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Price

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[54] **ELECTRICAL FIXTURE COUPLING AND SUPPORT APPARATUS**

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[52] **U.S. Cl.** ..... **339/21 R**
[51] **Int. Cl.** **H01r 9/00**
[58] **Field of Search** 339/14, 20–24

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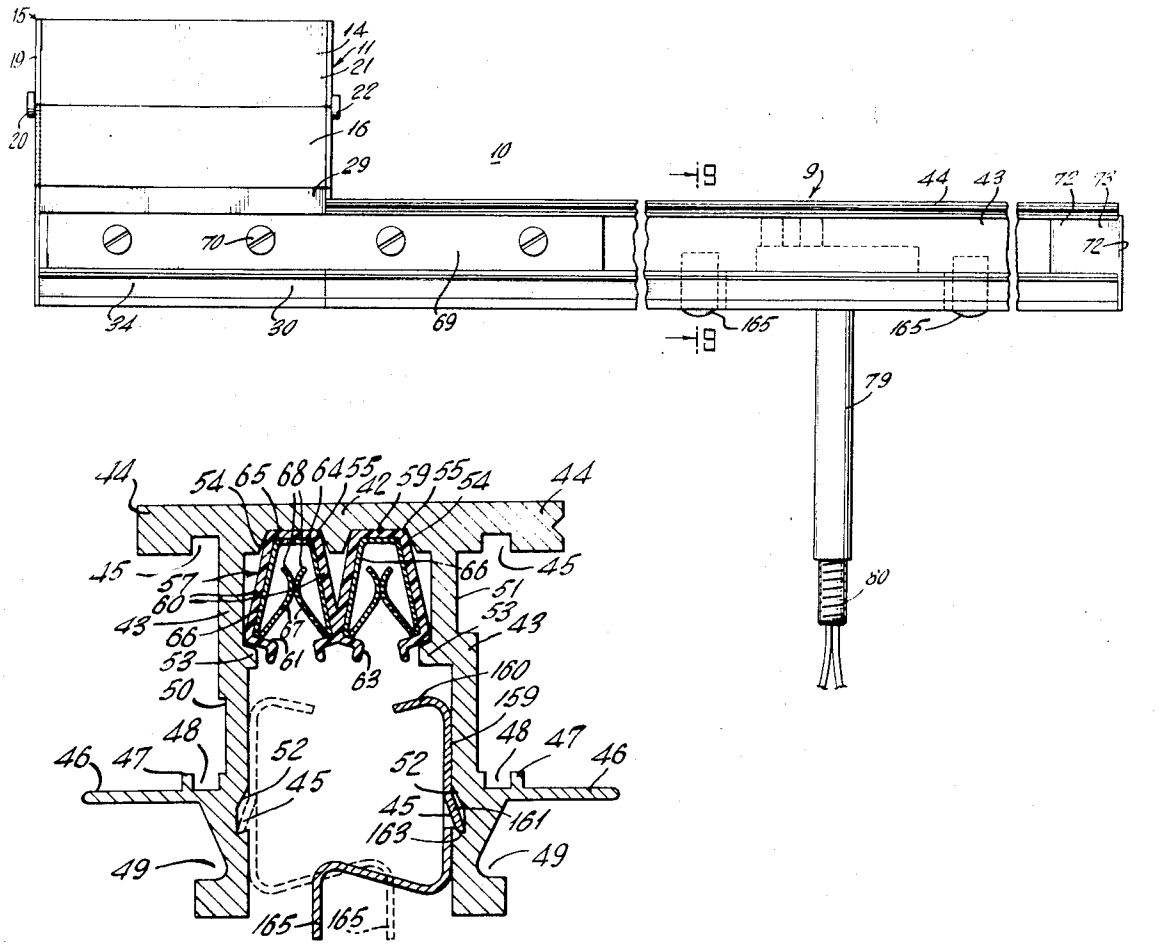
[57] **ABSTRACT**

An electrical fixture support and current feed system includes an inverted metal track channel which is coupled to a junction box with converging side walls and houses in its upper part a longitudinal double channel insulator body. Nesting in each of the insulator channels is a longitudinal conductor bus having upwardly converging curved fingers resiliently urged into mutual engagement. The metal channel has grooves formed in the lower border of its inner faces. A plug assembly includes an insulator body member having an upper cavity closed by a hinged lid and supporting a first contact member with a first prong, a second contact member with a second prong and a first clip, and a second clip, the clips being located in the cavity. First and second conductors extend through a metal conduit depending from the body member and are connected to the first contact member and the second clip and a fuse is engaged by the clips. Outwardly sprung detent-carrying arms are located on the body member. The detents releasably engage the channel grooves when the plug registers with the metal channel and the prongs engage the bus fingers and upon insertion of the plug, the arms engage the track channel inner faces before the prongs engage the conductors.

