March 28, 1961 M. NEUMANN ET AL 2,977,566

LIGHTING ASSEMBLY

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Fig. 1.

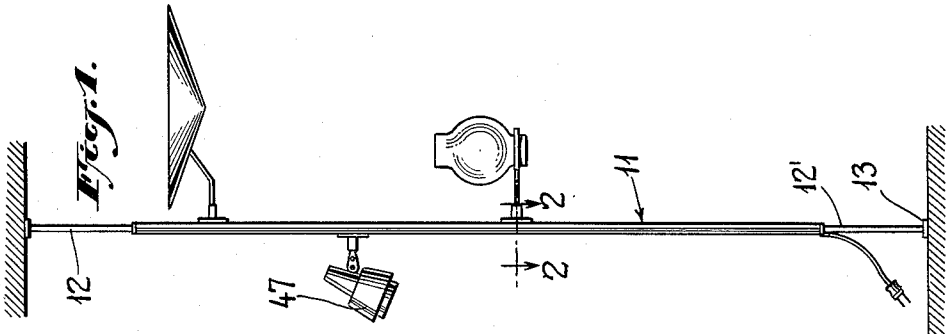


Fig. 2.

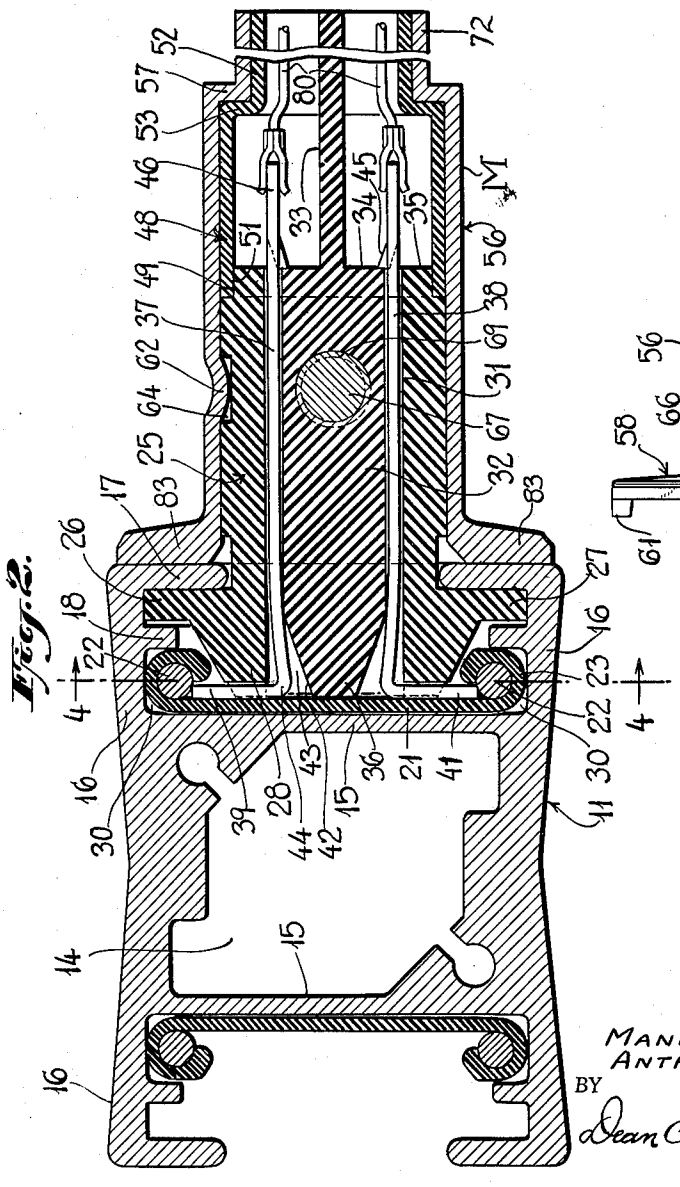
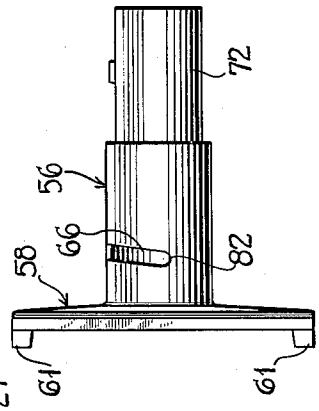


Fig. 3.



