April 10, 1934. J. N. MAUS ET AL 1,954,252

PLUG

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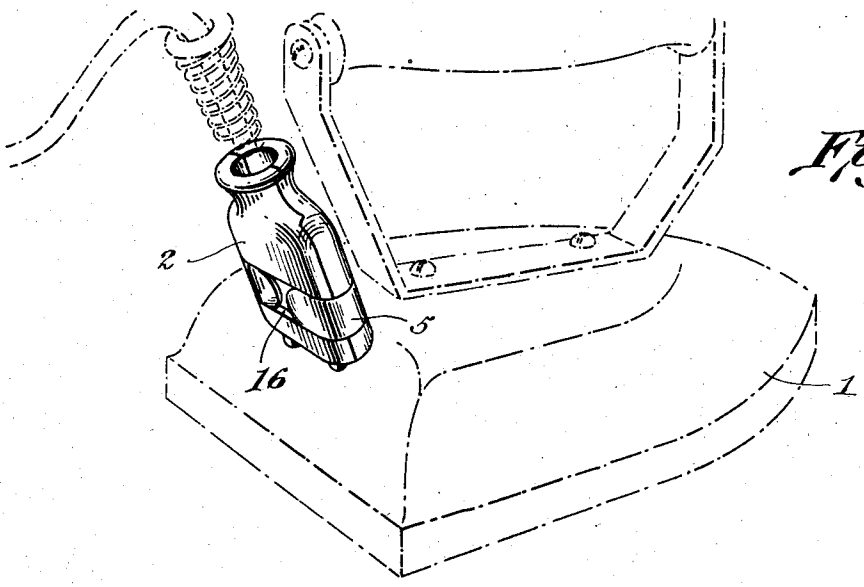


Fig. 1.

Fig. 2.

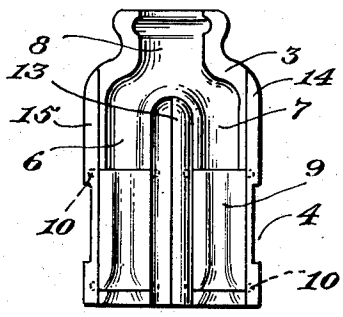


Fig. 3.

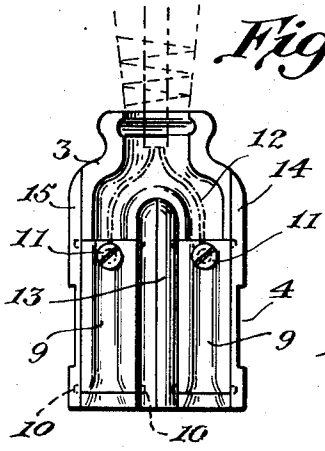


Fig. 4.

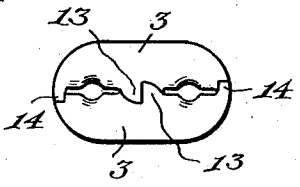
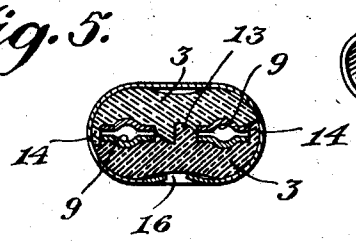


Fig. 5.



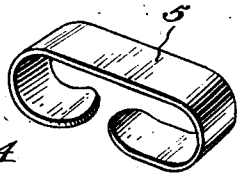


Fig. 6.

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UNITED STATES PATENT OFFICE

1,954,252

PLUG

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Application March 15, 1933, Serial No. 660,907

9 Claims. (Cl. 173—332)

This invention relates to plugs or connectors for electrical uses and has special reference to a detachable connector to be used with electric irons, toasters, percolators and similar devices.

In most, if not all, plugs of this type the contacts are made of spring bronze, the spring action being relied upon to maintain the contacts in engagement with the contact fingers on the apparatus. The heat from the iron, percolator or the like soon takes the temper out of the contacts and causes a loose fit with the fingers. Obviously this results in the formation of an arc which in time burns the appliance fingers and causes corrosion. The fingers finally become so thin as to be ineffective even if a new plug is installed on the apparatus, and the appliance is therefore rendered practically useless. Furthermore this wear and tear on the fingers is increased by the continual application and removal of the plug.

To overcome these difficulties the present plug has been designed and has for its primary object to provide a snug engagement between the contacts on the plug and the fingers on the appliance, at all times.

A further object of the invention resides in the provision of a plug which is adaptable to fingers or prongs of varying thickness so as to function properly on appliance in which one or more of the prongs have been burned thin.

Another object of the invention consists in the formation of a plug having separable side walls and in which means are provided to prevent the wires from being pinched and also to prevent an arc from coming out of the side of the plug.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawing, in which,

Figure 1 is a perspective view of the plug; the implement to which it is attached being indicated in dotted outline.

