April 6, 1943. H. HUBBELL 2,315,523

ELECTRICAL RECEPTACLE

Filed Jan. 7, 1941

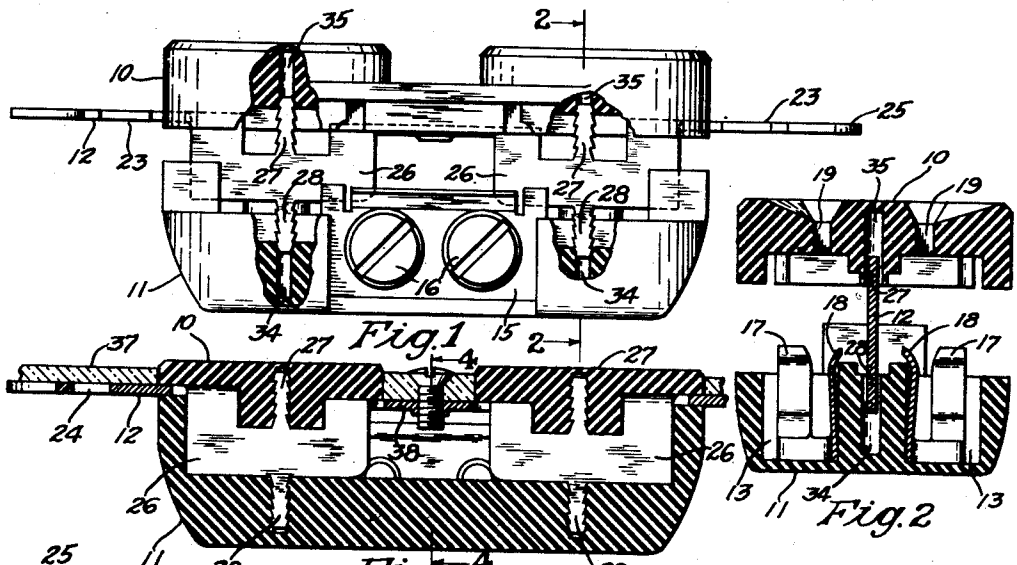


Fig. 1

Fig. 2

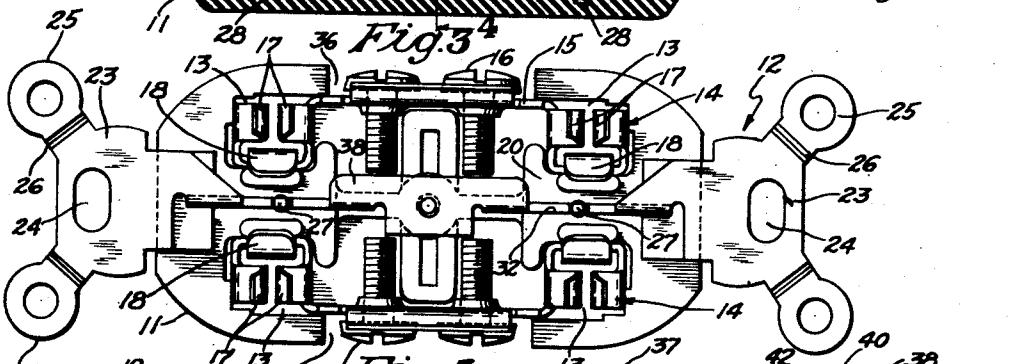


Fig. 3

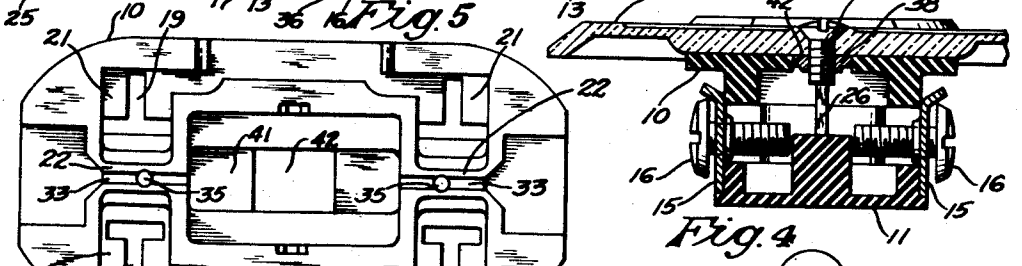


Fig. 5

Fig. 4

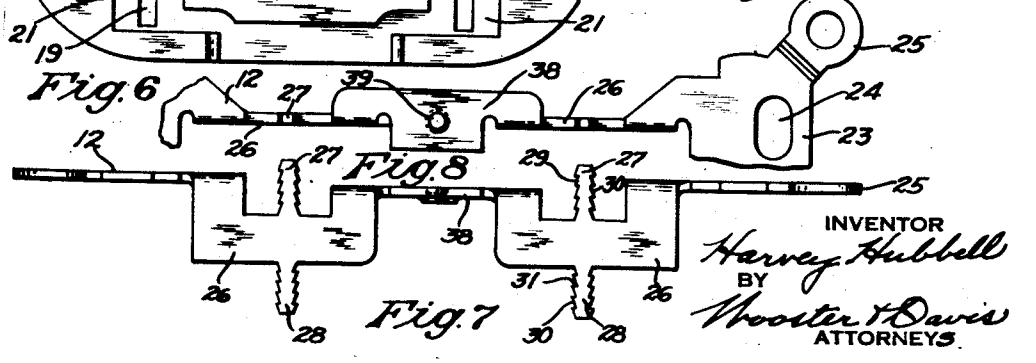


Fig. 6

Fig. 8

Fig. 7

INVENTOR
Harvey Hubbell
BY
Wooster & Davis
ATTORNEYS

Patented Apr. 6, 1943 2,315,523

UNITED STATES PATENT OFFICE

2,315,523

ELECTRICAL RECEPTACLE

Harvey Hubbell, Long Hill, Conn., assignor to Harvey Hubbell, Incorporated, Bridgeport, Conn., a corporation of Connecticut

Application January 7, 1941, Serial No. 373,439

9 Claims. (Cl. 173—330)

This invention relates to electric fittings, and particularly to electrical receptacles, and has for an object to provide an improved means for securing together the sections of the body of insulating material and also securing these sections to the bridge member for mounting the device in a wall box of the house wiring system.

It is also an object of the invention to provide means for securing the body sections together which will facilitate assembly and will eliminate the use of screws and rivets for this purpose.

Another object is to provide a device in which the sections of the body of insulating material may be effectively and permanently secured together by the simple operation of forcing them together into the proper assembled relation.

With the foregoing and other objects in view I have devised a construction as illustrated in the accompanying drawing forming a part of this specification. It is however to be understood the device is not limited to the specific construction and arrangement shown, but various changes and modifications may be employed within the scope of the invention.

In this drawing:

Fig. 1 is a side elevation showing the parts assembled in position preparatory to the operation of forcing the sections of the body together to complete the assembling operation, parts being broken away to more clearly show the construction;

