H. P. BALL.

ATTACHING PLUG.

APPLICATION FILED JULY 19, 1910.

1,154,834.

Patented Sept. 28, 1915.

Fig. 1.

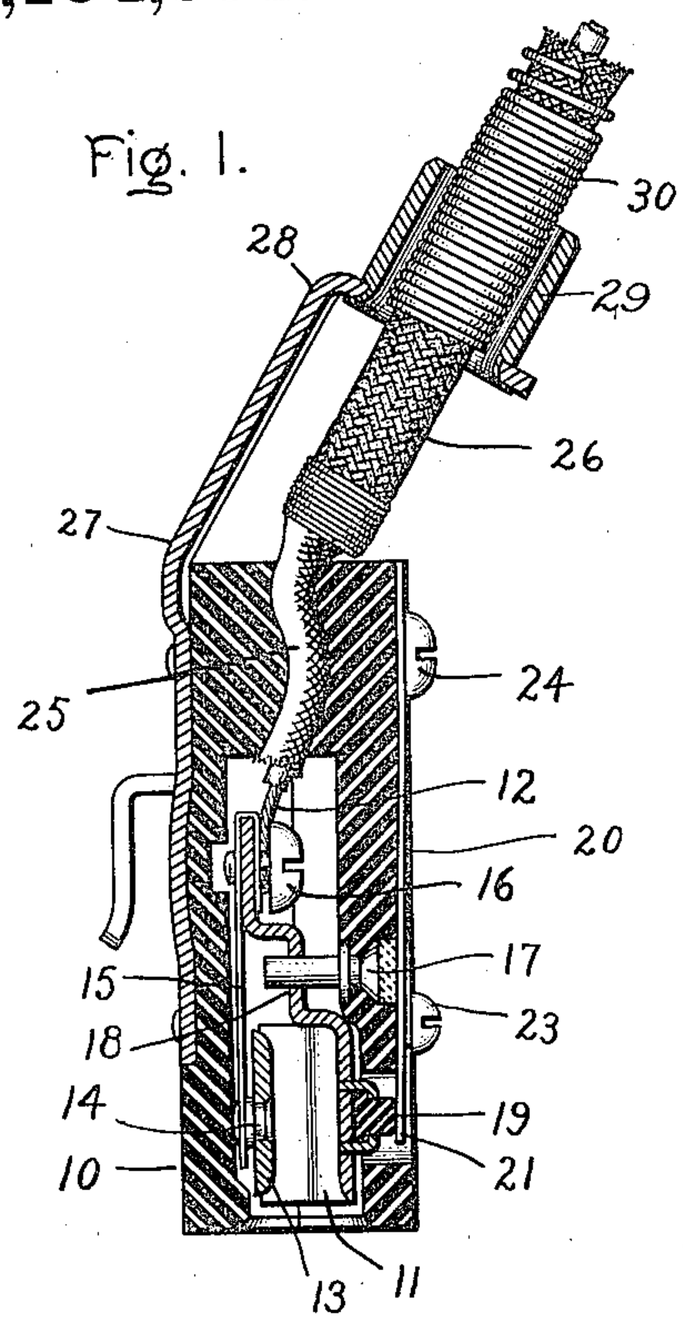


Fig. 2.

