March 31, 1925.

1,531,604

A. C. GAYNOR

ATTACHMENT PLUG

Filed June 3, 1921

2 Sheets-Sheet 1

Fig. 1

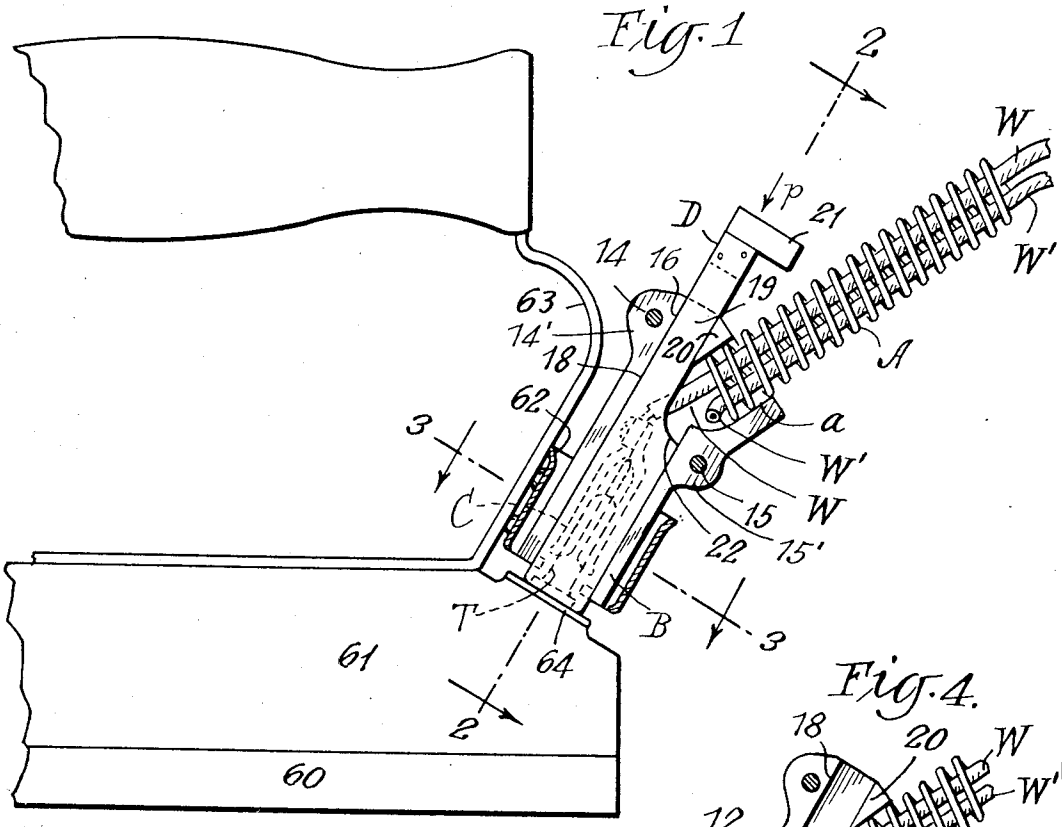


Fig. 4.

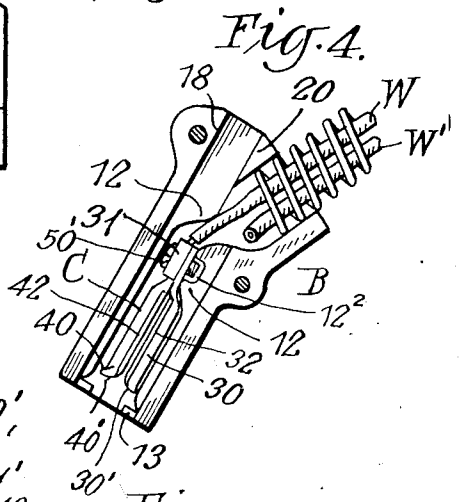


Fig. 2

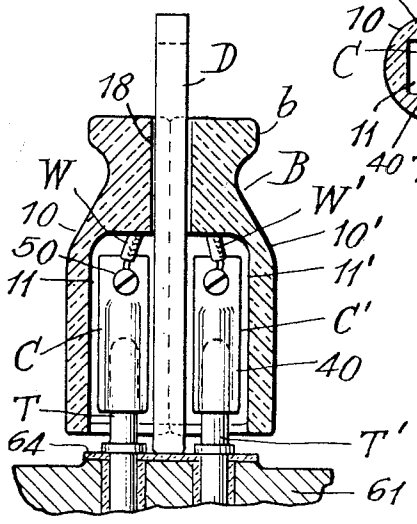


Fig. 3.

