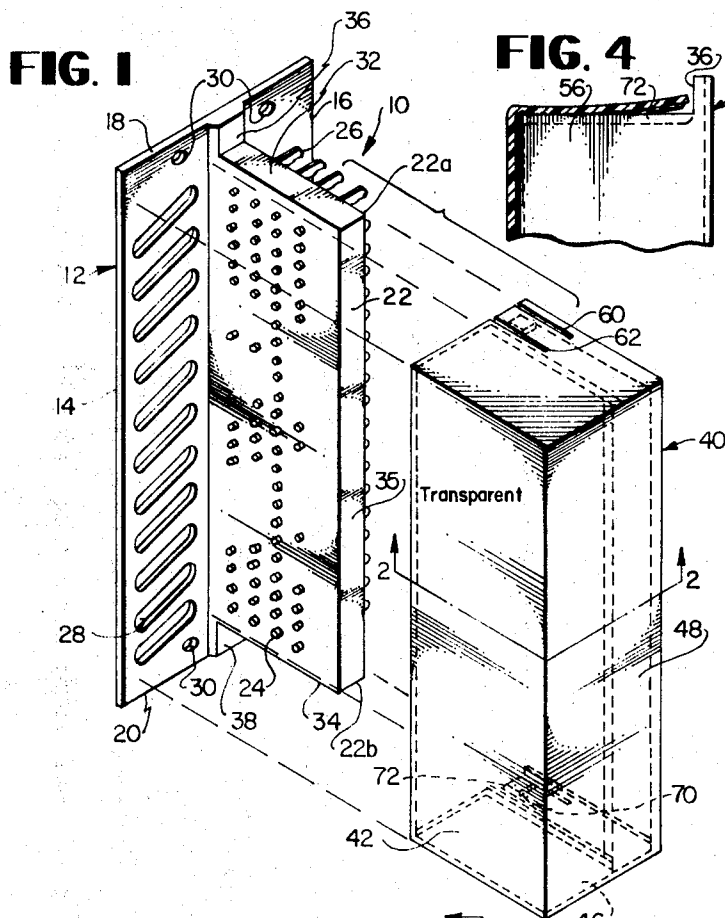
[54] COVER MEANS FOR A TELEPHONE TERMINAL BLOCK

8 Claims, 7 Drawing Figs.

[52] U.S. Cl. 174/138,
339/36, 339/198
[51] Int. Cl. H01r 9/02
[50] Field of Search..... 174/59, 60,
66, 138.4; 339/36, 198.2, 116; 317/118

ABSTRACT: An enclosure formed of a transparent material for removable mounting on a conventional telephone terminal block and completely shielding the terminals at one side of the terminal mounting plate in spaced relationship relative thereto to protect the terminals against inadvertent physical or mechanical contact.





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COVER MEANS FOR A TELEPHONE TERMINAL BLOCK

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the general field of electrical terminal blocks having a plate-mounting terminals on opposed sides thereof which are adapted for electrical connection with electrical input and output conductors, and cover or shield means for slidable connection on the block cooperating therewith to enclose the terminals at one side thereof.

2. Description of the Prior Art

Cover or shielding means for electrical terminal blocks is not, per se, new in the art. However, such covers as are known in the prior art generally suffer a number of disadvantages among which may be listed the requirement that conventional or special tools be employed in releasably connecting the cover on its respective terminal mounting block. Again, while the known related covers or shields are rampant in the art, none of these, it appears, has been formed of a transparent material to enable a mechanic to make visual inspection of the telephone cable conductor or wire connections to the terminals at one side of the terminal-mounting plate. Further, it appears from the prior art that covers for telephone terminal blocks are so constructed as to make difficult the soldering of the wire conductors of a conventional telephone cable to the terminals at this one side of the terminal-mounting plate. Such disadvantages are to be found, for example, in the disclosures of the U.S. Pats. Nos. 1,150,926, 2,021,594, and 3,140,425.

