

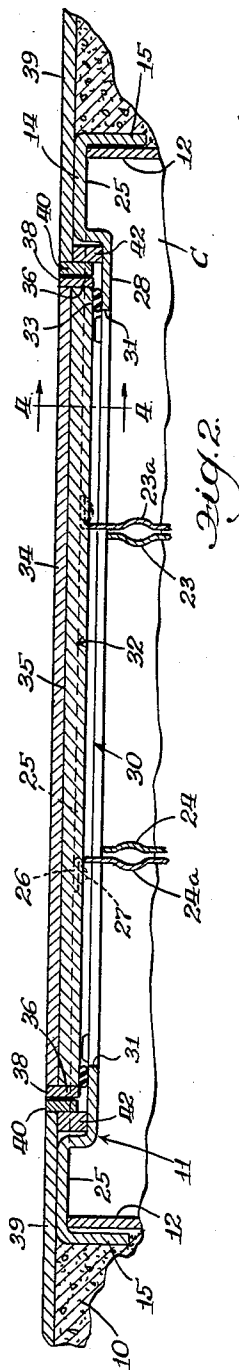
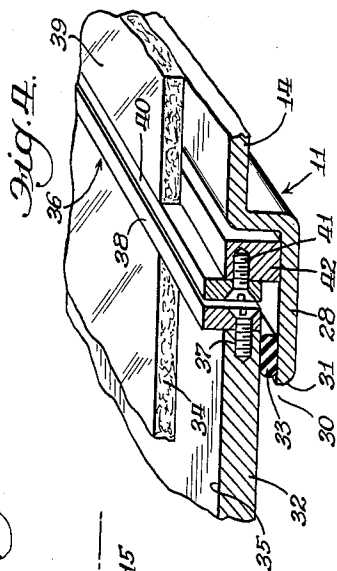
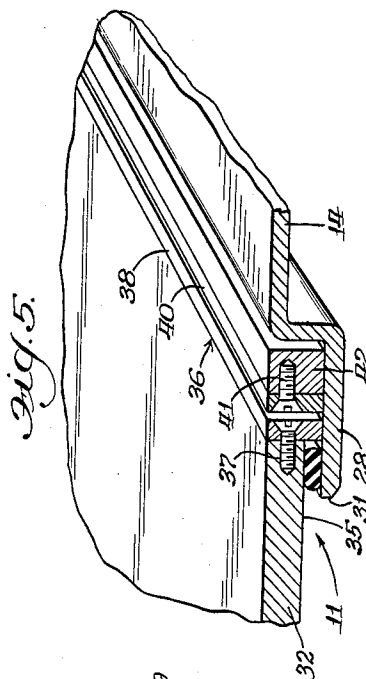
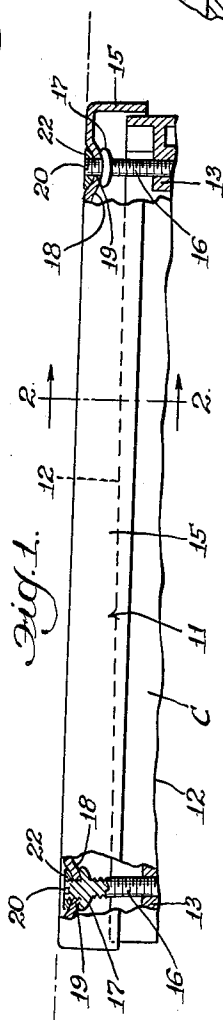
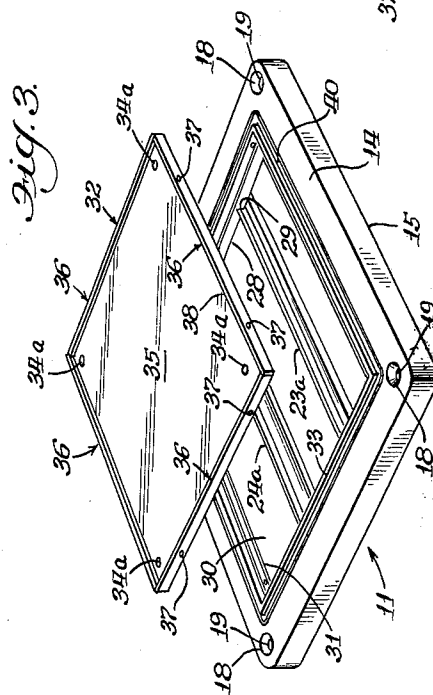
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COVER STRUCTURE FOR UNDERFLOOR JUNCTION BOX

