

W. E. O'NEIL.  
EXTENSION PLUG OR DEVICE FOR CONNECTING ELECTRIC CONDUCTORS.  
APPLICATION FILED MAR. 27, 1909.

930,788.

Patented Aug. 10, 1909.

Fig. 1.

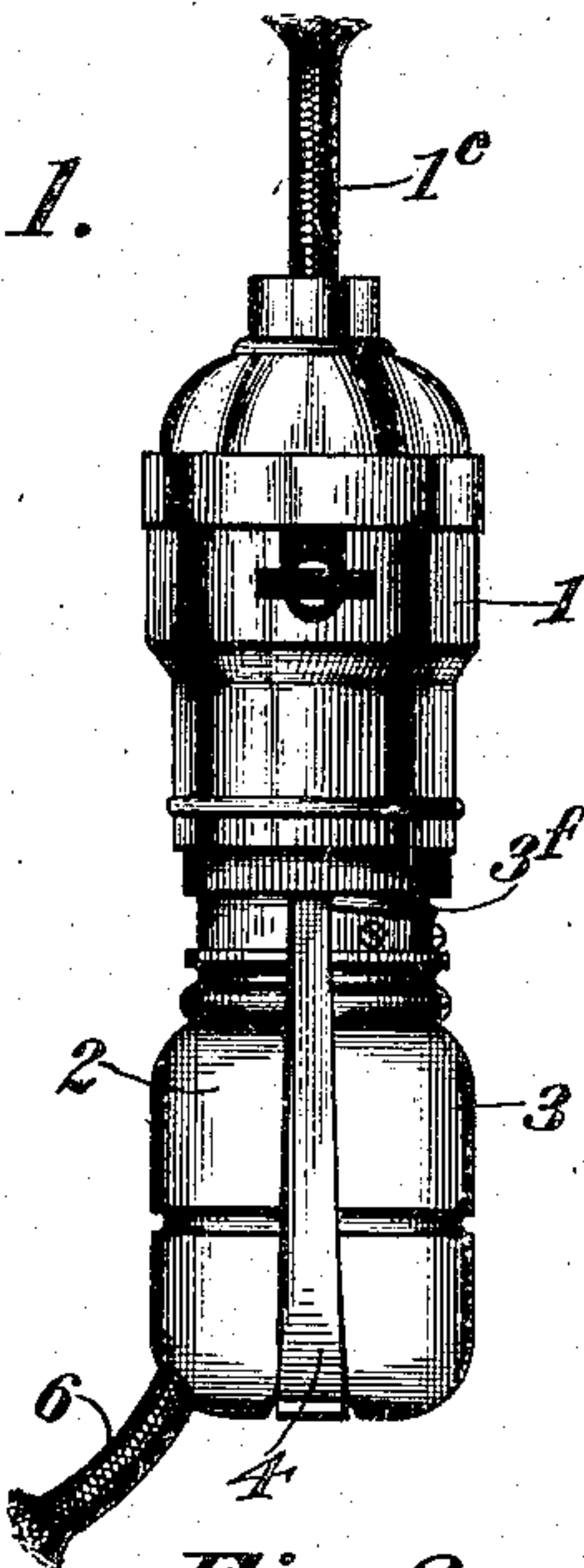


Fig. 6.

