Nov. 3, 1931. F. J. HINES 1,830,466

ELECTRICAL RECEPTACLE

Filed April 25, 1931 2 Sheets-Sheet 1

Fig. 1.

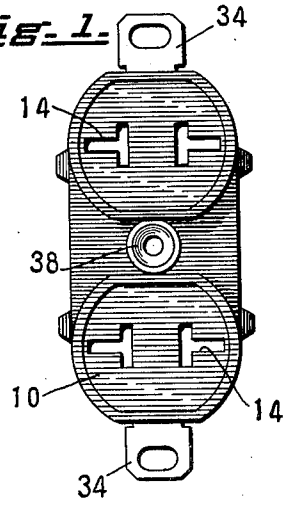


Fig. 2.

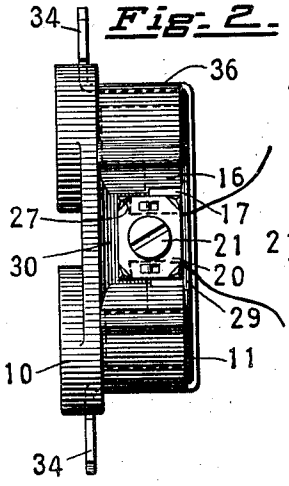


Fig. 3.

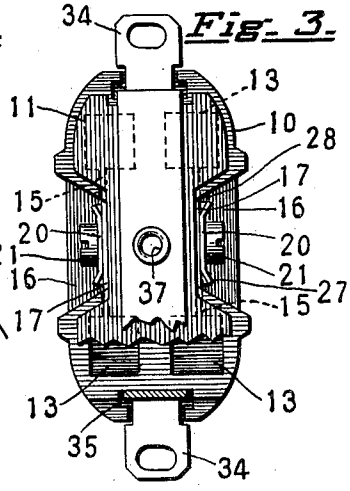


Fig. 4.

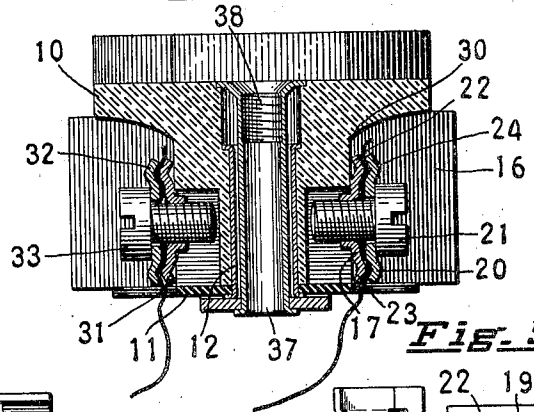


Fig. 5.

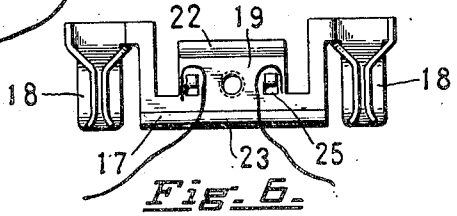


Fig. 7.

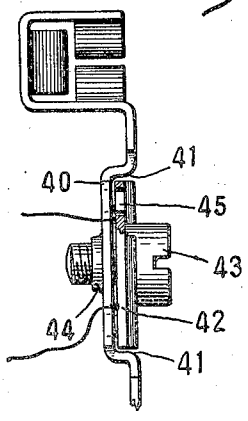
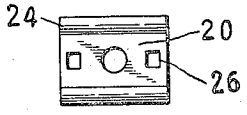


Fig. 6.



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Fig. 8.

