

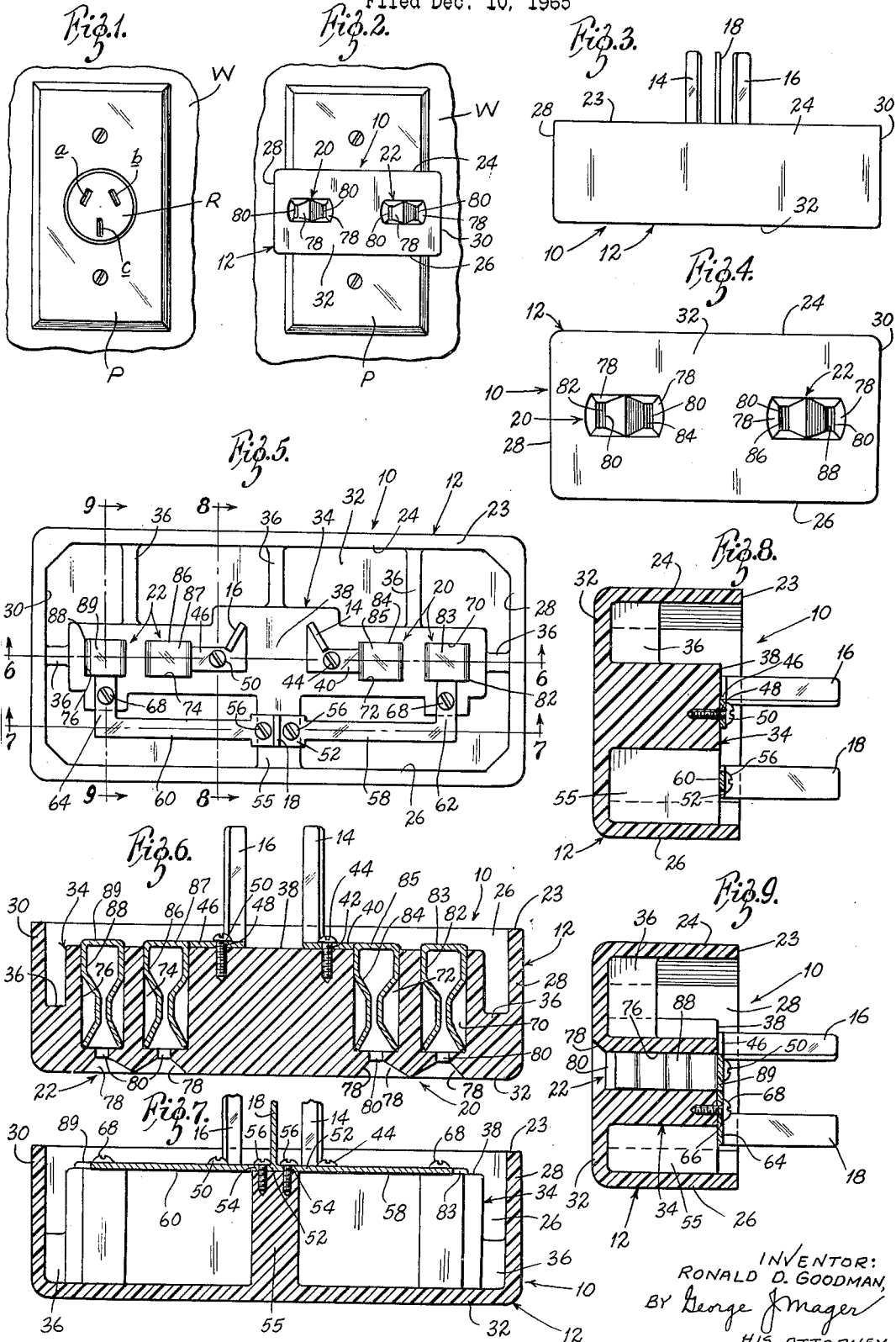
Oct. 24, 1967

R. D. GOODMAN

3,349,363

ELECTRICAL PLUG UNIT EMBODYING DUPLEX OUTLETS

Filed Dec. 10, 1965



INVENTOR:
RONALD D. GOODMAN,
BY George J. Mager
HIS ATTORNEY

1

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ELECTRICAL PLUG UNIT EMBODYING
DUPLIX OUTLETS

Ronald D. Goodman, 5432 Itaska St.,
St. Louis, Mo. 63109

Filed Dec. 10, 1965, Ser. No. 513,000
8 Claims. (Cl. 339-155)

The present invention relates generally to the electrical outlet and plug art. More particularly, the invention pertains to a novel plug unit adapted for insertion into a conventional grounded outlet of high voltage, said plug embodying duplex outlet means of reduced voltage suitable for the operation of household appliances and the like.

