Feb. 24, 1959 C. A. LINDEMAN, JR 2,875,295

DUPLEX ELECTRICAL FUSED WALL OUTLET

Filed April 19, 1954

FIG. 2

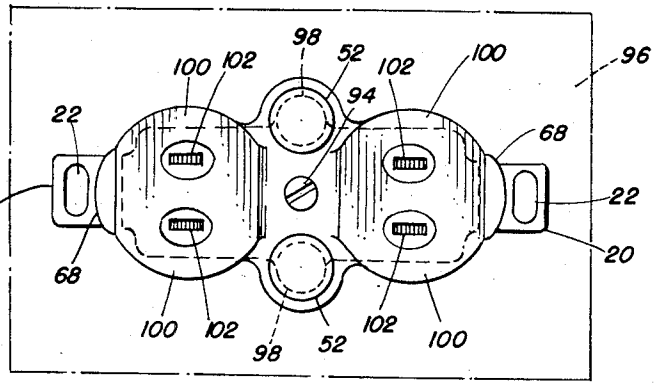



FIG. 1

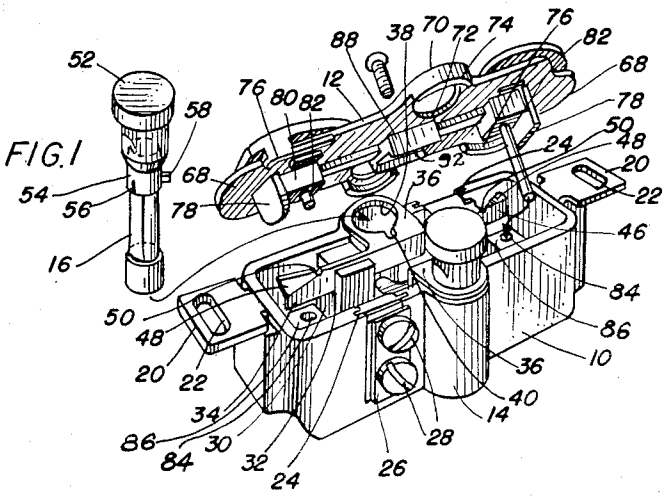



FIG. 4

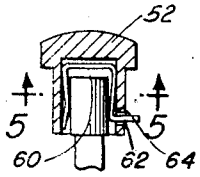



FIG. 5

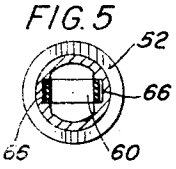
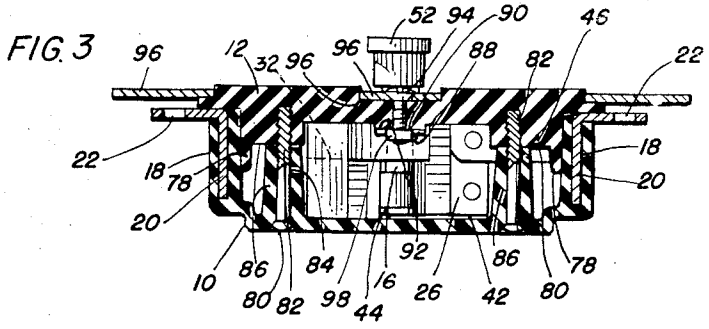



FIG. 3




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# DUPLEX ELECTRICAL FUSED WALL OUTLET

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17 Claims. (Cl. 200—115.5)

This invention relates in general to an electrical outlet box and receptacle and more particularly to a duplex fuse arrangement in connection therewith.

An important object of the invention is to provide means for ready access to fuses disposed in the wall receptacles, one for each terminal line and each removable directly for fuse replacement.

A further object of the invention is to provide a simple construction and arrangement of fuses in an electrical wall receptacle which will occupy a minimum of space and in which fuses will be located entirely within the receptacle and accessible from the outer or exposed side, making it unnecessary to locate separate fuses in a remote panel where a number of other fuses are contained.

