May 25, 1943. V. R. DESPARD 2,319,801

DUPLEX CONVENIENCE OUTLET

Filed Feb. 13, 1941

FIG. 1.

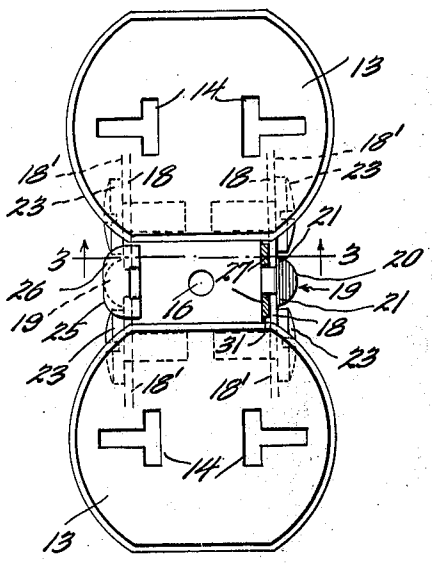


FIG. 2.

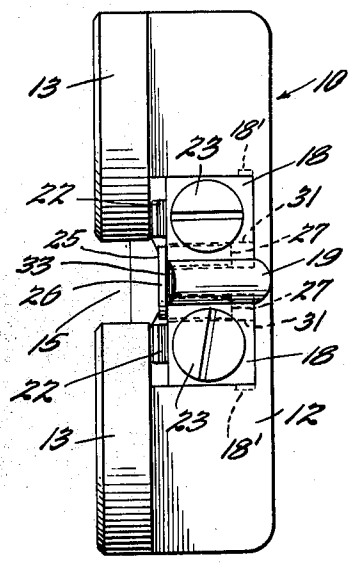


FIG. 3.

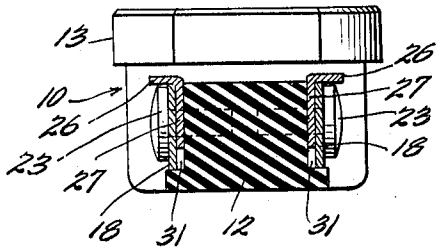
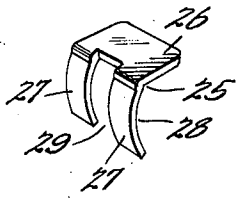


FIG. 4.



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UNITED STATES PATENT OFFICE

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DUPLEX CONVENIENCE OUTLET

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8 Claims. (Cl. 173—330)

The present invention relates to convenience outlets and more particularly to convenience outlets of the duplex type adapted to receive one or two attachment plugs for conducting current to portable electric devices.

It is often desirable where duplex convenience outlets are provided to be able to arrange the two outlets on separate circuits either for the sake of conducting current to the same from separate sources of power; with separate feeders; or in order that the outlets may be independently controlled. For instance, it is sometimes convenient to control one or both from switches. A more common arrangement is to control one from a switch, as for conveniently manipulating a floor lamp at the entrance to a room, and to leave the other outlet directly connected to a source of power for use with portables, such as vacuum cleaners or the like.

At the present time three general types of convenience outlets are provided commercially: first, those with but a single wire terminal or at least permanently connected wire terminals for each side of the line and supplying the contacts of both outlets; second, those having independent wire terminals for the contacts of each outlet; and third, those having a common terminal for one contact of each outlet and a separate terminal for the other contact of each outlet to provide for a common feed on one side and separate feeds on the other.

The manufacturer, jobber, retailer and contractor are all seriously inconvenienced by this multiplicity of devices of the same general type, and it is the intent of the present invention to provide one single form of duplex convenience outlet which will permit use in any of the ways in which the various separate forms have previously been used without adding to the cost of the device or to its inherent good qualities.

It is therefore a general object of the present invention to provide a duplex convenience outlet convertible from common feed to separate feed or a combination of the two without the use of any special equipment or tools.

More particularly, it is an object of the invention to provide, in a duplex convenience outlet, spaced separate terminals on each side thereof for feeding the contacts of the two outlets, together with means for connecting these terminals together electrically, which are readily removed without the use of special tools.