As is well understood, many household air conditioners require 220-volt current for effective operation, some require current of higher voltage. On the other hand, most appliances such as lamps, radios, clocks and so on, operate on a current of 110 volts.

In many sections of the country where air conditioners are in general use, the employment of them usually is confined to the summer months, so that for the major portion of each year, they are disconnected and are placed in storage. Consequently during such times, the high voltage outlet installations serve no useful purpose whatever.

The primary objective of the present invention is to provide a relatively small compact unit in the form of a plug adapted to divide the 220-volt current so as to provide two 110 volt outlets for servicing appliances during the cool and cold weather seasons. The two 110-volt outlets are accessible from the front of the unit comprising the present invention, when said unit has been plugged into the 220-volt outlet or receptacle, and are spaced for the convenient entry into each of them of a conventional plug provided on the end of an appliance cord.

The unit comprising the present invention includes what will be termed two conductor prongs and one ground prong. These three prongs are arranged in a pattern corresponding to that of the sockets in conventional three hole 220-volt receptacles. Each of the two 110-volt outlets includes the usual pair of metallic spring contact clips, each clip being lodged in a well or socket provided therefor in a portion or section of the plug body. Access means are provided for the ready insertion of a conventional two prong appliance plug into each outlet.

Means are provided for maintaining electrical continuity between one of the two conductor prongs of the unit, and one of the contact clips of each 110-volt outlet. Means are also provided for maintaining electrical continuity between the ground prong of the unit and the ground clip of each of the 110 volt outlets.

All elements of the invention except the three prongs are contained within the body of the unit, said prongs projecting beyond one side thereof as will appear. The body of the unit is molded of non-conductive, preferably plastic material, whereas all of the other included elements are fabricated of conductive metallic material.

The invention is illustrated on a sheet of drawings that accompanies this specification, and a more comprehensive understanding of its inherent features and advantages may be had from the detailed description that follows with reference to said drawings, wherein:

FIGURE 1 is a front elevational view on a reduced scale, of a conventional three prong high voltage outlet installation mounted on a dwelling wall or the like;

FIGURE 2 is a view similar to FIGURE 1, with the plug unit comprising the present invention applied to said installation;

2

FIGURE 3 is a top plan view of said plug unit;
FIGURE 4 is a front elevational view thereof;
FIGURE 5 is a prong-side elevational view of the plug unit on an enlarged scale;

5 FIGURE 6 is a longitudinal sectional view taken on the line 6-6 of FIGURE 5;

FIGURE 7 is a longitudinal sectional view taken on the line 7-7 of FIGURE 5;

10 FIGURE 8 is a transverse sectional view taken on the line 8-8 of FIGURE 5; and

FIGURE 9 is a transverse sectional view taken on the line 9-9 of FIGURE 5.

As hereinbefore indicated, the present invention is designed for use with high voltage outlet installations such as that illustrated in FIGURE 1. The exemplary installation there shown is a conventional one adapted to service air conditioning apparatus, is mounted on a wall W, includes what is commonly referred to as a three hole receptacle R, and the usual cover plate P. The receptacle R is shown to have a pair of opposed angularly disposed conductor prong receptive openings or sockets *a* and *b*, and a ground prong receptive opening or socket designated *c*.

The plug unit incorporating the concepts of the present invention is designated in its entirety by the numeral 10. It includes: a non-conductive rectangular body generally designated 12; a first conductor prong 14; a second conductor prong 16; a ground prong 18; and duplex outlet arrangements, these being a first outlet construction generally designated 20 and a second outlet construction generally designated 22.