4 Claims, 17 Drawing Figures



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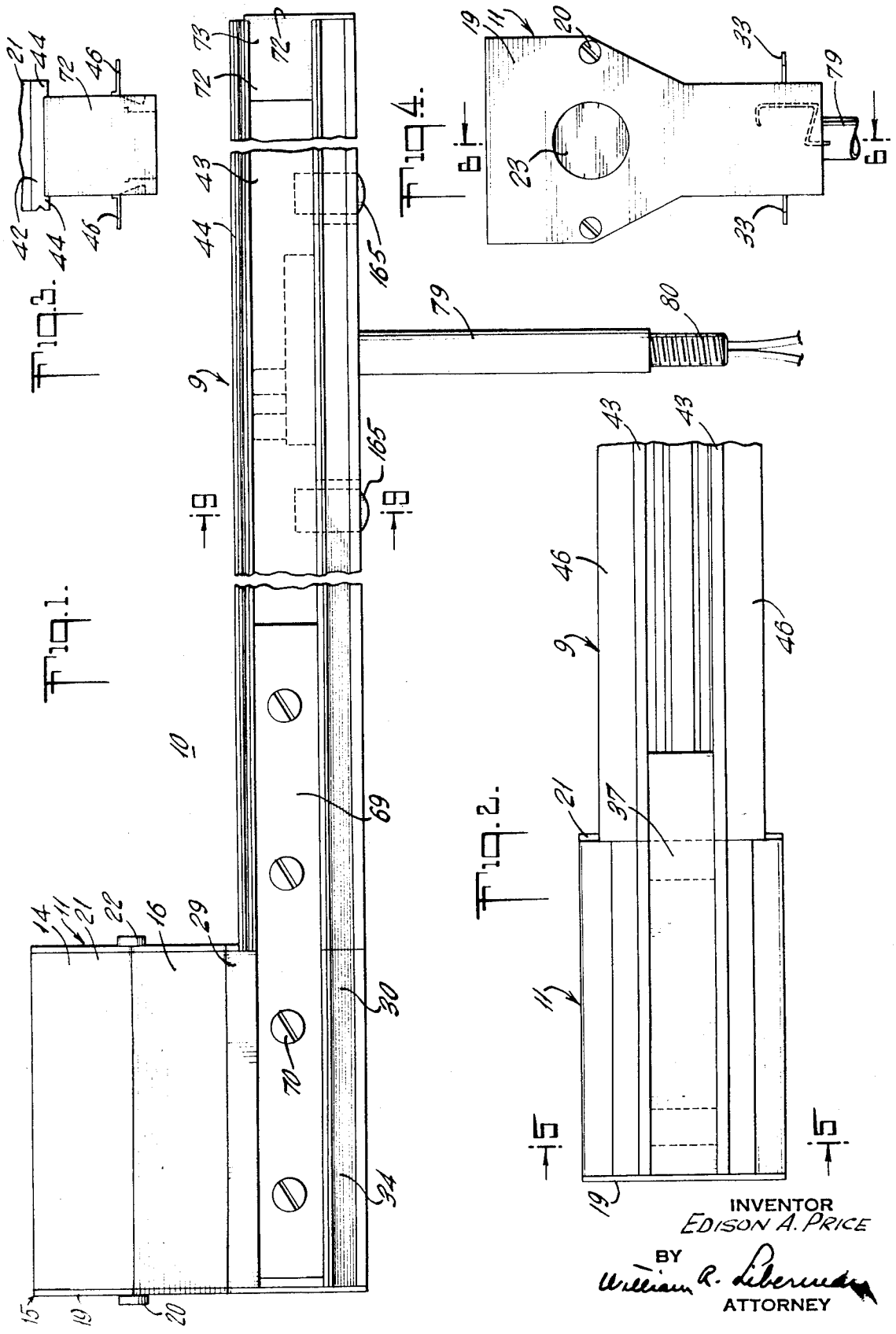

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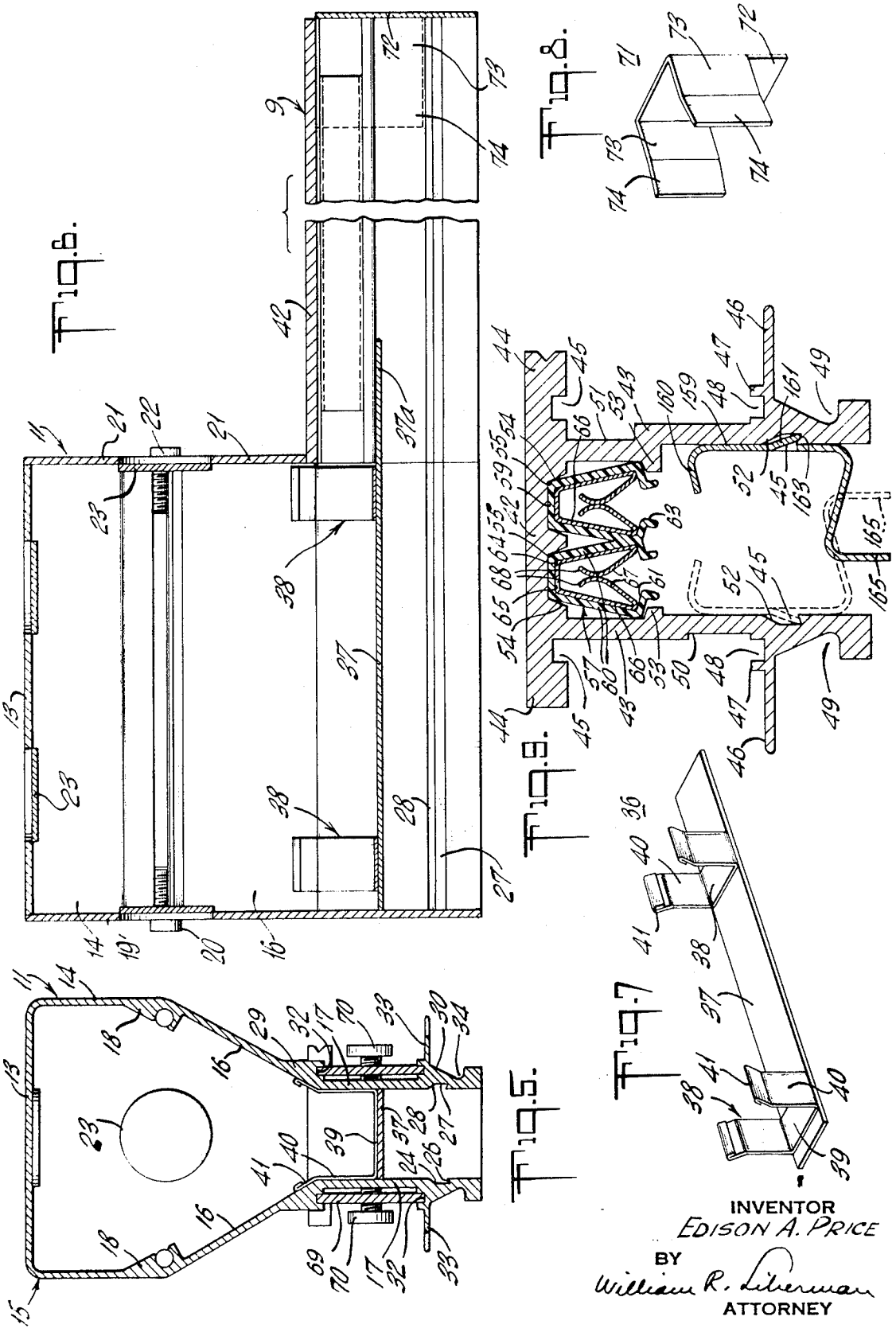