A still further object of the invention is to provide a new and improved wall fuse receptable having a removable lid or cover for holding the contact parts within the receptacle in proper spaced relation and adapted to be substiuted for ordinary outlet receptacles now commonly used.

Still a further object of the invention is to provide new and improved holders for the fuses by means of which the fuses are more easily attached and removed and in which the holders are firmly engaged in the wall receptacle.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which,

Fig. 1 is a perspective and somewhat exploded view of a duplex electrical fuse wall outlet in accordance with this invention, showing a cover tilted above the receptacle and a fuse and its holder at one side thereof.

Fig. 2 is a top view of the receptacle as shown in Fig. 1 with a protecting plate applied over the top thereof through which the receptacle plug receivers and the upper ends of the fuse holders project.

Fig. 3 is a median section as taken upon the longitudinal center line of Fig. 2.

Fig. 4 is a sectional view of a cap for engaging the upper end of a fuse; and

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

It is now common practice to mount main and auxiliary fuses in a main switch or fuse box in the basement, or some other remote location so that when a fuse is blown out in any part of a system, it is necessary for a person to go to the switch box and sometimes to laboriously locate the fuse which is blown in order to renew the circuit.

The present invention locates fuses directly in the wall outlet box and if an electrical device is plugged into a particular receptacle and becomes inoperative, it is usually the fuse for that particular circuit which would be blown. It is therefore necessary only to remove the defective fuse at the receptacle and to replace it with a good one and the circuit is then restored without going to a switch fuse usually located at the main circuit switch.

Referring now more particularly to the drawings, an outlet box comprises a receptacle **10** preferably of porcelain or other plastic insulating material and a removable



lid or cover **12** therefor. The receptacle is generally rectangular in form with an outward rounded projection **14** at each side for receiving a fuse **16** and the ends having sockets **18** open at the top and the outer wall of each socket terminating below the upper edge of the wall of the receptacle to seat therein an attaching bracket **20** usually of metal bent at right angles to fit closely in the socket and the upper bent extremity when the bracket is seated in the socket being flush with the upper edge of the receptacle wall. At the outer projecting end of each angular bracket is a slot **22** by means of which the receptacle may be secured to an outer support, screws being commonly inserted through the slots for firmly attaching the receptacle in any desired location, in a well known manner.

In the opposite outer walls of the receptacle are undercut recesses **24** extending from the upper edge of the wall adapted to seat metal conducting blocks **26** therein, the blocks being commonly provided with projecting ribs fitting in the undercut portions and adapting them to be slid into place from the upper edge of the receptacle and binding therein for holding them tightly in place. At the outer side of each conducting block are fastening screws **28** for securing conductors thereto.

At the inside of the receptacle, it is formed with opposite projections **30** one at each side of the receptacle and each having a slot **32** extending downwardly from the top thereof for seating a conductor blade **34** therein. Each blade has a portion **36** bent at right angles intermediate the ends of the blade with a circular recess **38** extending over the top of the outwardly rounded projection **14** at the adjacent side of the receptacle. At the inner side of each circular recess is a notch **40** for engaging a fuse as hereafter described.

At the bottom of each conducting block **26** inside of the receptacle is a bent extension **42** with upwardly turned tongues **44** disposed within the outwardly rounded projection **14** at the adjacent side of the receptacle adapted to engage the lower end of a fuse inserted into that particular fuse recess. Attached to the upper portion of each block **26** is a conductor strip **46**, the upper edge **48** of which has a recess **50** at a distance from the end adapting this edge to be bent toward the adjacent side wall of the receptacle to form an inclined surface for one end of a two-pronged electrical plug connector. The exposed end of the conductor blade **34** has a similar contacting edge portion.

Each fuse **16** has metal ends, the lower one of which engages the tongues **44** in its rounded projection and the upper metal end is engaged by a holder comprising a hollow cap **52** as shown in Fig. 1 having a tight fitting metal sleeve **54** with split lower or outer edges **56** so that the fuse end may be inserted more readily therein and one side of the sleeve has a projection **58** adapted to be inserted through the notch **40** of the bent portion **36** of the blade **34** and to make electrical connection therewith.

