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Maillaro

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[54] **SAFETY ELECTRICAL MALE PLUG HAVING NORMALLY RECESSED MANUALLY EXTENDABLE CONTACTS**

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[52] **U.S. Cl.** ..... **339/34;** 339/45 R

[51] **Int. Cl.²** **H01R 13/44;** H01R 13/62

[58] **Field of Search** 339/42, 45, 74, 75, 34

[56] **References Cited**

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[57] **ABSTRACT**

An electrical male plug having resiliently urged normally recessed contact prongs that are manually movable to an extended position to enable the insertion of the prongs into a conventional electrical outlet.

5 Claims, 6 Drawing Figures

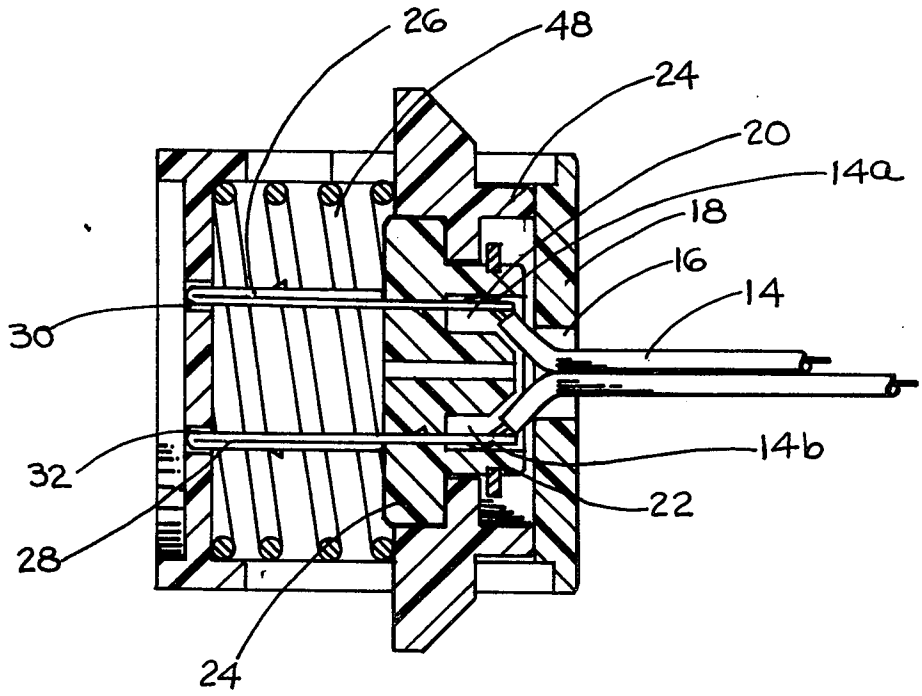


FIG. 1

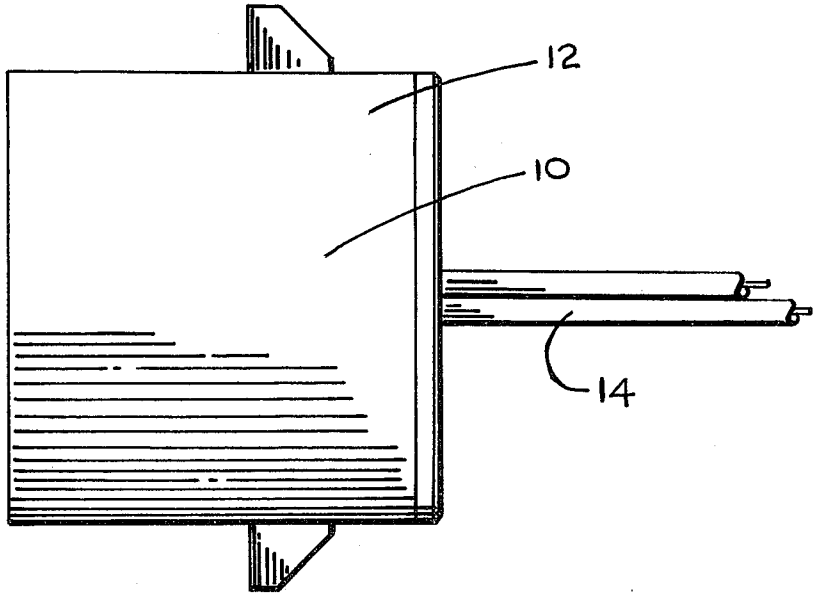


FIG. 2

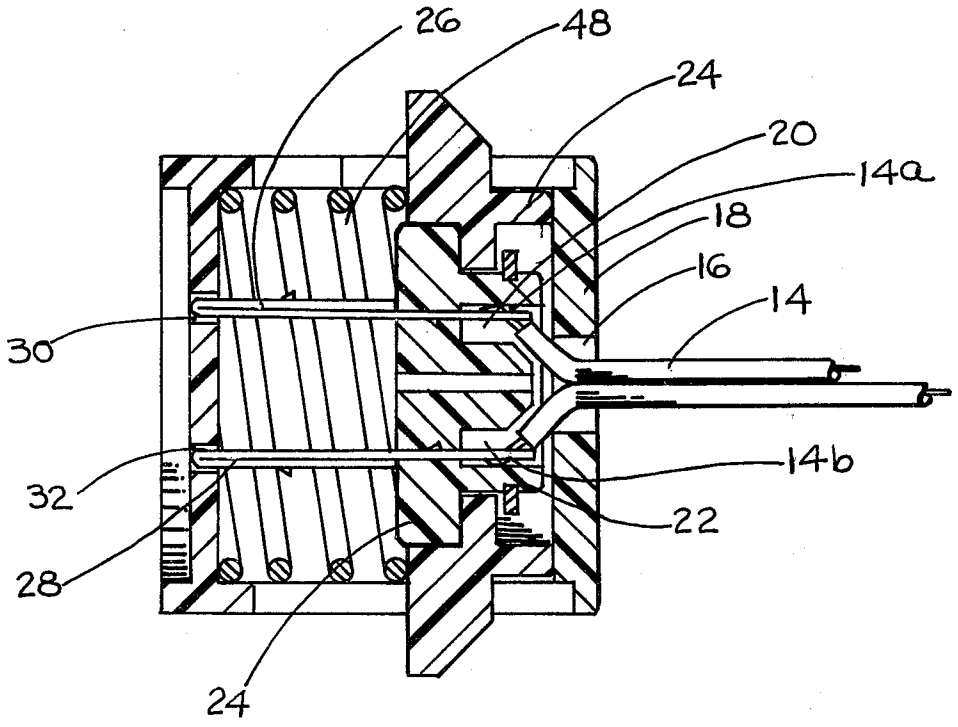


FIG. 3

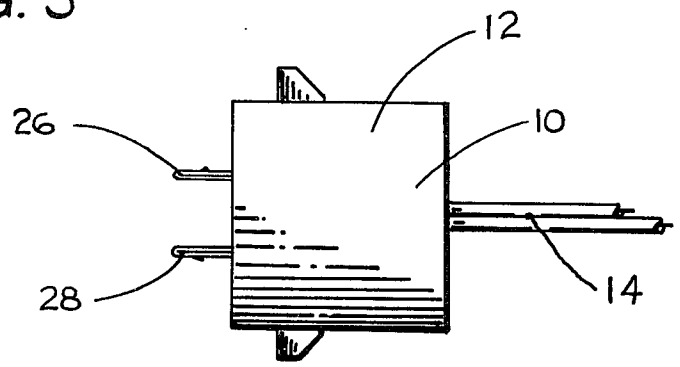


FIG. 4

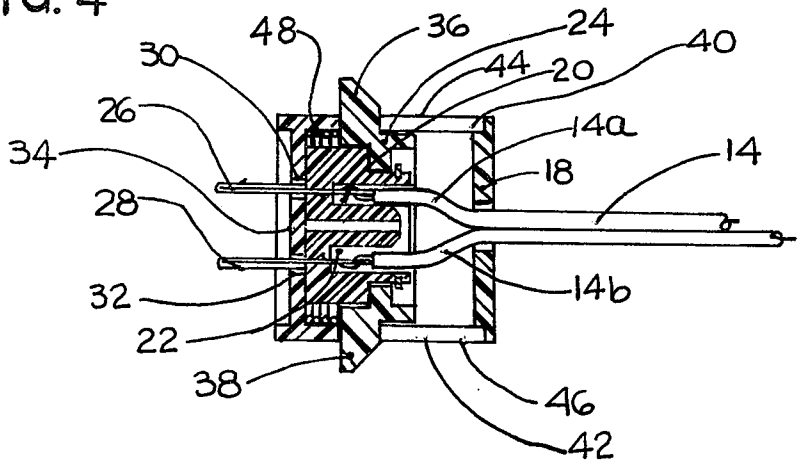


FIG. 5

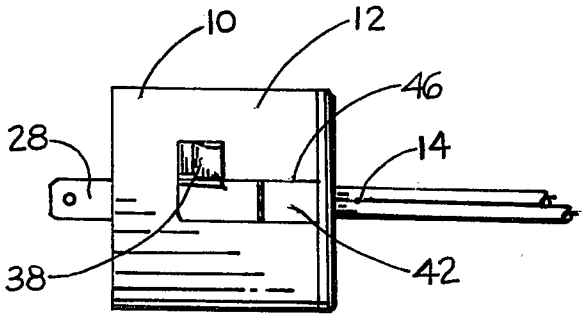
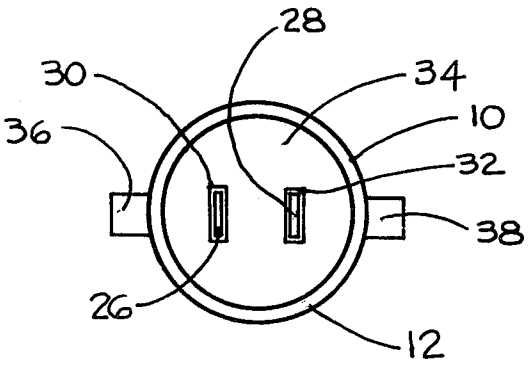


FIG. 6



SAFETY ELECTRICAL MALE PLUG HAVING NORMALLY RECESSED MANUALLY EXTENDABLE CONTACTS

This invention relates generally to electrical connecting devices and more particularly to a novel safety connecting device that prevents children or other inexperienced persons from accidentally receiving an electrical shock when the novel device is attemped to be inserted in a household electrical receptacle.