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Fig. 10.

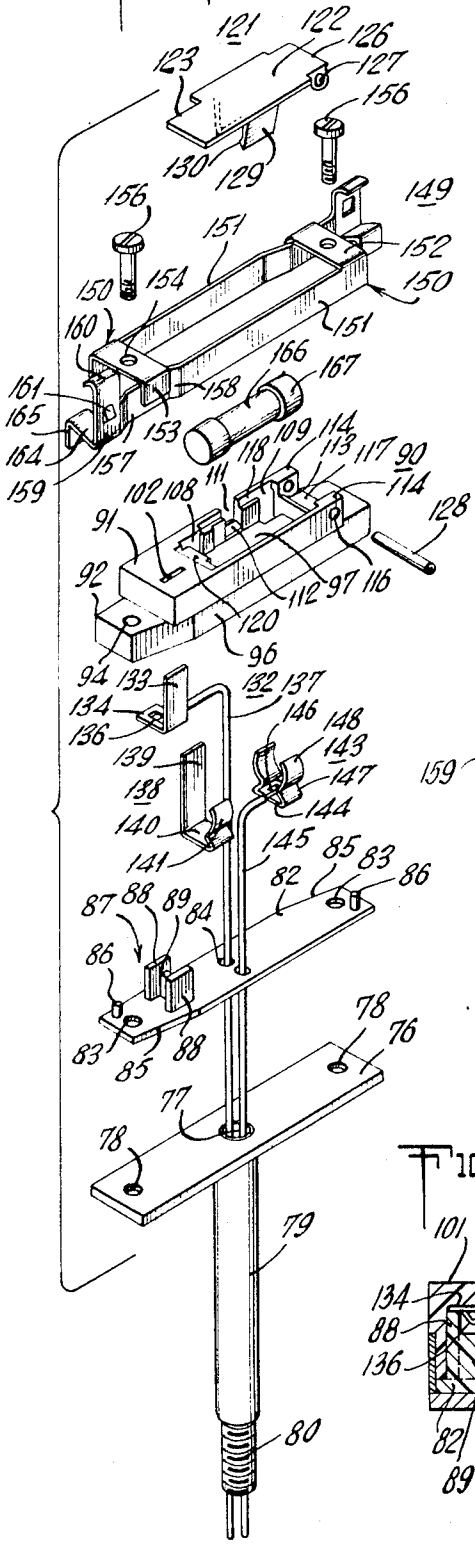


Fig. 11.

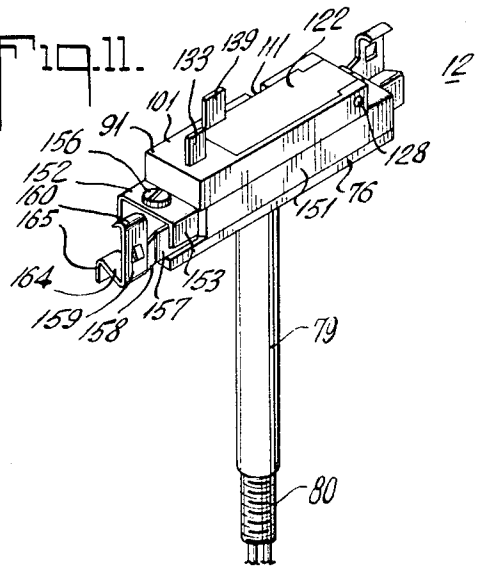


Fig. 12.

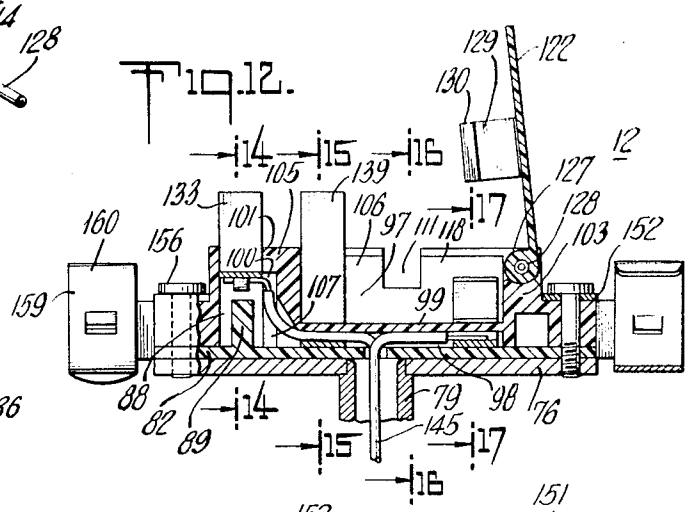


Fig. 13.