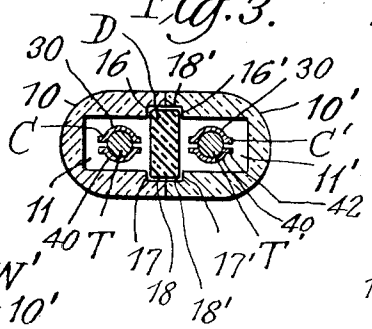
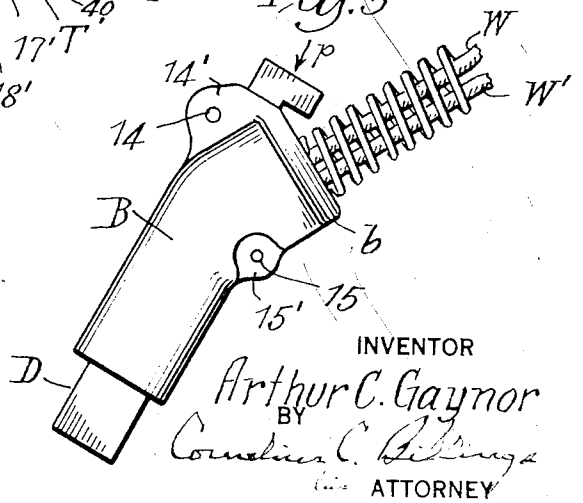


Fig. 5



INVENTOR

Arthur C. Gaynor

BY

Cornelius C. Billings

ATTORNEY

March 31, 1925.

1,531,604

A. C. GAYNOR

ATTACHMENT PLUG

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2 Sheets-Sheet 2

Fig. 6

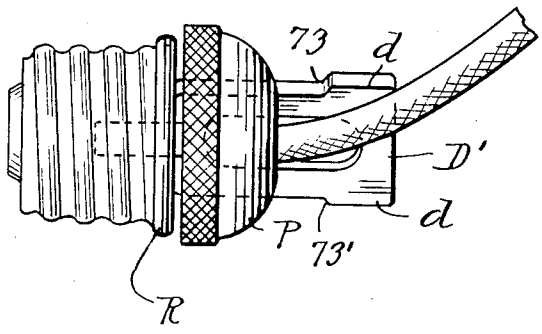


Fig. 7.

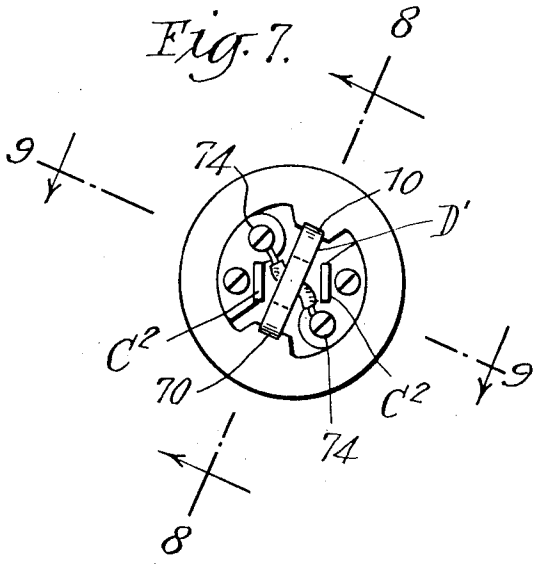


Fig. 8.

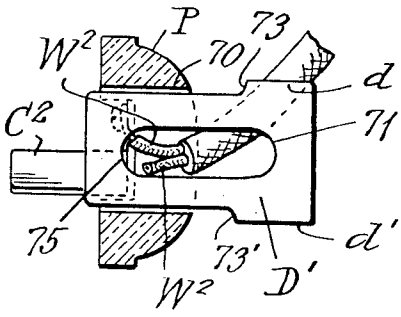
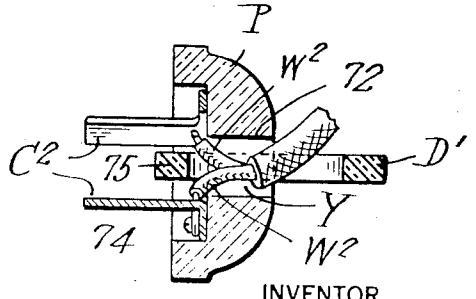


Fig. 9.