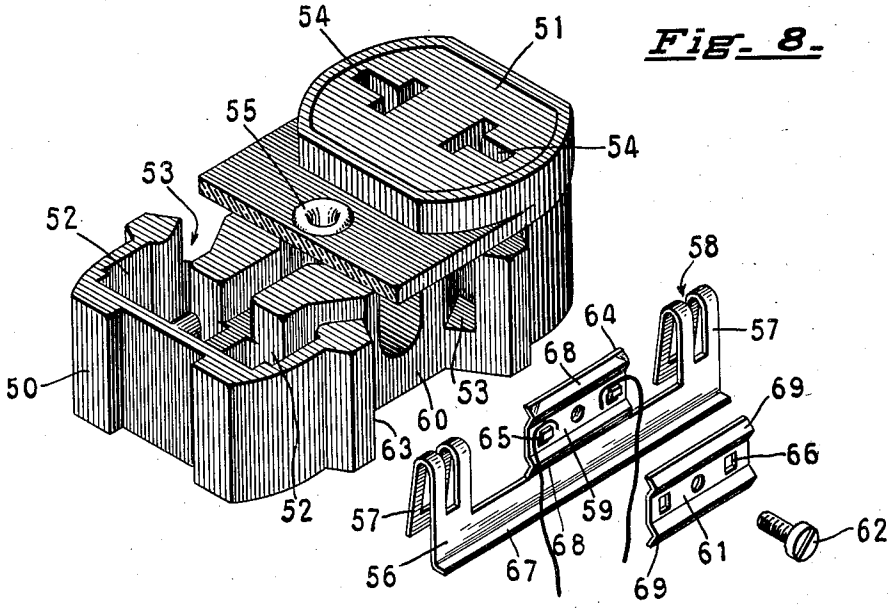


Fig. 10.

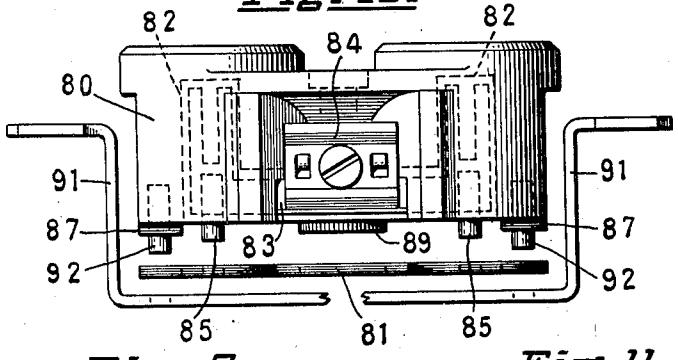


Fig. 9.

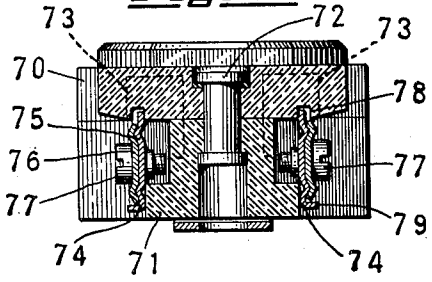
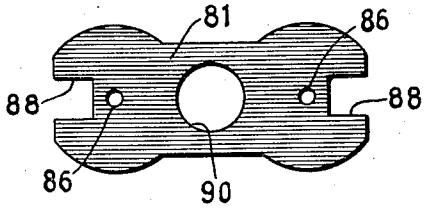


Fig. 11.



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UNITED STATES PATENT OFFICE

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ELECTRICAL RECEPTACLE

Application filed April 25, 1931. Serial No. 532,750.

My invention relates particularly to what are sometimes termed wall receptacles for convenience outlets adapted to receive the blades of attachment plugs. Such constructions, of course, are installed in household lighting systems and wired to the source of power. These devices consist of insulating bodies provided with terminals for the conductors and contacts for the reception of the plug blades, and are usually provided with some sort of supporting yoke or arms for mounting in an outlet box and for the support of a face plate.

In some devices a single clamp screw is provided for each circuit and in others a number of binding screws are provided for each terminal to facilitate connection with extension lines and for tapping purposes generally so as to avoid the necessity of soldering connections.

One object of my invention is to provide means for connecting a plurality of wires to each terminal plate and requiring only a single clamp screw for each plate. This is accomplished by providing an extended terminal plate for each bus bar and employing clamp plates so constructed and mounted as to prevent displacement in wiring.

Another object is to provide simple but effective means for mounting the contacts, bus bars, etc., in the insulating body.

Another object is to provide convenient means for connecting the parts of the body together.

In the drawings I have illustrated a number of embodiments of the various features of my invention, details of which will be understood from the following specification and the accompanying drawings.

Fig. 1 is a front view of one form of receptacle embodying my invention.

Fig. 2 is a side view of the same.

Fig. 3 is a rear view, parts being broken away to show the interior construction.

Fig. 4 is an enlarged transverse sectional view.

Fig. 5 is a side view of the bus bar with its contacts and terminal plate.

Fig. 6 is a side view of the clamp plate.

Fig. 7 is an enlarged detail plan view of one form of contact and bus bar.