SUMMARY OF THE INVENTION

As has been stated above, this invention relates to a cover or shield to be releasably mounted on the mounting plate of a conventional telephone terminal block in such a manner as to completely encase, in spaced relationship, the terminals projecting from one side of the terminal block-mounting plate. It is among the more important objects of this invention to provide such a cover or shield and to effect the mounting thereof on the terminal plate without the use of fastening devices such as conventional screws and nuts, and to thereby render it unnecessary for a mechanic to utilize any conventional or special tool in effecting the mounting or the removal of the cover from the terminal-mounting plate. Without attempting to equate the importance of the various objects of this invention with respect to one another, it should be noted that it is another prime object of the invention to provide a cover for a telephone terminal plate which is transparent and thereby to provide an inspecting mechanic with means for readily ascertaining the condition of the terminals and their wire connections at one side of the terminal-mounting plate. Still another object resides in the provision of cover plate of the type generally described, supra, which will effectively prevent inadvertent or accidental physical contact with the terminals at the one side of a terminal-mounting plate, and wherein the cover also serves to prevent wire clippings and other foreign substances from shorting one or more terminals at the aforementioned one side of the terminal-mounting plate.

Other and further objects and advantages of the present invention will become more evident from a consideration of the following specification when read in conjunction with the annexed drawing.

IN THE DRAWING

FIG. 1 is an exploded perspective view of a conventional telephone terminal block and of a protective cover therefor, the latter being constructed in accordance with one of the preferred embodiments of this invention, the cover being illustrated as separated from its associated mounting plate;

FIG. 2 is an enlarged detail cross-sectional view of the protective cover, FIG. 2 being taken substantially on the horizontal plane of line 2-2 of FIG. 1, looking in the direction of the arrows;

FIG. 3 is an end elevational view at the open end of the protective cover shown in FIG. 1;

FIG. 4 is a fragmentary detail cross-sectional view showing the protective cover of FIG. 1 in its operative mounted relationship relative to the terminal plate, FIG. 4 being taken substantially on the vertical plane of line 4-4 of FIG. 3, looking in the direction of the arrows;

FIG. 5 is an end elevational view of a second preferred embodiment of this invention, FIG. 5 being taken at the open end thereof;

FIG. 6 is a side elevational view of the cover according to FIG. 5; and

FIG. 7 is an enlarged fragmentary detail cross-sectional view, FIG. 7 being taken substantially on the vertical plane of line 7-7 of FIG. 6, looking in the direction of the arrows.

15 PREFERRED FIRST EMBODIMENT OF THE INVENTION

Referring now more specifically to FIGS. 1 to 4, inclusive, reference numeral 10 designates, in general, a conventional terminal block as is commonly found in the central office of a telephone company. Basically, the block 10 comprises a normally upright elongated base plate 12 having a substantially rectangular configuration and including the longitudinally extending side edges 14, 16, and the opposed pair of transversely extending top and bottom end edges 18, 20, respectively. A telephone terminal-mounting plate 22 is preferably integrally formed with the base plate 12 and projects laterally thereof substantially centrally of the opposed side edges 14, 16. The base plate 12 and the mounting plate 22 are formed of a suitable conventional dielectric or electrically insulating material, and projecting laterally from the front side of the mounting plate 22 are a plurality of spaced terminals 24 to each of which is connected (as by soldering) one end, respectively, of a plurality of electrical conductors normally assembled as a conventional telephone cable (not shown). Each of the terminals 24 electrically connects through the mounting plate 22 with, respectively, a corresponding terminal 26 at the rear or backside of the mounting plate, the terminals 26 normally affording means for the releasable connection with jumper wires leading to the telephones of the customers subscribing to the telephone service. The configuration of the terminals 24 and 26 is many and varied, all in accordance with the prior art, and may here be considered as being of conventional form.

The base plate 12 adjacent the edge 14 is formed with a plurality of transversely extending conductor fanning slots 28 which receive therethrough the cable connectors or wires (not shown) which are soldered or otherwise fixedly connected on the terminals 24.

The base plate 12 is also formed with a plurality of transversely extending openings 30 which receive fastening means (not shown) therethrough to releasably mount the terminal block 10 on any suitable support. It will also be observed in FIG. 1 that the upper and lower ends 32, 34, respectively, of the mounting plate 22 are positioned adjacent to but spaced inwardly from the adjacent upper and lower end edges 18, 20, respectively, of the base plate 12 in order to provide upper and lower abutment shoulders 36, 38, respectively.

This completes a brief description of a conventional terminal block and which has been offered only to provide a frame of reference for an understanding of the present invention, the latter being specifically set forth below.

Reference numeral 40 indicates, in general, a terminal block cover constructed in accordance with the teachings of this invention. The cover 40 is preferably formed of any desirable dielectric or electrically insulating material, and it has been found advantageous to construct the cover 40 of a transparent plastic material, although the matter of transparency is optional to the user. In making the cover of a transparent material, an advantage is gained in that the condition of the front side of the mounting plate 22 is readily observable without necessitating removal of the cover 40 to carry out an inspection.

