Nov. 5, 1935. P. B. BOONE 2,020,015

ELECTRIC CORD PLUG

Filed Jan. 23, 1933

FIG. 2.

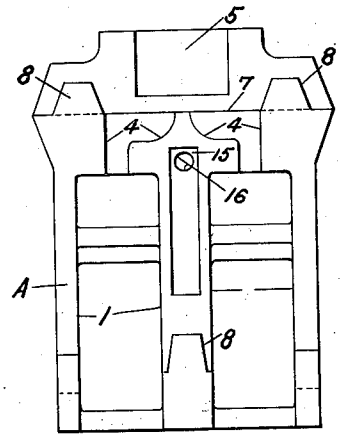


FIG. 1.

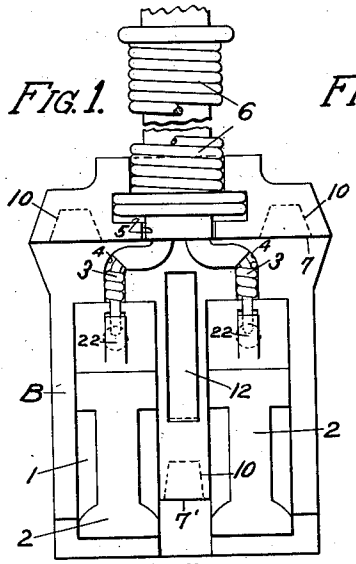


FIG. 3.

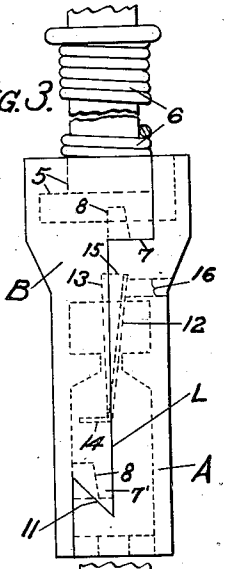


FIG. 5.

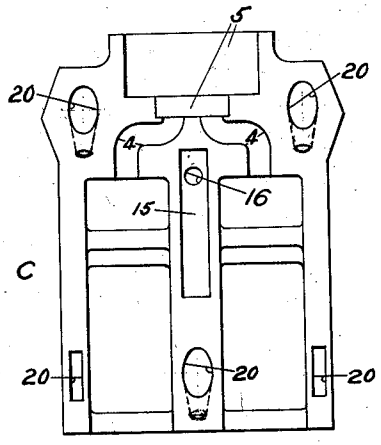


FIG. 4.

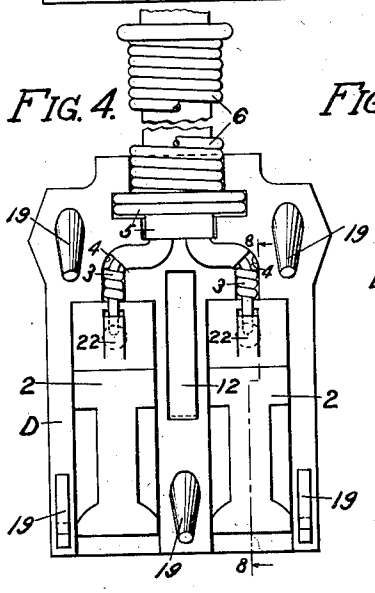


FIG. 6.

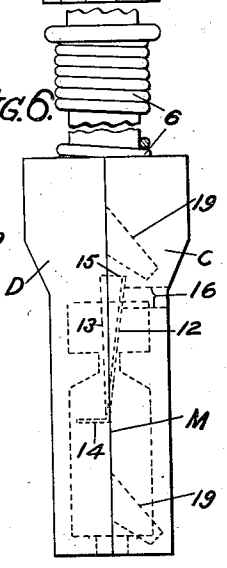


FIG. 10.

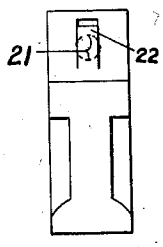


FIG. 9.

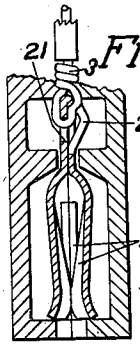


FIG. 8.

