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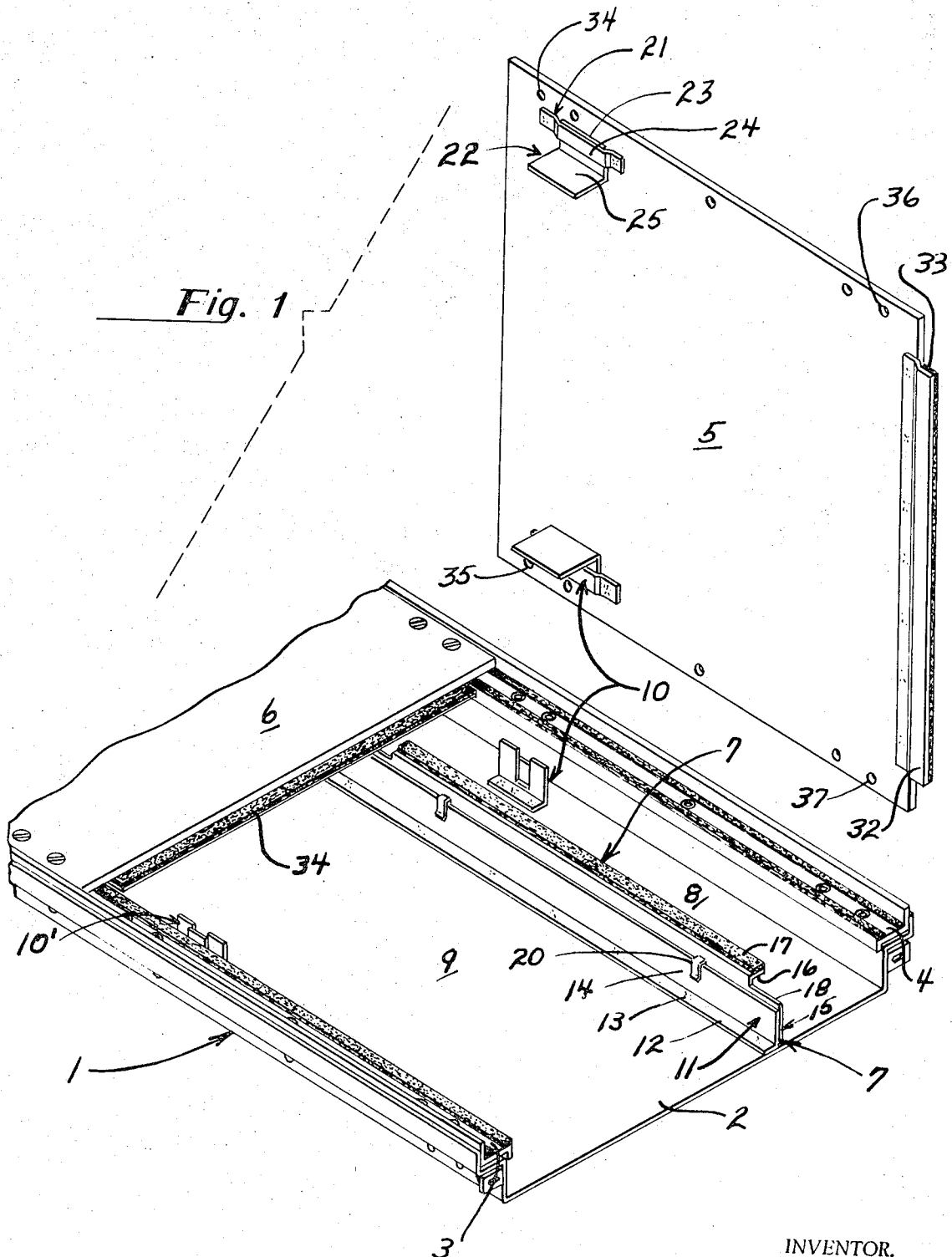
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3,566,566