It is well known that the conventional male plug attached to lamps or other electrical devices is an attraction to children who mimic their parents and try to insert the plug in an available wall outlet. Often, the children hold the exposed metallic prongs while trying to insert the plug in a live receptacle and are able to connect the projecting terminals of the plug to the female live contacts of the receptacle and obviously receive an electrical shock. The present invention precludes such an accidental shock and thus performs a safety function. When utilized by an adult, the present invention readily plugs into a female socket to connect the device to the source of electrical power.

Accordingly, one of the principal objects of the invention resides in the provision of an electrical male plug having retractable connecting means that are normally positioned in retracted relation to insulate the prongs from accidental human contact when partially connected to a conventional electrical wall outlet.

Another object of the invention is to provide in a device of the class described manually operable means to manually extend the electrical connecting means when it is desired to connect the safety plug to an electrical outlet.

Still another object is to provide resilient retractable means that normally position the connecting means within the insulated housing of the safety plug that can be manually compressed to purposely expose the connecting means when desired to connect the safety plug to an electrical female outlet.

A further object is to provide a plug of the class described that has integral friction means to retain the connecting means in a conventional outlet socket and when manually removed from said socket permit the resilient means to withdraw the connecting means within the insulated plug housing.

Other ancillary objects will be in part hereinafter pointed out and will be in part hereinafter apparent.

In the drawing:

FIG. 1 is a plan elevation of a safety plug incorporating the invention with the connecting prongs retracted within the insulated plug housing.

FIG. 2 is a plan elevation with portions of the housing cut away to illustrate the various components in their respective retracted positions.

FIG. 3 is a plan elevation of the plug with the connecting prongs extended in manually held relation prior to insertion in a female electrical outlet.

FIG. 4 is a plan elevation of the safety plug with portions of the housing cut away to illustrate the respective components with connecting prongs extended to make electrical contact with the live electrical outlet, not shown.

FIG. 5 is a side elevation of the safety plug with the prongs extended, and

FIG. 6 is a bottom view of the safety plug.

Referring to the drawings in detail, **10** generally designates the safety plug having a housing **12** formed of a conventional insulating material, such as polyethelyne or the like. Extending from the housing **12** is a pair of conductors **14** that are connected to the electrical device, not shown. The pair of conductors **14** freely pass through aperture **16** centrally disposed in the upper wall **18** of housing **12.** The individual conductors **14*a*** and **14b** pass through respective apertures **20** and **22** in slide member **24** to connect with metallic prongs **26** and **28,** respectively.