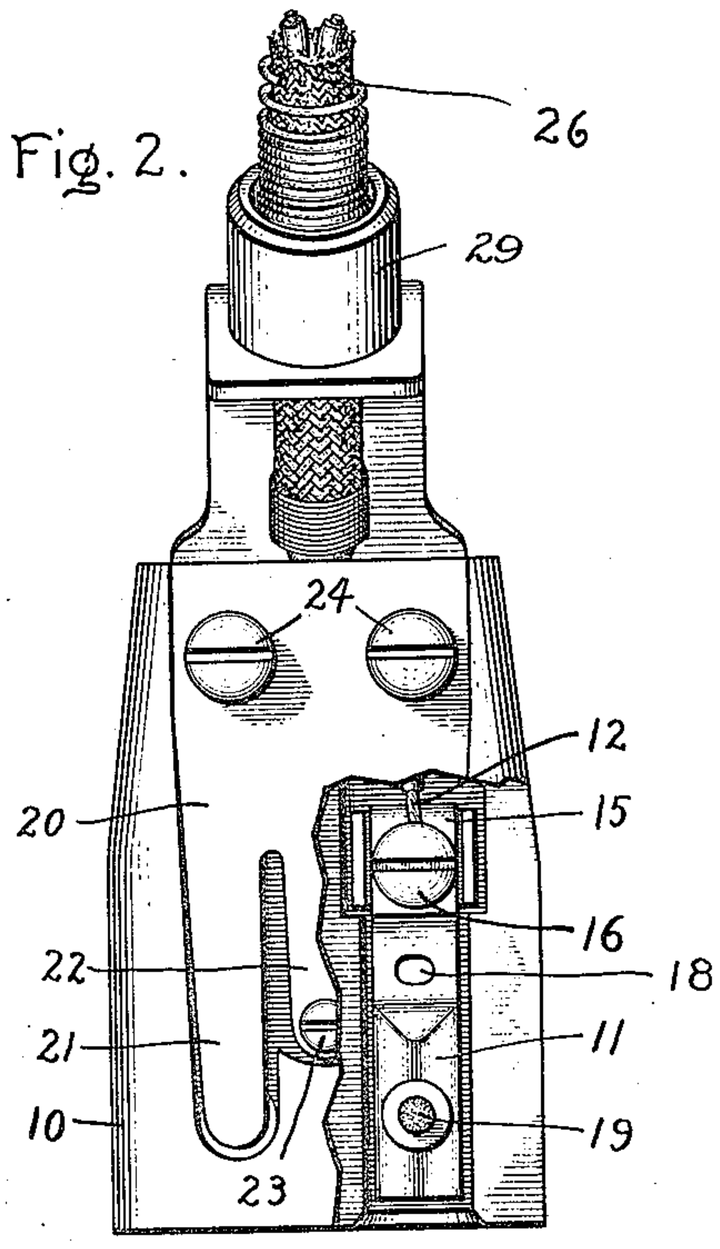


Fig. 3.

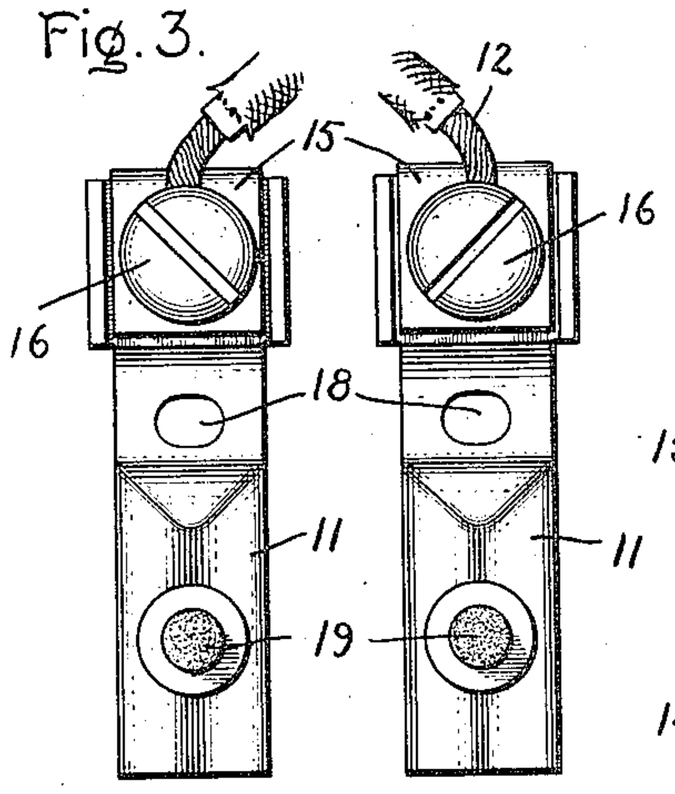


Fig. 4.

