

No. 881,371.

PATENTED MAR. 10, 1908.

P. C. BROWN.
ELECTRICAL PLUG AND RECEPTACLE.
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Fig. 1.

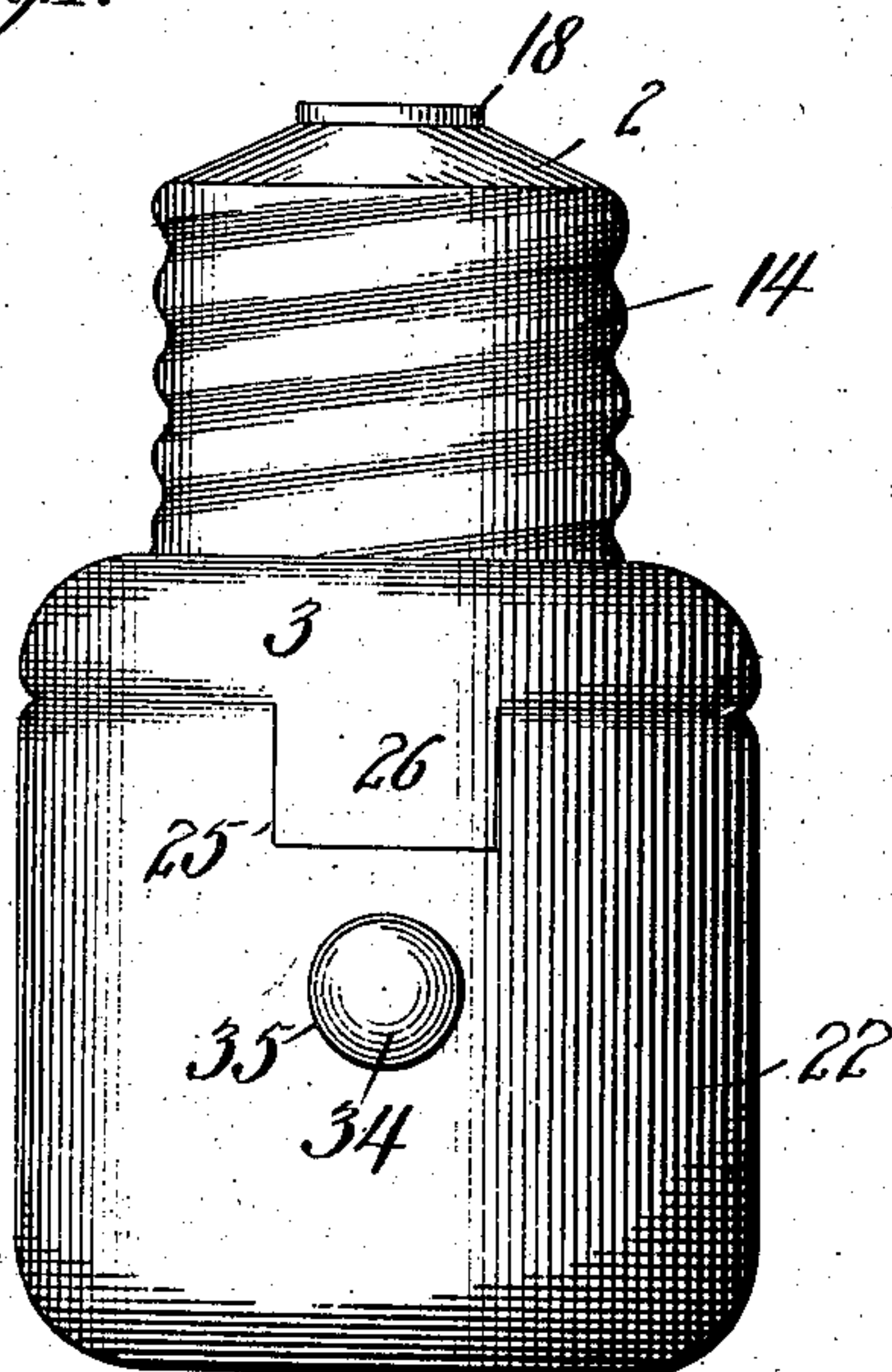


Fig. 2.