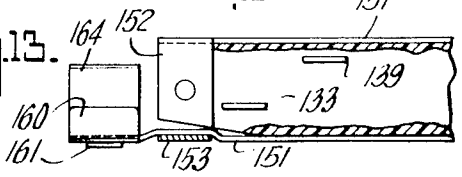


Fig. 14.

Fig. 15.

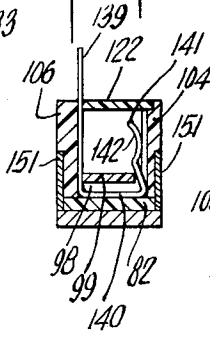


Fig. 16.

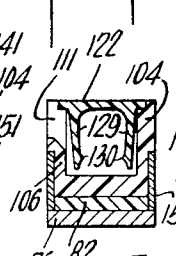
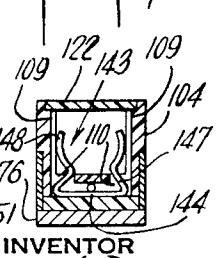


Fig. 17.



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ELECTRICAL FIXTURE COUPLING AND SUPPORT APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates generally to improvements in electrical systems and it relates particularly to an improved system for the adjustable separable support of an electrical fixture and for the feeding of electrical current to the supported fixture.

It is frequently desirable to mount electrical fixtures of various types releasably and in a linearly adjustable manner on an overhead support and connect the electrical fixtures to a source of current. The arrangements heretofore available and proposed for the above purpose possess numerous drawbacks and disadvantages. They are highly inconvenient and unattractive, unreliable, difficult to install and use, complex and expensive, of little versatility and adaptability, and otherwise leave much to be desired.

SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide an improved electrical distribution system.

Another object of the present invention is to provide an improved structure for releasably mounting electrical fixtures and devices and for supplying current thereto.

Still another object of the present invention is to provide an improved overhead structure for releasably suspending electrical fixtures and devices and for supplying current thereto.

A further object of the present invention is to provide an improved fused electrical plug device which is highly suitable for use in overhead releasable fixture support and current distribution structures.

Still a further object of the present invention is to provide a structure of the above nature characterized by its ruggedness, reliability, safety, attractive appearance, ease and convenience of use, and great versatility and adaptability.

The above and other objects of the present invention will become apparent from a reading of the following description taken in conjunction with the accompanying drawings which illustrate a preferred embodiment thereof.

In a sense, the present invention contemplates the provision of an electrical coupling and support device comprising a track member having formed therein a longitudinal channel provided with transversely spaced opposing faces, at least one of said faces having a longitudinally extending inwardly directed shoulder located thereon, a longitudinally extending socket member disposed in the inner end of said channel and including a pair of transversely spaced longitudinally extending conductors, a plug member separably engaging said channel and including a pair of transversely spaced prongs releasably engaging respective conductors and a resiliently transversely outwardly urged detent positioned on said plug and engaging said shoulder releasably to lock said plug to said track. Advantageously, a resilient grounding member is mounted on the plug member and resiliently engages the track channel inner face and is connected to a metal conductor housing conduit extending from the plug member. The distance between the grounding member and the ends of the plug prongs is less than the distance between the conductor contact areas and the outer edge of the track

channel faces. The socket member advantageously includes a pair of integrally formed side-by-side trapezoidal insulating channel members which is nested in the track channel and locked therein by lips on the track channel faces. A correspondingly shaped resilient metal conductor is nested in each of the insulator channels and is provided with inwardly converging resilient contact fingers.

Another feature of the present invention resides in the construction of the plug member which includes a body member of insulating material having a longitudinally extending cavity formed therein provided with an access opening, a pair of longitudinally spaced first and second U-shaped clip members mounted in said cavity with the open ends thereof directed toward said access opening, a cartridge fuse housed in said cavity and having end contacts releasably engaged by said clip members, a pair of first and second prongs projecting from said body member, said first prong being connected to said first clip member, and a pair of conductors connected to said second prong and said second clip member respectively.

In its preferred form, the improved structure of the present invention includes a metal junction box having side walls with downwardly converging upper sections and parallel lower sections, separable end cover plates and a separable lid registering with the box bottom opening at the upper level of the wall bottom sections. A longitudinal, track defining deep metal channel is releasably coupled in end-to-end relationship to the junction box with the channel depending walls in longitudinal alignment with the junction box side wall bottom sections. Locked in the upper part of the channel is a longitudinal insulating member provided with downwardly directed side-by-side channels in which are nested respective longitudinal conductor busses including upwardly converging curved inner fingers resiliently urged into mutual engagement and upwardly converging resilient outer walls.

The releasable plug and coupling member includes an insulator body member provided with an open topped cavity and which is mounted atop a metal base plate which supports a depending metal conduit. A cavity cover is hinged at one end to the body member and a first contact member including a first prong, a second contact member including a second prong, and a first fuse clip and a second fuse clip are mounted to the body member with the prongs projecting above the body member and the clips positioned in opposite ends of the cavity. The clips releasably engage a fuse and the cavity cover includes depending resilient fingers which engage the fuse in the cover closed condition. A pair of spring arms extend along opposite sides of the plug body member, being fixed at one end and provided with outwardly projecting detents and depending finger pieces proximate their free ends. The metal channel is provided with longitudinal grooves proximate its bottom edge which are engaged by the spring detents when the plug member nests in the channel with the contact prongs being engaged between opening bus fingers to releasably lock the plug in an electrically coupled channel supporting condition.

