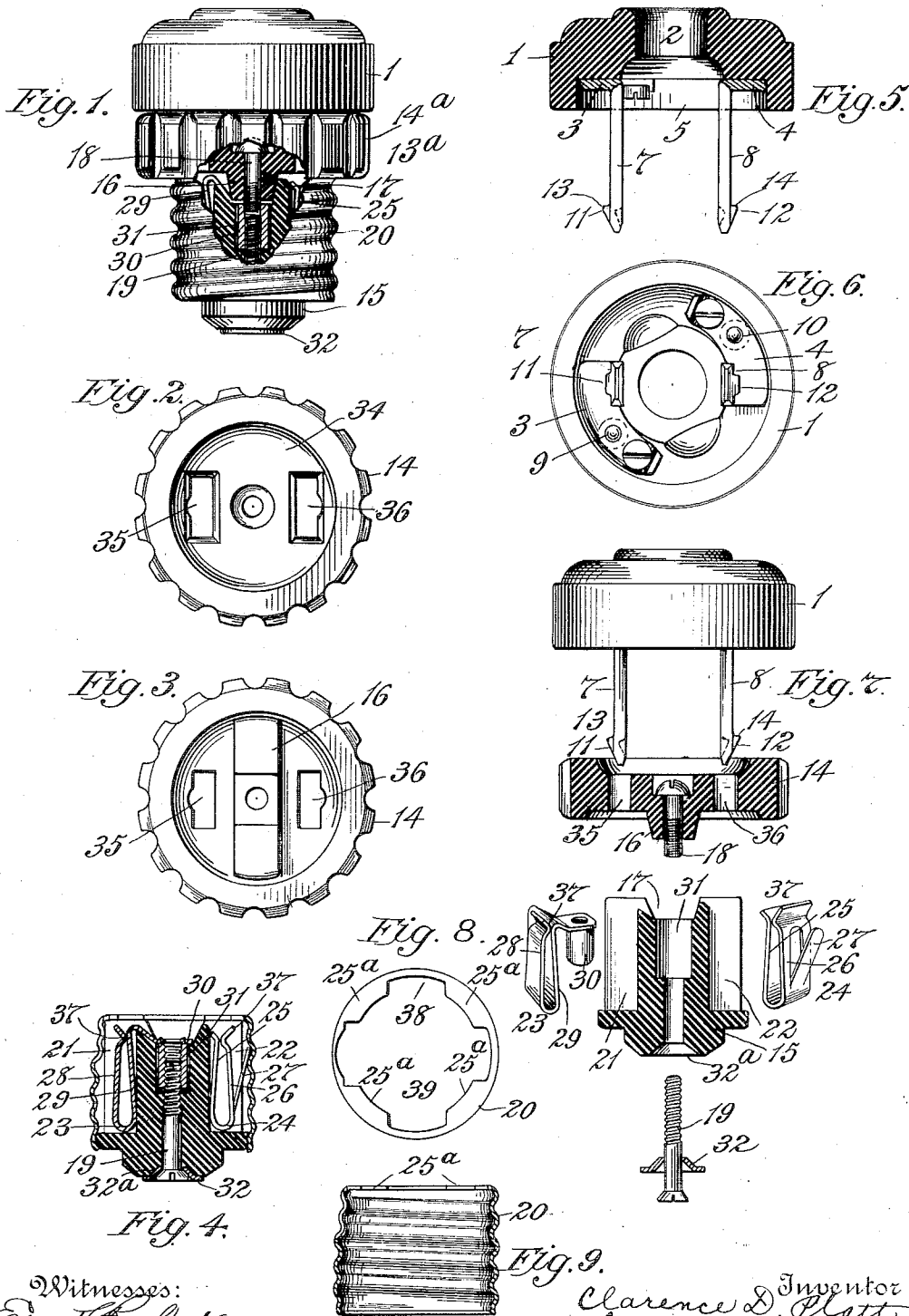


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SEPARABLE ATTACHMENT PLUG.
APPLICATION FILED JUNE 26, 1909.

953,708.

Patented Apr. 5, 1910.



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SEPARABLE ATTACHMENT-PLUG.

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Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed June 26, 1909. Serial No. 504,403.

To all whom it may concern:

Be it known that I, CLARENCE D. PLATT, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Separable Attachment-Plugs, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The invention relates to a plug for connecting translating devices of various sorts with a line wire, through a suitable receptacle, having terminal contacts for the circuit.

It relates more particularly to a separable attachment in which one portion of the device may be inserted and held in the receptacle while a second portion may be detached or attached thereto and will provide for the necessary electrical connections for transmitting current to any device connected with the removable portion.

The objects of the invention are to provide a very simple and compact device in which the several parts may be readily manufactured and assembled, securing accuracy and efficiency both in assembly and operation.

A further object is to provide a plug in which the base or body part is formed in sections which, when applied, will securely lock and inclose the various parts, including the contact members and conductors.