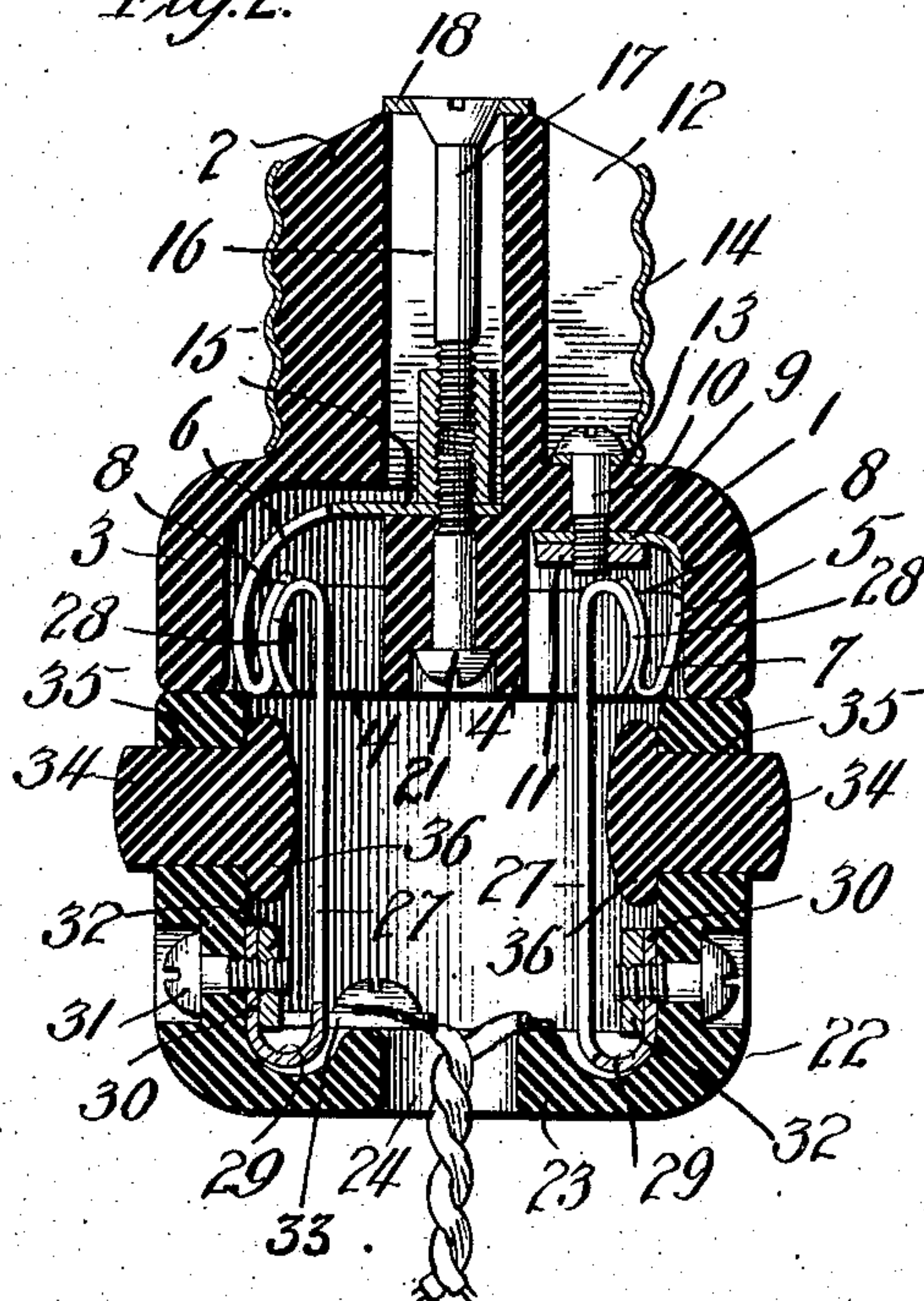


Fig. 3.