Fig. 8 is a perspective view of the parts of another form of construction embodying my invention.

Fig. 9 is a transverse sectional view showing details of another modification.

Fig. 10 is a side view showing the parts of another modification.

Fig. 11 is a detail view of the bottom plate of the device of Fig. 10.

In the form of two portions, i. e., construction shown in Figs. 1 to 4 the body consists of a molded insulation portion 10 and a back plate 11 also of insulating material and these two parts may be held together for instance by a tubular rivet 12 as shown in Fig. 4.

The front part of the body is provided with recesses such as 13 adapted to receive the contacts and passages 14 to receive the blades of the attachment plug. In such cases as what are known as duplex receptacles adapted to accommodate two attachment plugs, there will, of course, be recesses such as 13 in opposite ends and each pair of recesses at one side of the longitudinal center line will be connected by a groove 15 and there will be a side recess 16 in the center of each side to accommodate the attachment of the conductor wires.

In the form shown which is a duplex receptacle I provide a bus bar 17 for each side of the receptacle and this bus bar has a contact 18 on each end suitably designed and constructed to accommodate one or more types of attachment plugs as is customary. The center of the bus bar is provided with an extension 19 which constitutes the main terminal plate. The bus bar is inserted and held in the groove 15 with the contacts 18 located in the recesses 13. A clamp plate 20 is designed to coact with each of the terminal plates and to be forced inwardly by means of a clamp screw 21. These clamp plates are loosely supported on the clamp screws so as to permit the easy insertion of conductor wires X, Y between the terminal plates and the clamp plates. These terminal and clamp plates are preferably flat in the center and flanged or corrugated longitudinally along the

margins as at 22, 23 and 24 so that they interfit and are adapted to clamp the ends of the wires tightly between them on each side of each screw when the clamp screws 21 are set up. As an additional means of anchoring the ends of wires I may provide lugs 25 struck up in the form of hooks which may extend into openings or recesses 26 in the clamp plate 20. These studs or projections serve as anchorages for the looping of the ends of conductors on each side of each clamp screw and they also serve to prevent the rotation of the plate 20 with respect to the plate 19.

The interlocking or interfitting of the grooves and ribs on the plates also tends to prevent the plates from rotating with respect to each other.

I may also provide bent over corners such as 27 on the terminal plates to assist in preventing the rotation of the clamping plates. I also prefer that the side recesses 16 be so designed and shaped that the walls of the recesses embrace the ends of the clamping plates as shown at 28.

A further or other means of preventing the plate 20 from turning is the extension or flange of the bottom plate 11 at 29 (Fig. 2) along the rear edge of the clamping plate like the flange 29 in Fig. 9. The front portion 10 also has its central part extended laterally so that upper edge 30 of the recess 16 may also be brought down close to the edge of the terminal plate so as to serve as a flange of the body to assist in positioning the parts and in guiding and confining the ends of the inserted conductors.

It will be understood, of course, that the two sides of the receptacle are symmetrically arranged and that a bus bar 31 with attached contacts similar to contact 18 will be provided and held, together with a clamping plate 32 and clamp screw 33 in recesses on the body.

In constructions of this character it is also desirable to provide means for mounting the receptacle in an outlet box. In the present case I have shown ears 34 forming a part of a conventional yoke which may be positioned with respect to the insulating body, for instance by grooves 35 or 36 in the ends of the body. This yoke may be suitably secured to the body, for instance by a central member 37 having its rear end riveted or upset back of the base of the yoke or strap and its other end spun over at the front of the body. This may also serve as a seat 38 for the usual screw for attaching the face plate (not shown) to the receptacle.

The central part of the bus bar 40 may be offset inwardly as shown for instance in Fig. 7 to provide recesses with shoulders 41 to receive the clamp plate 42. The set screw 43 may be provided with a seat 44 in the terminal plate. The terminal plate may be provided with studs or projections 45 to interlock with the clamp plate and to provide anchorage members for the ends of the conductors when more than one conductor is required.

In the form of construction shown in Fig. 8 the body is formed of the rear portion 50 and the front plate portion or cover 51. The rear part of the body is provided with recesses such as 52 for the contacts and slots 53 for the bus bars. The front plate has suitable passages 54 for the insertion of the attachment plug blades. The parts may be secured together by a central rivet 55 or in any other suitable manner.