A still further object is to provide for isolated chambers for the contact members with provision for the insertion or removal of co-operating contacts and of the contact members themselves.

A still further object is to arrange a body part having a central stud contact and a threaded sleeve contact, wherein said sleeve contact is securely held by the parts of the body portion and in turn incloses said body portion and its coöperating contact clips.

Referring to the drawings:—Figure 1 is a view in elevation of the device with a portion of the conducting shell and body part broken away to illustrate the locking connection between the two members of the body part. Fig. 2 is a top plan view of the body portion of the plug. Fig. 3 is a bottom plan view of the top section of the body portion. Fig. 4 is a central sectional view through the lower member of the body por-

tion. Fig. 5 is a central vertical section 55 through the cap of the plug, the contacts being shown in full lines. Fig. 6 is a bottom plan view of the cap illustrated in Fig. 5. Fig. 7 is a general view of the cap with the members of the body portion cut in section 60 and the contact clips and conductors arranged in relative positions ready for assembly. Fig. 8 is a top plan view of the threaded shell contact. Fig. 9 is a central sectional view of the shell illustrated in 65 Fig. 8.

In devices of the general character to which this invention relates, it is necessary to provide for certain features of safety in operation and the conductance of current 70 without liability of bridging. The parts, of the separable attachment plug, must be so arranged, that the plug may be securely attached with reference to the receptacle having the terminals of the line wire circuit, 75 and with provision for the removal of the cap and the breaking of the circuit without undue arcing or such arcing as will disturb the operator or endanger the device.

The device may be used with receptacles 80 of any well known type provided with terminal contacts of the Edison type, Thomson Houston type, or any other arrangement, and, of course, as herein shown, and described, may be modified to suit the conditions of contact arrangements used in any 85 receptacle, wherein a plug attachment is applicable. It is essential that the removable cap bear contacts which, coöperating with the contact clips of the main body portion, 90 will be securely locked in place and electrically connected when the cap is in place and will permit ready removability of the cap and separation of the contacts, without danger to the operator or liability of im- 95 proper action of the current carried by the circuits.

As hereinafter defined, the objects of the invention are carried out by arranging the several parts, in such manner, that the conducting elements may be simply formed and assembled and will, in connection with the insulating body portion, insure proper action within all reasonable limits of safety.

In the accompanying drawings, the numeral 1, denotes a removable cap having a central perforation 2, through which the conductors may pass and be secured to con-

tact plates 3, 4. These contact plates are located in a recess 5, in the under side of the cap and have contact lugs 7, 8, extending therefrom. The plates are secured in any desired manner as through screws 9, 10, and the lugs 7, and 8, are provided adjacent to their lower ends with locking members 11, 12, which are preferably formed by pressing out the material of the lugs 7, and 8, to form lugs having angularly disposed faces, whereby sharp locking shoulders 13, 14, are secured. This cap 1, with its contacts, may be readily removed from or attached to the body portion 13, and the contact clips thereof, as hereinafter defined.

The body portion 13^a, of insulating material, comprises two sections, an upper section 14^a, and a lower section 15, which, when assembled, are held against relative rotation by an interlocking lug or bar 16, extended from the upper section, and a similarly formed groove 17, arranged in the lower section. The lug 16, also serves a further function of securely holding in place one of the contact clips when the upper and lower sections are bound together as by a screw 18, extending through the upper body section and into the contact clip, which, as shown herein, is securely held to the lower body section by a conducting screw 19. The upper section 14, also serves to hold a threaded sleeve contact 20, in place and only upon the separation of the two body portions may said threaded sleeve contact 20, be removed.

The lower section 15, of the body portion is of cylindrical form and is provided on substantially diametrically opposite sides with recesses 21, 22, which provide isolated chambers for the contact clips 23, 24. The threaded sleeve contact 20, is slipped over the upper end of the body portion 15, and is provided at its upper edge with inturned lugs or flanges 25^a, which, when seated upon the upper surface of the lower body portion and clamped between said member and the upper body section 14, is securely locked in place and forms one contact member of the plug.

Within the recess 22, is arranged the spring clip 24, which comprises a U-shaped member having upwardly extending arms 25, 26, and a contacting lug 27, preferably struck out from the metal of the clip. This contact clip 24, is not secured within the recess 22, by other means than the threaded sleeve contact 20, which bears against the contact lug 27, and thus provides proper electrical connection between the sleeve and the clip.

The recess 21, separated from the recess 22, by the body of the insulating material, serves as a receptacle for the contact clip 23, which, as shown herein, is of substantially U-form having upwardly extending arms 28, 29, the latter connected to a tubu-

lar conductor 30, which is centrally located with reference to the body part 15, and recessed within an opening 31. The contact clip 23, is securely held in place in the opening 31, by a conductor screw 19, which forms the central stud contact of the plug through its connection with the metallic plate 32. This plate is so formed as to extend within a recess 32^a, and the head of the screw 19, is countersunk in the contact plate 32 so that a smooth and perfect central stud contact is provided.