INVENTOR

Arthur C. Gaynor

BY

Cousins & Bibling

ATTORNEY

Patented Mar. 31, 1925. 1,531,604

UNITED STATES PATENT OFFICE.

ARTHUR C. GAYNOR, OF STRATFORD, CONNECTICUT.

ATTACHMENT PLUG.

Application filed June 3, 1921. Serial No. 474,694.

To all whom it may concern:

Be it known that I, ARTHUR C. GAYNOR, a citizen of the United States, and a resident of Stratford, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Attachment Plugs, of which the following is a specification.

This invention relates to electrical connectors or attachment plugs and particularly to means for quickly, easily and positively detaching them from the terminals to which they have been connected, without exerting any strain on the conductors or the contacts connected thereto.

The objects and advantages of my invention will be apparent from the following description and the accompanying drawings which illustrate embodiments thereof.

In the drawings:

Fig. 1 is an elevation with parts in section showing one form of an attachment plug adapted for use in connection with various electrical appliances, the drawing showing the plug attached to an electric sad-iron.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a horizontal section on line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 1 showing one of the contacts.

Fig. 5 is a side elevation of the plug detached.

Fig. 6 is a side elevation showing a different form of plug such as used in connection with wall, floor or other receptacles and the like.

Fig. 7 is a face view of the plug shown in Fig. 6.

Figs. 8 and 9 are sections on the correspondingly numbered section lines of Fig. 7.

Referring first to the embodiment of the invention illustrated in Figs. 1 to 5 inclusive, the attachment plug comprises a body B which encloses a pair of contacts C and C′ and supports a reciprocating member D which is adapted to be moved relatively to said body and impinge on a fixed part of the device to which the plug is connected in order to detach the plug.

Heretofore plugs of this type have not been provided with means for disconnecting them from the terminals to which they have been connected, and users frequently disconnect them by pulling on the connection wires. This puts an excessive strain on the conducting wires and on the contacts to which the wires are connected and often renders them inoperative or breaks the electrical connection therewith.

As shown in Figs. 1 to 5 the body B is made of two halves 10 and 10′ having chambers 11—11′ formed therein to accommodate the contacts C—C′. The body can be made of an approved insulating material. The chambers 11 and 11′ are shaped to hold the contacts C and C′, which may be of any approved construction, in the position shown, the shoulders 12 holding the contacts in place by reason of the lodgment of the screws 50 in the socket 12^2 formed therebetween. The flanges 13 also protect the ends of the contacts. The halves 10 and 10′ are secured together by suitable fastening means such as screws 14 and 15, passing through lugs 14′ and 15′ formed for that purpose. The members 10 and 10′ are formed with shoulders 16, 16′ and 17, 17′ which form longitudinal slots 18—18′ in which the member D is slidably mounted. This member is preferably though not necessarily constructed of insulating material and is formed from a strip of rectangular cross section. The upper end of the member D is of less width as at 19, a shoulder 20 being formed on the halves 10 and 11 to guide the upper end of said member. A projecting head 21 is secured to the upper extremity of the member D and is adapted to limit the downward movement thereof by striking the shoulder 20. The offset or shoulder 22 limits the movement of the member D in the other direction by interference with the shoulder 22 which is so located as to coact with the inner or small end of the shoulder 20 to limit this movement.

The contacts C and C′, as above stated, may be of any approved construction well known in the art, that is, they may be adapted to engage only cylindrical terminals or only flat or knife blade terminals, but preferably they are so constructed as to engage either cylindrical or flat knife blade terminals, a very efficient form for this engagement being shown and described in the patent to Clifford E. Treat No. 1,188,024 dated June 20, 1916. It is to be expressly understood, however, that the particular form of construction of socket members forms no part of this present in-

vention and that any approved form of socket member or contact may be used.

I have shown a conventional form of contact which is composed of cupped members 30 and 40, the member 30 having ears 31 formed thereon through which fits the inner end of the member 40, a screw 50' securing the two together. The members 40 and 30 are flared outwardy at 40' and 30' and are provided with side flanges 32 and 42. The screws 50 also serve to connect the wires W, W' to the contact or socket members. These wires are protected by the usual spring-like flexible armor A clamped in the cavity *a* formed in the body B of the insulation. By such a construction the contacts are adapted to engage either cylindrical or flat knife-blade terminals of various electrical appliances such as electric toasters, percolators, sad-irons, the latter being illustrated in Figs. 1 and 2.

