# United States Patent

[11] 3,596,226


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[45] Patented **July 27, 1971**


[54] **ELECTRICAL POER TRACK AND SHOE**
**6 Claims, 17 Drawing Figs.**


[52] **U.S. Cl.** ..... **339/21 R,** 339/14 R, 339/22
[51] **Int. Cl.** ..... **H01r 9/00,** H01r 3/06
[50] **Field of Search** ..... 339/14, 20, 21, 22, 23, 24



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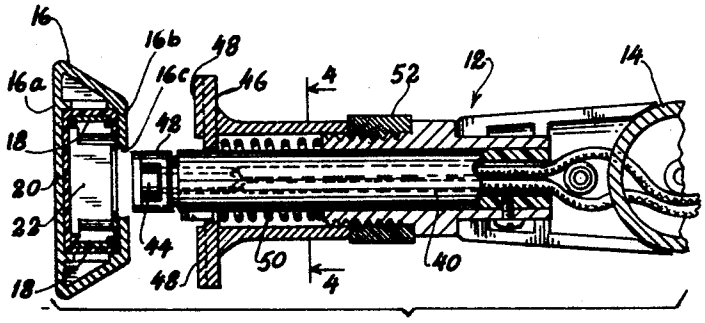
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*Primary Examiner*—Ernest R. Purser
*Assistant Examiner*—Robert A. Hafer
*Attorney*—Stoll and Stoll



**ABSTRACT:** A track for wall mounting comprises two plane-parallel conductors extending the length of the track. A shoe for engagement with the track embodies a narrow elongated extension having pickup contacts at opposite ends thereof adapted for engagement with the track conductors upon rotation of the extension after fitting into the track. A spring-urged locking plate engages the track opening to prevent further rotation of the contact extension. The track enclosure and the locking plate may be conductors to provide a third line for grounded systems.

