April 1, 1930. W. NONNENMAN 1,753,064

ELECTRICAL PLUG AND SOCKET

Filed March 22, 1928

Fig. 1.

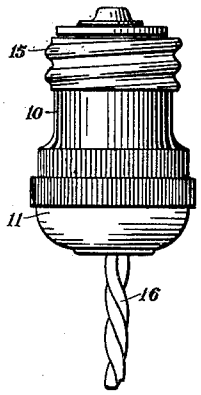


Fig. 2.

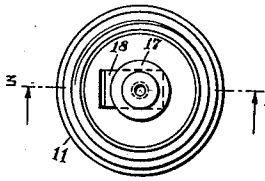


Fig. 3.

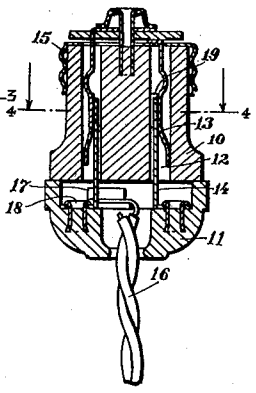


Fig. 4.

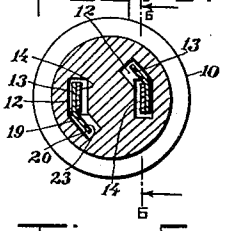


Fig. 6.

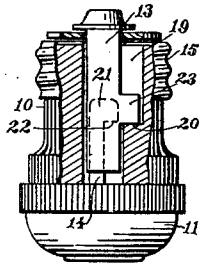


Fig. 5.

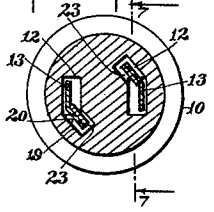


Fig. 8.

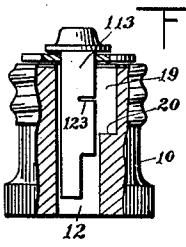


Fig. 9.

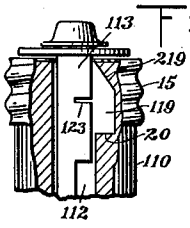


Fig. 11.

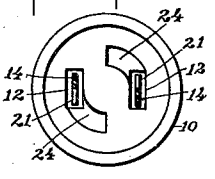


Fig. 7.

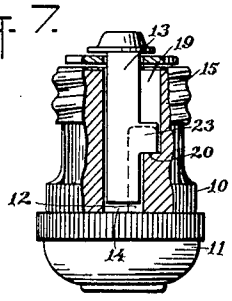


Fig. 10.

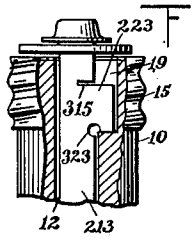
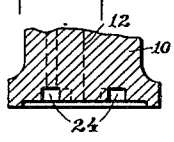


Fig. 12.



WITNESSES

J. Andersson

J. L. Wallace

INVENTOR

W. Nonnenman

BY Munn & Co.

ATTORNEY

Patented Apr. 1, 1930 1,753,064

UNITED STATES PATENT OFFICE

WILLIAM NONNENMAN, OF ST. JOHN, NEW BRUNSWICK, CANADA

ELECTRICAL PLUG AND SOCKET

Application filed March 22, 1928. Serial No. 263,757.

My invention relates to an electrical plug and socket, and the invention has for its general object to provide a novel assemblage whereby the plug when its lead or contact arms are inserted in the socket will have an engagement with the socket in a manner to prevent accidental withdrawal of the plug.

The nature of my invention and its distinguishing features and advantages will clearly appear as the description proceeds.

Reference is to be had to the accompanying drawings forming part of this specification, it being understood that the drawings are merely illustrative of examples of the invention.

Figure 1 is a side elevation of the plug and socket embodying my invention;

Figure 2 is a face view of the plug;

Figure 3 is a central longitudinal vertical section taken through the plug and socket in a plane indicated by the line 3—3 in Figure 2;

Figure 4 is a transverse vertical section on the line 4—4 of Figure 3;

Figure 5 is a view similar to Figure 4 but showing the contacts of the plug in a different position from that shown in Figure 4;

Figure 6 is a longitudinal section through the assembled plug and socket on the line 6—6 of Figure 4;

Figure 7 is a view with the plug contacts in the position shown in Figure 5, the section being taken on the line 7—7 of Figure 5;

Figure 8 is a longitudinal vertical section of the socket showing a modification of the socket contact;

Figure 9 is a view similar to Figure 8, but showing a modified detail of the socket;

Figure 10 is a view of the socket in vertical section showing a modification of the socket contact;

Figure 11 is an outer face view of the socket, the socket contacts being shown in cross section, said Figure 11 being given to show certain guide depressions in the face of the socket;

Figure 12 is a fragmentary vertical section of the parts shown in Figure 11.