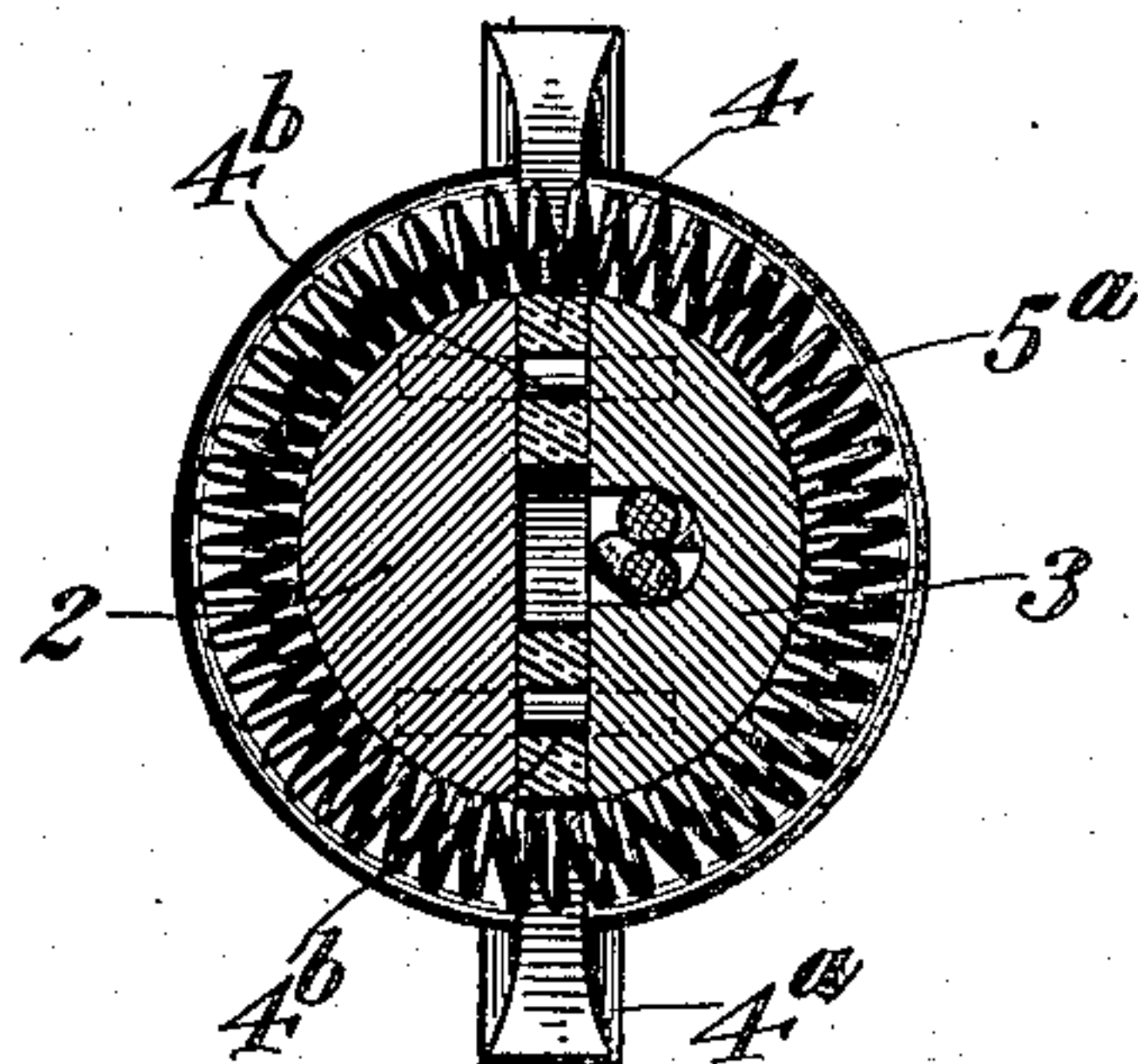


Fig. 2.