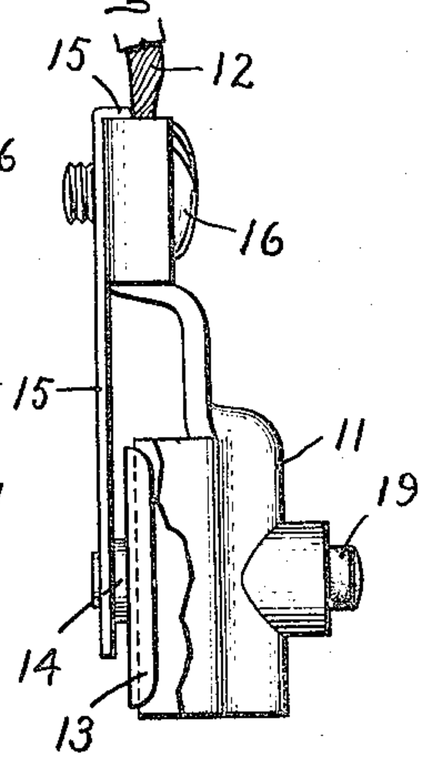
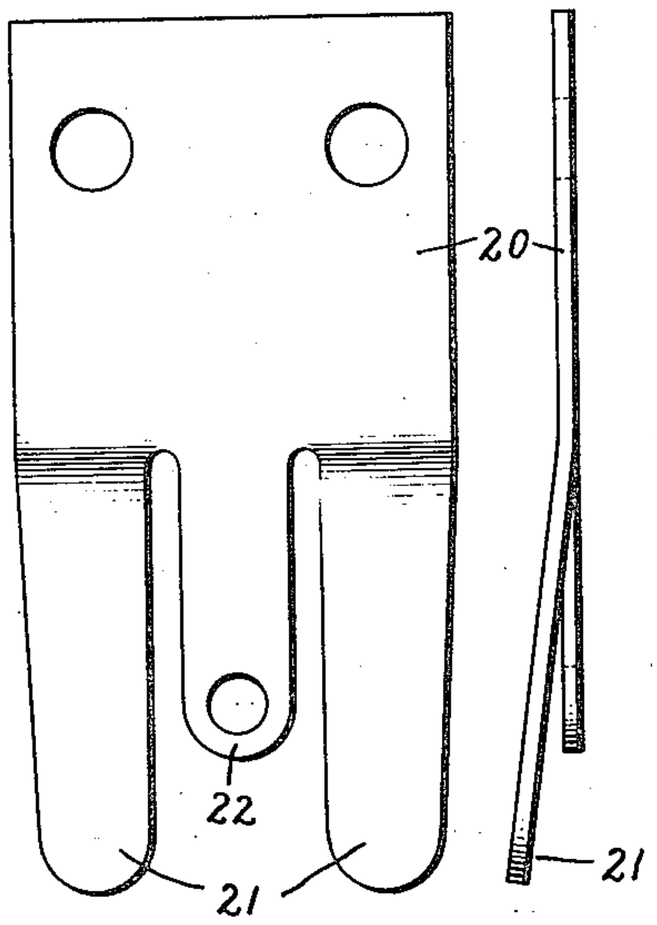


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY PRICE BALL, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ATTACHING-PLUG.

1,154,834. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed July 19, 1910. Serial No. 572,690.

To all whom it may concern:

Be it known that I, HENRY P. BALL, a citizen of the United States, residing at Pittsfield, county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Attaching-Plugs, of which the following is a specification.

This invention relates to attaching plugs for electric conductors and has for its object the provision of a device of this character which will be simple and rugged in construction and capable of withstanding the hard service to which this type of device is usually subjected.

My invention relates more specifically to attaching plugs for connecting and disconnecting electric heating devices or the like with electric circuits. As ordinarily used with electric heaters, these attaching plugs are given hard service, due to the fact that they are usually handled by inexperienced persons. The careless handling aggravates the difficulties which would naturally result from the nature of the service.

One of the objects of my invention is to overcome the difficulties by providing means for securing the conductor to the plug in such a manner that bending or the pulling of the cord will not injure either the cord or the plug.

Another object of my invention is to prevent the heat which may be developed in the attaching plug from taking the temper out of the springs which are used in the plug.