FRICTIONALLY SECURED TRENCH DUCT COVER AND PARTITION

Filed Aug. 14, 1969

2 Sheets-Sheet 1



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Fig. 2

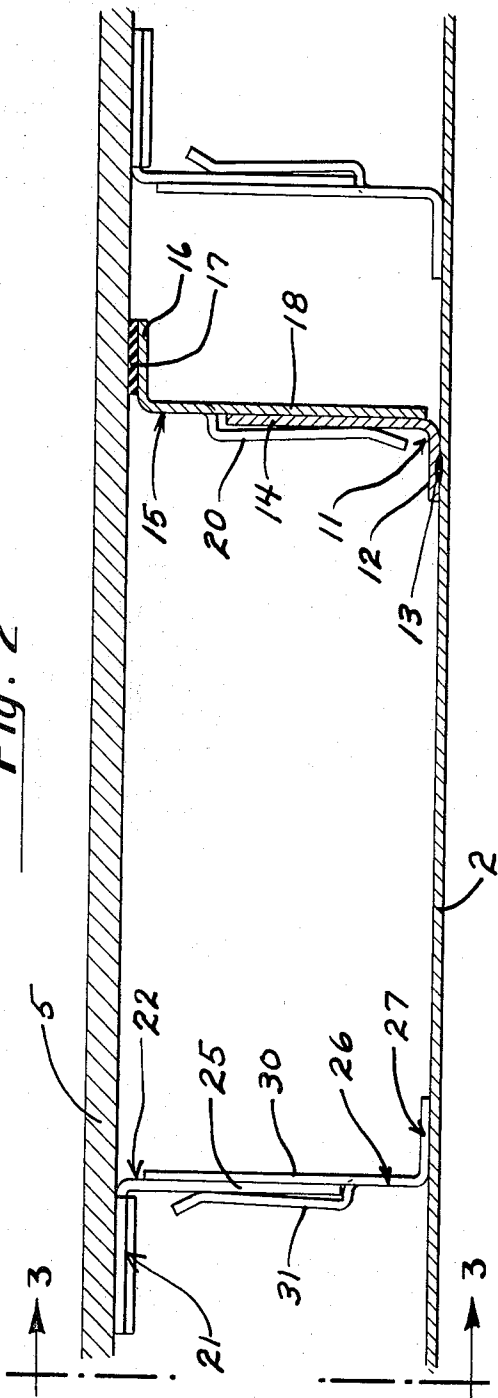


Fig. 4

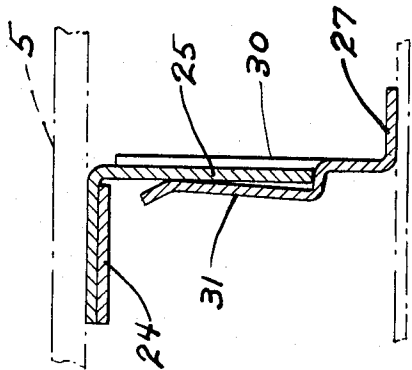
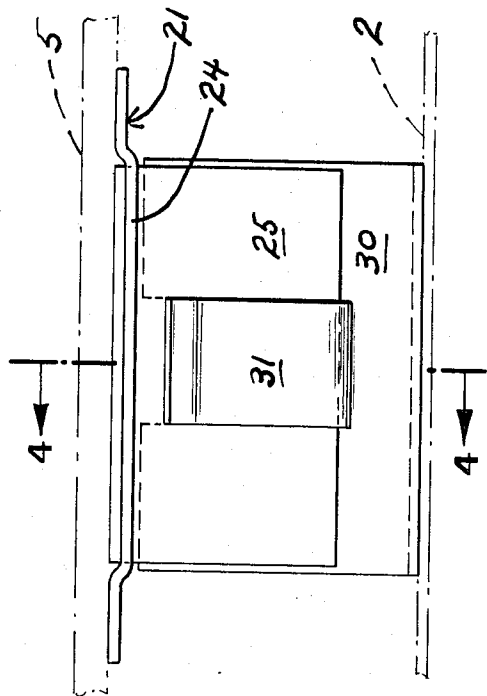


Fig. 3



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FRITIONALLY SECURED TRENCH DUCT COVER AND PARTITION

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ABSTRACT OF THE DISCLOSURE

Means adaptable for use in holding down trench duct covers and for partitioning the trench into compartments including two L-shaped pieces to extend between the cover and the bottom of the trench, one of the pieces having a yielding arm which envelopes and grips the other so that the two pieces are held in fairly tight frictional engagement either for holding the cover or forming a partition.

This invention, in general, relates to trench duct for electrical underfloor distribution systems.

More specifically the invention relates to means for holding down trench duct covers and for dividing the trench into compartments.

The invention contemplates a simplified structure which is highly suitable and adaptable for both the hold down and partition functions and which in both instances provides substantial advantages. The preferred forms of the invention and the various advantages thereof will be described below in connection with the following drawings:

FIG. 1 is a perspective view of a trench with a cover raised away, the trench incorporating the invention.

FIG. 2 is a fragmentary, elevational sectional view of the trench in FIG. 1.

FIG. 3 is a view taken along the line 3-3 in FIG. 2; and

FIG. 4 is a view taken along line 4-4 of FIG. 3.

In FIG. 1 the trench 1 has an elongated, horizontally extending channel 2. The reversible, Z-shaped tile trim pieces 3 and 4 are mounted on the channel by means providing for adjustment in a vertical direction. The covers 5 and 6 are supported on the tile trim 3 and 4 and extend across the channel. The foregoing structure is conventional.