Fig. 2 is a transverse section thereof substantially on line 2—2 of Fig. 1;

Fig. 3 is a longitudinal section through the completed device;

Fig. 4 is a transverse section thereof substantially on line 4—4 of Fig. 3;

Fig. 5 is a top plan view of the lower or rear section of the body with the bridge and electrical contacts assembled therein and with the top or front section removed;

Fig. 6 is a plan view of the top or front section looking toward the inner or rear side thereof;

Fig. 7 is a side elevation of the bridge member removed; and

Fig. 8 is a partial plan view thereof.

The receptacle shown includes a body of insulating material comprising two sections, a front or upper section 10 and the lower or rear section 11, which are secured together and supported in a wall box by a metallic bridge member 12. The section 11 has compartments 13 arranged in pairs in which are mounted the receptacle contacts 14. As the form shown is a duplex receptacle these contacts are arranged in two pairs and two contacts of each pair are connected by a bar 15 on which are mounted means for securing lead wires to the bar, such as binding screws 16. The contacts may be of any suitable type, but those shown comprise spring fingers 17 arranged in parallel relation to engage aligned contact blades of standard attachment plug caps and the third contact 14 arranged adjacent the inner edges of the contact fingers 17 and at right angles thereto to engage parallel contact blades of standard attachment plug caps. The front section 10 is provided with T-shaped slots 19 leading to the receptacle contacts 14 for insertion of either aligned or parallel blades of the attachment plug caps. The compartments 13 are separated by walls 20 of insulating material and the section 10 has in its rear or inner wall somewhat shallower compartments 21 in alignment with the compartments 13 to receive the upper or free ends of the contact fingers 17 and 18. The T slots 19 lead to these compartments, and they are separated by wall 22 of insulating material.

