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EXTENSION CORD CONNECTOR

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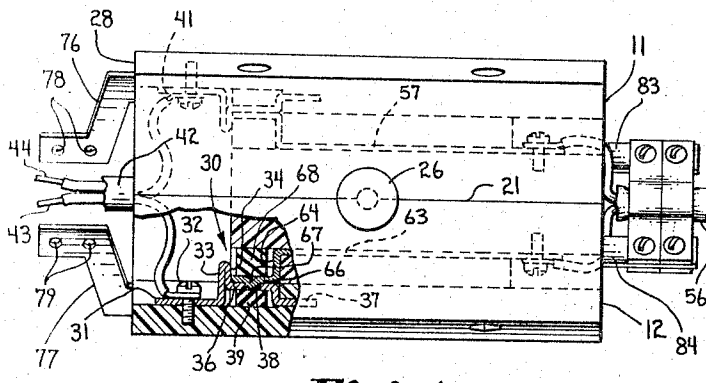


Fig. 1.

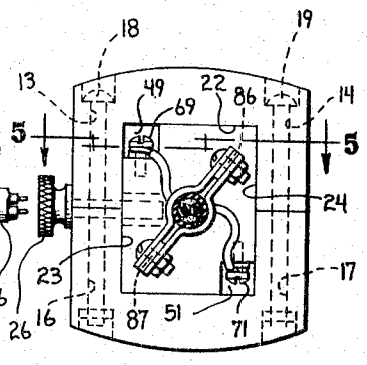


Fig. 2.

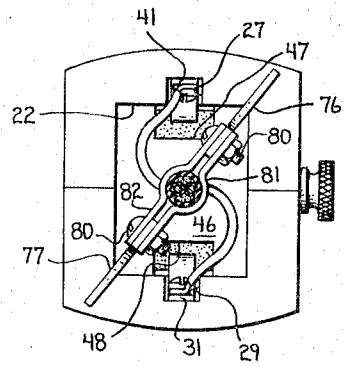


Fig. 3.

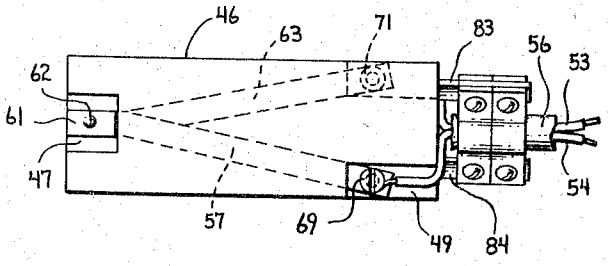


Fig. 4.

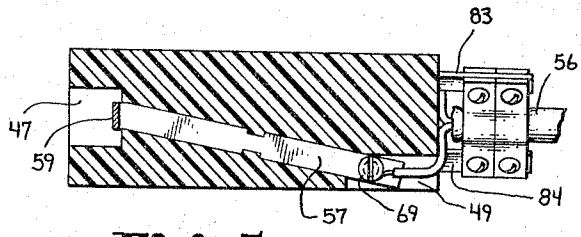


Fig. 5.

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EXTENSION CORD CONNECTOR

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This invention relates generally to electrical wiring equipment, and more particularly to a connector for conventional extension cords whereby a whole series of cords can be connected together without the danger of their being pulled apart accidentally.

In many instances where temporary electrical wiring is required, a series of extension cords must be used to provide electrical energy from a source to a point of use. For example, in building construction projects, many extension cords are frequently connected together in order to supply power to electrically driven hand tools at various locations on the construction site. However, because of long runs of cord, there are many plug and socket joints in a series of cords, which can be pulled apart if a workman pulls on the cord during the use of a tool. Also it sometimes happens that boards and other building construction materials are dragged across cords or workmen trip over cords, all of which tend to separate the usual attachments.

Frequently it is not immediately apparent where the extension cords have been pulled apart, and a connsiderable amount of "down time" results. This not only delays the work, but raises construction costs.

It is therefore a general object of the present invention to provide a device readily attachable to conventional extension cords and permitting a whole series of cords to be connected together reliably so that they cannot be pulled apart.

A further object is to provide such a device which can be easily and inexpensively manufactured.

Described briefly, a typical embodiment of the present invention employs a casing made of electrically non-conductive material and having a pair of biased contactors near one end thereof exposed in a longitudinally extending opening therein. The two wires of one extension cord are connected to these contactors.

A core is fittingly and slidingly received in the other end of the casing, and the core has resiliently biased connector strips therein disposed to engage the contactors of the casing when the core is properly inserted. The rear ends of the connector strips are connected to the wires of a second extension cord.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

FIG. 1 is a side elevational view of a typical embodiment of the present invention, with a portion being broken away to show the electrical contacting arrangement of the contactor in the casing with one contactor of the core.

FIG. 2 is a right hand end view of the embodiment in FIG. 1.

FIG. 3 is a left hand end view thereof.

FIG. 4 is a top plan view of the core thereof, removed from the casing.

FIG. 5 is a section through the core taken along the line 5—5 in FIG. 2 and viewed in the direction of the arrows.