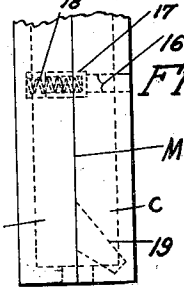
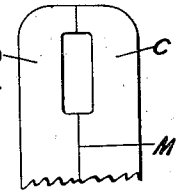


FIG. 7.



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ELECTRIC CORD PLUG

Pearley B. Boone, San Francisco, Calif.

Application January 23, 1933, Serial No. 653,050

6 Claims. (Cl. 173—332)

This invention relates to electric cord plugs as used at the ends of electric wires for plugging into an electric socket, and the objects of the invention are to provide an improved construction in such plugs whereby they may readily be assembled from complementary halves without the use of screws or bolts. Other objects and advantages of the invention will appear in the following description and accompanying drawing.

In the drawing Figs. 1 and 2 are the two open halves of one form of my improved plug showing the inner construction.

Fig. 3 is a side view of the completed plug formed by locking the two halves of Figs. 1 and 2 together.

Figs. 4 and 5 are the two open halves of a modified form of my plug showing the inner construction.

Fig. 6 is a side view of the completed plug formed by locking the two halves of Figs. 4 and 5 together.

Fig. 7 is a broken end view of the plug of Fig. 6.

Fig. 8 is a side view only of the completed plug showing a modified form of lock for holding the two halves together.

Fig. 9 is a section of part of Fig. 4 taken along the line 8—8 thereof.

Fig. 10 is a detached view of one of the spring terminals.

All the views may be considered as enlarged 50% over the size of the ordinary plug used as the wire of an electric iron, toaster, or other household electric heating device, though of course the improvements may be applied to any size plug.

Such electric plugs as generally used for electric irons, toasters, etc., are generally made of molded insulating composition in the shape of two halves which are held together by screws or small threaded bolts passing from one half to the other, and it is to overcome the difficulties attendant upon the use of such plugs by reason of the screws or bolts becoming loose that the present plug has been devised, its chief feature being that while it is composed of two halves, these are locked together without the use of screws or bolts. The means used to lock the two halves together consist of projecting tongues on one of the halves which engage into recesses formed on the other half.

In the drawing the two halves of the plug body are formed of any desired insulating composition such as, "Bakelite", hard rubber, or fibre, and are designated A, B, and in the modified form C, D. The main plane of division of the halves is along the medial line L of Fig. 3 and M of Fig. 6. The halves of the body are formed with complementary spaced recesses 1 to receive the spring clamp terminals 2 which resiliently grip the terminal tongues of the socket not shown) when plugged in. These spring clamp terminals 2 are connected at their upper ends to each one of the power wires 3 which also lie in recesses 4 which merge together into an enlarged portion 5 to receive a coiled wire reinforcing spring 6 in the well known manner.

Instead of the usual screws or bolts to hold the halves of the body together the body halves (in Figs. 1 to 3) are stepped or offset as at 7 and 7' in a complementary manner so that the shoulders formed by the steps will abut when the two halves are placed together with a longitudinal sliding motion, and they are locked together by projecting tongues 8 formed on one half extending into recesses 10 formed in the shoulders of the other half. To further aid in locking the halves together the shoulder or steps may be cut at an angle as shown at 11 so as to form wedges to hook under one another so as to prevent outward separation of the two halves.

The tongues and recesses are preferably tapered slightly as shown so as to fit tightly together when the two halves are pushed or slid to stop against the shoulders so that no intermovement of the two halves can take place and they can only be released by longitudinal sliding in reverse direction from the locking movement. To lock the halves against such releasing movement I provide a spring 12 which is positioned in a recess 13 in one of the halves and has one end 14 bent at right angles and forced tightly into hole to retain it in place. The free end is bent outwardly or in direction of the other half of the body and springs into a corresponding recess 15 formed in the opposite half with its end against the end of the recess as shown in Fig. 3 so that the two halves are locked against sliding movement to separate them. However, as it may be necessary to separate the halves to get at the terminals I provide a hole 16 over the locking recess 15 for insertion of a nail or other small implement to push down the end of the spring and thus release the halves so they can be slid apart. This lock device may take other forms, such for instance as in Fig. 8 where the inner end of hole 16 is enlarged a bit and the end of a hollow pin 17 is urged into it from the other half by a small coiled compression spring 18.