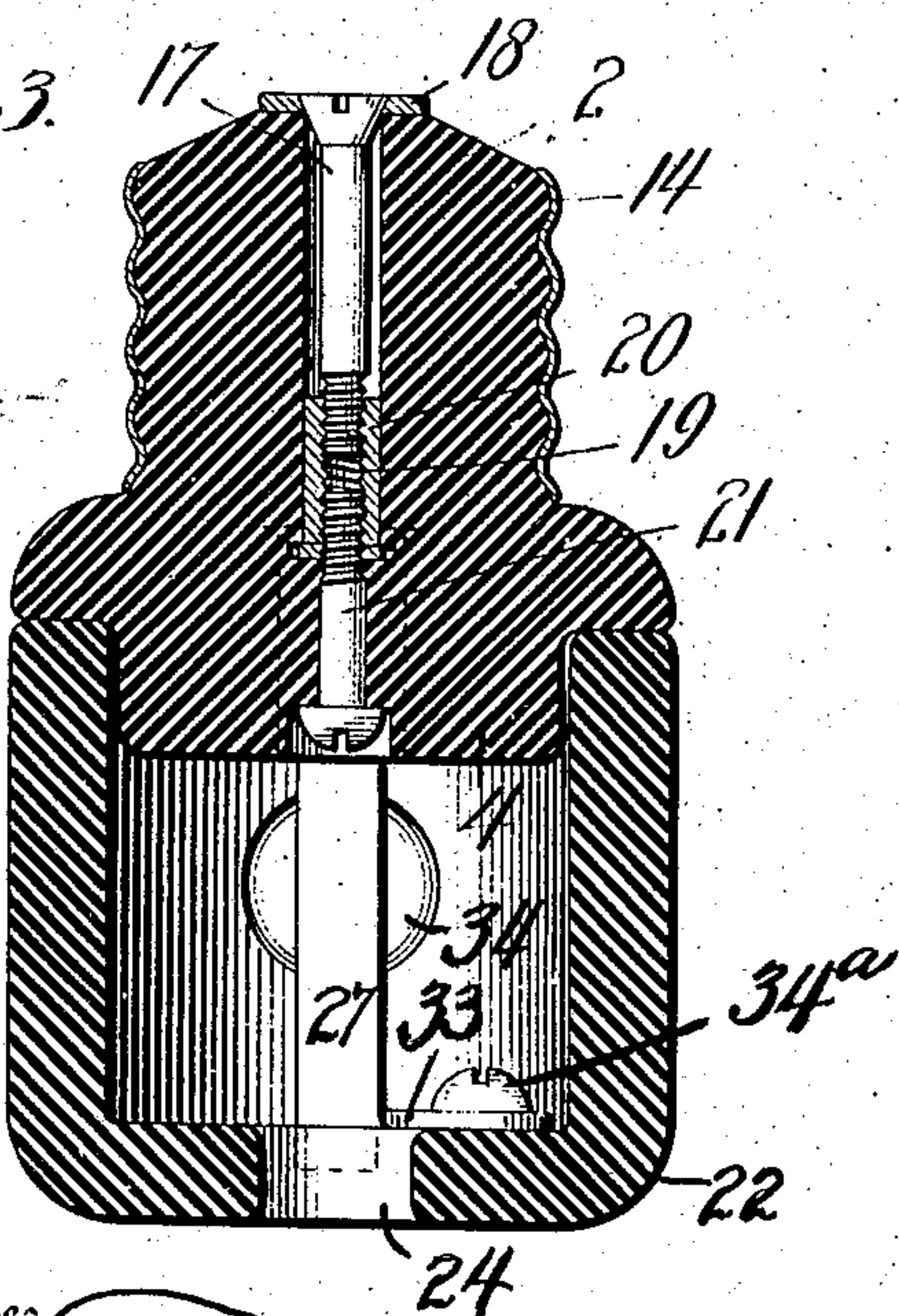