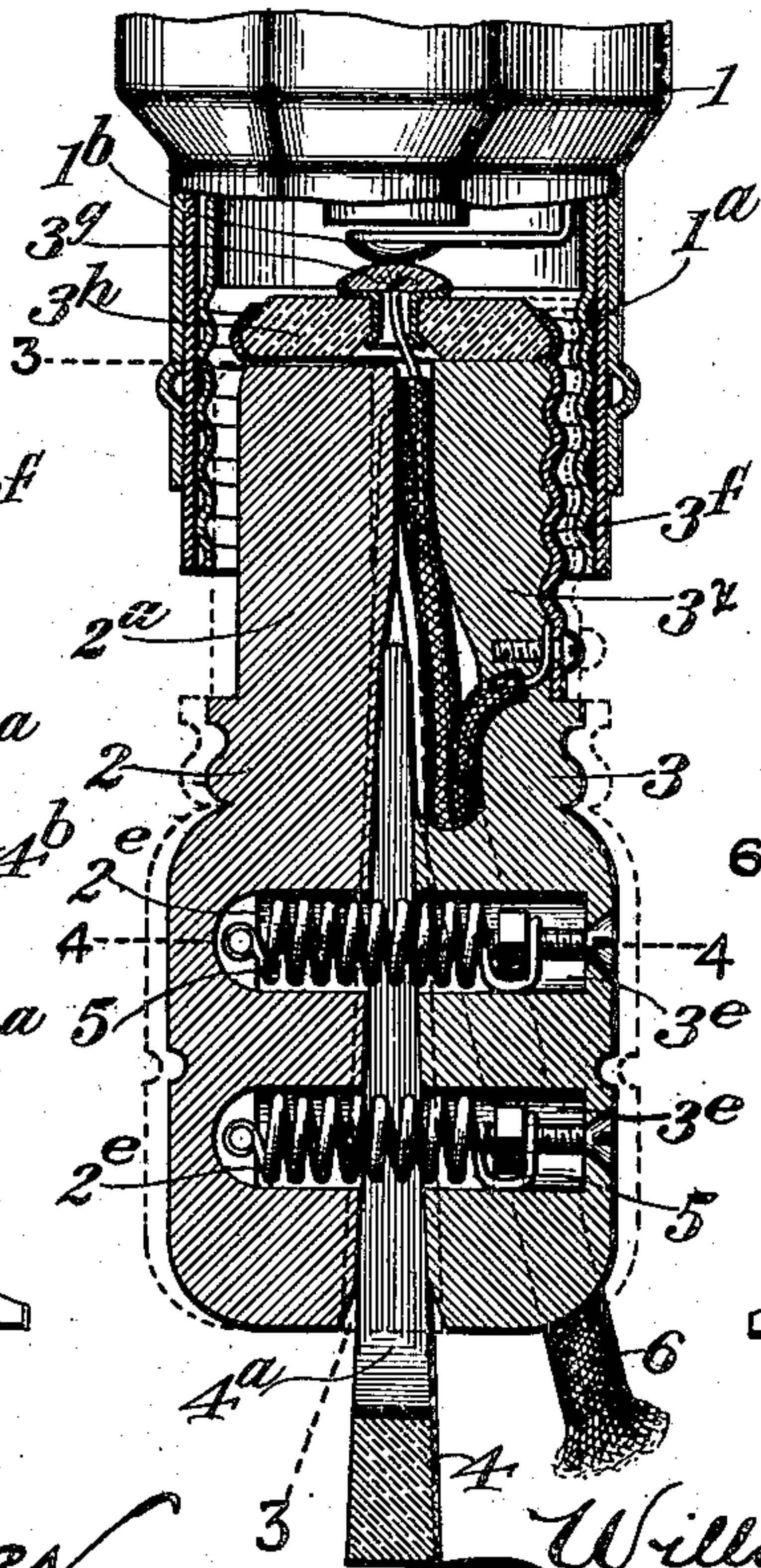


Fig. 3.

