

April 2, 1935.

J. C. CLINTON

1,996,459

RECEPTACLE AND PLUG

Filed Oct. 31, 1931

Fig. 1.

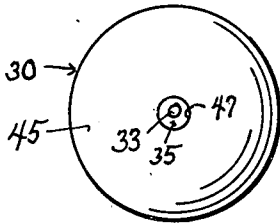


Fig. 2.

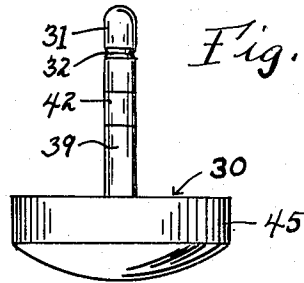


Fig. 5.

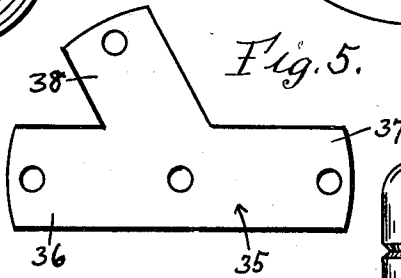


Fig. 3.

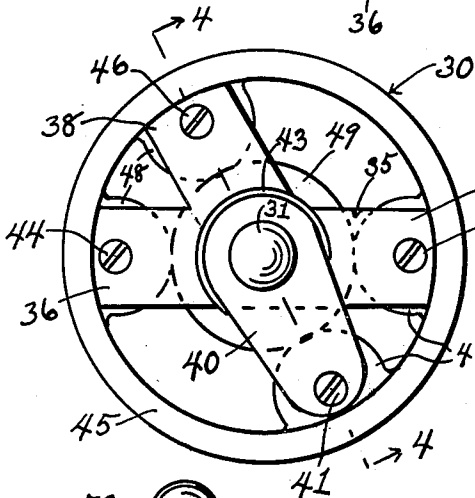


Fig. 4.

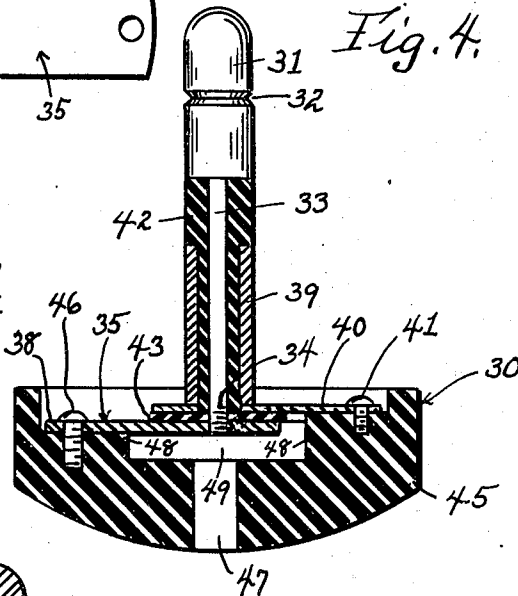


Fig. 6.

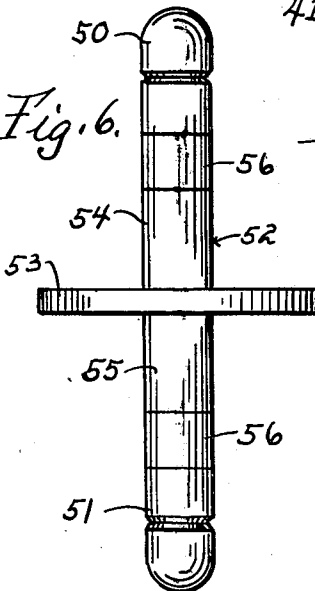


Fig. 7.

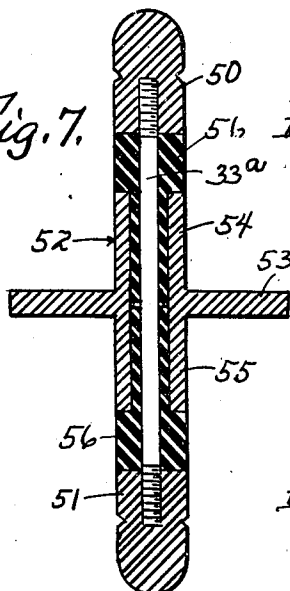
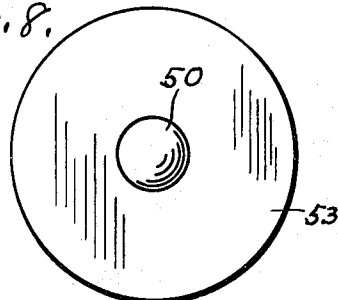


Fig. 8.



INVENTOR
James C. Clinton
By W. B. Williamson
Att'y.

UNITED STATES PATENT OFFICE

1,996,459

RECEPTACLE AND PLUG

James C. Clinton, Chillicothe, Ohio

Application October 31, 1931, Serial No. 572,238

1 Claim. (Cl. 173—361)

My invention relates to new and useful improvements in a receptacle and plug, the parts of which may be utilized to form an independent receptacle and an independent plug or a combination receptacle and plug, and one of the objects of the invention is to provide a compact simply constructed device which will be inexpensive in the cost of manufacture although strong and durable.

Another object of the invention is to provide a separable plug and receptacle which may be electrically connected through the use of a single stem and insertable in a single opening, said opening having the necessary contact members therein.

Another object of the invention is to provide a coacting receptacle and plug having straight line contacts.