Instead of a sleeve connected to the cap **52**, a bent conductor strip **60** may be inserted in the cap as shown in Fig. 4, one extremity **62** of the strip being inserted through a lateral opening **64** in the cap to provide a projection similar to the projection **58** for making connection with the corresponding conductor blade. The conductor strip **60** may be seated in opposite recesses **66** of the cap as shown more clearly in Fig. 5. Either of these forms shown is sufficient to provide the necessary electrical connection between the parts. In operation, one metal end of a fuse **16** is inserted in the cap in contact with the conductor thereof which holds the fuse firmly and the other end of the fuse is inserted by the holder through the opening **38** of the conductor blade into engagement with the tongues **44** at the bottom of the fuse projection and the projection **58** (or **62**) is inserted through the notch **40** of the corresponding conductor blade, the holder is then rotated

to engage the projection under and in contact with the bent portion 36 of the blade.

The cover 12 has outwardly rounded end portions 68 adapted to fit over the tops of the attaching brackets 20 and to hold them tightly in their sockets. At the sides, it is formed with outwardly rounded projections 70 adapted to fit over the outwardly rounded fuse projections 14. Each projection has a perforation 72 through which the fuse holder may be inserted and the outer edge of the perforation is formed with a lip 74 at the under side of the cover which overlaps and protects the perforated bed portion 36 from accidental contact therewith. At opposite corners of the cover are downwardly projecting lips 76 to assist in seating the cover on top of the receptacle. Near each end of the under side of the cover is a downward projection 78 adapted to engage the inside of the end of the receptacle for additionally holding the cover longitudinally with respect to the receptacle. An additional block 80 is also formed at the under side of the cover and at the relatively inner side of the projection 78 and it has an inset metal rod 82 which projects downwardly below the cover and is adapted to register with and to be inserted in a corresponding bore extending into an upward projection 86 from the bottom of the receptacle. The under side of the receptacle is preferably countersunk inwardly around the bore 84 so that the projecting end of the rod 82 may be riveted, expanded or peened in the countersunk end of the bore so that it will lie within the bottom face of the receptacle. The projections 80 at each end of the cover and the projections 86 from the bottom of the receptacle are adapted to abut each other respectively to hold the cover tightly on top of the receptacle when the rods 82 are attached through the receptacle.

A central projection 88 is also provided at the under side of the cover and is of a width to be seated between the two blades 34 at opposite sides of the receptacle to hold them properly spaced apart and firmly in position in the receptacle when the cover is applied thereto.

A metal nut 90 is seated below and within the cover at the central portion thereto in a recess 92 below the projection 88 so that a fastening screw 94 may be inserted through a cover plate 96 and threaded into the nut 90 for securing the cover plate in position.

The cover plate 96 has openings 98 therethrough which are of sufficient diameter to allow the caps 52 to pass therethrough, and it conforms to the outer edge surfaces of the cover, but extends beyond the edges of the entire wall outlet and may be applied to and removed from the cover and outlet without otherwise disturbing it. The fastening screw 94 merely holds the cover plate tightly in place and forms a well known finish for outlet boxes of this type.

The outside of the cover preferably has outwardly rounded portions 100 at each side to form substantially flat rounded bases for a plug connector blade opening 102, one pair at each end so that a two-bladed plug connector may be inserted through the cover at each end and into engagement with the corresponding conductor blades and strips 34 and 46 at the opposite sides of the receptacle.

In actual use, this wall outlet is furnished with the cover tightly applied to the receptacle and with the fuses in place at the sides with the caps projecting through the openings in the cover. The outlet is applied to metal pull boxes of a well known type and the receptacle is secured to the pull boxes by inserting suitable screws through the slots 22 at the ends of the receptacle. Circuit connections are made with the conductor fastening screws 28 at opposite sides of the receptacle and two screws are provided at each side of the box for attaching a plurality of conductors thereto.