Referring at first to the form of construction shown in Figures 1 to 7—the numeral 10 indicates an electrical socket, and 11 a plug for engagement with said socket. The socket 10 has longitudinal chambers 12 with longitudinal contacts 13 therein. The numeral 14 indicates lead-ins or contacts on the plug 11, the numeral 15 indicates the socket band which in this case is a screw band, said band forming no part of the invention and being threaded or unthreaded in practice, the illustrated screw formation of the band 15 being known. The numeral 16 indicates conductor wires leading into the plug 11 to a binding post 17 which is here shown as having a laterally disposed anchoring member 18.

Each chamber 12 has a lateral recess 19 in communication therewith and complementary thereto for the purpose of forming an inwardly facing shoulder 20 in the socket at the side of the main chamber 12. The plug terminals or contacts 14 have lateral lugs or ears 21 formed to provide an outwardly facing shoulder 22 on each contact 14 and, therefore, facing in the opposite direction from the shoulders 20. The plug 11 is adapted to be given a slight turn to dispose the ears 21 in the recesses 19 and with the shoulders 22 disposed opposite to shoulders 20. On the socket contacts 13 are lateral ears 23 which extend into recesses 19 to insure contact between said ears 23 and the ears 21 on the plug contacts 14.

By the described assemblage when the contacts 14 of the plug 11 are inserted into the socket 10 to contact with the contacts 13 of the socket, the plug is given a slight turn to dispose the ears 21 in the recesses 19 and to thus engage the shoulders 22 with the shoulders 20 of the socket whereby accidental detachment of the plug and its disengagement from the socket 10 is prevented.

In the face of the socket 10 at one side of each of the entrances to the chambers 12 is an arcuate depression 24 to guide the fingers of the person inserting the plug contacts into the socket so that said contacts 14 will readily be guided toward a position in register with the chambers 12.

In Figure 8 the socket 10 is the same as previously described but each contact 113, corre-

sponding in the main with contacts 13, instead of having an outwardly extending ear 23 has a transverse slit 123 to give resiliency to the adjacent portion of said contact to insure proper frictional engagement with the plug contacts.

In Figure 9 the contacts 113 correspond with the formation shown in Figure 8 but each chamber 112 of the socket (110) has a lateral recess 119 corresponding in the main to recess 19 but having the inner end of the said recesses 19 formed with an oblique wall portion 219.

In Figure 10 there is shown a construction in which the socket 10 has the chambers 12, as well as the recesses 119 and respecting the band 15, but the socket contacts 213 have a laterally disposed ear 223, said contacts 213 having a transverse slot 315 adjacent one edge of the ear 223, and having also adjacent the other edge of said ear 223 a hole 323, the purpose being to insure resiliency in the laterally disposed ears 223.

I would state furthermore that while the illustrated example constitutes a practical embodiment of my invention, I do not limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

I claim:

1. In an electric plug and socket, a socket provided with longitudinal chambers having lateral recesses forming inwardly facing shoulders and with longitudinal contacts having lateral ears extending into the recesses and engaging the shoulders, and a plug slidable and turnable in the socket and provided with contacts having lateral ears for engaging the shoulders of the socket and the ears of the socket contacts when the plug is turned in said socket.

2. An electric socket having longitudinal chambers, inwardly facing shoulders in the chambers, and longitudinal contacts in said chambers, a plug, contacts on the plug and adapted to enter said chambers, the plug being turnable in the socket when its contacts are in the chambers, members on the plug contacts engageable and disengageable with the shoulders by the turning of the plug in the socket and when engaged to prevent the withdrawal of the plug contacts, and members on the socket contacts and extending into engagement with the shoulders and with which the members of the plug contacts engage when held in the socket.

Signed at St. John, in the county of St. John, Province of New Brunswick, Canada, this 16th day of March, A. D. 1928.

WILLIAM NONNENMAN.