This iron consists of the usual base 60 having a suitable heating element therein which is connected with the terminals T and T' which are secured to the body 61 in the usual manner. The plug is attached by inserting it in the receptacle 62 carried by the handle 63 and thus causing the contacts C and C' to embrace the terminals T and T'. To remove the plug without exerting any strain on the conductors or the contacts the fore-finger and middle finger grasp the bead *b* of the body B of the plug and the thumb is placed on top of the bead 21 of the member D and the fingers are drawn toward the thumb causing the member D to impinge on the washer 64 on the iron and the body B to move relatively to the member D and in a direction to break the connection between the terminals T and the contacts, or in other words, to detach the plug.

In Figs. 6 to 9, I have shown another embodiment of the invention applied to attachment plugs adapted to be used in connection with receptacles installed in baseboards and simiar locations. The plug P carries contacts C^2—C^2 adapted to engage suitable jaws carried in the receptacle R. The plug is slotted at 70 to slidably support the member D'. This member is rectangular in shape and is slotted at 71 as shown to permit the introduction of the conductor wires W^2—W^2 through the central opening 72 shown in Fig. 9. The wires W^2—W^2 are threaded through the slot 71 and opening 72 and their bared ends are secured to the contacts by terminal screws 74 as shown in Figs. 7 and 9.

The member D' is flared at its upper end and forms wings *d* and *d'*, providing shoulders 73 and 73' for impingement upon the upper surface of the insulating body P, when the member D' is in its lowermost position. The member D' disconnects the plug from the receptacle R by the pressure of the bridge portion 75 on the receptacle as the member D' is pushed to its lowermost position. The bridge portion 75 also serves to prevent the member D' from falling out of the plug as it is engaged by the conducting wires W^2 where they emerge at the point Y from the insulating cover P. From this construction, it is clear that the plug can be readily detached from a receptacle by the user grasping it between two fingers and placing the thumb on the member D' and drawing the fingers toward the thumb, as shown in the construction illustrated in Figs. 1 to 5 inclusive.

While I have described in great detail the specific construction of the embodiments illustrated, it is not to be inferred that I am limited thereto as changes in construction and arrangement can be made without departing from the scope of the invention as defined in the following claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. An attachment plug having electrical contacts adapted to engage electrical terminals having a support independent of said plug and means on said plug movable relatively to said contacts against said terminal support to disconnect said contacts from their coacting terminals.

2. An attachment plug having electrical contacts adapted to engage electrical terminals having a support independent of said plug, a sliding member on said plug guided between said contacts adapted to be moved relatively thereto against said terminal support to break the connection between the contacts and the terminals, and means for limiting the extent of movement of said sliding member.

3. An attachment plug comprising a body portion having contact chambers formed therein, adapted to receive contact terminals from an independent member, contacts in said chambers, and a member slidable relatively to said contacts guided between said contacts and adapted to press against said independent terminal member to disengage said plug therefrom.

4. An attachment plug comprising a body portion having contact-chambers adapted to engage terminals inserted thereinto from an independent support contacts in said chambers, and a slidable member of insulating material forming a barrier between said contacts and adapted to be moved relatively to said body portion and contacts against said independent support to disconnect said contacts from the terminals.

5. An attachment plug comprising a body portion having contact chambers adapted to receive contact terminals from an independent support, and guides formed therein, con-

tacts located in said chambers and a slidable member carried in said guides and adapted to be moved relatively to said body portion against said independent support to detach the plug.

6. An attachment plug comprising a body consisting of two half sections having chambers formed therein, adapted to receive terminals from an independent support, longitudinal guiding shoulders formed on each of said half sections, spring contacts located in said chambers and a member guided by said longitudinal shoulders and adapted to be moved relatively thereto against said independent support to detach the plug.

7. An attachment plug comprising a body portion having contact members located in chambers formed therein, adapted to receive contact terminals from an independent support, flexible conductors connected to said contact members and a slidable member guided by said body portion and adapted to be moved relatively thereto against said independent support so as to detach the plug.

8. An attachment plug comprising a body portion having contact members located in chambers formed therein, adapted to receive contact terminals from an independent support, flexible conductors connected to said contact members and a slidable member guided by said body portion and adapted to be moved relatively thereto against said independent support so as to detach the plug, and means for limiting the extent of movement of said slidable member.

In witness whereof I have hereunto set my hand at Bridgeport, county of Fairfield, State of Connecticut, this 12 day of May, 1921.

ARTHUR C. GAYNOR.