The improved fixture support and electrical coupling structure is highly convenient, safe and easy to use, simple to install and adjust, highly reliable, of attractive appearance, simple, rugged and highly versatile and adaptable.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary front elevational view of an electrical distribution and fixture support assembly embodying the present invention;

FIG. 2 is a fragmentary bottom plan view thereof;

FIG. 3 is a right end view thereof;

FIG. 4 is a left end view thereof;

FIG. 5 is a sectional view taken along line 5—5 in FIG. 2;

FIG. 6 is a sectional view taken along line 6—6 in FIG. 4;

FIG. 7 is a front perspective view of the assembly junction box bottom closure member;

FIG. 8 is a front perspective view of the track end closure member;

FIG. 9 is an enlarged sectional view taken along line 9—9 in FIG. 1;

FIG. 10 is an exploded perspective view of the plug, fuse housing and fixture support member;

FIG. 11 is a perspective view thereof in assembled condition;

FIG. 12 is an enlarged vertical longitudinal sectional view thereof illustrated in an open condition;

FIG. 13 is a fragmentary top plan view thereof;

FIG. 14 is a sectional view taken along line 14—14 in FIG. 12;

FIG. 15 is a sectional view taken along line 15—15 in FIG. 12;

FIG. 16 is a sectional view taken along line 16—16 in FIG. 12; and

FIG. 17 is a sectional view taken along line 17—17 in FIG. 12.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, which illustrate a preferred embodiment of the present invention, reference numeral **10** generally designates the improved electrical distribution and fixture support assembly which comprises a junction box **11**, a track section **9** and a plug and coupling section **12**. Assembly **10** is supported overhead in any suitable manner and is advantageously recessed in a hung ceiling so that the underface of track **11** is readily accessible along its length. Except as hereinafter described the components of assembly **10** are formed of metal and where they are joined they make good electrical contact.

Junction box **11** comprises an integrally formed body member **15** including a rectangular horizontal top wall **13**, parallel upper vertical side walls **14** depending from the top wall, downwardly converging intermediate side walls **16** depending from walls **14**, and parallel vertical lower side walls **17** depending from side walls **16**. Integrally formed on the inner face of the junction box body member **15** proximate the junction of walls **14** and **16** are longitudinal ridges **18** provided with longitudinal bores which are tapped at their ends or are self tappable. An outer end closure plate **19** has its peripheral border overlying the outer end edges of the body member **15** and is separably secured to body member **15** by screws **20** registering with openings in end plate **19** and engaging the tapped bores in ridges **18**. An inner end closure plate **21**, shorter than outer closure plate **19** has a peripheral border overlying the inner end edges of walls **13**, **14** and **16**, terminating at the upper edges of walls **17**, and is separably secured to the body member **15** by screws **22** which engage the tapped inner ends of the bores in ridges **18**. Formed in top wall **13** and end plates **19** and **21** are knockout plugs **23** of conventional construction.

Formed in the inner faces of bottom walls **17** a short distance above the bottom edges thereof are a pair of parallel opposing horizontal, plug retaining grooves **24**, each groove **24** including a preferably inwardly downwardly inclined bottom shoulder **26**, a vertical inner face **27**, and an upwardly inclined top face **28**. A pair of vertically spaced upper and lower shoulder members **29** and **30**, respectively, project outwardly from the upper border and from a point above the lower edge of each wall **17** and have opposing longitudinal rectangular grooves **32** formed in the confronting faces thereof spaced shortly outwardly from the faces of walls **17**. Longitudinally extending horizontal coplanar flat flanges **33** project outwardly from the bottom shoulder members **30**. Concave longitudinal grooves **34** are formed in the outer faces of the bottom borders of walls **17** below shoulders **30**.

As best seen in FIGS. **5** to **7**, the bottom access opening to junction box **11** is closed by a separable lid **36** which includes a rectangular cover plate **37** of a width approximately equal to the distance between the inside faces of walls **17** and of a length greater than that of junction box **11**. A pair of longitudinally spaced spring clips **38** are mounted atop plate **37**, each clip being formed of a resilient band and including a flat transverse crosspiece **39** affixed to the top of plate **37** and a pair of upright resilient side arms **40** terminating in upwardly diverging fingers **41** reversely inwardly folded at their upper ends. In the closed position of lid **36**, plate **37** is at a level about midway between shoulders **29** and **30** and extends from end plate **19** to beyond end plate **21**, the vertical sections of arms **40** engaging the inside faces of walls **17** and fingers **40** engaging the inside faces of walls **16**. In detaching lid **36** from junction box **11**, the section **37***a* of plate **37** beyond end plate **21** is merely pulled downwardly, and to apply lid **36** spring clips **38** are contracted and inserted between walls **17** and the plate **37** is pushed upwardly until fingers **41** advance above walls **17** and expand into engagement with walls **16**.