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COVER STRUCTURE FOR UNDERFLOOR JUNCTION BOX

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Divided and this application Oct. 4, 1960, Ser. No. 60,385

5 Claims. (Cl. 220—3.4)

The present invention relates to an improved cover structure for an underfloor junction box of an underfloor electrical wiring system. This application is a division of my copending application Serial No. 802,723 filed March 30, 1959.

One object of the invention is to provide a simplified cover structure for a junction box of the above general class wherein the cover structure is adjustably supported in an improved manner relative to the upper portion of the box so that the cover may be adjusted both as to elevation and slope to bring a marginal tread portion of the structure into co-planar alignment with the top surface of a concrete slab or floor in which the box is embedded.

A further and highly important object of the invention is to provide a cover structure for a junction box of the above class having an access opening therein and provided with an invertible closure plate for closing said access opening, the said closure plate being formed on one face with a tread surface adapted in one position of the plate to align with the top surface of the said marginal tread surface of the cover and provided on its opposite face with a depression which, when the plate is inverted from the position above suggested, serves as a tray for containing tile or other suitable floor covering, the construction being such that the rim of the tray, when the plate is thus inverted, projects above the said marginal tread of the cover to provide a metallic edging or trim ring for the edges of the floor covering in the region of said access opening.

The invertible closure plate and/or associated parts presents an important advantage over structure in which one type of closure plate is supplied to the builder if the concrete floor is to be provided with a floor covering and another type of closure plate is supplied to the builder if the floor covering is to be omitted.

According to the present invention, the closure plate element of the cover structure seats on a depressed inner peripheral flange surrounding the access opening formed in the cover structure. In order to protect the normally thin and somewhat fragile rim of the tile tray from being scuffed, indented or otherwise marred during shipment and during the general construction of the floor and other parts of the building, the closure plate is normally positioned with its tile tray facing downwardly. The plate will remain in this position if concrete floor is to remain bare. However, when any part of the concrete is to be covered with tile or other floor covering, the closure plates of the junction boxes in that area are inverted so that the tile tray face of the closure plate will face upwardly.

A further object of the invention is to provide, in combination with an invertible closure plate of the above characters, an invertible trim ring which surrounds the cover plate and is adapted in one position to align with the top tread surface of the closure plate and in another position to align with the rim of the tile tray portion of

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the closure plate, so as to provide a double ring metallic edging for the floor covering surrounding and overlying the access opening in the cover structure and thereby facilitate removal of the closure plate without danger of marring the edges of the floor covering.

Other objects and advantages of the invention, not at this time enumerated, will become more readily apparent as the following description ensues:

The invention is illustrated in the accompanying drawing wherein:

FIG. 1 is a fragmentary view of the upper portion of a junction box for an underfloor electrical distributing system together with the box cover structure, the latter being broken away to illustrate its adjustable supporting means and showing the cover structure elevated and inclined relative to the upper edge of the box;

FIG. 2 is a vertical sectional view taken on line 2—2 of FIG. 1 and illustrating the box and its cover structure embedded in a concrete floor with the cover structure in its lowermost position and showing also a floor covering;

FIG. 3 is a view in perspective of the principal elements of the box cover, showing the closure plate element thereof spaced upwardly to better illustrate the access opening in the cover and certain partition elements carried by the cover;

FIG. 4 is a fragmentary sectional view, in perspective, taken on line 4—4 of FIG. 2, showing a cover ring element of the cover structure together with a reversible closure plate and built-in tile tray and trim strips associated therewith, the said tray and trim strips being positioned to provide metallic edgings for the floor covering in the region of an access opening formed in the cover structure; and

FIG. 5 is a similar fragmentary sectional view, in perspective, of said cover ring, closure plate, and trim strip elements, but showing the said closure plate and trim strip elements in the positions which they normally occupy during shipment and during the general constructions preliminary to the laying of the floor covering.

