Aug. 4, 1931. L. M. HAUSMANN ET AL 1,816,847

ATTACHMENT PLUG RECEPTACLE

Filed Dec. 29, 1921

Fig. 1

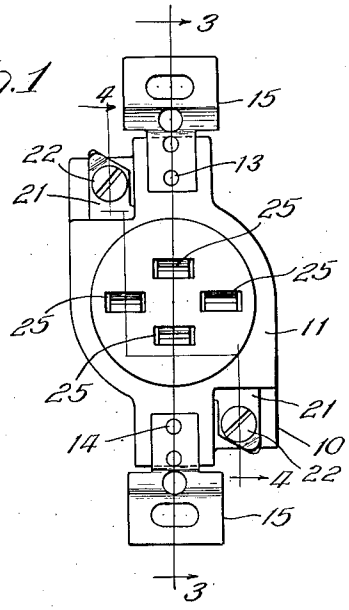


Fig. 2

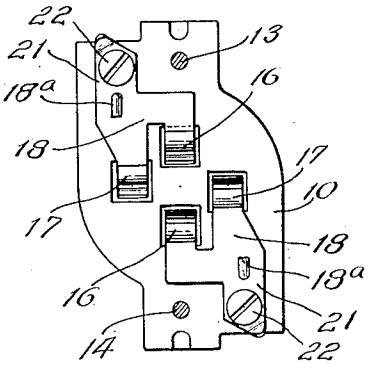


Fig. 3

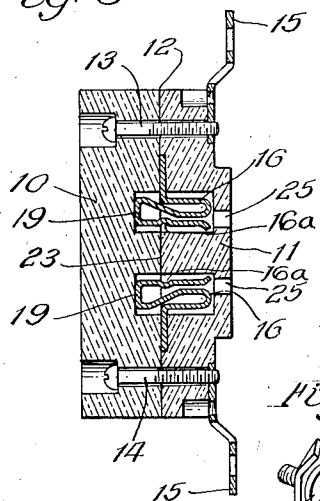


Fig. 4

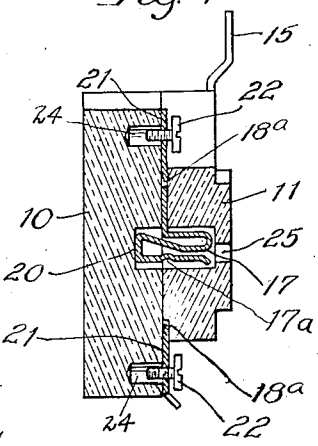
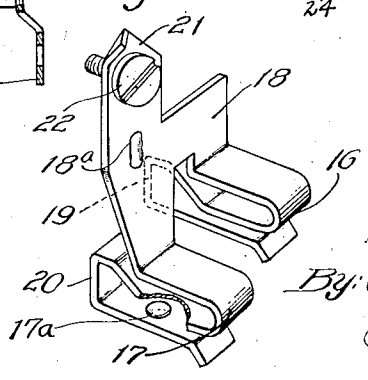


Fig. 5



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UNITED STATES PATENT OFFICE

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ATTACHMENT PLUG RECEPTACLE

Application filed December 29, 1921. Serial No. 525,786.

Our invention relates to attachment plug receptacles, and it has particular relation to receptacles of the character designated, wherein the terminal-receiving means are adapted to engage attachment plugs having blades arranged in either parallel or tandem relation.

More particularly, however, our invention contemplates the provision of a receptacle of the above character wherein the various portions thereof are so formed and so associated that a number of desirable advantages are obtained. In many of the receptacles with which we are familiar there is danger that portions thereof may become loose and cause short circuits and thereby initiate fires. That is, the terminal receiving portions in many receptacles are attached to the insulating body portions by screws which extend through said body portions. The body is usually recessed at the bottom of the receptacle and the live connecting members which extend into these recesses are covered with sealing wax whereby the live parts are prevented from coming into contact with other objects.

Not only is this construction undesirable because it is obvious that the wax or other sealing material may melt and run off leaving the live portions unprotected with the attendant danger of a short circuit therebetween, but it also necessitates an additional expenditure of labor in the construction of the receptacle. It is thereover one object of our invention to eliminate entirely the above described metallic connecting means which are productive of short circuits and to provide a receptacle wherein the live portions of the receptacle are held in place without the utilization of any securing means which may extend through the base itself.

To this end we provide two insulating body portions which are separable along a plane substantially parallel to the face of the receptacle. One or more of these body portions are so recessed and shaped that suitable blade-receiving jaws may be positioned therein or therebetween without the utilization of screws or other connecting means. These body portions may be further so formed that each of the four jaws which are a necessary part of our device are seated in an individual compartment, such compartments being formed by complementary recesses on the two body portions when both of the latter are recessed.