Figures 2 and 3 are interior plan views of the two sections or halves of the plug.

Figure 4 is a bottom plan of the plug.

Figure 5 is a transverse sectional view; and

Figure 6 is a perspective view of the spring used in securing the sections of the plug together.

Referring to the drawing in more detail, the numeral 1 indicates an electric iron which is represented in dotted outline, as merely one of the many electrical appliances with which the present invention may be employed. The plug is indicated generally by the numeral 2 and is shown in detail in Figures 2 to 6, inclusive.

The plug 2 is formed of two identical sections 3 which may be molded from "Bakelite" or other preferred insulating material. The sections are each provided with an external groove 4 which forms a seat for a spring clip 5. By the use of this clip the sections 3 are normally held in proper relationship with a snug fit on the contact fingers with which the plug is associated. Moreover, the use of the spring as the sole connection between the two sections permits an expansion of the plug when being applied to or removed from the contact fingers, thus reducing wear and tear on both the fingers and the plug.

Each section 3 is provided with two longitudinal grooves 6 and 7 which converge into a groove 8 at the upper end of the section. A pair of contact plates 9 of suitable conducting material is provided for each half of the plug and are formed with nibs 10 which are embedded in the material of the plug section. The plates 9, of course, are grooved to correspond with the grooves in the sections 3 and when the plug is assembled these grooves cooperate to form tubular pockets for the reception of the contact fingers of the electrical appliance.

One of the plug sections, of course, is provided with binding posts 11 for anchoring the conductors 12 which extend upwardly in the channels 6 and 7 and emerge from the plug through channel 8 in the form of a cord or cable. In order that these conductors may not be pinched during relative movements of the plug sections, or otherwise interfere with the operation of the plug, each section of the plug is formed with a longitudinal rib 13 extending centrally of the section. As will be seen from an examination of Figures 4 and 5, these ribs provide a sliding engagement between the plug sections which prevent the wires or conductors from moving from the channels 6 and 7 into a position to interfere with the normal expansion and contraction of the plug.

Under the most favorable conditions of operation of plugs of this type some arcing will take place and in order to avoid the flame from extending to the exterior of the plug each section is provided with a tongue 14 on one longitudinal edge and a groove 15 on the other edge. This tongue and groove arrangement, as will be seen in Figures 4 and 5, maintains the sides of the plug closed during normal operation and thus eliminates any possibility of the flame extending exteriorly of the plug.

The grooves 4 formed in the sections to provide a seat for the spring clip 5 are each preferably provided with a depressed portion or con-

cavity 16 to take care of the bulge of the spring when the sections are spread apart.

In the operation of the device, wear and tear on the contact fingers of the electrical appliance and on the plug itself are materially reduced, if not practically eliminated, by reason of the fact that the sections of the plug are allowed to spread apart the amount necessary to accommodate the plug to the fingers. Moreover, a snug fit between the plug and contact fingers is maintained at all times regardless of the condition of the fingers, thereby insuring the reduction of arcing to a minimum with a consequent saving of wear on the fingers. And again, the ribs 13 and 15 insure the proper expansion and contraction of the plug as well as eliminate fire hazard by confining arcing to the interior of the plug.

In accordance with the patent statutes we have described the preferred form of construction of the novel plug but since various minor changes may be made in the details of construction without departing from the spirit of the invention it is intended that all such changes be included within the scope of the appended claims.

What we claim is:

1. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, and a spring substantially encircling said sections for releasably holding them in position.

2. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, each of said sections provided with an external groove, and a spring seated in said grooves for releasably holding the sections in position.

3. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, a spring for holding said sections together, and complementary ribs formed on the interior of the sections to prevent pinching the wires when the sections are assembled.

4. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, a spring for holding said sections in assembled relation, and a tongue and groove joint at each side edge of the plug.

5. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, a spring for holding said sections in assembled relation, complementary ribs formed on the interior of the sections to prevent pinching the wires, and a tongue and groove joint at each side edge of the plug.

6. A terminal plug comprising two longitudinal sections each provided with an external groove, contact plates rigidly secured in said sections, a spring seated in the groove for holding the sections in assembled relation, complementary ribs formed on the interior of the sections to prevent pinching the wires, and a tongue and groove joint at each side edge of the plug.

7. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, one of said sections provided with an external groove, the other section provided with a similar groove but having a depressed portion, and a band of spring metal seated in said grooves with its terminals disposed over said depressed portion.

8. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, rectangular contact plates rigidly secured on the interior of each of said sections, nibs formed on each of the corners of each of said plates and imbedded in the material of the plug sections.

9. A terminal plug comprising two longitudinal sections adapted to receive the contact fingers of an electrical appliance, contact plates rigidly secured in said sections, each plug section provided with an external groove having a depressed portion, and a band of spring metal seated in said grooves with its terminals disposed over one of said depressed portions.

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