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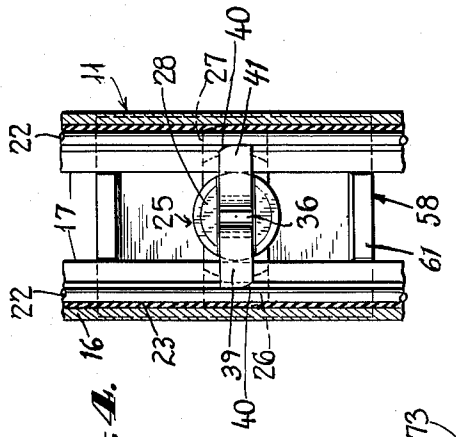


Fig. 4.

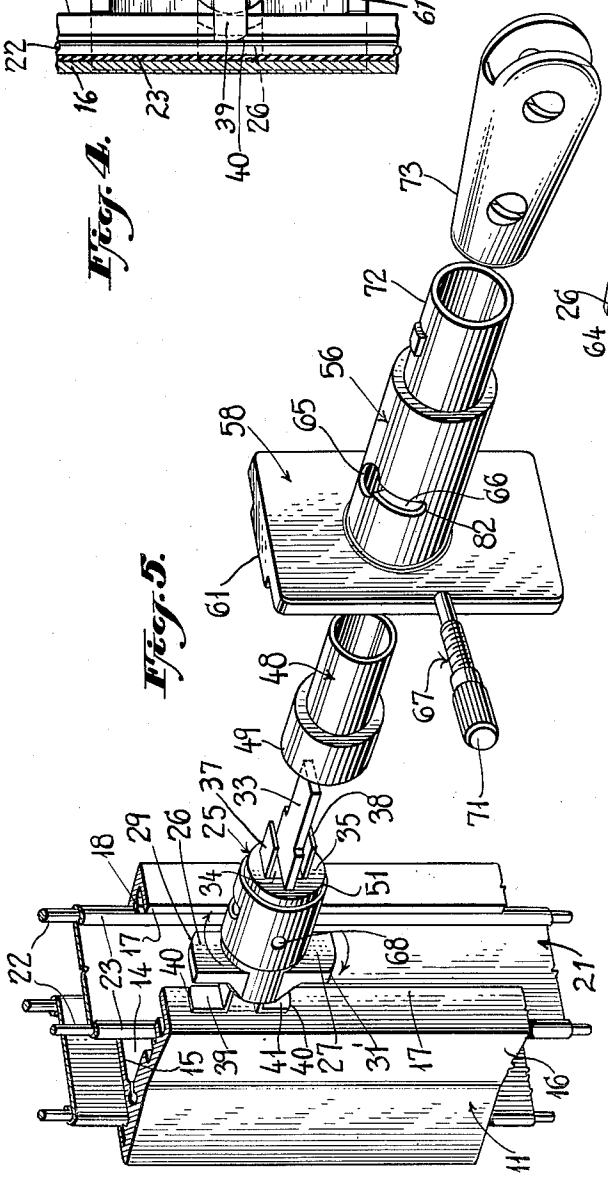


Fig. 5.