An important feature of the invention resides in the use of terminal plates spaced apart by an insulating rib or barrier adapted to be spanned by a spring contact clip fitted between the two adjacent terminal plates and the underlying insulation body from which they are supported.

Another important feature of the invention comprises the arrangement of a barrier between the electrically separate terminal plates on either side of a duplex convenience outlet which is formed integral with the insulation part composing the frame of the outlet and which has lateral flanges overlying the adjacent edges of the terminal plates to prevent them from being sprung outwardly by the use of a connector clip inserted between them and the underlying insulating.

Other and further features and objects of the invention will be more apparent to those skilled in the art upon a consideration of the accompanying drawing and following specification, wherein is disclosed a single exemplary embodiment of the invention with the understanding that such modifications and additions may be made thereto as fall within the scope of the appended claims without departing from the spirit of the invention.

In said drawing:

Figure 1 is a front elevation of a convenience outlet constructed according to the present invention, showing one spring clip in position and the other in horizontal section;

Figure 2 is a side elevation thereof;

Figure 3 is a transverse section taken on line 3—3 of Figure 1, looking in the direction of the arrows; and

Figure 4 is a perspective view of a spring connector clip adapted to electrically connect the terminal plates on either side of the outlet.

Referring now to the drawing, there is shown at 10 the main body or frame of the outlet formed of suitable insulating material, preferably one of the synthetic plastics molded to provide the main or rear portion 12 and the integral partly circular face members 13 suitably perforated as at 14 for the passage of the blades of a connector plug. These faces are spaced apart as at 15 and the upper face of the portion 12 is there perforated as at 16 to receive a screw which secures the face plate in position in the conventional manner. A separate spring contact, not shown, of conventional form is provided for each of the apertures 14, suitably housed within the hollow block 12 and preferably retained in position by a backing plate, not shown.

Each contact spring has preferably formed integral therewith, a substantially rectangular terminal plate 18, the connecting portion 18' be-

tween the terminal plate and the contacts passing through a suitable slot in the insulation to permit the contacts to be within and the terminal plates outside the portion 12. The two terminal plates on each side lie adjacent each other, as seen in Figure 2 and flat against the surface of the intermediate side wall, being spaced apart for mechanical and insulation purposes by a rib 19 projecting laterally from this wall and formed integral with the main insulating base. As seen best in Figure 1, this rib may have a semi-cylindrical outer face 20 and is provided with the lateral flanges 21 which overlie the contiguous portions of the terminal plates 18, serving to prevent them from moving outwardly away from the insulation base, either under the stress of connected conductors or the pressure of a spring clip later to be described. It will be understood that the terminal-contact assemblies are inserted from the rear of the base so that the terminal plates 18 can readily be passed beneath the overhanging flanges. Each terminal plate is equipped at the top with a turned-up lug 22 serving to position the wire and hold it from springing out beneath the head of screw 23 forming the binding post of the terminal plate.

As just described, the duplex convenience outlet is of the full separate or independent feed type, there being a separate terminal plate for each set of contact springs. In order that a single conductor may readily feed both springs on one side, provision is made to connect the two adjacent terminal plates together electrically by means of a spring clip 25, such as shown in Figure 4, which includes the tab 26 having depending spring legs 27 spaced apart on one edge thereof and lying generally in a plane at right angles to that of the tab. These legs are suitably bowed as shown at 28 to exert spring pressure when flattened. The space 29 between them is just slightly greater in width than the width of the central portion of one of the ribs 19 so that these spring legs may straddle this barrier and be pressed down behind or beneath the adjacent edges of the contact terminals 18, as seen in Figures 1, 2 and 3, suitable channels 31 being provided in the insulation base to accommodate them.