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SHEET 1 OF 3

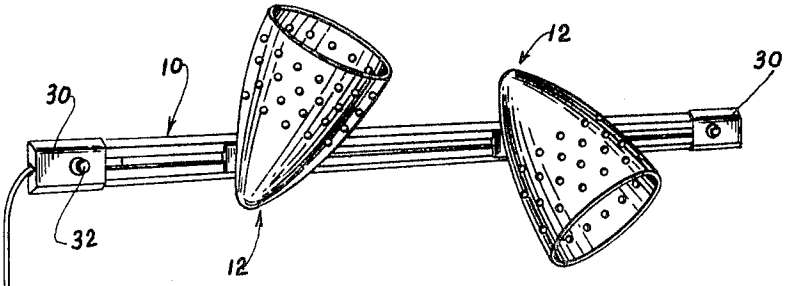



Fig. 1

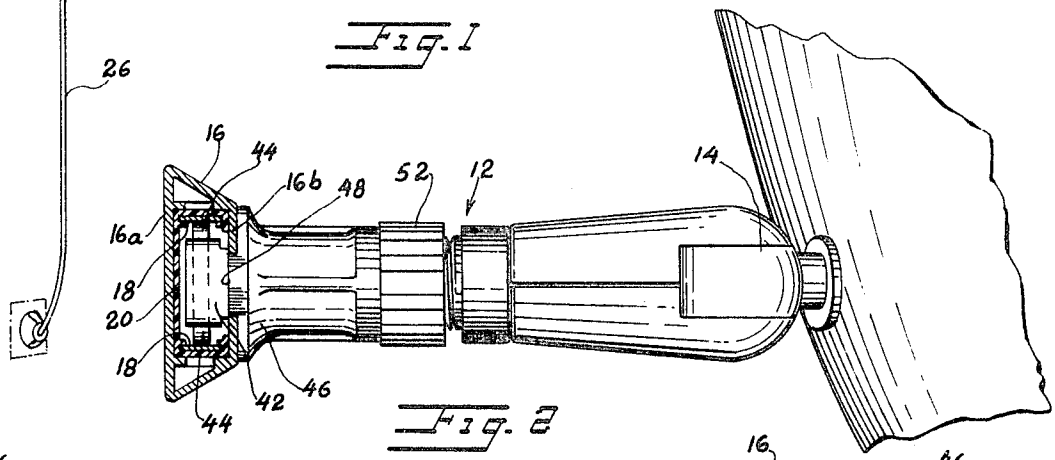



Fig. 2

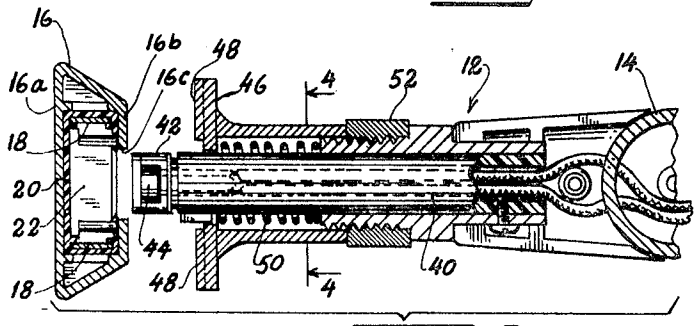



Fig. 3

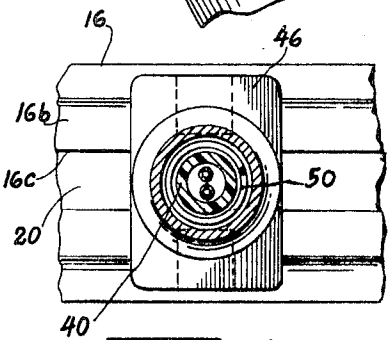



Fig. 4

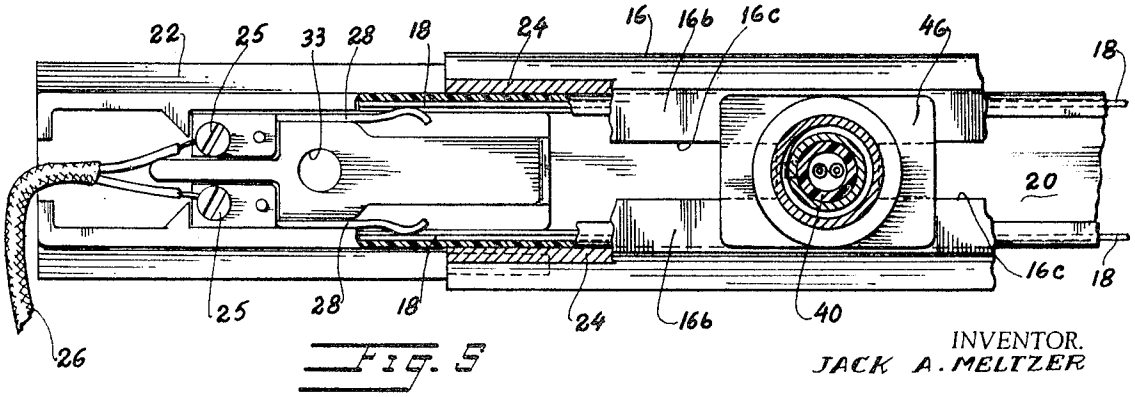



Fig. 5

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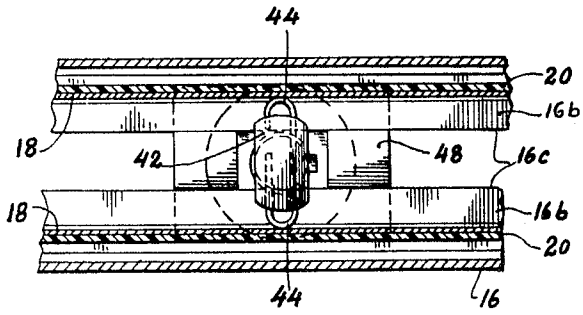