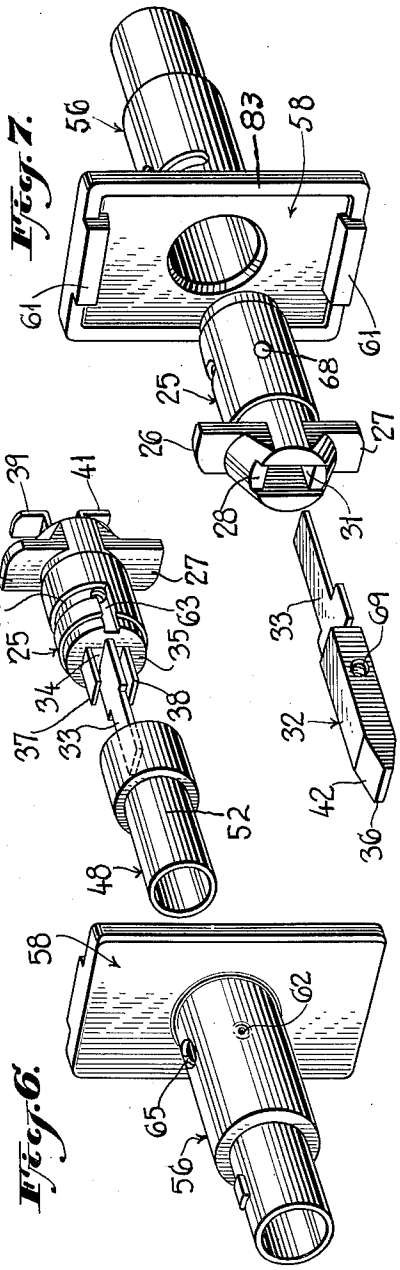


Fig. 7.

Fig. 6.

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LIGHTING ASSEMBLY

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9 Claims. (Cl. 339—119)

This invention relates to the art of electric illumination and more particularly to a lighting assembly including a movable mount for a lighting fixture.

As conducive to an understanding of the invention, it is noted that where a lighting fixture is rigidly mounted on a vertical support or post, for example, where the vertical position of the lighting fixture cannot be adjusted, the illumination cast by the fixture may not be at the proper location.

Where the fixture is so mounted on the post that it can be detached therefrom and moved to another position thereon, if any live wires are exposed, danger of shock and injury exists.

Where the fixture is not dependably secured to the post, it is likely to slide down or fall from the latter with resultant destruction thereof.

Where the lighting fixture must be secured to the post by complicated clamps or screws requiring tools, it is difficult and time-consuming to adjust, rendering it undesirable to the average user.

It is accordingly among the objects of the invention to provide a lighting assembly that is relatively simple in construction and not likely to become deranged, which assembly includes an electric fixture and an elongated rigid member or post on which the mount may readily be positioned at any location along the length thereof and securely yet releasably locked at such location with a relatively simple manipulation without any need for tools and which assembly when the mount is so locked or removed from the post will not have any live wires exposed which might cause shock or injury.

According to the invention, these objects are accomplished by the arrangement and combination of elements hereinafter described and particularly recited in the claims.

In the accompanying drawings in which is shown one of various possible embodiments of the several features of the invention,

Fig. 1 is an elevational view of a typical lighting assembly according to the invention,

Fig. 2 is a transverse sectional view on a greatly enlarged scale taken along line 2—2 of Fig. 1,

Fig. 3 is a side elevational view of the plug housing,

Fig. 4 is a sectional view taken along line 4—4 of Fig. 2,

Fig. 5 is a fragmentary perspective exploded view of the post and lamp mount,

Fig. 6 is a view similar to Fig. 5 of the lamp mount alone, taken from a different view, and

Fig. 7 is a view similar to Fig. 6 taken from the rear of the housing plate.

Referring now to the drawing, in the illustrative embodiment shown in Fig. 1, the lighting assembly comprises an elongated rigid member or post 11 having a spring urged plunger rod 12, preferably extending longitudinally from the upper end thereof and an adjustable rod 12' which may set to any desired position, extending longitudinally from the lower end thereof, said rods reacting at their respective ends 13 against the

ceiling and floor of a room to retain the unit in vertical position in well known manner.

As shown in Fig. 2, the post 11, which preferably is an aluminum extrusion, has a bore 14 extending longitudinally therethrough defining opposed side walls 15. Extending laterally from the ends of each of the side walls are continuous flanges 16, each of which has an inwardly extending lip 18 between its root end and its extremity and an additional lip 18 at its extremity, said lip 17 projecting inwardly a greater amount than lip 18.

Positioned against each of the side walls 15 of post 11 is an elongated strip 21 of insulating material such as vinyl or other plastic which has conducting wires 22 embedded in each of the longitudinal edges 23 thereof, said strip 21 also preferably being an extrusion.

As shown in Fig. 2, the edges 23 of the strip 21 are against the portions of flanges 16 between side wall 15 and lips 18 and by reason of the resilience of the plastic strip 21 it will be securely retained in such position.