Referring now to the drawings in detail, the casing is made up of two, identical upper and lower halves **11** and **12**, each having four vertically extending apertures **13**, **14**, **16**, and **17**, through which the tie bolts **18** and **19** are provided to secure the halves together with their faces abutting at a parting line **21**. Each of these halves is channel shaped, with the upper half having a central wall **22** and a pair of horizontally spaced side walls **23** and **24** in horizontally spaced parallel relationship. Also

each half has a centrally located semi-circular groove in the side wall thereof at the parting line to receive the shank of a thumb screw **26**, whose purpose will become apparent as the description proceeds.

As shown in FIG. 3, the upper half of the casing has a recess **27** in the center wall **22** of the channel therein, the recess extending from the front end **28** of the housing rearwardly toward the rear end. A like recess **29** is provided in the lower half of the casing and an electrical contactor **30** is provided therein, this contactor having a portion **31** having a threaded aperture therethrough receiving the screw **32**, and having an inwardly projecting portion **33** which forms an abutment surface **34**, and having a portion **36** projecting rearwardly from the abutment portion, and a further portion **37** molded into the case at the rear of the recess **29**. The portion **36** has a detent aperture **38** therein and has a resilient biasing block **39** thereunder. This block provides an inward bias on this portion of the contactor. A like contactor **41** is provided at the upper half of the casing in the same manner.

The first extension cord **42** has two wires **43** and **44**, wire **43** being connected to the contactor portion **31** by the screw fastener **32**. If desired, threads can also be provided in the casing as shown for engagement by the screw **32**.

An elongated core **46** of rectangular cross-section is fittingly and slidingly received in the longitudinal opening in the casing which is formed by the two casing halves. As shown in FIG. 3, the core **46** has a recess **47** in the upper surface thereof at the front end thereof and a recess **48** in the lower face thereof at the front end thereof. As shown in FIG. 2, recesses **49** and **51** are provided in the upper and lower faces of the core at the rear end thereof. As shown in FIG. 5, a terminal strip **57** is molded into the core extending between the recess **47** and the recess **49**. A like terminal strip is provided between the lower front and rear recesses.

The purpose of the terminal strips is to provide means for making an electrical connection between the wires **53** and **54** of extension cord **56** and the contactors in the casing. The terminal strip **57** may have a threaded aperture in the rear end thereof receiving the screw **69**. The front end thereof is upwardly turned in the recess **47** with the upstanding portion **59**, (FIG. 5) and a portion **61** projects forwardly therefrom (FIG. 4). It is this portion **61** together with the detent button **62** which contact the upper contactor in the casing. In the same way, the lower terminal strip **63** (FIG. 1) has a downwardly extending portion **64** in the recess **48** and the forwardly extending portion **66** with a projection **67** therein received in the detent aperture **38** in the lower contactor of the casing. A resilient block **68** is provided in the core between the core and the portion **66** of the contactor strip therein to add a resilient bias holding the contacting portions of the two lower contactors together so that a good electrical connection is made. The same arrangement is provided between the portion **61** of the upper contactor of the core and the upper contactor of the case.

At the rear end of the core, in the recesses **49** and **51**, connection of the extension cord wires **53** and **54** to the lower and upper terminal strips, respectively, is achieved by the use of the fastening screws **69** and **71**. So it is seen that when the core and case are in assembly with the front end of the core abutting the abutment portions of the front contactors of the casing, complete electrical paths are made between the wires of extension cord **42** and those of extension cord **56**.

In order to securely attach the extension cord outer covering to the core and casing, prongs are molded into the core and the casing. The prongs **76** and **77** for the casing, have apertures **78** and **79** respectively therein (FIG. 1) receiving screws **80** attaching the cable-pinch-

ing clamps **81** and **82** thereto (FIG. 3). Two sets of screws, and extra long or double clamps are used as shown to positively secure the extension cord to the casing.

A similar arrangement is provided in the core where the prongs **83** and **84** extend from the rear end thereof and have apertures **86** and **87** therein receiving clamp mounting screws.

In order to securely maintain the position of the core in the casing so that electrical contact is assured at all times, the thumb screw **26** is threadedly received in the core and the shank thereof passes through semicircular transverse grooves in the walls of the upper and lower casing halves at their abutting faces. This prevents the core from coming out.

The construction of the present invention is such that the electrically conductive parts need not be bolted into any of the parts but can be easily slid into the openings provided therefor and secured by the screws. This is because of the size and shape of the openings and of the strips and contactors. The contactors in either the core or the casing can be readily replaced by simply separating the core from the casing and, if the contactors in the casing are to be replaced, the tie-bolts can be disconnected so the casing halves can be separated.

From the foregoing description, it is believed apparent that the present invention is well suited to achievement of the objects set out herein and to providing advantages not specifically mentioned.