Within the channel is a partition structure 7 which divides the channel into compartments 8 and 9. Ordinarily the compartment 8 is used for receiving communication cables while the compartment 9 is used for receiving power cables. When the cover 5 (and other covers on the trench) is in the down position on the tile trim 3 and 4 it is removeably secured in position as by the hold-down means 10 in the channel 8 and an identical hold-down 10' in the channel 9.

The manner in which the partition 7 is constructed will first be described.

An L-shaped lower barrier 11 extends along the lengthwise dimension of the trench. The foot 12 of the lower barrier is spot welded to the channel as indicated at 13. The leg 14 of the lower barrier extends upwardly from the foot 12 toward the cover 5.

An L-shaped upper barrier 15 also extends along the

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lengthwise dimension of the trench. The foot 16 of the upper barrier mounts a gasket 17 which, in the position shown, is in abutting relationship with the under side of the cover 5. The leg 18 of the upper barrier extends down toward the bottom and engages one side of the leg 14.

A plurality of resilient arms 20 are formed on the upper barrier leg 18. Each arm extends down and engages the opposite side of the leg 14 of the lower barrier. The arms 20 are formed so as to exert pressure and cause the leg 14 of the lower barrier to be gripped between the arm 20 and the leg 18 of the upper barrier.

From the foregoing description it will be apparent that the upper barrier 15 can be removed from the lower barrier 11 by pulling upwardly. It will also be apparent that the upper barrier can be inserted on the lower barrier by moving the same into position and pushing downwardly until the arms 20 engage the leg 14.

As the trench is manufactured and assembled for shipment the upper and lower barriers are joined as shown in FIG. 1. After the trench has been installed on the job and the trim pieces 3 and 4 adjusted vertically to align the cover with respect to the floor level, the barriers are then set up to be permanently joined together and with the gasket 17 engaging the underside of the covers whereby the compartments are isolated. This may be done by removing the cover and putting a straight edge on tile trim 3 and 4 so that it extends across the channel and then adjusting the upper barrier until the gasket 17 is in engagement with the underside of the straight edge. The legs 14 and 18 of the lower and upper barriers are then tack welded together.

The structure of the partition and the manner in which it is assembled for shipment and the manner in which it is set up for permanent installation has several decided advantages over conventional partition arrangements.

Conventional two-part partition arrangements are held together by nuts and bolts and this requires a good deal of assembly time during manufacture particularly in getting the trench ready for shipment. With the present arrangement however this assembly time is eliminated inasmuch as the upper barrier can be attached to the lower for shipping purposes simply by sliding the same in place.

With respect to permanently setting up the partition on the job it will be apparent that with conventional nut and bolt arrangements the contractor or installer first must loosen these and then adjust the parts in a vertical direction and then proceed to tighten the nuts and bolts prior to the tack welding. This takes considerable time as compared to the time required with the instant partition. With the partition of the present invention the assembly time is considerably reduced inasmuch as the upper barrier can be quickly and easily brought into alignment with the under side of the straight edge.

The invention therefore has great practical value both to the manufacture and to the contractor inasmuch as it provides substantial savings with respect to manufacturing and installation costs.

The cover hold-downs in compartments 8 and 9 are identical in construction. The cover hold-down has a structure which, except for overall length and orientation, is substantially the same as the structure making up the partition. The hold down will be described below.

As best shown in FIG. 1 a strap 21 is spot welded to

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the cover and supports an L-shaped slider 22. The foot 23 of the slider is frictionally engaged between the raised section 24 and the underside of the cover. The leg 25 of the slider extends downwardly and normal to the cover.

Referring to FIG. 2 a jaw 26 has a foot 27 which is secured to the channel 2 and a leg 30 extends upwardly from the foot towards the cover and is in engagement with one side of the leg 25 of the slider. The jaw 26 has a resilient arm 31 which extends upwardly toward the cover and engages the opposite side of the slider leg 25. The arm 31 exerts a pressure to cause the slider leg 25 to be gripped between the arm 31 and the leg 30.

With reference to FIG. 1 it will be noted that a lap strip 32 is provided along one edge of the cover. The lap strip carries a gasket 33 and is adapted to fit underneath the cover adjacent to cover 5 similarly as the lap strip 34 on the cover fits under the cover 5. The lap strip cooperates with the hold-down means in retaining the cover in position.

In connection with the strap 21 and the slider 22 it is pointed out that each strap is welded to the underside of the cover during manufacture. However the sliders 22 are not installed until the trench is ready to be assembled for shipment. In this way a large number of covers can be stacked one on top of the other.

To assemble the cover (say the cover 5) of the trench the right hand end of the cover (as viewed FIG. 1) is placed on the tile trim with the lap strip underneath the adjacent cover. The left hand end of the cover is then tilted downwardly until the cover rests on the tile trim and the slider legs are firmly gripped by the jaws.