Track section **9** extends longitudinally from the lower inner end of junction box **11**. It may be of any desirable length, and formed of one or more mechanically and electrically connected units and is advantageously of uniform transverse cross section to facilitate the production thereof by extrusion. Track **9** is channel shaped and includes a top cross arm **42** and a pair of transversely spaced vertical legs **43** depending from and integrally formed with cross arm **42**. A pair of horizontal flanges **44** are directed outwardly from cross arm **42** and have longitudinal rectangular grooves **45** formed in the underfaces thereof along the planes of the outside faces of legs **43**. Directed outwardly from the lower border of legs **43** and at right angles to the plane thereof above their bottom edges are coplanar opposite flanges **46**, each flange **46** being provided along its top inner edge with transversely spaced upright ribs **47** delineating channel shaped rectangular grooves **48** of the same width as grooves **45**, parallel thereto and in vertical alignment therewith. Longitudinally extending curved grooves **49** corresponding in shape and position to grooves **34** are formed in the outer faces of legs **43** below flanges **46** and a shallow groove **50** is formed in

the lower outer face of one leg **43** and a somewhat deeper longitudinal groove **51** is formed in the outer face of the other leg **43** immediately below flange **44.**

A pair of parallel longitudinal grooves **52,** similar in shape to grooves **24** are formed in the inner faces of legs **43** at about the level of flanges **46** and are provided with bottom horizontal shoulders **45.** Oppositely disposed longitudinal shoulders **53** are directed inwardly from legs **43** below the level of cross arm **42,** and a pair of transversely spaced longitudinally extending trapezoidal shaped grooves **54** are formed in the underface of cross arm **42** and are provided with upwardly converging side faces, grooves **54** being medially transversely offset relative to the longitudinal medial axis of the bottom confronting faces of legs **43.**

Housed in the space in track **9** above lips **53** and retained therein by lips **53** is an elongated dual socketed conductor assembly extending for substantially the full length of track **9** and including a double channel body member **57** and a pair of longitudinally extending resilient tongued conductors positioned in body member **57** and accessible through the bottom thereof. Double channel **57** is formed of an electrically insulating material, advantageously an extrusion of a synthetic organic polymeric, preferably resilient resin, and includes a pair of integrally formed side-by-side downwardly open trapezoidal shaped channel sections **55.** Each channel section **55** comprises a horizontal top wall **59** abutting the top face of a corresponding groove **54** and a pair of downwardly and outwardly diverging side walls **60** depending from the side edges of top wall **59** and joined to inwardly downwardly projecting bottom legs **61** which terminate in depending fingers **63.** Channel sections **55** are joined along the lower converging borders of adjacent walls **60.** Body member **57** is locked in position by the upper faces of shoulders **53** engaging the underfaces of respective legs **61** proximate the elbows thereof with walls **60.**

Housed in each channel section **55** and extending for the substantially full length thereof is a bus or conductor section **64** in the form of an elongated clip or resilient clamp. Each conductor **64** is formed of a resilient highly conductive metal and includes a horizontal top wall **65** and downwardly diverging side walls **66** nesting along and tightly engaging the inside faces of channel section top wall **59** and side walls **60** respectively. Curved resilient fingers **67** are integrally formed with and project upwardly and inwardly from the bottoms of side walls **66,** the curved fingers **67** having confronting convex faces resiliently urged into tight mutual engagement along a line a short distance below the upper free ends thereof, the upper sections **68** of fingers **67** diverging upwardly from the line of contact thereof. The outer elbows joining conductor walls **66** and fingers **67** engage the inside corner between channel section walls **60** ad legs **61** to lock the conductor sections **64** in position.

Track **9** is in end-to-end relationship with the bottom section of junction box **11,** with upper and lower grooves **45** and **48** in longitudinal alignment with respective upper and lower grooves **32.** Longitudinally extending rectangular coupling bars **69** extend between track **9** and junction box **11** and each bar **69** engages upper and lower sets of aligned grooves **32, 45** and **48.** Each bar **69** is provided with a plurality of longitudinally spaced medially located tapped bores which are engaged by screws **70,** which are tightened to bear on walls **17** and **43** releasably to lock junction box **11** and track **9** in end-to-end position. Conductor strips **64** are connected in any suitable manner to the electrical lines through junction box **11.** The outer free end of track **9** is releasably closed by a cover member **71** (FIG. **8**) which includes a vertical rectangular end plate **72** provided with a pair of opposite resilient clip fingers **73** extending from the upper side edges of end plate **72** and terminating in diverging end sections **74.** In the closed position of cover member **71,** end plate **72** covers the end opening of track **9** with fingers **73** resiliently bearing on the opposing inside faces of walls **43.**

The plug and fixture support assembly **12** is best seen in FIGS. **10** to **17** of the drawings and includes a rectangular metal base plate **76** of a width slightly less than that of the distance between the inside faces of track walls **43** and having formed therein a large circular central opening **77** and tapped vertical bores **78** medially located proximate the end of base plate **76.** A vertical metal conduit **79** having an externally threaded bottom section **80** depends from and is affixed to base plate **76** with its upper end secured in opening **77.**

Overlying base plate **76** and of substantially the same length thereof and of slightly less width is a molded flat insulator plate **82** having slightly longitudinally tapered diagonally opposite edges **85.** A pair of end openings **83** are formed in insulator plate **81** coaxial with tapped bores **78,** and a pair of transversely spaced openings **84** are medially located in insulator plate **81** and vertically register with opening **77.** Integrally formed with insulator plate **81** are a pair of upwardly directed positioning pins **86** which are located at the corners of insulator plate **81** opposite tapered edges **82.** Also integrally formed with insulator plate **81** between openings **83** and **84** somewhat closer to the former is a contact locking member **87** which includes a pair of transversely spaced parallel longitudinal vertical rectangular plates **88** connected by a medial transverse cross bar **89** extending upwardly from insulator plate **82** to a level below the top of plates **88.**