Fig. 7

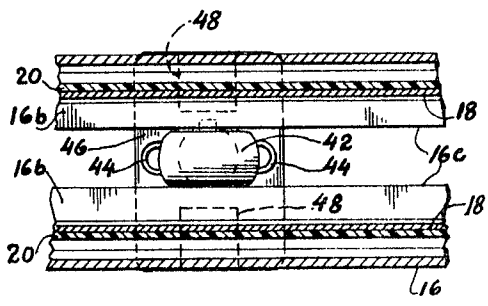



Fig. 6

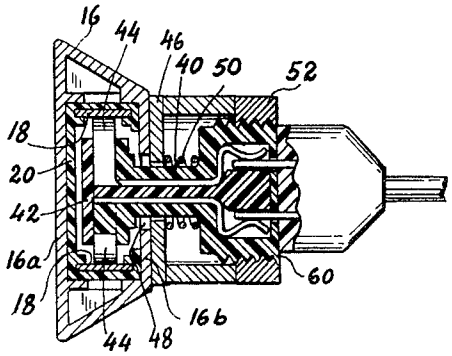



Fig. 9

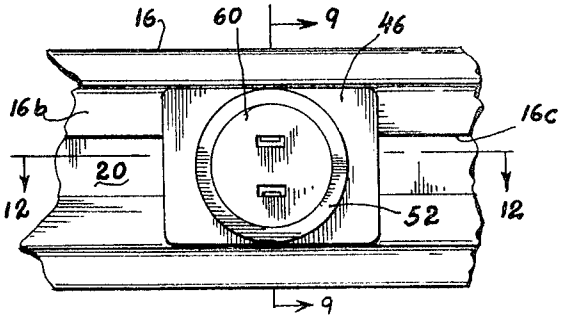



Fig. 8

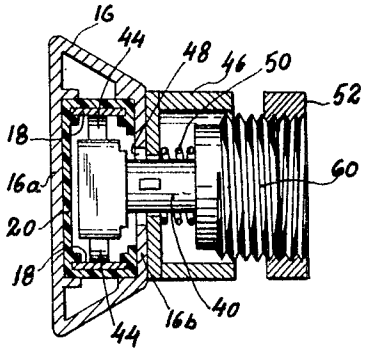



Fig. 10

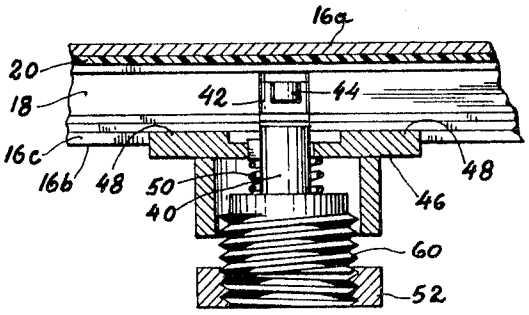



Fig. 12

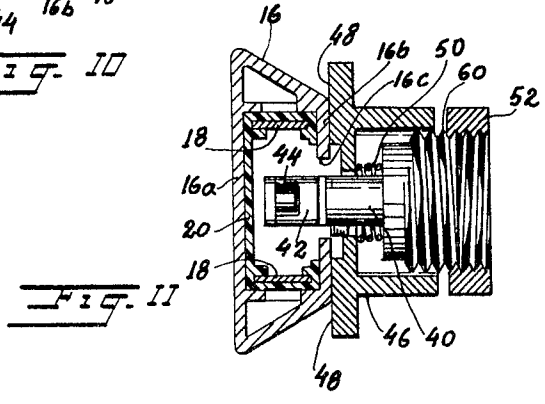



Fig. 11

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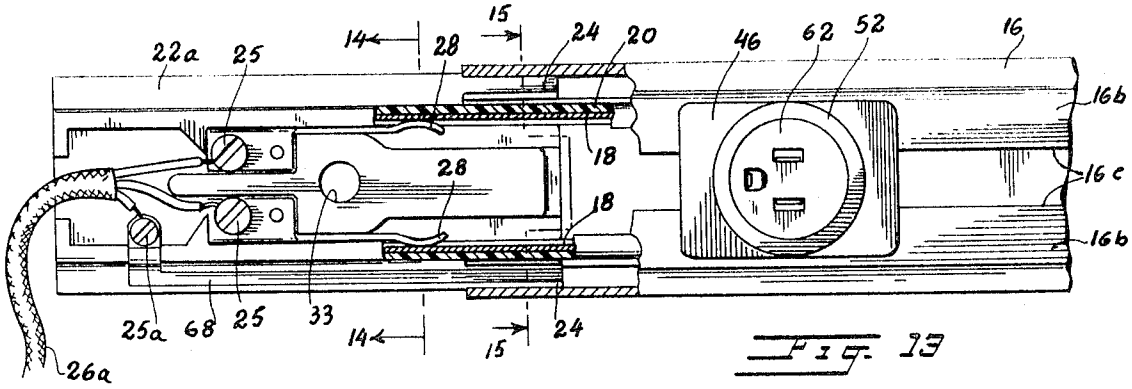



Fig. 13

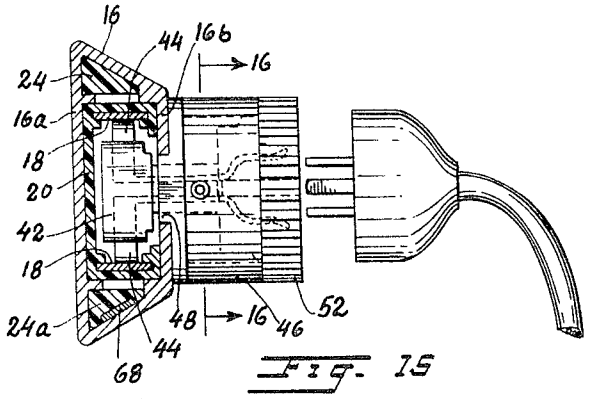



Fig. 15

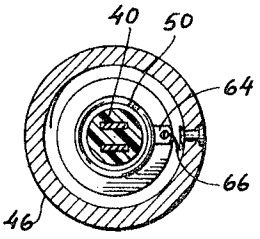



Fig. 16

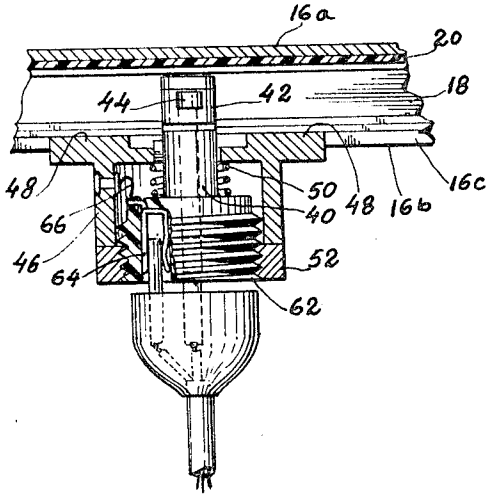



Fig. 17

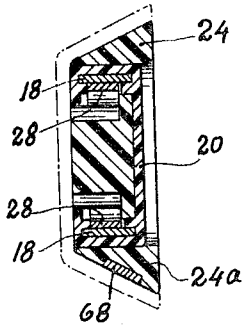



Fig. 14

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# ELECTRICAL POER TRACK AND SHOE

## BACKGROUND OF THE INVENTION

1. Field of the Invention

Electrical power distribution tracks and accessory pickup shoes.

2. Description of the Prior Art

The prior art abounds with various devices to enable a power supply to be offered in an elongated dimension rather than at a single point as is the case with a common wall outlet. Some devices involve a plurality of outlets placed in side-by-side relation, others involve a wire having insulation soft enough to be punctured at any location. Another device is shown by Glass U.S. Pat. No. 2,981,917: a tubular member has a slot for access to live contacts.

## Summary of the Invention

A flat track adapted for wall mounting includes a decorative outside covering which is preferably a conductor and two elongated conductors being plane-parallel and oppositely disposed about an opening in the track. Suitable insulation is provided between the conductors and the decorative exterior of the track.

Connection between the conductors and a power supply is provided by an end fitting having tongues which slide securely between the track covering and the contact insulation and which have extended spring shoes for contact with the conductors. Common screw terminals are provided in the end fitting for connection to a power supply wire.