With reference to the drawings the letter C designates the upper portion of a junction box adapted to be embedded in a concrete slab or floor 10, and the cover structure for the box is designated generally by the reference numeral 11. The junction box C is preferably of rectangular configuration and includes side walls 12 secured to corner post structures 13 of the box.

The improved cover structure 11 for the box C includes a ring member 14 provided with downturned outer flanges 15 which telescope over the upper edges of the box side walls 12 and over the corner posts 13. The cover structure of the junction box is adjustable relative to the upper edges of the box side walls 12 so that it may be made to conform to the elevation and slope of the top surface of the concrete 10 in which the box C is embedded. The means for adjustably supporting the cover structure preferably comprises adjusting screws 16 respectively threaded into the several corner posts 13 of the box. Each adjusting screw 16 is provided near its upper end with a concave collar 17 which serves as a seat for the convex under-surface of a cup-shaped depression 18 formed at the respective corner of the cover ring 14 and centrally pierced as at 19 to receive the upper end of an associated adjusting screw 16. The upper ends of the screws 16 are slotted at 20 to receive the bit end of a screw driver (not shown),

whereby the screws may be readily adjusted in the corner posts 13 to raise or lower the cover structure relative to the side walls 12 of the box and to position it at any suitable slope to align with the top surface of the concrete 10. Threaded nuts 22 each having a convex bottom surface corresponding to the concavity of a respective depressed cup 13 serve as jam nuts to lock the screws 16 in their adjusted positions. Partition elements designated 23 and 24 are positioned to traverse the interior of the box structure C and are secured, in a manner not shown, to the base portion of the box. Inasmuch as the cover structure 11 may be moved upwardly in respect to the upper edges of said partitions 23 and 24, additional partition sections 23a, 24a are secured to the underface 25 of the cover ring 14 by means of attaching flanges 26 and screws 27 as shown in FIG. 2. The partition sections 23a and 24a overlap the partitions 23 and 24 so as to prevent electrical wires and fishing tape being drawn or pushed through the box from being passed unintentionally from one side of a partition 23 or 24, as the case may be, to the other side of said partition. In order to fit the partition sections 23a, 24a to a downwardly offset inner marginal portion 28 of the cover ring 14, the upper edges of these partition sections are cut away as indicated at 29 so that the recesses thus formed will conform with the said downwardly offset inner marginal portion 28 of the cover ring.

The opening 30 defined by the inner perimeter 31 of the downwardly offset portion 28 of the cover ring 14 is closed by a removable closure plate 32. The plate seats on a gasket 33 of suitable material, for example rubber bonded to the upper face of the depressed inner marginal portion 28 of the cover ring. The closure plate may be clamped in place on said gasket by screws 34a (see FIG. 3) so as to exclude water from entering the box C. One side of the plate is provided with a dished configuration 35 for retaining a small quantity of floor covering 34. For purpose of economy and rigidity, the closure plate 32, as shown herein, is made of sheet metal and is provided with the dished configuration 35 by removably securing metal trim strips 36 to the edges of the plate by means of screws 37. The said strips 36 are so secured to the edges of the plate 32 that their upper edges 38, as viewed in FIGS. 2 and 4, project above the plate and coincide with the top surface of that portion 34 of the floor covering which overlies the top face of the closure plate and also aligns with the main body 39 of floor covering surrounding the said plate 32.

Cooperating with the trim strips 36 is a ring of trim strips 40 secured by screws 41 to bars 42 secured to the upper surface of the downwardly offset portion 28 of the cover ring 14, as by screws (not shown). The trim strips 40, when in their normal positions, project upwardly to a position flush with the top surface of the main body 39 of the floor covering and cooperate with the trim strips 36 on the plate 32 to provide parallel metallic edges for the floor covering in the region of the access opening 30 of the junction box cover 11.