As is seen in FIGS. 1 to 4, inclusive, the cover member 40 comprises an elongated substantially rectangular sidewall 42

which is integrally connected at its opposed ends with a pair of top and bottom walls 44, 46, respectively, which project laterally from a side thereof and substantially perpendicular with respect thereto. Extending between the top and bottom walls 44, 46 and integrally connected therewith and with a longitudinally extending edge of the sidewall 42 is an end wall 48. That side of the cover 40 oppositely disposed with respect to the sidewall 42 is open, and that end of the cover member 40 oppositely disposed with respect to the end wall 48 is also open.

Reference numerals 50, 52 each denote, in general, guide rails disposed in laterally spaced and substantially parallel relationship relative to one another. The guide rail 50 (see FIG. 3) is positioned adjacent the open side of the cover member 40 while the guide rail 52 is disposed in inwardly spaced relationship relative to the guide rail 50. The guide rails 50, 52 are of identical construction, and each includes an elongated substantially rectangular bight 54 integrally formed with the end wall 48 to project laterally therefrom in substantially parallel relationship relative to the sidewall 42, and each of the bights 54 terminates, at its upper end, in a laterally projecting arm 56 integrally formed with the top wall 44 to depend therefrom in laterally spaced substantially parallel relationship. In a similar manner, the lower ends of each of the bights 54 terminate in a laterally projecting arm 58, with the arms 58, 58 being disposed in laterally spaced and substantially parallel relationship relative to one another, and which project upwardly from the bottom wall 46.

The top wall 44, reference being made to FIGS. 1, 2 and 3, is provided with a pair of elongated transversely extending slots 60, 62 which open from the open end of the terminal block cover or member 40 and extend in the direction of the end wall 48 but terminate in inwardly spaced relationship relative thereto. As is seen in the last named FIGS. the slots 60, 62 are disposed between the arms 56, 56 and extend in substantially parallel relationship relative thereto. The slots 60, 62 define therebetween an elongated substantially rectangular tongue 64 having a free end adjacent the open side of the terminal block cover or member 40. Depending from the tongue 64 adjacent its free end is a tab 66 having a truncated pyramidal configuration and which includes, as components thereof, an outer sidewall 68 which is inclined inwardly and downwardly from the free end of the tongue 64 and in the direction of the end wall 48. The tab 66 also includes among its sidewalls, the top wall 70 which is disposed substantially in the plane of the frustum of the tab. As is seen in FIGS. 1 and 4, the outer sidewall 68 and the top wall 70 intersect to provide a friction member, edge or means 72 which extends transversely of the tongue 64.

The tongue 64 and its tab 66, and the construction thereof, find exact and identical confronting counterparts at the bottom wall 46 of the cover 40, and the corresponding elements are here identified by the same reference numerals but to which have been added prime marks to effect a differentiation therebetween. In this instance, however, the tab 66' extends upwardly from its tongue 64'.

To utilize the terminal block cover or member 40, the open end thereof is disposed in confronting relationship relative to the edge 35 of the mounting plate 22, and the cover or member 40 is then moved to the left as viewed in FIG. 1 of the drawings. The top and bottom walls 44, 46 extending between the arms 56, 56 and 58, 58 together with the free ends of the tongues 64, 64' will now slide over the upper and lower ends 32, 34 of the mounting plate 22, until the corner edges 22A, 22B of the mounting plate 22 strike the inclined walls 68, 68' of the tabs 66, 66', respectively. It will be understood, of course, that as this relative sliding movement between the cover 40 and the mounting plate 22 takes place, the arms 56, 56 and 58, 58 will slidably and snugly receive the opposed sides of the mounting plate 22 therebetween at the marginal edge portions thereof adjacent its upper and lower ends 32, 34, respectively.

As the movement of the cover 40 in the direction of the base plate 12 nears completion, the marginal edges of the mounting plate 22 adjacent its end edge 35 will be snugly received and will be securely held between the bights 54, 54. It is thus seen that the terminal block cover or member 40 is stably but releasably mounted on the mounting plate 22, and that the frictional engagement of the drag means 72, 72' with the upper and lower ends 32, 34 of the mounting plate 22 serves to prevent inadvertent or accidental movement of the terminal block cover or member 40 relative to its mounting plate 22. However, a mechanic may easily move the terminal block cover or member 40 in a direction away from the base plate 12 through the exertion of but a modest force for, as has been stated above, the edges 72, 72' coast with the adjacent upper and lower ends 32, 34, respectively, to act as but friction drags and not locks.