Prongs **26** and **28** are rigidly secured within slide member **24** and are adapted to project through a pair of apertures **30** and **32** disposed in aligned relation with said prongs and located in the lower wall **34** of insulated housing **12.** Slide member **24** is provided with a pair of oppositely extending wing grips **36** and **38** respectively that slideably reside in the respective longitudinal recesses **40** and **42** formed in the diametrically opposite sides **44, 46.** Wing grips **36** and **38** extend respectively beyond the housing side walls **44, 46** to facilitate the manual gripping thereof. Slide member **24** is spring urged against upper wall **18** of housing **12** by means of spring **48.** In this fully retracted position, prongs **26** and **28** reside within the housing **12.** Manual movement of wing grips **36** and **38** downwardly compress spring **48** and projects prongs **26** and **28** through apertures **30, 32** of bottom wall **34.**

When held in this extended position, the safety plug may be inserted in a conventional household electrical outlet. When so inserted, the projections **26*a*** and **28*a*** on prongs **26** and **28** frictionally engage the conventional connectors, not shown, in the household electrical outlet, overcoming the tension of spring **48** and thus retain said safety plug in electrical contact with the outlet electrical supply.

A slight manual pull on the plug **10** separates the plug from the outlet and prongs **26** and **28** automatically retract in housing **12** with slide member **24** urged upwardly to abut upper wall **18** of housing **12.** In this relationship and from this safe position, children cannot attempt successfully to connect the safety plug to the electrical outlet and thereby avoid possible damaging electrical shocks.

Obviously, conductors **14*a*** and **14*b*** can be connected to prongs **26** and **28** respectively by soldering or any other conventional means to electrically connect said prongs to the appliance or device connected by plug **10** and conductors **14** as a means of supplying electricity thereto when said plug is inserted in a conventional household electrical outlet.

It will be noted that lower wall **34** of housing **12** is recessed to provide a rim **35.** The configuration of rim **35** is such that the recess will receive the projecting portion of a conventional A.C. outlet, not shown, therein. Thus, a sightless person or, in the absence of light, a person can align the safety plug with a conventional A.C. outlet prior to manually extending prongs **26** and **28** for insertion into the A.C. outlet.

While there has been shown and described but a single embodiment of the invention, it will be understood that modification and changes could be made without departing from the scope of the invention as set forth in the following claims:

The invention claimed is:

1. In a safety plug of the class described, in combination,

a. an insulated housing having an opening in one end thereof, and adapted to receive electrical conductors through said opening; a pair of electrical conductors disposed in said opening; a cylindrical wall extending longitudinally from said one end to an opposite end of said housing; an integrally formed wall extending normal to and substantially closing the portion of the housing adjacent to said opposite end, said integrally formed wall being recessed from said opposite end toward said one end; a pair of spaced openings disposed in said integrally formed wall;

b. a pair of spaced metallic prongs disposed in recessed relation within each of said respective openings in said integrally formed wall and connected to said electrical conductors and electrically insulated one from the other;

c. biasing means urging said metallic prongs within the housing to position the ends of the respective prongs within the pair of openings in the integrally formed wall; and

d. means projecting externally of the housing for moving the recessed metallic prongs from their recessed relation within the integrally formed wall of the housing to an extended relation wherein the metallic prongs extend through the integrally formed wall openings and substantially beyond said opposite end of said housing, said means being manually operable.

2. In a safety plug, as set forth in claim **1:**

a. said electrical conductors being free to move jointly with said metallic prongs when said prongs are manually moved from their normally recessed position to their extended position.

3. In a safety plug, as set forth in claim **2:**

a. said means comprising a pair of oppositely extending finger grips disposed within and extending through a pair of diametrically opposite recesses formed in said housing;

b. said diametrically opposite recesses each being provided with a barrier portion to limit the movement of the respective finger grips when the metallic prongs are manually extended for insertion in a conventional electrical outlet.

4. In a safety plug as set forth in claim **3:**

a. said cylindrical wall and said integrally formed wall in said housing forming a recess to define a predetermined rim configuration that is adapted to overlie the conventional electrical outlet and align the metallic prongs when they are extended with the complimentary apertures in the conventional electrical outlet.

5. In a safety plug, as set forth in claim **4:**

a. said prongs being provided with means for frictionally engaging conducting elements in the conventional electric outlet to retain said prongs in extended relation after said prongs have been inserted in the electrical outlet.

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