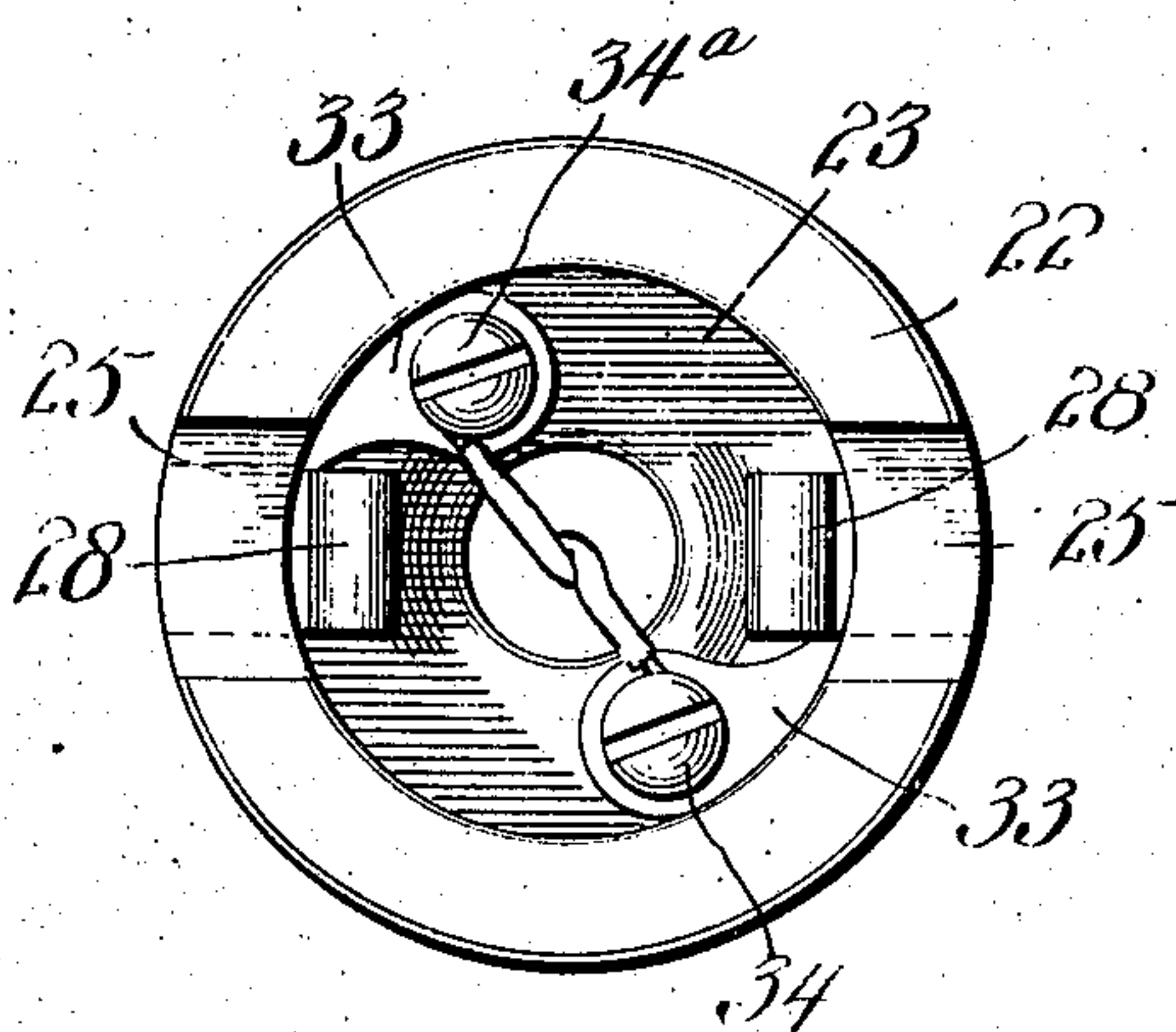