It will be understood that the material from which the terminal block cover or member 40 is formed will have sufficient flexibility and resiliency so as to permit the flexing of the tongues 64, 64' from their normally inoperative positions of FIGS. 1 and 3, wherein the same are shown as being substantially coplanar with the top and bottom walls 44, 46, respectively, to their outwardly flexed and operative positions of which one is illustrated in FIG. 4.

From the foregoing description of the cover 40 constructed in accordance with a first preferred embodiment of this invention, it is seen that the cover 40, taken together with the base plate 12 and the mounting plate 22, cooperate in such a manner as to completely enclose the terminals 24 in spaced relationship relative thereto.

SECOND PREFERRED EMBODIMENT OF THE INVENTION

FIGS. 5 to 7, inclusive, illustrate a second embodiment of this invention wherein the terminal block cover or member bears the general reference numeral 100. This embodiment of the invention is adapted for use with the same type of terminal block as is illustrated in FIG. 1 and which carries the general reference numeral 10. The terminal block cover or member 100 is constructed similarly to the cover described above and includes a normally vertically elongated and substantially rectangular sidewall 102 from the opposed ends of which laterally project top and bottom walls 104, 106, respectively. The top and bottom walls are, preferably, integrally connected with the sidewall 102 and extend therefrom in confronting parallelism with respect to one another. Extending between the top and bottom walls 104, 106 is an elongated substantially rectangular end wall 108 which is also, preferably, integrally connected with the sidewall 102.

Reference numerals 110, 112 designate, respectively, a pair of identically constructed substantially C-shaped rails. Each of the rails includes a normally upright bight 114, and from the opposed ends thereof laterally project a pair of upper arms 116 which depend from the top wall 104, and a pair of lower arms 118 which project upwardly from the bottom wall 106. As is seen in FIGS. 5 to 7, inclusive, the bights 114, 114, the arms 116, 116 and 118, 118 are substantially flat and rectangular, and each of the last named pairs of bights and arms, respectively, are so formed as to converge towards one another inwardly of the terminal block cover or member 100. As is more clearly shown in FIG. 6, it is preferable that the outer ends of each pair of arms 116, 116 and 118, 118 be rounded or beveled as is indicated by reference numeral 120. As in the previous embodiment of this invention, that end of the terminal block cover or member 100 opposite the end wall is open.

The terminal block cover or member 100 is mounted on the terminal block 10 in the same manner as described above. That is, the open end of the terminal block cover or member 100 is placed in juxtaposition relative to the outer edge 35 of mounting plate 22, and the terminal block cover or member 100 is then moved towards the base plate 12. That portion of

the top and bottom walls 104, 106 extending between the rails 110, 112 will engage over the upper and lower edges 32, 34 of the mounting plate 22 with the arms 116, 116 and 118, 118 engaging on opposite sides thereof. As the terminal block cover or member 100 is eased over the mounting plate 22, the arms 116, 116 and 118, 118 will flex outwardly in directions away from one another.

It should here be noted that the angle of inclination of the arms 116, 118 and of the bight 114 relative to their connected walls is somewhat greater than the angularity of the corresponding arms and bight of the rail 110. Thus, the arms 116, 118 and the bight 114 of the C-shaped rail 112 will tend to move substantially perpendicular to their respective connected walls to fit substantially flush against the adjacent portions of the mounting plate 22, and the corresponding arms 116, 118 and bight 114 of the C-shaped rail 110 will exert a force on the opposite front side of the mounting plate 22 to clamp the mounting plate 22 tightly against the C-shaped rail 112.

As in the preceding embodiment of this invention, the movement of the terminal block cover or member 100 is continued to the left, as viewed in FIG. 1, until those portions of the mounting plate 22 adjacent the edge 35 are snugly received between the bights 114, 114, and the outer ends of the top and bottom walls 104, 106 abut against the abutments or stops 36, 38.

The clamping engagement of the C-shaped rails 110, 112 against the opposed sides of the mounting plate 22 provides for the releasable connection of the cover 100 thereon in a stable manner and, as before, the cover 100 cooperates with the base plate 12 and the terminal mounting plate 22 to substantially completely enclose the terminals 24.