A unitary body member **90** formed of an insulating material and integrally molded advantageously of a synthetic polymeric resin is located atop insulator plate **81** and includes upper and lower sections **91** and **92** respectively. The periphery of lower section **92** coincides with that of insulator plate **82** and it is provided with recesses in its underface which engage locating pins **86,** and with vertical bores **94** which are coaxial with bores **83** and **78.** Upper section **91** is of rectangular configuration of a width equal to that of plate **76** and of a length somewhat less than the distance between bores **94,** the confronting longitudinal borders of plate **76** and upper section **91** delineating longitudinal channels **96.** A longitudinally extending, fuse housing, relatively deep cavity **97** is formed in upper section **91** and a relatively shallow cavity **98** formed in the underface of lower section **92,** cavities **97** and **98** being separated by a horizontal wall **99.**

A rectangular well **100** is formed in the underface of body member **90** proximate its left end, as viewed in FIG. **12,** and extends from bottom section **92** to a level short of the top face of upper section **91,** being delineated therefrom by a top wall **101.** A forwardly offset longitudinal slot **102** communicating with well **100** is formed in top wall **101.** Locking member **87** telescopes well **100** with the top faces of plates **88** closely spaced from the underface of wall **101.** Cavity **97** is delineated

by left and right end walls 105 and 103 respectively and front and rear walls 104 and 106 respectively. Wall 105 is spaced from the inner ends of plates 88 to delineate a passageway 107.

Opposite rectangular vertical slots 108 are formed in the inside faces of front and rear walls 104 and 106 adjacent to left end wall 102 and communicate with cavity 98 through corresponding aligned slots formed in bottom wall 98. A pair of opposing vertical rectangular grooves 109 are formed in the inside faces of front and rear walls 104 and 106 adjacent right end wall 103 and register with enlarged rectangular openings 110 formed in bottom wall 99 to provide access to cavity 98. Also formed in rear wall 106 intermediate the ends thereof is a vertical rectangular slot 111 extending from the top of rear wall 106 and provided with an inwardly downwardly inclined bottom face 112.

A rectangular recess 113 is formed in the top of right end wall 103 and extends through wall 103 and for a major part of the length thereof to leave vertical bars 114 which are provided with transversely aligned bores 116. The base 117 of recess 113 is of concave cylindrical shape coaxial with bores 116. The upper inner edges of frong and rear walls 104 and 106 are formed to provide depressed inside horizontal shoulders 118. It should be noted that left end wall 105 extends longitudinally inwardly a short distance from the left edge of groove 108 and the upper inner border thereof has a depressed horizontal shoulder 120 formed therein.

A cover member 121 is hinged to the top of left end wall 103 and includes a closure plate 122 of about the configuration of the top opening to cavity 97, having its left rear corner cut away at 123 so that when plate 122 is in closed condition the upper end of groove 108 in rear wall 106 is fully exposed. The right end 126 of cover plate 122 is of reduced width about equal to the distance between ears 114 and has depending from the underface thereof an integrally formed tubular knuckle 127 positioned between ears 114 and hinged thereto by a cylindrical pin 128 engaging bores 116 and the bore in knuckle 127. Also integrally formed with cover plate 122 and medially depending therefrom is a pair of transversely spaced downwardly converging clip fingers 129 provided along their bottom inner borders with cam defining inwardly directed convex extremities 130. The upper ends of fingers 129 are positioned shortly inwardly of the edges of cover plate 122 to permit the entry of fingers 129 into cavity 97 with the closing of cover member 121, the border of lower plate 122 resting on shoulders 118.

A first contact member 132 is in the form of an L-shaped metal strip including an upright leg 133 projecting through slot 102 and a horizontal leg 134 provided with a depending integrally formed eye lug 136. The ends of horizontal leg 134 on opposite sides of lug 136 are clamped between the underface of wall 101 and the top faces of plates 88 with lug 136 being disposed between plates 88 and tightly engaging the bared end of a first insulator covered conductor 137 which extends through passageway 107, between wall 99 and plate 81 and through conduit 79.

A second contact member 138 includes a vertical rectangular leg or prong 139 which engages slot 108 in rear wall 106 and projects above body member 90 to the level of the top of prong 133. Extending transversely from the bottom of vertical leg 139 is a transverse horizontal bottom leg 140 which is disposed below wall 99 and overlies insulator plate 81. A resilient undulate clip arm 141 projects upwardly from the forward edge of bottom leg 140 through a recess in bottom wall 90 to a level below shoulders 118. The upper section 142 of arm 141 is rearwardly concave and is in alignment with slot 108 in front wall 104.

A channel shaped or U-shaped metal clip 143 is disposed in body member 90 proximate end wall 103 and includes a flat bottom cross arm 144 overlying insulator plate 81 and provided with an integrally formed upwardly projecting medial eye lug 146. The bared end of a second insulator covered conductor 145 is engaged by lug 146 and extends underneath wall 99 and through openings 84 and 77 and conduit 79. Projecting upwardly from the front and rear edges of cross arm 144 are inwardly upwardly inclined sections 147 which extend through openings 110 and join a pair of curved resilient clip arms 148 having concave confronting faces and terminating at levels below shoulders 118 and transversely aligned with grooves 109.

A clip assembly 149 for releasably grounding and securing the coupled plug 12 to track 9 includes a pair of similarly shaped spring members 150 disposed along the opposite front and rear walls of body member 90. Each spring member 150 is formed of a resilient metal band and includes a longitudinally extending arm 151 registering with a corresponding channel 96 in body member 90, one end of arm 151 terminating at an end edge of body member bottom section 92. Extending transversely from an upper end edge of arm 151 and overlying the top wall of body member bottom section 92 is a horizontal cross arm 152 terminating in a depending leg 153 and having an aperture 154 therein registering with bore 94. Plug 12 is locked in an assembled condition by a pair of screws 156 registering with corresponding aligned openings 154, 94 and 83 and engaging tapped bore 78.