In Figs. 4 to 6 the locking tongues take the form of angularly projecting taper pins 19 which fit

into complementarily formed holes 20 in the opposite half. The pins are preferably made oval or elongated in cross section to give additional strength as it is intended that they be molded integrally with the body and of the same material, though it is evident they may be separate inserted pins of any other material if desired. In this form the body halves need not be stepped, but divided straight through the center as shown at M in Fig. 6.

As the main object of the invention is to eliminate screws and their tendency to loosen, they are also dispensed with at the wire terminals and the spring terminals 2 are formed of one piece bent over at the upper end, apertured through one side for the wire as at 21 and formed with a punched-out tongue 22 in the opposite side which is bent down against the wire 3 as after passing the same through and twisting together, all as shown in Fig. 9 of the drawing the opposed inner sides of the recesses each being formed with a rib or projection as indicated in Fig. 9, said projection being adapted to substantially engage opposite sides of the terminal adjacent the connection between the wire and the terminal to secure the terminal against undesirable lateral movement and to provide fulcrum points for the sides of the terminal when the ends are forced apart in use.

Having thus described my improved, screwless plug and some of its modifications, it will be evident that other minor changes may be made within the spirit of the invention and scope of the appended claims.

I claim:—

1. An electric connector of the plug type comprising a longitudinally divided body forming two halves adapted to be placed together to form the plug, said halves being provided with complementary recesses in their adjacent sides and a pair of contact terminals within said recesses, means formed on each half of said body respectively arranged and adapted to interlock upon longitudinal movement of the halves relatively and a locking device wholly enclosed within the body of the plug arranged and adapted to positively lock the halves together against separation when the means formed on each half are in interlocking relation.

2. An electric connector of the plug type comprising a longitudinally divided body forming two halves adapted to be placed together to form the plug, said halves being provided with complementary recesses in their adjacent sides and a pair of contact terminals within said recesses, means formed on each half of said body respectively arranged and adapted to interlock upon longitudinal movement of the halves relatively and a locking device wholly enclosed within the body of the plug arranged and adapted to positively lock the halves together against separation when the means formed on each half are in interlocking relation, one of said halves being provided with an opening for insertion of an instrument to operate the locking device to permit separation of the halves.

3. An electric connector of the plug type comprising a longitudinally divided body forming two halves adapted to be placed together to form the plug, said halves being provided with complementary recesses in their adjacent sides and a pair of contact terminals within said recesses, means formed on each half of said body respectively arranged and adapted to interlock upon longitudinal movement of the halves relatively and a locking device wholly enclosed within the body of the plug between said contact terminals arranged and adapted to secure the halves together against separation when the means formed on each half are in interlocking relation.

4. An electric connector of the plug type comprising a longitudinally divided body forming two parts adapted to be placed together to form the plug, one of said parts being provided with a recess arranged and adapted to support a pair of contact terminals therein and a rib formed within the body arranged and adapted to separate and space said contact terminals from each other, means formed on each half of said body respectively arranged and adapted to interlock upon longitudinal movement of said parts relatively, said rib provided with a recess therein and a locking device wholly enclosed within the plug and supported in the recess in the rib arranged and adapted to secure said parts together when the interlocking means of the parts are in interlocking engagement.

5. An electric connector of the plug type comprising a longitudinally divided body forming two halves adapted to be placed together to form the plug, said halves being provided with complementary recesses in their adjacent sides, a pair of contact terminals within said recesses, means formed on each half of the body respectively arranged and adapted to interlock upon movement of the halves relatively and a locking device within the body of the plug arranged and adapted to secure the halves together against separation when the means formed on each half are in interlocking relation, said locking device comprising a flat spring arranged and adapted to engage the halves respectively at its opposite ends for securing the halves together against longitudinal movement relatively when the means formed on each half are in interlocking relation.

6. An electric connector as defined in claim 5, one end of said spring being free to be yieldably forced away from engagement with the body when the halves are together for permitting separation of the halves, and the body being provided with an opening communicating with the spring from the outside for insertion of an implement for moving the end of the spring out of engagement with the body.

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