In order to prevent the upper edge of the said dished configuration 35 from being scuffed or marred during shipment or during the general floor construction, the top plate 32 and its trim strips 36 may be inverted and secured in said inverted position by the screws 34a. When the plate 32 is positioned with its dished face 35 facing downwardly as shown in FIG. 5, the upper edges 38 of the dished configuration defined by said strips 36 seat flat against the upper surface of the downwardly offset portion 28 of the cover ring 14. The same is also true of the trim strips 40 as shown in FIG. 5 of the drawing, the trim strips 40 having been removed from the bars 42, inverted relative thereto, and re-secured thereto by the screws 41. It will also be noted that when the closure plate 32 with its trim strips 36 is in the inverted position and the trim strips 40 are inverted relative to the bars 42, as shown in FIGURE 5, the trim strips 36 and 40 are flush with the top surface of the outer portion of the cover

ring 14, so as not to form obstacles when no floor covering 34, 39 is intended to be used.

Various modifications may be made in the structure disclosed without departing from the spirit and scope of the invention.

I claim:

1. For use in an underfloor duct system for distributing electrical wiring under a concrete floor, a junction box comprising a body adapted to be embedded in the concrete floor, a plurality of supporting screws adjustably threaded into said body from the top thereof and having bearing members thereon presenting upwardly concave generally spherical bearing surfaces, and a cover for the top of said body, said cover having a plurality of bearing portions presenting downwardly convex generally spherical bearing surfaces for respective complementary engagement with the upwardly concave generally spherical bearing surfaces of the bearing members on said screws, said bearing portions of said cover having apertures therethrough for respectively receiving the upper ends of said screws, the slope of said cover with respect to said body being adjustable to correspond with the slope of the upper surface of the concrete floor by adjustment of said screws and bearing members, and said downwardly convex generally spherical bearing surfaces on said cover remaining in complementary engagement with said upwardly concave generally spherical bearing surfaces of said bearing members upon adjustment of the slope of said cover.

2. A junction box as claimed in claim 1, including a plurality of locking nuts respectively threaded onto the upper ends of said screws for securing said bearing portions of said cover against said bearing members on said screws, said locking nuts having downwardly convex generally spherical lower surfaces and said cover having a plurality of upwardly concave generally spherical surfaces respectively opposite said downwardly convex generally spherical bearing surfaces thereon for respective complementary engagement with said downwardly convex generally spherical surfaces of said locking nuts in various adjusted positions of said cover having different slopes.

3. A cover structure for the top of a junction box of an underfloor wiring system, said cover structure comprising a cover ring having inner and outer portions offset from each other by an offsetting portion, said inner portion forming a ledge depressed from said outer portion and defining an access opening through said ring, a generally flat closure plate for said access opening, said closure plate being larger than said access opening but fitting within said offsetting portion of said cover ring, first trim strip means secured to a peripheral edge portion of said closure plate, said first trim strip means having one cross sectional dimension of greater magnitude than the thickness of said closure plate and being secured thereto so as to be substantially flush with one side of said closure plate and to form a peripheral rib spaced outwardly from the edge of said access opening and projecting from the other side of said closure plate, closure plate supporting means on said ledge adjacent the edge of said access opening and spaced inwardly of said peripheral rib on said closure plate, said closure plate being invertibly supported over said access opening in either of two relative positions whereby in a first position thereof said closure plate and said first trim strip means are substantially flush with the top surface of the outer portion of said cover ring and in a second position thereof said first trim strip means forming said peripheral rib projects upwardly from the top surface of the outer portion of said cover ring to form an edging for floor covering inwardly thereof, bar means secured to said ledge adjacent said offsetting portion of said cover ring and dimensioned so as to be substantially flush with the top surface of the outer portion of said cover ring, and second trim strip means adapted to be secured to said bar means inwardly thereof in either of two positions relative thereto whereby in a first position

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thereof said second trim strip means is substantially flush with the top surface of the outer portion of said cover ring and in a second position thereof said second trim strip means projects upwardly from the top surface of the outer portion of said cover ring to form an edging for floor covering outwardly thereof. 5

4. A cover structure as claimed in claim 3, wherein said closure plate supporting means is a sealing gasket.

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5. A cover structure as claimed in claim 3, wherein said access opening and closure plate are rectangular.

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