The upper body member 14, is provided on its upper face with a dish-like cavity 34, and extending through said member are perforations 35, 36, which permit the passage of the contact lugs 7, 8, of the removable cap 1. These perforations are of just sufficient size to permit passage of the contact lugs of the cap and form the contracted openings leading into the recesses 21, 22, which contain the contact clips 23, 24. Each of said clips is provided with a clamping shoulder 37, which will resiliently grip the locking lugs 11, 12, of the contacts 7, 8. The contact clips 23, 24, are located just below and in registering position with reference to the perforations 35, 36, and upon insertion of the cap contacts 7, 8, through said perforations, will receive the contacts and hold them in firm electrical contact and even against accidental removal. A sharp pull upon the cap will, however, withdraw the lugs 7, 8, from the contact clips and break the electrical connection of the conductors and the base clips. The upper body section 14, is herein shown as knurled to facilitate insertion and removal of the plug. Of course, the bar 16, cooperating with the slot 17, prevents all relative rotation of the parts of the body portion.

There is a special advantage in utilizing a two-part body portion inasmuch as the porcelain from which such parts are made, will have a better opportunity for shrinkage in course of manufacture and by having a plain cylindrical body portion with the threaded sleeve contact covering the same, the complication of securing comparatively accurate threads for the reception of the sleeve contact is obviated. The parts will fit snugly together and may be positively locked against movement. At the same time, the various parts may be readily separated for inspection or renewal.

In assembling the device, the contact clip 23, is secured in place by the conducting screw 19, and after inserting the contact clip 24, the threaded shell contact is pressed down over the upper end of the body portion 15. The upper section 14 is then bound in place by a screw 18, which extends into the upper end of the threaded opening of the contact clip 23. The bar 16, engaging the opening 17, of the lower section 15, pre-

vents relative rotation thereof, and as it extends into the openings 38, 39, between the projecting flange members 25, of the threaded sleeve contact, said sleeve is securely held against relative rotation.

The dished portion 34, of the body part forms a convenient guide for insuring proper location of the contact members 7, 8, of the cap 1. No matter what position the contacts are placed in, so long as they are within the depressed dish-like portion 34, a slight rotation of the cap will insure an engagement of its contacts with the openings 35, 36, and thereupon a slight pressure will engage the contacts with the clips 23, 24.

Obviously the details of the device might be varied to a considerable extent without departing from the spirit or intent of the invention and the contact elements might be varied in size, shape and form to make the plug adaptable to various types of receptacles.

The device, herein shown and described, is somewhat similar to the device shown in a co-pending application, in so far as the open receptacles upon the side of the body portion for the introduction of the contact clips is concerned. It differs, however, in having a two-part body portion with all of the connections in the chambers and exterior of the body portion and in the arrangement by which the threaded sleeve contact may be secured without interengaging threads between the body and shell.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A separable attachment plug comprising a body portion of insulating material formed in sections, a recess extending across one of said sections, a projecting insulating bar projecting across the other of said sections and adapted to register with the recess of the cooperating section, contact openings formed in the sides of the lower body section, guide-openings formed through the upper body section and registering therewith, contact clips arranged in the body recesses and connected respectively with a threaded sleeve contact, and a central stud contact, said sleeve contact inclosing the recesses and con-

stituting a means for holding one of the contact clips in place, and means for clamping the base section together.

2. A separable attachment plug comprising a base of insulating material provided with contact recesses formed in the sides thereof, a base-portion covering the upper ends of said recesses and provided with perforations registering therewith, a transverse groove formed in one of the base-sections, a transverse bar on the cooperating section registering therewith, a threaded sleeve contact encircling the lower base-section and with flanges resting on the upper end thereof, said flanges so formed as to engage opposite sides of the transverse projection of the upper base-section and means for locking the base-sections in place.

3. A separable attachment plug comprising a base and cap bearing cooperating contacts, said base formed in two sections, one of said sections provided with contact recesses and a central opening, a contact clip mounted in one of said recesses and provided with a threaded projection extending into the central opening and forming a nut, a central stud contact engaging said nut from one end, a locking screw engaging said nut at the opposite end and locking the base sections together, and a threaded sleeve contact encircling the base section and engaging a cooperating contact clip.

4. A separable attachment plug comprising a base and cap bearing cooperating contacts, said base formed in two sections, one of said sections bearing contact clips, a threaded sleeve contact surrounding said base section and connected with one of said contacts, a central stud contact engaging the other of said contact clips through a tubular threaded member centrally disposed with reference to the body part, and a locking screw intermediate the base sections and engaging the tubular threaded member, said threaded member serving as a union for binding the base parts together.

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