An accessory pickup shoe utilizes an elongated extension having a reduced lateral dimension to fit within the track opening and opposite pickup contacts adapted to engage the track conductors upon 90° rotation of the accessory shoe. A locking plate having raised flanges engages the track and prevents further rotation of the accessory shoe except upon withdrawal of the plate from the track against a spring. A threaded collar may lock against the locking plate to prevent such withdrawal.

## Brief Description of the Drawing

FIG. **1** is a perspective view of the power track of the present invention with two accessory pickup shoes engaged therewith. The form of the accessories being lamps.

FIG. **2** is a side view of an accessory pickup shoe engaged with the power track which is shown in cross section.

FIG. **3** is a cross-sectional view of the power track and lamp accessory shoe shown in position for engagement into the track. The locking plate and collar are retracted.

FIG. **4** is a cross-sectional view taken across line **4–4** of FIG. **3**.

FIG. **5** is a fragmentary top view of the power track and end fitting, partially cut away, with an accessory shoe in cross section shown mounted on the track.

FIG. **6** is a cross-sectional view of a portion of the power track as taken across line **6–6** of FIG. **3**.

FIG. **7** is a view similar to that of FIG. **6** but showing the accessory shoe locked into the power track.

FIG. **8** is a fragmentary top view of the power track with an outlet accessory shoe mounted thereon.

FIG. **9** is a cross-sectional view taken across line **9–9** of FIG. **8** and showing a plug in the outlet.

FIG. **10** is a view of the outlet accessory and track of FIG. **9** showing the locking collar retracted and the contact extension in full view.

FIG. **11** is a view similar to that of FIG. **10** but showing the accessory shoe rotated 90°

FIG. **12** is a cross-sectional view across line **12–12** of FIG. **8** showing the locking collar retracted.

FIG. **13** is a similar view to that of FIG. **5** but showing a three wire connection with a three line accessory outlet shown in full view.



FIG. **14** is a cross-sectional view taken across line **14–14** of FIG. **13** showing in phantom the position of an end cap.

FIG. **15** is a cross-sectional view taken across line **15–15** of FIG. **13** with a three conductor plug.

FIG. **16** is a cross-sectional view taken across line **16–16** of FIG. **15**.

FIG. **17** is a fragmentary cross-sectional view similar in position to that of FIG. **12** and showing in detail the third conductor connections.

## Description of Preferred Embodiments of the Invention

Referring to the drawing, the present invention comprises a power track **10** for use with accessory pickup shoes **12** of varying descriptions. A lamp having adjustable swivel mounts **14** is a prime example. Power track **10** comprises an elongated outer member **16** having a flatback **16***a* for ease of placement against a wall or ceiling surface and a front portion **16***b* comprising a flat surface having a central longitudinal opening **16***c* therein. Running within and longitudinally of power track **10** are two conductors **18** located oppositely of opening **16***c* and having their respective planes parallel to each other in face-to-face relation. Situated between conductors **18** and outer member **16** is an insulating sleeve **20** which also covers the bottom portion **16***a* of the track.

An end fitting **22** has tongues **24** adapted to slide firmly within power track **10** between outer member **16** and insulating sleeve **20** for secure joining of the end fitting to the power track. Two screw terminals **25** adapted to connect a power supply cord **26** join to spring contacts **28**, each of which engages a conductor **18**. Conductors **18** are accordingly connected to a power supply. End fitting **22** may be covered with decorative and insulating end covers **30** having snap fasteners **32** adapted to engage a hole **33** provided for the purpose in the end fitting.

Accessory shoe **12** comprises a central core **40** having a bottom extension **42** of elongated dimension sufficient when turned parallel to track opening **16***c* to be inserted therein and when rotated 90° axially of core **40** sufficient to engage conductors **18** with contacts **44** provided for the purpose. Around core **40** is a locking plate **46** which is spring-urged toward extension **42**. Locking plate **46** is provided with central flanges or enlargements **48** adapted to enter track opening **16***c* and lock therein to prevent rotation of accessory shoe **12** relative to the power track unless and until locking plate **46** is withdrawn longitudinally of core **40** away from the power track against the urging of spring **50**.