Another objection to those receptacles which are now on the market resides in the method of connecting the blade-receiving jaw portions to suitable binding posts. The present practice contemplates attaching the jaws to some sort of connecting strap which is, in turn, connected to a binding post, the latter being accessible from the outside of the receptacle. Sometimes this connecting strap is positioned on the back of the receptacle and adds to the danger from exposed live portions, which has heretofore been indicated as existing when the jaw portions are attached to the body by securing means extending through to the back of the receptacle. All of the present means of connecting the binding posts to the blade-receiving jaws are open to the objection that loose connections may occur within the receptacle itself whereupon it is necessary to take the same apart in order to replace the affected portion. In most instances such loose contacts may themselves cause short circuits within the receptacles with all of the attendant dangers.

We propose to eliminate entirely the above difficulty by making the blade-receiving jaw portions integral with the binding post portion of the conducting member, and to this end, provide terminal binding screws which are screwed directly into a threaded double jaw contact piece, a portion of which extends outside the body of the receptacle. This is a very advantageous construction and eliminates the necessity of riveted jaws or other connecting means and insures that there is no possible chance for the existence of loose connections within the receptacle itself.

The blade-receiving member consists of one piece of material from which the jaws themselves are bent, and it is a further object of our invention to so bend these jaw

portions that they are off-set from one or both faces of the planar portion of the member whereby said off-set portions may be fitted into properly designed recesses in one or both of the insulating body portions. The cost of manufacture of the device, as a whole, is lowered considerably because of the manner of constructing these blade-receiving members, it being found that the integral construction of the same eliminates a great many stampings or pieces which have heretofore been considered necessary in manufacturing a device of this character. These unitary members comprehend jaws which are so formed that either type of plug may cooperate therewith and this again contributes to the low cost and ease of manufacture of said device.

Again, the construction of the device in such a manner that is unnecessary to pierce the body portion with a plurality of holes, through which screws for connecting the blade-receiving members to the body portions pass, adds considerably to the strength of the device and makes it far more durable. It is, of course, obvious that a porcelain member which has a plurality of holes therethrough—these holes, in turn, receiving members which may be subjected to strain when the blades are inserted in and withdrawn from the jaw portions—will be quite weak as compared with one which is not pierced at all through the center portion thereof. Again, the two insulating body portions may be very easily molded because they are simple in character and need only be recessed to receive the jaw members. The joinder of these members on a plane of separation through the middle of the receptacle likewise contributes materially to the simplicity of manufacture, and, moreover, eliminates the projecting parts which are liable to be broken off as is the case in those receptacles, the parts of which are irregularly shaped.

For a better understanding of our invention, as well as other points of advantage which are incident to the use thereof, reference may be had to the accompanying drawings, in which—

Fig. 1 is a plan view of a receptacle embodying our invention;

Fig. 2 is a plan view of the receptacle with the upper apertured body portion removed;

Fig. 3 is an elevational sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is an elevational sectional view taken on the line 4—4 of Fig. 1; and

Fig. 5 is a perspective detailed view, on a large scale, of one of the unitary double jaw members which we utilize in our device.

Referring now more particularly to the drawings, our receptacle comprises a lower insulating body portion 10 and an upper body portion 11 which is adapted to overlie the lower portion along a plane of separation 12. These two body portions may be joined together by screws 13 and 14 which are adapted, at their upper ends, to secure wall attaching lugs 15—15 to the receptacle, it being noted that the securing means 13 and 14 thereby serve a double purpose.

The plug knife blades are received in jaws 16—16 or 17—17, each jaw member comprising an integral element having a planar portion 18 which is adapted to extend, when the receptacle is assembled, parallel to the plane of separation of the upper and lower body portions. Bent at right angles to the planar part 18 are jaw members 16 and 17, it being noted that these jaw members are three-ply and that they are so bent that portions thereof are off-set from both the upper and lower faces of the planar portion 18. The lower portions of the jaws, that is, the portions opposite the openings between the two-plys which receive the plug blades, are bent to form substantial rectangular bases 19 and 20, the purpose of which will be hereinafter pointed out. Extending outwardly from the planar portion and, in this illustration of our invention, coplaner therewith, is a binding post 21 into which is screwed a terminal binding screw 22.

Small projections or bosses 16*a* and 17*a* are drawn out from the last ply in the jaw members. These bosses are so located that they register with holes which are usually left in the blades of attachment plug caps which interfit with receptacles. This feature is of particular advantage in that it results in the plug being held firmly in place and prevents it from being jarred loose.

It should be understood that the heretofore described integral and double jaw member is formed from a stamping and that the jaw portions thereof are bent at right angles thereto after the same has been stamped out with the correct contour. The bending of the members in the manner shown imparts a considerable resiliency to the two-plys between which the plug blades are inserted whereby, when said blades are inserted therebetween, a good gripping contact is obtained.

The insulating body portions 10 and 11 are recessed to receive the upper and lower jaw portions of the integral member 18 which are off-set from the faces of the plane of the latter and it should be understood that the recesses in the upper and lower body portions are complementary whereby, upon joinder of these portions, four distinct compartments are formed which contain the four jaw portions. Moreover, the recesses are so arranged that the two jaws on one integral member are separated from the two

jaws on the other member (which are, of course, of opposite polarity) by a wall, this wall being formed partly by the upper member and partly by the lower member and being designated in Fig. 3 as 23. In addition to these distinct recessed compartments, one of the members, herein shown for purpose of illustration as the upper member 11, is provided with channels 24—24, in which may be received the outwardly extending binding terminal portions 21 of the unitary jaw members.