The body 12 of the unit 10 is generally hollow and open on its prong side face 23 as shown. And as viewed particularly in FIGURES 2, 3 and 4, it includes: a top wall portion 24; a bottom wall portion 26; a left end wall portion 28; a right end wall portion 30; and a front wall or face portion 32. Extending from the front wall portion 32 toward the face 23 of the unit and along the longitudinal centerline thereof, is a prong supporting section generally designated 34, that as best seen in FIGURE 5, is of a generally T-shaped configuration. Preferably as illustrated, a plurality of integral web or rib segments 36 are provided in support of the section 34 in customary fashion. The prong-side surface 38 of section 34 lies in a plane inwardly of the surrounding prong-side face 23 of the plug body 12, as best seen in FIGURES 6 and 8. Consequently as should be apparent, when the unit 10 is plugged into a receptacle R, all conductive elements of said unit except the prongs will be spaced from the plate P.

The conductor prongs 14 and 16 are angularly disposed relatively to the ground prong 18 in a pattern corresponding to that of the sockets *a*, *b* and *c* of the FIGURE 1 receptacle R. It will of course be recognized that FIGURE 1 presents the standard pattern of openings for three hole receptacles. The three prongs 14, 16 and 18 project beyond the plug body 12, and each of them terminates at its inner end in a base segment integrally formed therewith.

Thus, the prong 14 has a base segment 40 having a circular opening 42 therein, and said base segment is rigidly secured to the prong-supporting section 34 by means of a screw 44 that extends through said opening and into engagement with said section.

The prong 16 has a base segment 46 having a circular opening 48 therein, and said base segment is rigidly secured to the section 34 by means of a screw 50 that extends through said opening and into engagement with said section.

The ground prong 18 has a base segment 52 having two circular openings 54 therein, and said base segment

is rigidly secured to the central leg portion 55 of section 34 by means of a pair of screws 56 that extend through said openings and into engagement with said leg portion. Integral with the base segment 52 is a first lateral extension or arm 58, and a second lateral extension or arm 60. As best seen in FIGURE 5, these arms extend in opposite directions, the arm 58 toward the outlet construction 20 and arm 60 toward the outlet construction 22. The end portions 62 and 64 thereof are formed normal to the main body portions of the arms 58 and 60. Each end portion has a circular opening 66 therein, and is rigidly secured to the prong-supporting section 34 by means of a screw 68 that extends through said opening and into engagement with said section.

The outlets 20 and 22 are of generally conventional construction, except that as seen to best advantage in FIGURE 6, they are incorporated in the plug body 12, whereas conventionally, outlets are incorporated in receptacle assemblies. Thus as demonstrated particularly in FIGURE 6, the prong-supporting section 34 of the plug body has formed therein four longitudinally spaced rectangular wells or sockets 70, 72, 74 and 76, these being provided along the longitudinal centerline of said section. Each well or socket is provided with a prong entrance opening 78 that converges into a prong guide slot 80 in conventional fashion.

The outlet construction 20 includes a spring conductor clip 82 lodged in the socket 70, and a similar clip 84 lodged in the socket 72, the clip 82 being the ground clip. The outlet 22 includes a spring conductor clip 86 lodged in the socket 74, and a similar clip 88 lodged in the socket 76, the clip 88 being the ground clip.

It is to be noted as clearly shown particularly in FIGURE 6, that the four conductor clips are so dimensioned that their respective web portions 83, 85, 87 and 89 project beyond the surface 38 of the body section 34. It is also to be noted (and this arrangement is obviously of critical importance), that as FIGURE 5 clearly shows, the base segment 40 of prong 14 is maintained in positive engagement with the web portion 85 of clip 84 by the screw 44, and the base segment 46 of prong 16 is maintained in positive engagement with the web portion 87 of clip 86 by the screw 50. Furthermore the end portion 62 of conductor arm 58 is maintained in positive engagement with the web portion 83 of clip 82 by one screw 68, and the end portion 64 of conductor arm 60 is maintained in positive engagement with the web segment 89 of clip 88 by another screw 68. As previously stated and as shown in the drawings, the arms 58 and 60 together with the base segment 52 are integral with the ground prong 18.

In use, the unit 12 would simply be plugged into a 220 volt receptacle R such as that exemplarily shown in FIGURE 1, with the conductor prongs 14 and 16 entering the sockets a and b respectively, and the ground prong 18 simultaneously entering the socket c. The resultant appearance is illustrated in FIGURE 2, where the two 110-volt outlets 20 and 22 are shown ready for use, each adapted to receive a conventional 110-volt plug.