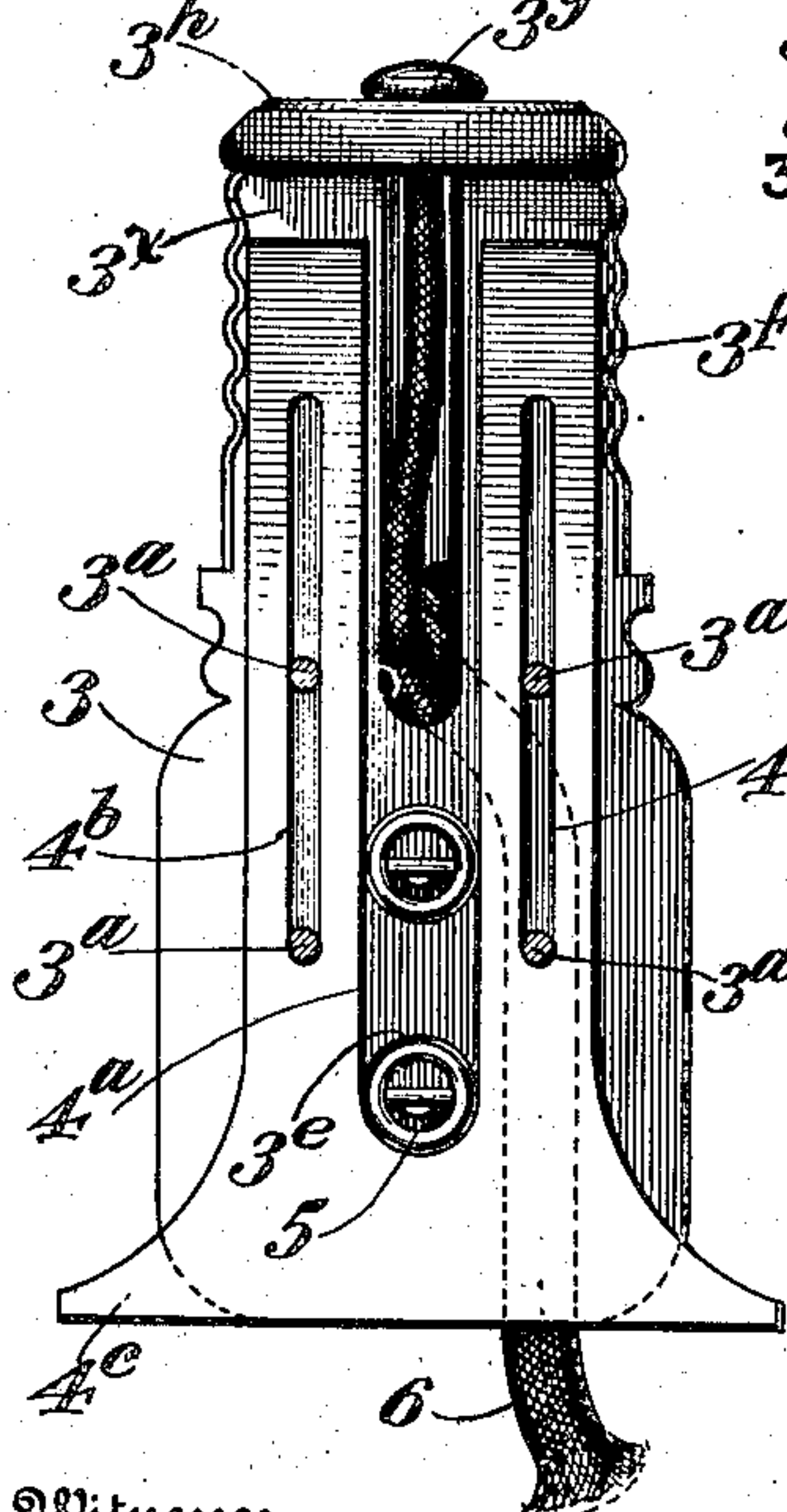
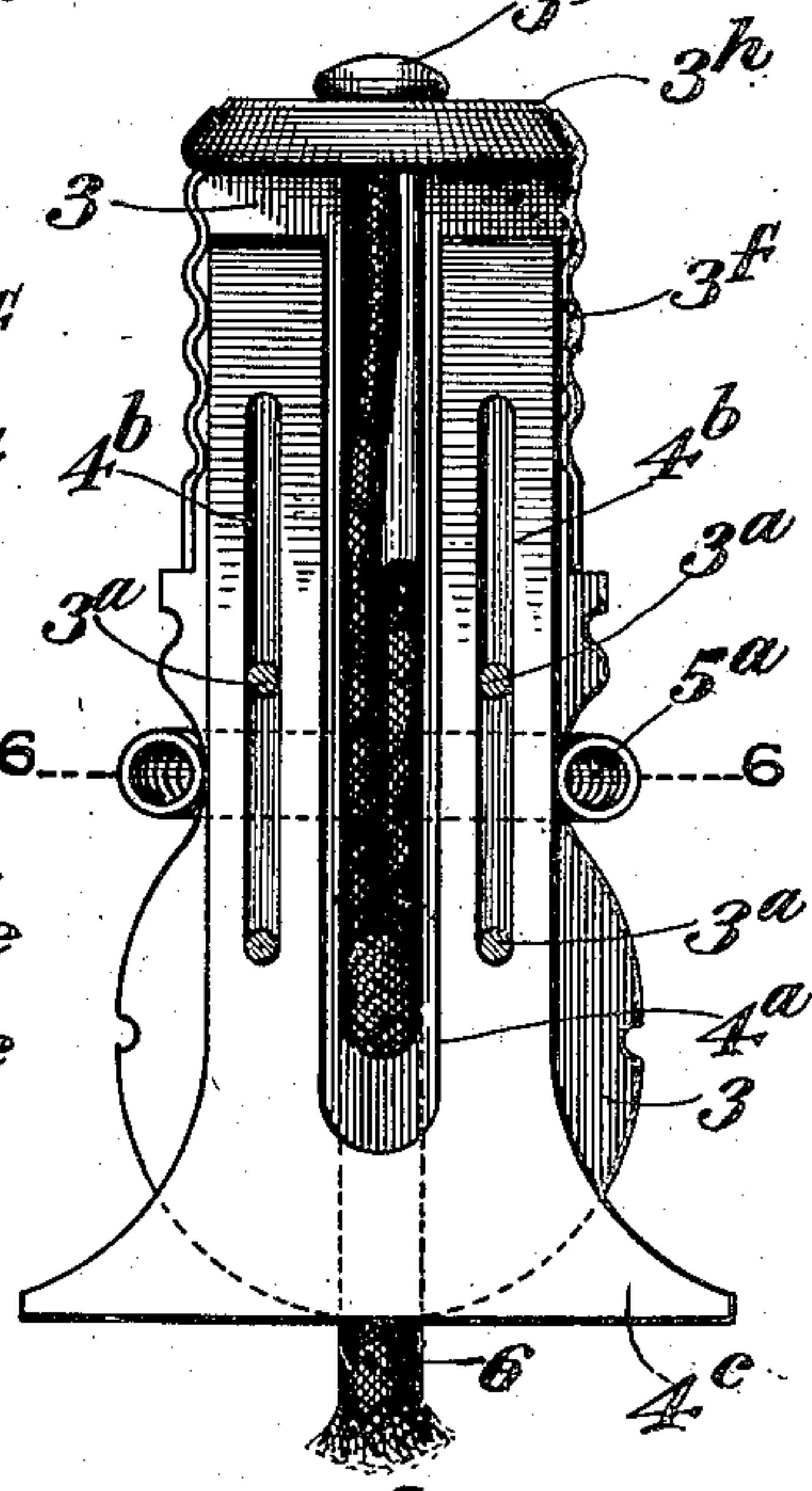


Fig. 5.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM EDWARD O'NEIL, OF NORWICH, NEW YORK.