It will be observed that the jaw members are seated in the lower body portion 10 and that the base parts 19 and 20 on each member are flush with the bottom of these recesses whereby the jaw members are firmly seated therein. The upper body portion 11, as heretofore indicated, is recessed complementary to the lower portion 10, and, therefore, fits over the jaw portions 16—16 and 17—17 of the integral members, the apertures 25 being provided in the upper face of the receptacle body portion to provide for the insertion of plug blades.

In this connection, it will be understood that our receptacle is adapted to receive the jack blades of plugs of different construction and that the jaws 16—16 cooperate with parallel blades, whereas the jaws 17—17 receive aligned or tandem blades.

The upper body portion 11 fits down snugly over the jaws and because of the proper placing of the recesses, is flush with the lower body member along the plane of separation 12. The screws 13 and 14 pass through body portion 10 and are screwed into attaching lugs 15—15 and thereby hold the two body portions together, at the same time holding the jaw portions in correct operative position without the necessity of utilizing any screws whatsoever through said jaw members. By referring to the sectional views of the drawings, it will at once be apparent that there are no screws extending through the live portions of the receptacle.

Flat tongues 18*a* are drawn out of the plane portions of jaw members, each tongue being free on three sides and being so bent upwardly at its free end that it acts as a spring to take up any play between the two body portions. It is very difficult to control the shrinkage of porcelain in firing and we intend to leave about 5/1000″ clearance between the metal plate and the porcelain bodies. This flat tongue is designed to take up this play and insure that the terminal plate will be held tight between the two bodies. A slight clearance is also necessary between these porcelain bodies so as to make sure that if the porcelain warps a little in the firing they will not break when the two assembly screws are tightened. By throwing up this tongue out of the metal used to form the terminal plates a spring action is obtained which will prevent the terminal plates having any chance to rattle when the two porcelain bodies are fastened together by the screws which are threaded into attaching lugs of the receptacle.

In addition to the above described jaw members being particularly advantageous in that they can be easily secured between the two body portions without the utilization of screws, attention is directed to the integral manner in which the binding post portions thereof are connected with these jaws. Because of this construction, there is no opportunity for the existence of loose connections within the receptacle. Furthermore, the extension of the jaw members into both the upper and lower body portion recesses ensures a stable and durable construction.

As we have heretofore indicated, each of the conducting jaw members is adequately insulated from the other conducting member by the walls established between the recesses containing the jaws, these walls in the upper and lower body portions being complementary to this end, and this is particularly true of the wall between the jaws of opposite polarity. These jaw members are bent so that portions thereof extend up into the recesses of the upper body member and down into complementary recesses in the lower member, thereby producing an extremely stable article because of the engagement of both body portions with the jaw members upon assembly of the device.

Finally these double jaw members are integrally formed in such manner from one stamping that a marked lowering in cost of producing devices of this character is realized, not only because of saving in material but because the devices containing the integral pieces are much more easily and quickly assembled than are those which comprise a plurality of small and easily misplaced parts.

While we have described but one embodiment of our invention it is obvious that many modifications therein may occur to those skilled in the art and we desire therefore that the same be limited only by the showing of the prior art and by the scope of the appended claims.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In an attachment plug receptacle, upper and lower insulating body portions, and terminal-receiving members embraced between said portions, said body portions being recessed to hold said members in operative position solely by the clamping action of said body portions, and said terminal receiving members being provided with supplemental spring portions to take up the play between said body portions.

2. In an attachment plug receptacle, upper and lower insulating body portions, and terminal-receiving members embraced between said portions, each of said members being formed from a single piece of material and comprising a planar portion and two jaw portions bent at right angles thereto, each jaw portion having parts off-set in both directions from said planar portion, and said body portions being recessed to receive the off-set parts of said jaw portions.

3. In an attachment plug receptacle, upper and lower insulating body portions, and terminal-receiving members embraced between said portions, each of said members being formed from a single piece of material and comprising a planar portion and two jaw portions bent at right angles thereto, each jaw portion having parts off-set in both directions from said planar part, and being off-set longitudinally thereof as well, whereby the suitable disposition of two of said members on and between said body portions produces a receptacle adapted to engage a plug having either tandem or parallel blades.

4. In an attachment plug receptacle, upper and lower insulating body portions, and terminal-receiving members embraced between said portions, each of said members being formed from a single piece of material and comprising a planar portion and two jaw portions bent at right angles thereto, said jaw portions being formed by a double bend of the material therein to form a three-ply portion whereby the jaws are resilient and are attached to said planar portion by one leg of the three-ply bend.

5. An attachment receptacle comprising a plurality of integral twin double jaw blade-receiving members having planar portions and jaws bent therefrom to have portions off-set from each face, respectively, of said planer portion.

6. An attachment receptacle comprising a plurality of double jaw blade-receiving members having planar portions and three-ply jaws bent therefrom to have portions off-set from each face of said planar portion.

In witness whereof, we have hereunto subscribed our names.

LEMUEL M. HAUSMANN.
JULES A. WIDMER.