The end of each arm 151 proximate insulator plate corner edge 82 is provided with an inwardly offset section 157 normally urged into resilient engagement with the inside face of a respective opposing leg 153 and flanked by inwardly converging short side arms 158. A vertically upwardly projecting arm 159 is integrally formed along the outer edge of outer side arm 158 and is disposed longitudinally outwardly of body member 90 and terminates at its top in an inwardly directed, upwardly convex, cam defining curved grounding leg 160. An outwardly projecting detent 161 is located in the outer face of arm 159 intermediate its top and bottom and is defined by a downwardly outwardly inclined leg provided with a downwardly outwardly inclined bottom shoulder 163 and formed from arm 159. Projecting from the lower edge of arm 159 is an upwardly inclined leg 164 terminating in a depending finger piece 165.

In the normal operative condition of the improved mounting assembly, a cartridge type fuse 166 including end contact caps 167 is housed in cavity 97 with contact caps 167 respectively releasably engaged by clip member 143 and between clip arm 141 and arm 139. The cover member 121 is closed with its borders resting on shoulders 118 and its top face coplanar with the top face of body member 90. Arms 129 embrace fuse 166 with lips 130 engaging the underface of fuse 166 releasably to lock cover member 121 in closed position.

Any desired electrical fixture may be mounted to conduit 79 as facilitated by the threaded end 80 and is

connected in any suitable manner to the conductors 137 and 145, the conductor 137 being in turn connected to prong 133 and the conductor 145 being connected through fuse 166 and the associated fuse clip members to prong 139, prongs 133 and 139 being medially transversely offset whereby the coupling of the plug to the conductors can be accomplished only when properly oriented or polarized. The fixture and the associated plug assembly 12 are coupled to track 9 and conductor sections or busses 64 by pushing the upper or head end of plug assembly 12 in proper orientation upwardly between track walls 17. The spring arms 151 are contracted by the bottom ends of walls 43 bearing on the upper outer faces of lips 160 to permit the insertion of plug assembly 12. The outwardly sprung spring arms 151 urge arms 159 into engagement with the inside faces of walls 43 to ground the supported fixture and conduit 79 by way of plate 76, screws 156 clip assembly 150, track 9 and junction box 11 before prongs 133 and 139 engage busses 64. Upon further insertion of the plug head, end arms 159 are further contracted by walls 17 bearing on the upper faces of detents 161 and prongs 133 and 139 are inserted between respective pairs of socket legs 67 to spread their inner end sections which tightly engage the respective prongs 133 and 139 and effect a good electrical engagement therewith. The plug head is raised until detents 161 register with grooves 52, at which level spring arms 151 expand to effect the engagement of grooves 52 by detents 161 with detent shoulders 163 resting on groove shoulders 26, thereby locking the plug assembly 12 in a mounted electrically coupled position.

In order to unplug and detach the plug assembly 12 from track 9 the finger pieces 165 are contracted to withdraw detents 161 from grooves 24 and the assembly is lowered and withdrawn from track 9. Alternatively only one of the finger pieces 165 may be contracted to withdraw a corresponding detent 161 from a respective groove 24 and the plug assembly is then swung about a transverse axis to disengage the other detent 161 from the opposite groove 24 thereby permitting the lowering of the plug assembly. In the event fuse 166 blows it may be replaced by opening cover 121 by the insertion of the blade of a screw driver through slot 111 and prying cover 121 to swing upwardly thereby to expose fuse cavity 97. The blown fuse is then easily removed and can be replaced by a fresh fuse and the cover 121 swung back to closed position.

While there has been described and illustrated a preferred embodiment of the present invention, it is apparent that numerous alterations, omissions and additions may be made without departing from the spirit thereof. For example, the track section 9, although shown as overhead and horizontal, may assume any desired position and orientation, horizontal, vertical or inclined and the orientation and direction of conduit 79 may likewise be varied. Moreover, the present system may be employed with an unfused coupling section 12 and various plug element structures may be used for connecting conductors 64 to the electrical lines through the junction box.

I claim:

1. An electrical coupling and support device comprising a track member having formed therein a longitudinal channel provided with transversely spaced opposing faces, each of said faces having a longitudinally extending recess therewithin defining a shoulder located thereon, a longitudinally extending socket member disposed in the inner end of said channel and including a pair of transversely spaced longitudinally extending conductors, a plug member of transverse dimension less than that of said channel throughout its entire length and substantially wholly disposable within and separably engaging said channel between the opposing faces thereof and including a pair of transversely spaced contact blades releasably engaging respective conductors, and a pair of normally resiliently transversely outwardly urged detents connected to the body of the plug and having track-engaging elements extending outwardly from opposite sides of the said plug and engaging respective of said recesses to lock said plug releasably within said track.

2. The device of claim 1 wherein said plug member includes a body member of insulating material and having opposite faces, said detents projecting laterally outwardly from said body member and comprising a resilient arm extending along each of said side faces and secured at an inner end of each thereof to said body member and having its opposite outer end transversely resiliently urged away from said body member, said detents being located on said resilient arms proximate said outer ends thereof:

3. The device of claim 2 including a finger piece positioned on said resilient arm proximate its outer end and directed outwardly of said channel.

4. The device of claim 2 including a pair of said resilient arms extending along said opposite side faces of said body member and secured at their inner ends to diagonally opposite points of said body member, one of said detents being positioned on each of said resilient arms proximate the outer ends thereof, each of said channel faces having a longitudinally extending inwardly directed shoulder located thereon.

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