In view of the foregoing description and the drawings, it is believed that an adequate presentation for a comprehensive understanding of my invention has been given. Obviously, modification of some of the illustrated structure is possible without departing from the spirit and scope of the invention. Wherefore it is to be understood that the invention is not limited to the precise details of construction illustrated and described.

What I claim is:

1. An electrical plug and outlet unit comprising:
 - a generally hollow rectangular body molded of non-conductive preferably plastic material including a top wall portion, a bottom wall portion, a pair of end wall portions and a front wall portion, all of said wall portions terminating in a continuous face portion;
 - a prong-supporting section of generally T-shaped con-

figuration extending from the front wall portion to a plane inwardly of said face portions;
a plurality of rib segments in support of the prong-supporting section;

first and second conductor prongs and a ground prong rigidly mounted on the prong-supporting section and projecting beyond said face portion; said prongs being arranged in a pattern corresponding to that of the prong-receptive sockets in a three hole high voltage receptacle;

first and second longitudinally spaced electrical outlet constructions provided in the prong-supporting section, each outlet construction including a spring conductor clip and a similar ground clip;

electrical continuity means between the first conductor prong and the conductor clip of the first outlet construction;

electrical continuity means between the second contact prong and the conductor clip of the second outlet construction;

electrical continuity means between the ground prong and the ground clip of the first and second outlet constructions; and

means for the ready insertion of the prongs of a conventional low voltage plug into engagement with the clips of each outlet construction, said means consisting of entrance openings that converge into prong guide slots formed in the front wall portion of the unit, each of said openings being in alignment with one of said clips.

2. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein said prong-supporting section is formed on the longitudinal centerline of the unit, and wherein the plurality of rib segments in support thereof extend from said top and side wall portions of the body to said prong-supporting section.

3. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein the pair of contact prongs each includes an integral base segment maintained in positive engagement with the contact clip of one of said outlet constructions by means of a screw extending through a circular opening provided in said base segment into engagement with the adjacent portion of the prong-supporting section aforesaid of the unit body.

4. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein the ground prong includes a base segment rigidly secured by a pair of screws to an extension leg of the prong-supporting section, said base segment having a pair of oppositely extending conductor arms formed integrally therewith, each arm terminating in an end portion normal to the arm and rigidly secured to the prong-supporting section in positive engagement with the ground clips of said outlets by means of a screw extending through a circular opening provided in said end portion and into engagement with the adjacent portion of the prong-supporting section aforesaid.

5. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein each of the pair of clips included in said first and second outlet constructions is lodged in one of four spaced rectangular sockets that are formed in the prong-supporting section of the plug body, said clips being so dimensioned that their web portions project beyond the prong-side surface of said prong-supporting section.

6. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein the electrical continuity means between the first conductor prong and the conductor clip of the first outlet construction includes said prong, a base segment integral therewith and normal thereto, the web portion of said clip, and a screw extending through a hole in said base segment into engagement with said prong-supporting section of the unit body, said screw serving to maintain the extremity of said base segment in positive engagement with said web portion of the clip.

5

7. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein the electrical continuity means between the second conductor prong and the conductor clip of the second outlet construction includes said prong, a base segment integral therewith and normal thereto, the web portion of said clip, and a screw extending through a hole in said base segment into engagement with said prong-supporting section of the unit body, said screw serving to maintain the extremity of said base segment in positive engagement with said web portion of the clip.

8. An electrical plug and outlet unit comprising the structure recited in claim 1, wherein the electrical continuity means between the ground prong and the ground clip of the first and second outlet constructions includes said prong, a base segment integral therewith, a pair of arms integral with the base segment extending laterally therefrom in opposite directions, an end portion formed normal to the main body thereof on each arm, the web portion of each ground clip, a pair of screws each extend-

6

ing through one of a pair of circular openings in said base segment and into engagement with a leg portion of said prong-supporting section of the unit body, and a pair of screws each extending through a circular opening in one of the end portions of said arms and into engagement with said prong-supporting section of the unit body, said screws serving to maintain the extremity of each of said ends in positive engagement with the web portion of one of the ground clips.

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MARVIN A. CHAMPION, *Primary Examiner.*

PATRICK A. CLIFFORD, *Examiner.*