Adapted to be securely yet releasably connected to the post 11 is a lamp mount M which comprises a plug 25 of suitable insulating material adapted to be positioned in the recess 30 defined by side wall 15 and parallel flanges 16. As shown in Fig. 2, the plug 25 has a pair of diametrically opposed locking flanges 26, 27 near the nose end 28 thereof, the upper right hand corner 29 and the lower left hand corner 31' of said flanges 26, 27, referring to Fig. 5, being beveled as shown for the purpose hereinafter set forth. The width of the locking flanges 26, 27 is slightly less than the distance between opposed lips 17 so that the flanges may readily fit therebetween.

The plug 25 has a longitudinal bore 31 in which is positioned a plug insert 32, the bore 31 and insert 32 both being rectangular in cross section. The insert 32 has a substantially rectangular separator plate 33 extending longitudinally from its outer end 34 and the insert is of length such that when the end 34 thereof is flush with the end 35 of plug 25, the nose end 36 of the insert extends beyond the inner end 28 of the plug 25.

Extending through the bore 31 of the plug 25 is a pair of conducting strips 37, 38, which are securely retained in the plug by the insert 32 which clamps the strips against the bore wall of the plug. The inner ends of the strips 37, 38 are bent outwardly at right angles to the length thereof so that they extend past the nose end 28 of the plug and define contact fingers 39, 41, the upper right hand corner of finger 39 and the lower right hand corner of finger 41 being beveled as at 40 as is clearly shown in Fig. 5. To permit inward displacement of the contact fingers 39, 41, the nose end 36 of the insert is desirably beveled as at 42 to provide clearance at 43 for the root ends 44 of the contact fingers.

To prevent inward movement of the strips 37, 38 each has a struck out portion 45 adapted to abut against the end 34 of the insert 32 as shown in Fig. 2.

To shield the ends 46 of the contact strips 37, 38 to which the ends of the electric wires 80 of the lamp or lighting fixture 47 are connected, an insulating member 48 is provided. This member desirably comprises a sleeve, the inner end 49 of which is retained as by force fit on an annular peripheral shoulder 51 at the end 35 of the plug 25. The sleeve 48 at its outer end 52 is of reduced diameter defining an annular shoulder 53.

Encompassing the plug 25 is a substantially cylindrical housing 56 of reduced diameter adjacent its outer end defining an annular shoulder 57 adapted to abut against shoulder 53 of insulating sleeve 48 to retain the latter in position.

Rigid with the inner end of housing 56 is a face plate 58 which has an opening therethrough axially aligned with the bore of housing 56. The face plate 58 on its

inner surface at its upper and lower edges has projections or bosses 61 of width but slightly less than the distance between lips 17 so that the projection may readily fit therebetween, thereby precluding rotation of the plate 58 and housing 56 with respect to the rigid member or post 11.

The housing 56 has a depression or dimple 62 therein which coacts with the longitudinal and transverse portions 63, 64 of a groove in the surface of the plug 25 to retain the housing 56 and plug 25 in releasable engagement, yet permit relative rotary movement therebetween.

The housing 56 has an opening 65 in communication with a circumferential slot 66, the latter being of width less than the diameter of opening 65. As shown in Fig. 3, the slot is desirably inclined outwardly from the plate from its end 82 for the purpose hereinafter set forth. A headed screw 67 extends through the opening 65 and through transverse bore 68 in plug 25 into a threaded bore 69 in the insert 32. The head 71 of the screw is of diameter greater than the width of slot 66 so that when it is aligned with opening 65 and extends therein, the screw cannot be moved into the slot 66. The opening 65 and associated slot 66 are of length such as to permit the screw 67 to move through an angle of 90 degrees from one end of slot 66 to the opening 65.

The housing 56 has a reduced portion 72 designed to receive a lamp mount 73 of any suitable type. In the embodiment shown in Fig. 5 the lamp mount is a sleeve adapted to encompass the reduced portion 72 of the housing so that it may be rotated thereon and a lamp 47 is mounted on sleeve 73 in any suitable manner.

To assemble the mount M, the conducting strips 37, 38 are inserted into the bore 31 of plug 25 and the insert 32 is then positioned in the bore securely to clamp the strips in position. Electrical leads 80 from a lighting fixture 47 are connected to the outer ends of the strips on each side respectively of the separator plate 33. The insulating sleeve 48 is then mounted on the peripheral shoulder 51 to provide complete insulation for the ends of the strips 37, 38.