Fig. 4.



Witnesses

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ELECTRICAL PLUG AND RECEPTACLE.

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To all whom it may concern:

Be it known that I, PENNELL C. BROWN, a citizen of the United States, residing at 30 Empire street, Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electrical Plugs and Receptacles, of which the following is a specification.

This invention relates to an improvement in electrical plugs and receptacles used generally for plug and receptacle fittings, and has special reference to an improved electrical plug and receptacle possessing special utility as an attachment plug for extension connections though capable of general application.

To this end the invention primarily has in view a simple and practical form of combination plug, or plug and receptacle, which obviates the usual objections to an ordinary screw plug while at the same time, combining the utility or useful features of a screw plug with the feature of providing for a ready and easy electrical connection and disconnection without screwing or unscrewing the plug element or plug part of the device.

A further object of the invention, is to provide a plug and receptacle fitting having a button release connection-piece or hand-piece presenting the releasing elements in a convenient and handy position. At the same time, the invention provides a construction wherein the parts of the device when divided or separated effect a more compact arrangement and better concealment of the current carrying parts than most of the known types of separable attachment plugs and the like in ordinary use.

Other objects and advantages of the improved plug and receptacle will suggest themselves to those familiar with the art, and it also will be understood that structural changes in the device may be resorted to without affecting the scope of the invention, a preferred embodiment of which is shown in the accompanying drawings in which—

Figure 1 is a side view of a plug and receptacle embodying the present invention. Fig. 2 is a central longitudinal sectional view thereof. Fig. 3 is a similar view with the line of section at right angles to that taken in Fig. 2. Fig. 4 is a top plan view of the detachable connection-piece.

Like references designate corresponding parts in the several figures of the drawings.

While the essential features of the invention are susceptible to embodiment in different forms of plug and receptacle fittings, the same possesses special utility in an attachment plug, so for purposes of illustration, the improvements are shown in the drawings embodied in an improved construction of button-release separable attachment plug, which will now be particularly referred to.

The device embodies in its general organization a main base member designated by the numeral 1, and preferably formed of suitable insulating material and provided with a plug element 2 and a receptacle element 3. These two elements are preferably integrated in the base structure, and are respectively designed to perform the functions of an electrical plug and an electrical receptacle.

The receptacle element 3 of the base member is in the form of a flanged socket or cup, and is provided centrally therein with a transverse insulating bridge bar 4, usually integral with the rest of the base structure, and acting in the capacity of an insulating bridge between the oppositely arranged contact elements 5 and 6 located within opposite portions of the receptacle 3 and completely housed therein. The said opposite contact elements 5 and 6 are preferably constructed of spring metal strips or plates and are folded upon themselves at their free ends as at 7, to form at their terminals, the curved or hooked spring catch arms 8, the functions of which will be presently referred to.

The contact element 5 at one side of the receptacle 3 is seated at 9 directly against the base or bottom of the receptacle and receives the combined connecting and fastening screw 10, the threaded shank of which passes through the nut 11 arranged upon one side of the fast end of the contact element 5. The said screw 10 is introduced through a screw slot or groove 12 formed longitudinally in one side of the plug element 2, and the head thereof is arranged to bind on the flanged inner end portion 13 of the threaded plug contact shell 14 tightly fitted or screwed upon the external surface of the plug element 2, as plainly shown in Fig. 2 of the drawings. The other receptacle contact element 6 is seated at its fast end as at 15, upon a shoulder within the base 1 at the inner end of the central screw hole 16 formed in the plug 2 and accommodating

therein the central plug contact screw 17. The head of the central plug contact screw 17 is exposed at the outer end of the plug element 2 and holds in position at such point the usual contact washer 18, while the inner threaded end of the screw 17 engages one end of a threaded opening 19 extending through a coupling sleeve 20 located at the base of the hole 16 upon the fast end of the contact element 6, and also acting as a nut for the threaded end of a fastening screw 21 mounted in the insulating bridge 4 and extending through one end of the contact element 6. The tightening up of the two screws 17 and 21 serves to secure a tight mechanical and electrical assembly of the contacts 6 and 17, while at the same time said contacts are completely and thoroughly insulated from the contacts 5 and 14.