While the invention has been disclosed and described in some detail in the drawings and foregoing description, they are to be considered as illustrative and not restrictive in character, as other modifications may readily suggest themselves to persons skilled in this art and within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. An extension cord device comprising:

an elongated casing of dielectric material, said casing having upper and lower identical casing halves, the two halves being placed together in abutting relationship;

fasteners securing said two halves together, said two halves, when assembled together, providing an elongated rectangular opening therethrough, with each half having a pair of horizontally spaced side walls and a central wall extending between said side walls, said side walls and central walls forming said rectangular opening, the central wall of each of said halves having a centrally located cut-out therein extending from one end of the half toward the other end,

first and second resilient electrically conductive contactors, each having a portion received in said cut-out of one of the two halves, and each having an inwardly projecting portion providing an abutment and a portion projecting therefrom toward the other end of said casing and having a detent aperture therein, the detent apertured portion having a resilient block disposed between the apertured portion and the bottom of the cutout;

and a cable clamp mount having a portion projecting forwardly from the front end of the casing and having a portion molded into said casing;

an extension cord wire contacting said contactor in said cut-out;

and a fastener screw securing said extension cord wire and said contactor in said casing to establish electric connection between said wire and said contactor;

an elongated substantially solid core of dielectric material, said core being fittingly and non-rotatingly received in said rectangular opening in said casing, said core having upper and lower cut-outs in the front end thereof and upper and lower openings extending from said upper and lower cut-outs, respectively to upper and lower cut-outs in the rear end of said core;

and upper and lower spring connector strips, said upper strip having a forward end with a detent projection therein disposed in a cut-out in the forward end of said core and resiliently biased against the first contactor in said casing and having a front end abuttingly engaging the stop portion of said first connector of said casing to limit the travel of said core toward the front end of said casing, and said lower connector strip having a detent projection bearing portion in the front end thereof received in the detent aperture in the second contactor in said casing and abuttingly engaging the stop portion of said second contactor, the rear end of each of said contact strips in said core being secured in the cut-outs in the rear end of said core;

a pair of rearwardly projecting cable clamp mounting prongs having portion molded into said core;

and an extension cord secured to said connector strips;

a thumb bolt extending through semicircular grooves in the abutting faces of said casing halves and threadedly received in said core and preventing removal of said core from said casing, whereby an intact and tensile load withstanding electrical connection is made between the extension cord wires attached to said core, the prongs at the front end of said casing and at the rear end of said core being extra long spaced to receive extension cord therebetween, and each prong having a pair of screws securing an extra length of cable clamping means thereto, said clamps thereupon tightly pinching said extension cords therebetween.

2. An extension cord device comprising:

an elongated casing of dielectric material, said casing having upper and lower casing members;

the two members being secured together in abutting relationship, said two members, when assembled together, providing an elongated opening therethrough, with each member having a wall with a recess therein;

first and second resilient electrically conductive contactors, each having a portion received in one of said recesses, and each having a portion at the surface of the wall in which its receiving recess is provided;

a pair of wires of a first extension cord, said wires being fastened to said contactors in said recesses;

an elongated core of dielectric material, said core being fittingly received in said opening in said casing, and said core having walls disposed with respect to the walls of said casing in a manner preventing rotation of said core in said casing, said core having upper and lower front recesses in the front end thereof and upper and lower openings extending from said upper and lower front recesses, respectively to rear recesses in the rear end of said core;

and upper and lower spring connector strips, said upper strip having a forward end disposed in the upper recess in the forward end of said core and resiliently biased against the first contactor in said casing, and said lower connector strip having a forward end disposed in the lower recess in the front end of said core and resiliently biased against said second contactor, the rear end of each of said contact strips in said core being disposed in the rear recesses of said core;

a pair of wires of a second extension cord, said wires being fastened to the rear ends of said connector strips;

a manually releasable fastener extending through said casing and into said core and preventing removal of said core from said casing, whereby an intact and tensile load withstanding electrical connection is

made between the said first and second extension cords.

3. An extension cord device comprising:

an elongated casing of dielectric material, said casing having two channel shaped casing members, the two members being secured together in abutting relationship with the channel of one facing the channel of the other, thereby providing an elongated opening through the casing;

first and second resilient electrically conductive contactors, each having a portion received in and secured to one of said two casing members, and each having a resiliently supported portion at the opening in said casing;

means in said casing accommodating attachment of extension cord wires to contactors;

an elongated core of dielectric material, said core being fittingly received in said opening in said casing;

third and fourth resilient electrically conductive contactors projecting from said core into contact with said first and second contactors, respectively;

and means in said core disposed for connecting extension cord wires to said third and fourth contactors;

and a manually releasable thumb screw fastener having a shank extending through an aperture in said casing transverse to the direction of reception of said core in said casing, said screw fastener shank being threadedly received in said core and locking

said core in said casing, said fastener having only a circular knurled knob projecting outside said casing and its said shank being concealed by said casing and core, thereby minimizing exposure to accidental unlocking, said fastener thereby securing said core in said casing and preventing removal of said core from said casing, whereby an intact and tensile load withstanding electrical connection is made between extension cord wires electrically connected to said first and second contactors and extension cord wires electrically connected to said third and fourth contactors, the said fastener being readily removable manually without tools when desired, to facilitate separation of said core from said casing.

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