The housing 56 is then positioned over the plug 25, the depression or dimple 62 riding in the longitudinal portion 63 of the groove in the plug to the root end thereof. With the housing 56 thus positioned over the plug 25, the slot 66 will be aligned with the transverse bore 68 in the plug 25 and the threaded bore 69 in insert 32. The screw 67 is then inserted through the slot 66 and bore 68 into the threaded bore 69 and rotated until its head 71 is against the casing 56.

To use the mount M, with the screw at the end 82 of the slot 66 and with a conventional lamp 47, for example, mounted on the sleeve 73 which encompasses portion 72 of the housing 56, the plate 58 is positioned against the post 11 so that the bosses 61 are located between the lips 17 with the side portions 83 of the plate 58 resting against the outer surface of lips 17 as shown in Fig. 2. With plate 58 so positioned, the locking flanges 26, 27 will be aligned with the recess 30 between flanges 16 and the contact fingers 39, 41 will be aligned with the conducting wires 22.

The screw 67 is then rotated through an angle of 90 degrees to rotate the plug 25 in a corresponding direction from the position shown in Fig. 5. By reason of the fact that the depression 62 is now located at the end of the longitudinal portion 63 of the groove in the plug 25 aligned with the end of circumferential portion 64, rotation of plug 25 is permitted and the depression 62 will then be in the circumferential portion 64 thereby locking the plug 25 and the housing 56 together.

As the plug 25 is rotated, the locking flanges 26, 27 will enter the spaces between the associated pairs of lips 17 and 18 thereby preventing outward movement of the mount M from the post 11. Rotation of plug 25 will also cause the contact fingers 39, 41 to rotate so that the ends thereof will wedge between the wires 22 and the strip 21 thereby dependably engaging the associated conducting wire 22 to make a good electrical connection.

By reason of the beveled corners 29, 31' of the locking flanges, the plug 25 can be rotated through an angle of 90 degrees at which time the ends of the locking flanges will be wedged against the flanges 16 of the post 11.

When the plug 25 has been thus rotated, the head 71 of screw 67 will be aligned with the opening 65 and the screw is then turned so that the head thereof will enter the opening 65 to prevent rotation of the plug in the opposite direction for release thereof. As the slot 66 is inclined outwardly from plate 58 from its end 82, when the plug is rotated, it will also move outwardly and as the locking flanges 26, 27 are slightly flexible, the lip 17 will be securely clamped between the side edges 83 of plate 58 and locking flanges 26, 27 to prevent sliding movement of the mount M down the post 11.

With the construction above described, a lamp may be mounted at any desired position along the length of the post and securely, yet releasably locked in such position.

As the mount M cannot be removed from the post without first rotating the plug to move the contact fingers 39, 41 out of engagement with the contact wires 22, there is no danger of any exposed electrical connection being accessible to the user.

By reason of the engagement of the bosses 61 in the vertical space between the lips 17, rotation of the lamp 47 itself on housing 56 will not cause dislodgment of the contact fingers 39, 41 so that the electrical connection with the wires 22 will not be broken.

Even if the screw 67 should inadvertently be removed when the contact fingers are in engagement with wires 22, by reason of the fact that the depression 62 is in the circumferential portion 64 of the groove in the plug 25, the housing 56 cannot be removed from the plug 25, thereby eliminating any possibility of exposure of the ends 46 of the strips 37, 38 while the contact fingers are engaging the wires 22, thus precluding possibility of shock.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. As an article of manufacture, a lamp mount comprising a housing having lateral locking conformations rigid therewith, a plug rotatably mounted in said housing, said plug having a nose end normally protruding from one end of said housing and having a pair of diametrically opposed locking flanges extending laterally from said plug adjacent its nose end, said locking flanges and said locking conformations coacting with each other to effect a clamping action, a pair of diametrically opposed contact fingers extending laterally outward from the nose end of the plug and aligned with and spaced from said locking flanges, and means to rotate said plug, the locking flanges and the contact fingers in unison with respect to said housing, to move said locking flanges into alignment with said locking conformations and to move said locking flanges toward said locking conformations to effect such clamping action.

2. The combination set forth in claim 1 in which said plug has an axial bore therethrough, a pair of spaced parallel conducting strips extend through said axial bore and protrude beyond the nose end, said contact fingers extending laterally from the protruding ends of said strips, and an insert in said bore between said contact strips, securely retains the latter in position in said bore.