With this duplex wall outlet, a conductor blade 34 and a conductor strip 46 are located at each side of the receptacle separated by a removable fuse so that if a plug connector is inserted through the blade opening 102 at one end of the outlet, one blade of the plug connector receives current directly from a conductor strip 46 and the other blade of the plug connector receives current from the conductor blade 34 which is connected through the fuse at its side of the receptacle with the conductor blocks 26. Another blade plug connector inserted through the blade openings 102 at the other end of the outlet will be protected in a similar manner by the fuse 16 at the opposite side of the receptacle. Thus even though one of the fuses is blown out, it will not destroy the electrical connection for both plug connectors but will only break the connection for the corresponding plug connector at one end of the outlet. This provides a means for determining which fuse has been destroyed and it is an easy matter to remove the blown fuse by means of the cap 52 and to insert a new fuse.

While the preferred construction has been described in some detail, it should be regarded as an illustration or an example rather than as a limitation or restriction of the invention, since various changes in the construction, combination, and arrangement of the parts may be made without departing from the spirit and scope of the invention.

I claim:

1. A duplex electrical fused outlet comprising an insulating receptacle having an inlet conductor connection at one side of the receptacle and an outlet conductor connection at the other side of the receptacle, means comprising conductors in the receptacle and pairs of spaced blade openings near the ends of the receptacle to the conductors therein for making a plurality of connections with both the inlet and outlet connections therein, a hollow fuse holder for each inlet and each outlet connection between the ends of the receptacle at each side thereof with a removable cap projecting above the top of the receptacle and each cap being free, spaced from and unobstructed by the said blade openings near the ends of the receptacle so that the fuses therein may be inserted and removed without removing conductors inserted in the said spaced blade openings.

2. A duplex electrical fused outlet comprising an insulating receptacle having an inlet conductor connection at one side of the receptacle and an outlet conductor connection at the other side of the receptacle, a hollow fuse holder located between the ends of the receptacle at each side thereof for each inlet and each outlet connection, means comprising pairs of spaced blade openings in the top of the receptacle near the ends thereof for making a plurality of electrical connections with both the inlet and outlet connections, each fuse holder being free from, unobstructed by and spaced from the blade openings near the ends of the receptacle, the receptacle having electrical circuit connections at opposite sides of the receptacle, a fuse for each holder and in the circuit at each side of the receptacle having an outer accessible and removable cap, and means for making electrical circuit connections at the ends of the receptacle, the circuit connection at one end of the receptacle passing through the fuse at one side thereof and the circuit connection at the other end of the receptacle passing through the fuse at the other side of the receptacle.

3. In a duplex electrical fused outlet according to claim 2, the receptacle having an inlet with a conductor blade at each side of the receptacle connected to the bottom of a fuse at that side of the receptacle and a conductor blade connected to the top of the fuse at the same side of the receptacle, and means comprising outlet openings in the receptacle for connecting two bladed electrical plug connectors at opposite ends to the blades at both sides of the receptacle.

4. In a duplex electrical fused outlet in accordance with claim 3, a removable fuse at each side of the receptacle, the fuse having a connection at the bottom with an inlet connection at the adjacent side of the re-

ceptacle and the fuse having a connection at the top with a contact blade extending to the same side of the receptacle but at the opposite side of the fuse.

5. A duplex electrical fused outlet in accordance with claim 3 in which the fuses are located at opposite sides of the center of the receptacle, the fuse at one side controlling the electrical plug outlet connection at one end from the center of the receptacle and the fuse at the other side of the receptacle controlling the plug outlet connection at the other end of the receptacle.

6. A duplex electrical fused outlet for bladed connector plugs, comprising an insulating receptacle open at the top and having a fuse recess opening into the receptacle from each side thereof, a fuse adapted to be placed in each of said recesses for electrical connection at the top and bottom thereof, a terminal connection for electrical conductors in each side of the receptacle, a blade conductor connected to said terminal at the inside of the receptacle having an extension to the bottom of the fuse recess and for engaging the bottom of a fuse therein, another blade conductor for each side of the receptacle adapted to engage the top of the fuse at its corresponding side of the receptacle and having a contact portion extending oppositely from the other contact blade at the same side of the receptacle, an insulating cover for the receptacle having slots at the ends thereof through which the blades of connector plugs may be inserted into the receptacle and into engagement with the relatively different blades at opposite sides of the receptacle so that each of the opposite conductors attached to a plug connector is connected through one of the fuses within the receptacle.