Preferably the arm 31 of each hold-down is formed as by a lancing operation and the structure is designed so that considerable pressure is developed by the arm. Thus when the slider is engaged as described above the cover will be held with substantial force resisting upper movement. The force however is not such as to prevent removal of the cover. Ordinarily removal is accomplished by inserting one or more eye hooks in threaded holes provided on the cover and then lifting upwardly on the same. Preferably lifting holes such as holes 34 and 35 are placed on the edge of the cover adjacent to hold-down means so that the cover tilts up about the lap strip edge.

In connection with assembling the covers on the trench for shipping from the factory to the job site it is preferable to use temporary screws to hold down the end cover whose lap strip is not engaged by an adjacent cover. For example assume that the cover 5 is the end cover the temporary screws are inserted through the holes 36 and 37 and threaded into nuts (not shown) on the trench. Ordinarily these screws will be discarded during assembly on the job.

From the foregoing description it will be apparent that placing the covers in position on the trench is a very simple and rapid operation. This considerably speeds up the manufacturing process as compared to the conventional manner of securing covers. The conventional arrangement contemplates at least 3 screws on each side of the cover which are threaded into nuts secured on the trench. The screws require counterseating on the top surface of the cover, access holes in components below and fastening nuts secured to the trench. With the present invention the necessary tools and labor operations for countersinking, punching and threading are eliminated. In addition the assembly time necessary for threading the screws to fasten down the cover is also eliminated.

It will be understood that the advantage of saving in time for removal and replacement of covers also accrues to the contractor or installer on the job site.

The elimination of cover hold-down screws is of particular advantage to the tile contractor inasmuch as tile is simply laid on top of the cover. In the conventional arrangement the cover screws must be removed, the tiles placed on the cover so that the location of access holes in the tile can be determined and cut out, then the tiles

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fastened down and lastly the cover screws put into place with the heads exposed on the tile surface.

Furthermore, the elimination of the cover screws has a decided advantage from the aesthetic standpoint. For example a typical run of trenchduct may encompass a total of 45 ft. and along that length there would be two lines of cover screw heads visible, with each line having about 45 screw heads. The elimination of the screws of course gives a much more satisfactory and pleasing appearance.

1. In a trenchduct:

an elongated, hollow, horizontally extending channel for receiving electrical cables;

a cover extending across the channel;

means on said channel supporting the cover;

a partition extending along the channel to divide the same into compartments including an L-shaped lower barrier the foot of which is fixedly secured to the bottom of the channel and the leg of which extends upwardly therefrom toward the cover, an L-shaped upper barrier the foot of which mounts a gasket in abutting relationship with the underside of said cover and the leg of which extends toward said bottom and engages one side of the leg of the lower barrier, a plurality of resilient arms on the leg of the upper barrier extending down and engaging the opposite side of the leg of the lower barrier and exerting pressure to cause the leg of the lower barrier to be gripped between the arm and the leg of the upper barrier.

2. In a trenchduct:

an elongated, hollow, horizontally extending channel for receiving electrical cables;

a cover extending across the channel;

means on the channel supporting the cover;

a cover hold-down for removeably securing the cover in position including a slider secured to the underside of the cover and extending downwardly therefrom toward the bottom of the channel, an L-shaped jaw the foot of which is secured to the bottom of the channel and the leg of which extends upwardly therefrom toward the cover and engages one side of said slider, a resilient arm on said jaw leg and extending upwardly and engaging the opposite side of the slider and the arm exerting pressure to cause the slider to be gripped between the arm and the leg.

3. In a trenchduct:

an elongated, hollow, horizontally extending channel for receiving electrical cables;

a cover extending across the channel;

means on said channel supporting the cover;

a partition extending along the channel to divide the same into compartments including an L-shaped lower barrier the foot of which is fixedly secured to the bottom of the channel and the leg of which extends upwardly therefrom toward the cover, an L-shaped upper barrier the foot of which mounts a gasket in abutting relationship with the underside of said cover and the leg of which extends toward said bottom and engages one side of the leg of the lower barrier, a plurality of resilient arms on the leg of the upper barrier extending down and engaging the opposite side of the leg of the lower barrier and exerting pressure to cause the leg of the lower barrier to be gripped between the arm and the leg of the upper barrier; and

cover hold-downs for removeably securing the cover in position, including a slider secured to the underside of the cover and extending downwardly therefrom toward the bottom of the channel, an L-shaped jaw the foot of which is secured to the bottom of the channel and a leg of which extends upwardly therefrom toward the cover and engages one side of said slider, a resilient arm on said jaw leg and extending upwardly and engaging the opposite side of

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the slider and the arm exerting pressure to cause the slider to be gripped between the arm and the leg.

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