The remaining portions of the contact plates 18 fit closely against the outer surfaces of the insulating base. The spring pressure exerted by the bowed legs 27 against the undersurfaces of the contact plates insures excellent electrical contact, and since the thrust of the springs is resisted by the overhangs 21 on the barrier ribs, the contact plates cannot be pressed away from the base and the electrical contact weakened. It is proposed to sell the devices with the connecting clips assembled so that they, as received, are available for common feed wiring. One or both may be readily removed, either by grasping the tab portion 26 with a pair of pliers or wedging the same upwardly by prying with a screw driver, the insertion of which is facilitated by inclining the upper face of the barrier rib, as shown at 33 in Figure 2.

Thus the device may be used in the same manner as any one of the three forms now manufactured, partaking of the advantages of each and having none of the disadvantages. It will be understood that the conventional form of mounting means is used for securing the outlet in place in a wall box.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a duplex convenience outlet, in combination, an insulation base supporting two pairs of spring contacts for engagement by attachment plug blades, a plate electrically connected to each contact and supporting a terminal screw, said plates being arranged in pairs, one on each side of said base, an insulation barrier separating the plates of one pair and an independent spring clip adapted to bridge said barrier and electrically and frictionally engage the plates of a pair independently of said screws to connect them together.

2. In a duplex convenience outlet, in combination, an insulation base supporting two pairs of spring contacts for engagement by attachment plug blades, a wire terminal plate electrically connected to each contact, said plates being arranged in pairs, one on each side of said base, and flat thereagainst, an insulation barrier between the adjacent edges of the plates of one pair and a removable clip having spring legs straddling said barrier and engaging behind the rear faces of said plates to connect them together electrically and to be retained in position thereby.

3. In a duplex convenience outlet, in combination, an insulation base supporting two pairs of spring contacts for engagement by attachment plug blades, a wire terminal plate electrically connected to each contact, said plates being arranged in pairs, one on each side of said base, and flat thereagainst, an insulation barrier between the adjacent edges of the plates of one pair and a removable clip having spring legs straddling said barrier and sprung between the rear faces of said plates and said base.

4. In a duplex convenience outlet, in combination, an insulation base supporting two pairs of spring contacts for engagement by attachment plug blades, a wire terminal plate electrically connected to each contact, said plates being arranged in pairs, one on each side of said base, an insulation barrier extending from said base, separating the adjacent edges of the plates of one pair, said barrier having flanges overhanging the faces of the separated plates to hold them against said base and a removable connector element adapted to straddle said barrier and having spring legs arranged to engage beneath said plates and be frictionally positioned between them and the base.

5. A duplex convenience outlet of the type described in claim 4 in which the barrier is formed as an integral part of the base.

6. In a duplex convenience outlet, in combination, an insulation base supporting two pairs of spring contacts for engagement by attachment plug blades, a wire terminal plate electrically connected to each contact, said plates being arranged in pairs, one on each side of said base, an insulation barrier extending from said base, separating the adjacent edges of the plates of one pair, said barrier having flanges overhanging the faces of the separated plates to hold them against said base, said base having a groove parallel to said barrier beneath each plate, a connector element having spring legs adapted to straddle said barrier, be received one in each groove and contact the rear faces of said plates to connect them electrically.

7. In a duplex convenience outlet, in combination, an insulation base supporting two pairs of spring contacts for engagement by attachment plug blades, a wire terminal plate electrically connected to each contact, said plates being arranged in pairs, one on each side of said

base, an insulation barrier extending from said base, separating the adjacent edges of the plates of one pair, said barrier having flanges overhanging the faces of the separated plates to hold them against said base, said base having a groove parallel to said barrier beneath each plate, a connector element having spring legs adapted to straddle said barrier, be received one in each groove and contact the rear faces of said plates to connect them electrically, said legs being connected by a tab normally overlying one end of said barrier, said end being inclined for the reception of a tool to pry the connector loose when not required.

8. A duplex convenience outlet of the type having a separate terminal connector for each contact spring, said terminals being arranged in pairs on opposite sides of the outlet, an insulation barrier separating the members of each pair and a removable and replaceable connector element straddling each barrier and electrically connecting the terminals on the two sides thereof, said element having members frictionally engaging the rear faces of said terminals and retained in position thereby.

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