A threaded collar **52** is provided on core **40** to engage locking plate **46** and prevent retraction thereof as desired. Threaded collar **52** may be knurled for a nonslip outer surface. Wires run through core **40** from contacts **44** to whatever accessory may be desired. A first type of accessory shown in FIGS. **1–3** is a lamp and the core wires run directly to the bulb socket. In a second accessory shown in FIGS. **8—12** an outlet **60** is connected to contacts **44** by wires or conducting bars. In the case of a three wire outlet **62** shown in FIGS. **13—17** a third connection from an outlet contact **64** is provided through locking plate **46** and on outer member **16**, both of which are conductors. The connection between the outlet contact **64** and locking plate **46** may be a wire **66** for flexibility. One tongue **24***a* of a modified end fitting **22***a* has a side conductor **68** which fits against outer member **16** and extends to a third screw terminal **25***a* for connection to the third wire of power cord **26***a*. This third conductor is usually a ground and it is therefore immaterial that exposed outer member **16** is included as a conducting portion.

## Operation of Preferred Embodiments of the Invention

Operation of the present invention is simple. Power track **10** may be placed on any surface, in any position, horizontal or vertical. It will be noted that there is no practical length limit of power track **10** and runs of 10 or 15 feet or more either in one piece or of several shorter lengths of track appropriately

joined are entirely feasible. Accessory shoes of whatever desired nature are placed anywhere along power track **10**, extension **42** is placed within the power track through opening **16***c* and the accessory shoe is rotated 90° to bring contacts **44** into engagement with conductors **18** and to bring locking plate **46** and enlargements **48** into locking engagement with the power track. Threaded collar **52** is tightened against locking plate **46** to secure the shoe to the power track.

Opening **16***c* should be made as small as possible and conductors **18** buried as much as possible for safety's sake.

Any suitable accessory may be used with the invention. For example, the great power carrying capacity of conductors **18** makes the use of electrical heater accessories feasible.

What I claim is:

**1**. An electric power supplying appliance comprising:

a. a power track adapted to be mounted on a surface, said power track being elongated and having a flat rear surface and a front surface defining a longitudinal opening;

b. a plurality of extended conductors in said power track, said conductors being insulated from said power track and being accessible through said elongated opening; and

c. an accessory shoe, said accessory shoe being adapted for mechanical securement to said power track and electrical connection to said conductors, said accessory shoe comprising:

i. a core member;

ii. an extension from said core member, said extension being adapted to fit into said opening and, upon rotation, electrically engage said conductors;

iii. a locking plate having a raised flange adapted upon rotation to engage said opening and lock said accessory shoe against further rotation;

iv. said locking collar being spring-urged toward said power track; and

v. a threaded locking collar for engaging said locking plate against movement away from said power track and thereby to prevent disengagement of said flange from said opening.

**2**. An electric power supplying appliance in accordance with claim **1**, additionally comprising:

and end fitting for said power track, said end fitting being provided with tongue extensions for sliding into grooves provided in said power track, said end fitting providing connecting means between said conductors and a power supply cord.

**3**. An electric power supplying appliance in accordance with claim **2**, wherein:

said connecting means comprises a spring contact adapted to engage one of said conductors and electrically extending to a terminal to which a power supply wire is connected and a second spring connector for engaging the other of said conductors and electrically extending to another terminal for connection to a second wire of a power supply.

**4**. An electric power supplying appliance in accordance with claim **3**, wherein:

said power track is electrically conductive and is in electrical connection with a third wire of a power supply by means of a contact bar in sliding contact with said power track and connecting to a third terminal to which the third wire is fastened.

**5**. An electric power supplying appliance in accordance with claim **1**, wherein:

said locking plate is electrically conductive and in electrical contact with said power track, said locking plate being electrically connected to a third accessory shoe conductor.

**6**. An electric power supplying appliance in accordance with claim **1**, wherein:

said conductors are relatively flat bars disposed oppositely of said opening in plane-parallel relation.