A distinctive feature of the invention resides in associating with the receptacle element 3 and the contacts therein, a detachable connection-piece 22. This connection piece constitutes what may be characterized as the head of a lamp, drop cord, extension cord or equivalent electrical fitting, but in the application of the invention illustrated, the said connection piece is shown as adapting the device for use as an attachment or extension circuit plug. In this adaptation of the invention, the said connecting-piece is in the form of a cup provided with an end base 23 having therein a cord or wire opening 24 for the service wires, and in the edge of its flange portion or wall the said connection piece is provided with a plurality of holding mortises 25 with which register and interlock correspondingly arranged and shaped locking and guiding tenons 26 projecting from the receptacle wall 3, and which serve to accurately guide the connection-piece into place, while at the same time locking both parts of the fitting or device against a relative turning movement. It will of course be obvious that the same result would be secured by having the mortises in the flange of the receptacle, and the tenons projecting from the connection piece. This would be simply a reversal of the construction shown in Fig. 1 of the drawings.

The detachable connection piece 22 accommodates therein a pair of oppositely arranged spring locking blades 27 provided at their free ends with headed portions 28 constituting fastening heads adapted to snap into and out of engagement with the catch arms 8 of the contacts 5 and 6. Opposite the fastening head 28 thereof each spring locking blade 27 is folded as at 29 to form a supporting arm 30 resting against the side wall of the connection piece and receiving the securing screw 31 also passing through the side wall of the piece 22 and engaging a threaded opening in the connecting strap 32 of a service wire terminal plate 33. The strap 32 of each

plate 33 is arranged flat against the inner side of the arm 30 with which it cooperates, and is projected from one end of the body of the plate 33 which is held flat upon the end base 23 partly by means of a binding screw 34 passing in to the said base. However this binding screw is primarily intended to hold in place the wire terminals, as the screw 31 acts as the securer or fastener for both the plates 33 and the blades 27 with which they are in mechanical and electrical contact.

To provide for disengaging the blades 27 from the receptacle contacts 5 and 6, there are employed the oppositely arranged release buttons 34, one for each blade. Each release button is slidably mounted in a holding and guiding opening 35 formed in the wall of the piece 22 opposite a blade 27, and the inner end of each button is provided with a flanged engaging head 36 adapted to be pressed against the adjacent blade 27. The buttons 34 are either of insulating material, or are suitably insulated from all metallic parts.

It will be observed that as the hand naturally grasps the piece 22 the thumb and fingers can readily find and press the buttons 34 so as to place sufficient pressure upon the blades to disengage them from the receptacle contacts in the act of pulling off the connection piece.

I claim—

1. In an electrical connection, a base member carrying external plug contacts and internal receptacle contacts operatively connected, a connection piece having interior conducting elements having a snapping engagement with said receptacle contacts, and separate release buttons supported by the connection piece and movable against said conducting elements.

2. In an electrical connection, a base member having external plug contacts and internal receptacle contacts, a connection piece having internal conducting elements interlocking with said receptacle contacts, and releasing elements loosely mounted at the sides of the connection piece and movable inwardly against said conducting elements.

3. In an electrical connection, a base member having external plug contacts and also provided with a receptacle element having therein a transverse insulating bridge, receptacle contacts arranged upon opposite sides of said bridge, a connection piece having conducting elements interlocking with said receptacle contacts, and release buttons loosely mounted in the sides of the connection piece.

4. In an electrical connection, a base member having a plug element and a receptacle element the latter provided therein with a transverse insulating bridge, receptacle contact elements arranged upon opposite sides of said bridge and provided with spring catch arms, a plug contact shell having a fastening

and conducting connection with one of the receptacle contact elements, a central plug contact screw having a fastening and conducting connection with the other receptacle contact element, and a detachable connection-piece carrying spring locking blades engaging said spring catch arms, and slidably supported release buttons operating against the locking blades.

5 10 5. In an electrical connection, a base member having contact elements provided with catch arms, a detachable connection-piece, a pair of spring locking blades arranged within the connection-piece and provided at one end with fastening heads engaging said catch arms, the opposite ends of said blades being

formed with supporting arms resting against the body of the connection-piece, wire terminal plates arranged within the connection-piece and having connecting straps fitting against said supporting arms, securing screws holding said straps and arms together, and oppositely arranged release buttons slidably mounted in the wall of the connection-piece and operating against said blades. 20 25

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

PENNELL C. BROWN.

Witnesses:

HELEN O'HARA,
JAMES O. BRIEN