7. A duplex electrical fused outlet in accordance with claim 6, in which the receptacle is formed with an outside socket at each end, an angular metal attaching bracket which has one portion extending within the socket at each end with another portion flush with the top of the receptacle, and the cover has an extension at each end which overlaps the end of the receptacle and engages over the top of each bracket to hold the bracket in place.

8. A duplex electrical fused outlet in accordance with claim 6 in which the cover is provided at its under side near the ends with relatively transverse downward projections which are inserted within and substantially in contact with the ends of the receptacle to hold the cover relatively in place against endwise movement with respect to the receptacle.

9. A duplex electrical fused outlet in accordance with claim 6, in which the cover is formed at its opposite sides with perforated portions to overlie the upper ends of the fuse recesses in the receptacle, and an insulation cap to frictionally engage the upper end of each fuse and of a size to be inserted through the perforation in the cover for inserting and removing each fuse.

10. In a duplex electrical fused outlet in accordance with claim 9, the contact blade at the upper end of each fuse having a perforation therethrough with a notch at one side and the cap having an electrical contact member with a projection therefrom to pass through the notch of the blade conductor and to make electrical connection therewith when the cap and the fuse are inserted through the perforated end of the blade conductor.

11. In a duplex electrical fused outlet in accordance with claim 9, the cover having a downwardly flanged extending rounded lip at its opposite sides adapted to extend over the upper perforated end of the blade conductor which is engaged by the upper end of the fuse for protecting the exposed edge of the conductor at the upper edge of the receptacle.

12. In a duplex electrical fused outlet in accordance with claim 6, means for positioning the cover with respect to the receptacle comprising, a downwardly extending lip at opposite ends of the under side of the cover adapted to extend over the opposite corners of the receptacle for additionally spacing and positioning the cover with respect to the receptacle, and means for connecting the cover to the receptacle.



13. In a duplex electrical fused outlet in accordance with claim 12, projecting rod means at the under side of each end of the cover, corresponding recess means for said rod means in the receptacle at opposite ends thereof for receiving the said projecting means for guiding the cover to a closing position on top of the receptacle.

14. In a duplex electrical fused outlet in accordance with claim 12, a central projection at the under side of the cover of a width to extend between the upper blade portions connected to the tops of the opposite fuses for holding the opposite blades spaced apart, fastening means inserted through the top of the cover and downwardly therefrom, and a projection extending upwardly from the bottom of the receptacle engaged by the fastening means.

15. In a duplex electrical fused outlet in accordance with claim 6, the receptacle having opposite projections at the insides thereof extending in the direction of the upper blade connector and each said projection having a slot extending downwardly from the top thereof into which the said upper connector blade is inserted for holding the blade in upright position.

16. In a duplex electrical fused outlet in accordance with claim 15 in which the blade portions from the upper and lower ends of the fuse have extending vertical extensions each with an inclined portion at the upper edge of each extension which is adapted to engage and to make a deflecting and sliding contact with the blade of a connector plug inserted through the cover.

17. In an electrical fused outlet, an insulating receptacle having an open top with an electrical conducting inlet connection at one side of the receptacle and an electrical conducting outlet connection at the other side of the receptacle, the receptacle having a main portion formed with an outside socket at each end thereof extending beyond the main portion of the receptacle and open at the top thereof with the outer wall terminating below the top of the receptacle, an angular attaching bracket having one portion adapted to extend within each socket with another portion thereof extending over said outer wall flush with the top of the receptacle, an insulating cover having an extension at each end which overlaps the end of the receptacle and engages over the top of the bracket to hold the bracket in place, and the bottom of the receptacle below the said socket at each end having a cut-away portion whereby the receptacle may be inserted within a space shallower at the said reduced ends than in the main portion of the receptacle.


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