Other objects and purposes of my invention will appear in the course of the following specification, in which I have shown my invention embodied in concrete form for purposes of illustration.

In the accompanying drawing illustrating my invention, Figure 1 represents a longitudinal section of my attaching plug; Fig. 2 represents an outside view of the same partly broken away; Fig. 3 is a view of the sockets and cord; Fig. 4 is a detail of the socket; and Fig. 5 shows enlarged views of the spring.

Referring to the drawings, 10 represents the casing or body of the attaching plug, preferably made of hard, refractory, insulating material. This casing is constructed in two parts, which, when joined together, leave a central opening for the attaching terminals. These attaching terminals I have shown in the form of sockets made in two parts movable with reference to each other so as to make a good contact with the terminal pin which enters the socket. Each socket consists of a metallic member 11, one end of which is rounded, while the opposite end is connected to the conductor 12. The part of the socket 13 which coöperates with the rounded portion is loosely mounted at 14 upon a metallic strip 15 which is bent around the member 11. A screw 16 secures the strip 15, the member 11, and the conductor 12, together. A pin 17 is embedded in the casing and passes through a slot 18 in the member 11 to act as a guide for the member 11 and hold the terminal in place. Secured to the member 11 is an insulating button 19 projecting through an opening in the casing so as to be engaged by the spring member 20. The two metallic sockets are arranged within the casing parallel with each other and the two insulating buttons 19 project through the casing adjacent each other. The spring member 20 consists of a plate of spring metal made in the form shown in Fig. 5, which comprises two spring projections 21 for engaging the insulating buttons 19, and a projection 22 for securing it to the casing. The two projections 21 are formed so as to exert a spring pressure upon the insulating buttons 19, the plate being held to the insulating casing and the parts of the casing held together by the screw 23 and the two screws 24. It will be seen that when the terminal pins are inserted in the sockets the member 11 will be pressed outward against the tension of the spring projections 21. The member 14 being loose, the spring will press the parts into engagement with the pin so as to form an efficient electrical connection.

In order to secure the conductor rigidly to the casing without exerting any strain whatever upon the connections within the casing, I have provided a passage through the casing between the two parts which will rigidly hold the conductor. This I accomplish by having the two parts of the casing correspondingly grooved, so that when the parts of the casing are pressed together the conductor will be bent as shown at 25, and thereby firmly grip the conductor without injuring the insulation in any way. The passage through the casing is preferably large enough to receive the twin conductors

which constitute the flexible cord 26. Secured to the opposite side of the casing from the spring 20 by screws 23 and 24 is a metallic plate 27 having an extension 28 to which is secured a sleeve 29 through which the cord 26 passes. This sleeve acts as a support for the conductor at a point somewhat removed from the casing itself and prevents any flexure of the cord at the casing. In order to prevent any sharp flexure of the cord at the sleeve, I provide a coil spring 30 which surrounds the conductor and enters the sleeve. By this arrangement the cord can only be bent on a relatively large radius, and the danger of breakage is reduced to a minimum. This supporting sleeve likewise enables the cord to be led away from the attaching plug and rigidly held at a suitable angle, depending upon the device upon which the plug is used.

In accordance with the patent statutes I have shown my invention as embodied in concrete form, but it should be understood that I do not limit my invention thereto, since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. An attaching plug for electric conductors comprising an insulating casing, a two part socket within the casing, a flat spring secured on the outside of the casing, and means comprising a freely movable insulating member for transmitting the pressure from the spring to the socket.

2. An attaching plug for electric conductors comprising an insulating casing having an opening therethrough, a two part socket within the casing, a flat spring member secured on the outside of the casing and having a resilient portion over said opening and a member interposed between the socket and the spring for transmitting pressure from the spring to the socket.

3. An attaching plug for electric conductors comprising an insulating casing having openings therethrough, a plurality of two part sockets within the casing, and a flat spring member secured on the outside of the casing, said member having flat resilient portions adjacent the openings, and a movable element in each opening between the spring and the socket to press the parts of the sockets together.

In witness whereof, I have hereunto set my hand this 2nd day of July, 1910.

HENRY PRICE BALL.

Witnesses:
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HELEN B. DAVERIN.