To secure the sections 10 and 11 together and to mount them on the bridge member 12 the bridge member is provided with projections or extensions adapted to be forced into the material of the body section and to grip this material to prevent separation of the sections. In the present construction the bridge 12 is made from a substantially flat piece of metal and has opposite end portions 23 extending beyond the ends of the body of the receptacle and each provided with an elongated opening 24 for passage of screws for mounting the device on the mounting ears of a wall box in which the device is installed. These end portions may also have spacing and locating lugs or washers 25 connected to the end portions by scored or weakened portions 26 so that they may be easily broken off is desired. Intermediate portions of this bridge portion 12, and indicated at 26, are bent at right angles to the end portions 23 and have projecting laterally from the opposite edges thereof lugs or projections 27 and 28. These lugs or projections are provided with means for gripping the material of the body sections 10 and 11 for securing the sections together. Th's gripping means may be made in different ways such as roughing or ridging to provide shoulders to grip the material of the body to prevent withdrawal of the projections therefrom, but it is preferred to provide a series of teeth 29 on one or both of the opposite edges of the projections and these teeth are preferably inclined on their outer sides at 30 and have abrupt shoulders 31 at their

inner sides. Thus when these projections are forced into the material of the body sections, the inclined sides of the teeth permit the projections to enter relatively easy, but after they enter the material the abrupt shoulders 31 grip the material and prevent their withdrawal, thus effectively securing the body sections to the bridge member and to each other.

To properly locate the bridge member and facilitate the assembly the separating walls 20 and 22 of the body sections 10 and 11 are provided with aligned grooves 32 and 33 respectively into which the opposite edges of the offset portion 26 of the bridge may seat. To facilitate entrance of the lugs and projections 27 and 28 into the material of the body sections these sections are provided with openings or recesses 34 and 35 respectively leading in opposite directions from the bottoms of the grooves 32 and 33. These openings or recesses are somewhat smaller than the width of the lugs or projections 27 and 28 but are of a size to permit passage of these lugs into the recesses without breaking the body section, but are sufficiently smaller than these lugs so that after they enter the recesses the teeth 29 grip the material to prevent their withdrawal. There is sufficient resiliency to permit a certain amount of relative yielding of the molded material and the teeth of the lugs to permit these lugs to enter the recesses and then the material springs back sufficiently to provide the desired gripping or locking effect between the teeth and the material.

In assembling the device the electrical contacts 14 connected by the bars 15 are inserted in the section 11 as shown in Figs. 2 and 5, the opposite sides of the section being provided with openings 36 opening through the side of the section in which the heads of the binding screws 16 are located and by which they are exposed so that they may be readily manipulated for connection of the lead wires. After the contacts are in place the bridge member 12 is placed in position thereon as shown in Figs. 1 and 2 with the free ends of the lugs or projections 28 seated in the entrances of the recesses 34. The entrances to these recesses and also the recesses 35 are preferably somewhat enlarged or beveled to permit the end portions of the lugs or projections 28 and 27 to seat therein and properly locate the parts relative to each other. After the bridge member is so placed on the lower section 11 the upper section 10 may be placed thereon with the ends of the projections 27 seating in the entrances to the recesses 35 as shown in Figs. 1 and 2. Thus the parts are all in proper alignment, and in this arrangement may be placed between the die plates of a suitable press. As these die plates are forced together they force the portions 10 and 11 together and at the same time force the lugs or projections 27 and 28 into the recesses 35 and 34 in the sections 10 and 11 respectively. This operation brings the parts to the position shown in Fig. 3 bringing the opposite edges of the portions 26 of the bridge member to seat in the grooves 32 and 33. As the lugs or projections 27 and 28 are forced into the material of the sections 10 and 11 or specifically into the recesses 34 and 35, provided to facilitate this action as above described, the teeth grip the material at the sides of the recesses effectively preventing withdrawal of the projections from the material and effectively securing the sections 10 and 11 together and also to the mounting bridge 12. It will be seen the sections are thus secured or locked together and to the bridge by the simple operation of forcing them together, and no screws or rivets are required and no openings are required leading through the material of the section 11 to the rear wall thereof.

Although in the specific arrangement shown the locking or securing projections 27 and 28 are located on the opposite edges of an offset 26, it will be evident I am not limited to this arrangement but that the lugs or projections 27 and 28 may be located on and project from any portion of the bridge member so long as they project into the material of the body section or into such relation thereto as to interlock or grip this material.

With these devices, after they are installed they are usually covered with a finishing wall or face plate. Such a plate is shown at 37 and the intermediate portion 38 of the bridge member may have a tapped opening 39 to receive the securing screw 40 for fastening the face plate in position. This portion 38 is seated in a recess 41 in the inner or rear wall of section 10 and this section has an opening 42 through this wall leading to the recess so the opening 39 is accessible.