Another object of the invention is to provide a plug having a stem including two contacts spaced longitudinally and insulated from each other for insertion in a receptacle having similarly spaced contacts within an opening in said receptacle.

Another object of the invention is to provide a double contact plug, each end of which is a duplicate of the other end.

A further object of the invention is to provide a receptacle using the principles of my invention above outlined for the reception of one or more plugs.

A still further object of the invention is to produce a unitary structure including a combination of the receptacle and plug.

With these and other ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawing forming a part of this application in which:—

Fig. 1 is an outer end view of the contact plug embodying my invention.

Fig. 2 is a side elevation thereof.

Fig. 3 is an enlarged inner end view of the same.

Fig. 4 is a section on the line 4—4 of Fig. 3, with the contact pin in elevation.

Fig. 5 is a face view of the bridge member which fastens the several plug contacts and component parts to the body of the plug.

Fig. 6 is a side elevation of a modified form of plug showing a way in which the invention may be utilized as a double contact plug.

Fig. 7 is a longitudinal sectional view thereof with the connecting rod in elevation.

Fig. 8 is an end view of the same.

In carrying out my invention as herein embodied, 30 represents a contact plug including an outer contact 31 preferably having an annular groove 32 intermediate its ends for engagement with a contact member of a receptacle to be later described, and the outer end of said contact member is of spherical formation whereby it may be readily forced over or past a coacting contact member. The contact member 31 is carried by a rod 33 formed as an integral part thereof or secured thereto in any suitable manner. If the parts are made separately, they may be secured together by threads as shown in Fig. 7.

The inner end of the rod 33 is threaded as at 34 for connection with a bridge 35 including a pair of oppositely projecting arms 36 and 37 and a third arm 38 projecting at an angle to the other two arms, preferably obliquely to the longitudinal center of said other arms.

Assembled on the rod 33 is a contact sleeve 39 which is in contact with a clip 40 carrying a binding screw 41.

On the rod 33 is also assembled an insulating cylinder 42 which insulates the contact sleeve 39 from said rod 33 and said cylinder 42 has an enlargement which corresponds in diameter to the contact 31 and the contact sleeve 39 and positions the latter in spaced relation to the contact 31. An insulated washer 43 separates and insulates the clip 40 from the bridge 35.

The parts thus far described when assembled become a unitary structure and may be secured by means of the bridge 35 and suitable fastening elements 44, such as screws, to any other object or article such as, for instance, a body 45 which should be of insulating material although it is possible to use electrical conductive material and insulate the metallic parts from each other.

The arm 38 of the bridge carries a binding screw 46 and to the binding screws 41 and 46 the wires may be fastened as is usual in the electrical art and they may then be threaded through the opening 47 in the body 45 for connection to any suitable electrical translating device.

The body 45 is preferably recessed from the inner end so as to produce projections 48 on which the parts of the bridge 35 and the clip rest and so that said bridge, clip and associated parts will be inside of the inner end of the body and also

so that there will be a space 49 beneath the bridge for the passage of the wires from the hole 47 to the binding screws 47 and 48.

In Figs. 6 to 8 inclusive, I have illustrated a double contact plug embodying my invention wherein the rod 33a carries contacts 50 and 51 at both ends preferably being threaded thereon, and surrounding the rod between the outer contacts 50 and 51 is an inner or sleeve contact 52 provided with a collar 53 intermediate its ends so as to define two contact surfaces 54 and 55. The collar 53 acts as a stop or shoulder to limit the insertion of either end of the plug in a receptacle so that the contacts at either end will properly cooperate with the contacts of a receptacle.

The contact member 52 is insulated from the rod 33a and from the contacts 50 and 51 by insulating cylinders 56 having portions which fit inside of the sleeve contact 52 and having enlargements at the outer ends occupying the spaces between the sleeve contact and the outer contacts with the circumferences of said enlarged portions being the same as the circumferences of the several contacts so as to provide an unbroken surface for all practical purposes.

The construction of a contact plug and receptacle as herein illustrated and described provides for the insertion of a single member to complete both sides of an electrical circuit, and therefore, greatly facilitates the connection of the plug to the receptacle, since it is much easier to find a single opening than it is to insert two knife blades in two separate openings, especially in dimly lighted places.

Another advantage of the construction set forth herein is that even though the plug is slightly bent it can be inserted in the receptacle, whereas with the usual knife blade plug if one or

both of the knife blades is bent, it is impossible to connect the plug to the receptacle.

Of course I do not wish to be limited to the exact details of construction as herein shown, as these may be varied within the limits of the appended claim without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:—

In an electrical contact plug, the combination of a body recessed in one face and having four projections therein, one of which is in a different plane relative to the other three and said other three projections being in the same plane, said body further being provided with a hole leading from the other face into said recess, a bridge including a pair of integral arms in endwise alignment and a third arm projecting from one side of the other two arms at an oblique angle to the longitudinal center of said other two arms, said bridge being mounted upon and secured to the three projections of the body which are in the same plane, an insulating washer mounted upon the bridge at the juncture of the arms, a clip superimposed upon said insulating washer with an end mounted upon and secured to the other projection of the body, a tubular contact having one end engaging said clip, a cylinder of insulating material within said tubular contact and having an enlargement located at the outer end of said tubular contact, an outer contact member engaging the enlargement of the insulating cylinder and a rod carried by said outer contact passing through the cylinder of insulating material and having its inner end in threaded engagement with the bridge.

JAMES C. CLINTON.