3. The combination set forth in claim 1 in which said plug has an axial bore therethrough, a pair of spaced parallel conducting strips extend through said axial bore and protrude beyond both ends of the plug, said contact fingers extending laterally from the ends of the strips protruding beyond the nose end of the plug, an insert is positioned in said bore between said conducting strips securely to retain the latter in position in said bore, said insert having a plate rigid therewith and extending longitudinally from the end of the insert remote from the nose end of the plug, said plate extending between and beyond the associated protruding ends of said conducting strips, a sleeve of insulating material is positioned in said housing and affixed at one end to the end of the plug remote from the nose end thereof, said insulating sleeve encompassing the associated protruding ends of said conducting strips.

4. The combination set forth in claim 1 in which said plug has an axial bore therethrough, a pair of spaced parallel conducting strips extending through said axial bore and protrude beyond the nose end, said contact fingers extending laterally from the protruding ends of said strips, an insert is positioned in said bore between said conducting strips securely to retain the latter in position in said bore, the end of said insert adjacent the nose end of said plug being beveled to provide clearance for the root ends of said contact fingers.

5. The combination set forth in claim 1 in which a substantially rectangular plate is rigid with the housing at the end thereof adjacent the nose end of the plug, said plate extending at right angles to the axis of the housing and having an opening aligned with the bore of said housing, said plate at two opposed ends having stop conformations extending transversely thereacross terminating short of the side edges of the plate, said housing having an elongated slot therethrough extending circumferentially with respect to the housing, one end of the slot being aligned with a line extending longitudinally of the plate from one of the two opposed ends thereof to the other, and midway between the side edges of said plate, said slot occupying substantially 90 degrees of arc and the means to rotate said plug comprises a screw extending through said slot into said plug at a point aligned with said longitudinal line.

6. The combination set forth in claim 5 in which said plug has a peripheral groove having a portion extending from the end thereof remote from the nose end, toward said nose end, parallel to the axis of the plug along a line diametrically opposed to the point through which the screw extends into the plug, and a portion occupying substantially 90 degrees of arc extending circumferentially from the root end of said axial portion in a counterclockwise direction with respect to the end of the plug remote from its nose end, toward the point through which the screw extends, and the housing has a protruding portion on its inner surface diametrically opposed to the end of the slot displaced substantially 90 degrees from the first end thereof, said protruding portion being located in said groove.

7. As an article of manufacture an elongated rigid member having an elongated recess therein defining a pair of side flanges each with an inwardly extending lip at its end and a second inwardly extending lip between

the first lip and the root end of each of said side flanges, a pair of conducting wires positioned respectively adjacent each of the flanges between the root end thereof and the second lip, a lamp mount comprising a housing having lateral locking conformations rigid therewith, a plug rotatably mounted in said housing, said plug having a nose end normally protruding from one end of said housing and having a pair of diametrically opposed locking flanges adjacent its nose end, each of width less than the space between the first lips, a pair of diametrically opposed contact fingers extend laterally outward from the nose end of the plug and are aligned with and spaced from said locking flanges, means to restrain rotation of said housing with respect to said rigid member, means to rotate said plug, the locking flanges and the contact fingers in unison with respect to said housing to move said locking flanges between the associated lip into alignment with said locking conformations, and to move the outer ends of said contact fingers into engagement with said conducting wires, and to move said locking flanges toward said locking conformations to clamp said lips therebetween.

8. The combination set forth in claim 7 in which said housing has a substantially rectangular plate rigid therewith through which extends the nose end of said plug, the lateral edges of said plate defining the locking conformations which are adapted to engage the outer surface of said first lip, the means to restrain rotation of said housing with respect to said rigid member comprises transversely extending protruding member at at least one end of the plate adapted to be positioned in said recess to prevent rotation of said plate with respect to said elongated rigid member.

9. As an article of manufacture, an elongated rigid member having an elongated recess therein defining a wall with a pair of substantially parallel side flanges each with an inwardly extending lip at its end and a second inwardly extending lip between the first lip and the root end of each of said side flanges and an elongated insulating strip positioned in said recess against the wall thereof between said flanges with the lateral edges of said strip against the flanges between the wall and said second lips, said strip having conducting wires located adjacent each of the lateral edges thereof.

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