This construction and arrangement greatly facilitates assembly of the device, and as it does not require the use of screws or rivets it also eliminates the cost of such screws and rivets as well as the necessary operations when such screws and rivets are used.

Having thus set forth the nature of my invention what I claim is:

1. An electrical receptacle comprising an insulating body having front and rear sections, one of said sections having chambers for receptacle contacts, contacts in said chambers, one section having contact blade slots leading to said contacts, a bridge member adapted for mounting the receptacle in a wall box and located between said sections, said sections each having recesses therein extending in a direction away from the other section, said bridge having means to secure the body sections together comprising projections extending forwardly and rearwardly therefrom and forced into the said recesses in the respective sections, and said projections having means to grip the material of the sections to secure said sections together.

2. An electrical receptacle comprising an insulating body having front and rear sections, one of said sections having chambers for receptacle contacts, contacts in said chambers, one of said sections having contact blade slots leading to said contacts, a bridge member adapted for mounting the receptacle in a wall box and located between said sections, and said bridge being provided with means to secure the body sections together comprising projections extending into the material of the respective sections and provided with means to grip this material to secure the sections together.

3. An electrical receptacle comprising an insulating body having front and rear sections, one of said sections having chambers therein, receptacle contacts in said chambers, one section having contact blade slots leading to said contacts, a bridge member adapted for mounting the receptacle in a wall box and located between said sections, and said bridge having means to secure the body sections together comprising projections extending in opposite directions therefrom and provided with shoulders engaging the material of the respective sections to secure the sections together.

4. An electrical receptacle comprising an insulating body having front and rear sections, a bridge member adapted for mounting the recep-

tacle in a wall box and located between said sections, one of said sections having chambers therein for receptacle contacts, contacts in said chambers, one section having contact blade slots leading to said contacts, said sections each having recesses therein extending in a direction away from the other section, said bridge having means to secure the body sections together comprising projections extending therefrom and forced into said recesses in the respective sections, and said projections having teeth inclined on their outer sides to permit the projections to be forced into the recesses and abrupt on their inner sides to grip the material to prevent withdrawal of the projections from the recesses and thus secure the sections together.

5. An electrical receptacle comprising an insulating body having front and rear sections, said rear section having laterally spaced chambers for receptacle contacts, contacts in said chambers, said front section having contact blade slots leading to said contacts, said sections having on their inner walls between the chambers aligned longitudinally extending grooves, a bridge member including substantially flat portions seated on edge in said grooves and having lugs at its opposite ends extending beyond the body for mounting the receptacle in a wall box, and projections on said bridge extending into the body sections and having means gripping the material of these sections to hold them together.

6. An electrical receptacle comprising an insulating body having front and rear sections, said rear section having laterally spaced chambers for receptacle contacts, contacts in said chambers, said front section having contact blade slots leading to said contacts, said sections having on their inner walls between the chambers aligned longitudinally extending grooves, a bridge member including substantially flat portions seated on edge in said grooves and having lugs at its opposite ends extending beyond the body for mounting the receptacle in a wall box, said sections each having recesses therein extending respectively forwardly and rearwardly from the bridge member, projections on said bridge member forced into said recesses, and said projections having teeth thereon inclined on their outer sides so they will pass into the recesses and abrupt on their inner sides to grip the material of the sections to prevent their withdrawal therefrom and thus hold the sections together.

7. A bridge member for mounting an electrical receptacle in an outlet box comprising a substantially flat strip of metal having ears at its opposite ends for securing it in the wall box, intermediate portions in a plane at substantially right angles to the plane of said ears, and projections extending in opposite directions from the intermediate portions of said member adapted to be forced into the molded material of separate sections of an insulating body and having means thereon to grip said material to hold the sections together.

8. A bridge member for mounting an electrical receptacle in an outlet box comprising a substantially flat strip of metal having ears at its opposite ends for securing it in the wall box, and said member including means to secure together separate sections of an insulating body comprising projections extending at substantially right angles to the planes of the ears in opposite directions from portions of said member intermediate said ears adapted to be forced into the molded material of separate sections of an insulating body and having means thereon to grip said material to secure the body sections together.

9. A bridge member for mounting an electrical receptacle in an outlet box comprising a substantially flat strip of metal having ears at its opposite ends for securing it in the wall box, and projections extending in opposite directions from portions of said member intermediate said ears, and said projections having teeth inclined on their outer sides to adapt the projections to be forced into the molded material of separate sections of an insulating body and abrupt on their inner sides to grip the material to prevent withdrawal of the projections from the material and thus hold the sections together.

HARVEY HUBBELL.