A bus bar 56 is provided with contact members such as 57 at opposite ends which may be split or divided at 58 to accommodate tandem plug blades. The central part of the bus bar is provided with a terminal plate 59 which fits into the recessed portion 60 at the side of the body. The clamp plate 61 is secured to the terminal plate and supported by a single set screw 62 and may be positioned or prevented from rotating by shoulders 63 on the body or by turned over corners such as 64 similar to the bent over corner 27 in Figs. 2 and 3. Hook-like lugs 65 may project into holes 66 to prevent rotation and also to afford convenient means for attaching the ends of additional conductors on opposite sides of the respective clamp screws if desired. The bus bar may be turned over or flanged as at 67 to reinforce it if desired. I also prefer to provide the terminal plate and the clamp plate with longitudinal ribs or grooves 68 and 69 which assist in securely anchoring the ends of the conductors when the clamp plate is drawn into place by the screw 62.

In the form shown in Fig. 9 the insulating body is made up of the front plate 70 and the rear member 71 secured together for instance by a rivet 72. It will be understood that the front and rear portions have recesses such as 73 to receive the usual blade contacts. The bus bar 74 which connects these contacts is provided with a terminal plate portion 75 and the clamp plate 76 and clamp screw 77. One edge of the bus bar may be held in the groove 78 and the outer edge of the clamp plate 76 may be held in alignment by the flange or shoulder 79 so that the clamp plate will not be displaced when loosening the set screw and inserting the conductors.

In the form shown in Figs. 10 and 11 the body consists of the main portion 80 and the back plate portion 81, both formed of suitable insulating material. In this case the contact recesses 82 are located entirely within the body portion 80. The bus bar 83 and contacts are positioned in a manner similar to those previously described. The clamp plate 84 is suitably positioned in any of the ways previously described. The two parts of the body may be secured together for

instance by inserts 85 molded into the body 80 and riveted through the openings 86 in the bottom plate.

I may also provide projecting seats or bosses 87 at opposite ends of the body which project through cut-out portions 88 in the bottom plate. The central boss 89 may project through a central opening 90 in the bottom plate. These bosses or seats provide means for supporting the strap or yoke 91 independently of the means for fastening the bottom plate 81. In this case inserts 92 in the seats 87 may extend through the supporting strap and be riveted in place in any suitable manner.

It should be understood, however, that this strap 91 might be fastened as shown in Fig. 4 by a central rivet or screw.

It should also be understood that the typical end straps or brackets might be employed in place of the U-shaped strap or yoke.

It should be understood that various features of the invention as herein shown may be employed in various combinations to suit different requirements.

I claim:

1. An electrical receptacle comprising an insulating body having recesses for contacts and recesses for side terminals, bus bars mounted in the body, each bus bar having plug contacts and a terminal plate in the respective recesses, an independently movable clamping plate for clamping a number of wires against each respective terminal plate, a single clamp screw for supporting and actuating each clamping plate, said body having integral shoulders at opposite sides of the wire clamping plates for positioning the clamping plates and for preventing the escape of the ends of the wires held between the clamping plates and the terminal plates.

2. An electrical receptacle comprising an insulating body having recesses for contacts and for side terminals, bus bars mounted in the body, each bus bar having plug contacts and a terminal plate in the respective recesses. independently movable wire-clamping plates coacting with the respective terminal plates, and a single clamp screw for actuating each clamping plate, one of said plates having a wire anchorage member projecting into its companion plate.

3. An electrical receptacle comprising an insulating body, contacts mounted in said body and having external circuit terminals, said body being open at the rear to receive said contacts and terminals and having bosses of restricted area projecting from the rear at opposite ends, a back plate of insulation having cut-out portions to allow for said projecting bosses, means for securing said back plate to the body independently of the bosses, and supporting means for the body secured to said projecting bosses independently of said back plate.

4. An electrical receptacle comprising an insulating body having recesses, contacts mounted in said recesses and each having a circuit terminal, a back plate covering said recesses and said contacts, a tubular rivet connecting said back plate to said body, a supporting yoke extending around the back plates and the ends of said body and an anchorage member extending through said tubular member for securing said yoke to said body and having at the front a seat for a screw for attaching a face plate.