From the foregoing description of the two embodiments of this invention, it is now manifest that there has been provided a cover for a telephone terminal block, the cover being constructed in such a manner as to prevent workmen from accidental personal injury should they inadvertently move into bodily contact with the terminals 24 at the front side of the block 22. Since terminals 24 are easily bent and may be shorted by physical or mechanical contact (tools, falling wire, et cetera), the covers 40 and 100 serve to prevent such misadventures.

It should be further noted that each of the covers 40 and 100, respectively, has been so devised as to leave the backside of the mounting plate 22 open to facilitate the electricians' work in effecting connection of jumper wires on the terminals 26.

While specific reference has been made to the rounding or beveling of the outer ends of each pair of arms 116, 116 and 118, 118, it will be understood that all exposed edges and ends of the component elements of the two embodiments described above and the corners of the covers are preferably smoothed and rounded to prevent injury from physical contact therewith and to provide a tangential line or point of contact by falling objects such as, for example, tools employed by a mechanic, to avoid a shattering rather than a glancing contact therebetween.

Having described and illustrated in detail two preferred embodiments of this invention, the same are defined in the appended claims.

I claim:

1. An article of manufacture comprising a cover for a telephone terminal block having a base plate, and a normally upright terminal-mounting plate supporting terminals extending laterally from the opposed sides of said mounting plate, said mounting plate having oppositely disposed top and bottom ends and a free edge extending therebetween, said cover being made of electrical insulating material and being slidably

mounted on said terminal-mounting plate in a first operative position and being removable therefrom to a second inoperative position, said cover comprising:

a normally upright sidewall;
a top wall fixedly connected to and projecting laterally from one end of said sidewall, and a bottom wall fixedly connected to and projecting laterally from an opposed end of said sidewall and in confronting, spaced relationship relative to said top wall;

a first pair of arms depending from said top wall in laterally spaced and parallel relationship to one another;
a second pair of arms projecting upwardly from said bottom wall in laterally spaced and parallel relationship;

said first and second pairs of arms being in spaced parallel and confronting relationship and being adapted to slidably receive marginal portions of said top and bottom ends, respectively, of said terminal-mounting plate between each one of said pairs of arms; and

an end wall extending between and fixedly secured to said top and bottom walls and fixedly secured to the adjacent marginal edge of said sidewall to project laterally therefrom in the same direction as said top and bottom walls, and laterally spaced and substantially parallel means on said end wall slidably receiving said free edge of said terminal-mounting plate therebetween;

said sidewall being supported in spaced relation relative to said terminals at one side of said mounting plate when said mounting plate is in position between said first and second pairs of arms.

2. An article of manufacture as defined in claim 1 wherein: said first and second pairs of arms and said receiving means on said end wall cooperate to form C-shaped guide rails and stabilizing means with said receiving means forming the bights thereof.

3. An article of manufacture as defined in claim 2 wherein: said cover is formed of a flexible resilient material.

4. An article of manufacture as defined in claim 3 wherein: said top and bottom walls between their respective pair of said arms are formed with transversely extending slots therebetween to form a tongue having a free end; and a friction tab on each of said tongues for engaging, respectively, the adjacent upper and lower ends of said terminal-mounting plate.

5. An article of manufacture as defined in claim 4 wherein each of said tabs is frusto-pyramidal in configuration providing an inclined sidewall adjacent the free end of its associated tongue to facilitate the mounting of said cover on said terminal-mounting plate and to provide a friction edge acting as a drag on the immediately adjacent one of said top and bottom ends.

6. An article of manufacture as defined in claim 5 wherein: said cover is formed of a transparent material.

7. An article of manufacture as defined in claim 2 wherein: said cover including said rails is formed of a resilient flexible material and wherein said C-shaped rails in the operative position of said cover converge towards one another with the components of each of said rails forming an acute angle with the wall on which each is connected;

one of said C-shaped rails flexing, when said cover is slidably mounted on said terminal-mounting plate in its operative position, to extend flush against adjacent portions of one side of said terminal-mounting plate, and the other of said C-shaped rails flexing into engagement with adjacent portions of said terminal-mounting plate on its other side to releasably clamp said terminal-mounting plate between said rails.

8. An article of manufacture as defined in claim 7 wherein: said cover is formed of a transparent material.