5. An electrical receptacle comprising an insulating body formed of two parts, one part having recesses for plug receiving contacts and having passages for the introduction of plug blades into said recesses, two bus bars mounted in opposite sides of the body, each bus bar having a contact located in one of the recesses and each bus bar having a circuit terminal plate arranged at one side of the receptacle, a wire clamping plate coacting with each bus bar terminal plate, and a single screw for drawing each clamping plate against its companion terminal plate, one of said insulating body parts having an integral shoulder alongside of each clamping plate to prevent the clamping plates from turning with the screws, each terminal plate and its companion clamping plate being adapted to hold a plurality of wires.

6. An electrical receptacle comprising an insulating body having recesses for contacts and for side terminals, bus bars mounted in the body, each bus bar having plug contacts and a terminal plate in the respective recesses, independently movable wire-clamping plates coacting with the respective terminal plates, a single clamp screw for actuating each clamping plate, said terminal plates and the coacting clamping plates having portions integral therewith on opposite sides of the respective clamp screws for holding a wire on each side of each clamp screw, and means for preventing the turning of the clamping plates when the clamp screws are rotated, each bus bar being provided with a reinforcing flange coacting with an edge of the coacting clamping plate.

7. An electrical receptacle comprising an insulating body having recesses for contacts and for side terminals, bus bars mounted in the body, each bus bar having plug contacts and a terminal plate in the respective recesses, independently movable wire-clamping plates coacting with the respective terminal plates, a single clamp screw for actuating each clamping plate, and means for preventing the turning of the clamping plates when the clamp screws are rotated, and at least one anchorage lug interlocking each terminal plate with its companion clamping plate to limit rotation of the clamping plate.

8. An electrical receptacle comprising an

insulating body having recesses in opposite sides and two recesses in each end and having passages for the insertion of plug-blades into the end recesses, bus bars having contacts located in the end recesses and terminal plates in the respective side recesses, said terminal plates having ridges thereon, a clamping screw passing through each terminal plate, a clamping plate loosely supported by each screw in a side recess, said clamping plates having grooves therein in alignment with the ridges on said terminal plates, said ridges and corresponding grooves being positioned on each side of the clamping screws, whereby conductor wires positioned between the ridges on the terminal plates and the corresponding grooves on the clamping plates may be securely clamped between the terminal and clamping plates by tightening the clamping screw.

9. An electrical receptacle comprising an insulating body formed of two portions with contact recesses between the portions and passages through one portion leading to said recesses for reception of attachment plug blades, bus bars held between the two portions of the body and having contacts in said recesses and having terminal plates at the sides of the body, a clamping screw passing through each plate, and a clamping plate loosely mounted on each screw, one of the parts of the body having an integral flange on each side each flange projecting over the edge of the clamping plate adjacent thereto to prevent the respective plates from turning and to confine the ends of wires clamped between the clamping plates and the terminal plates.

10. An electrical receptacle comprising an insulating body having two recesses in each end and passages leading from the front into said recesses, two bus bars, each bus bar having contacts on its opposite ends located in respective end recesses and each bus bar having a terminal plate portion intermediate the contacts of said bar, a clamping screw passing through each plate, a clamping plate loosely supported on each screw and adapted to be spaced away from the associated terminal plate to receive a number of wires between the terminal plate and the respective clamping plate, each terminal plate and its coacting clamping plate having integral parts on opposite sides of its clamping screw for holding a wire on each side of said screw, said terminal plates and clamping plates having interlocking portions to prevent the clamping plates from rotating with the screw.

11. As an article of manufacture, a combined bus bar and contact member for an electrical receptacle comprising a main bar having a central terminal plate with a flat portion and marginal ribs, contacts on the opposite ends of the main bar, a clamping screw passing through the flat portion between the marginal ribs, and a clamping plate having a flat portion loosely supported on said screw and having ribbed edges coacting with the marginal ribs of the bus bar plate.

12. As an article of manufacture, a combined bus bar and contact member for an electrical receptacle comprising a main bar having a central terminal plate with outwardly projecting lugs, a clamping screw passing through said terminal plate between said lugs, and a clamping plate loosely supported on said screw and having recesses into which said lugs project to provide anchorages for conductor wires between said plates.

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DISCLAIMER

1,830,466.—*Francis J. Hines*, Brooklyn, N. Y. ELECTRICAL RECEPTACLE. Patent dated November 3, 1931. Disclaimer filed August 26, 1936, by the assignee, *Hines Electrical Specialties, Inc.*

Hereby enters this disclaimer to claim 10 of said Letters Patent.

[*Official Gazette September 22, 1936.*]