## EXTENSION PLUG OR DEVICE FOR CONNECTING ELECTRIC CONDUCTORS.

No. 930,788.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed March 27, 1909. Serial No. 486,071.

*All whom it may concern:*

Be it known that I, WILLIAM E. O'NEIL, of Norwich, in the county of Chenango and State of New York, have invented certain new and useful Improvements in Extension Plugs or Devices for Connecting Electric Conductors; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is a novel extension plug or device for connecting electric conductors, being especially designed for use in connecting a portable electric light to a wall socket, or lamp socket, so that such portable light may be used at any desired point, and readily attached to or detached from the permanent fixtures or sockets.

The object of the invention is to enable the plug to be attached to an ordinary screw-threaded incandescent light socket, or the like, without having to screw the plug into such socket,—and this I accomplish by making the plug expansible, and providing it with a wedge piece by which the plug can be handled, and by simply pushing the plug, by the wedge, into the socket the connection is made, and by simply pulling out the wedge the plug is contracted and withdrawn from the socket without having to turn the plug. The invention is applicable to plugs for other kinds of sockets, as will be readily comprehended when the invention is understood; and I will now explain the invention in connection with the accompanying drawings which illustrate a practical form thereof, and I summarize in the claims the features of the invention for which I desire protection.

In said drawings—Figure 1 is a side view of an ordinary incandescent light socket, and my novel connector plug engaged therewith. Fig. 2 is an enlarged sectional view of a portion of the light socket and the plug, showing it contracted, in full lines, and expanded, in dotted lines. Fig. 3 is a section of the plug on line 3—3, Fig. 2, showing the wedge inserted. Fig. 4 is a transverse section on line 4—4, Fig. 2. Fig. 5 is an enlarged sectional view similar to Fig. 3 showing a slight modification of the plug. Fig. 6 is a transverse section on line 6—6, Fig. 5.

In the drawings 1 represents the socket piece, which may be of any desired construction, being shown as on an ordinary incandescent light socket, and having a threaded

socket-contact  $1^a$ , and an internal end contact  $1^b$ , as usual, said contacts being properly insulated, and being connected in the ordinary manner to the proper wires in the conductor  $1^c$ . The socket is well known, and no particular illustration or description thereof is necessary. Ordinarily connection is made with such sockets by means of similarly threaded contact plugs, screwed thereinto, and having side and end contacts adapted to connect with contacts  $1^a$ ,  $1^b$ , to form a continuation of the electric circuit when the plug is screwed home into the socket. The operation of screwing the plug into, or out of, the socket is slow and sometimes difficult, and my invention provides a plug which can be practically instantaneously connected to or removed from such sockets without having to turn the plug to attach or detach it.

My plug comprises opposite longitudinal parts or halves 2 and 3, which are provided with reduced portions  $2^a$ ,  $3^x$ , adapted to be inserted into the socket 1. The parts 2 and 3 are held in proper relative positions by suitable means, as by dowel pins  $3^a$  attached to part 3 engaging holes  $2^b$  in part 2, which pins permit the parts to be separated lengthwise, but prevent relative movement of the parts longitudinally.

The parts are preferably held together yieldingly by springs, and as shown in Figs. 2 and 3, contractile helical springs 5 may be connected to the parts 2 and 3, being concealed in suitable recesses  $2^c$ ,  $3^c$ , therein, so that the plug parts are drawn and held yieldingly toward each other. The parts 2 and 3 are however separated by an interposed wedge-piece 4, preferably of fiber or insulating material, said wedge-piece being thickest at its outer end, and tapering to its inner end. This wedge-piece 4 may be provided with a slot  $4^a$  to accommodate springs 5, and with slots  $4^b$  to accommodate pins  $3^a$ , so that the wedge 4 can be shifted longitudinally between parts 2 and 3, and when pushed inward or toward the small ends of parts 2 and 3 it separates the parts; and when drawn outward it allows the parts to be drawn toward each other; in this way the plug may be expanded and contracted at will. The part 3 may have a threaded contact piece  $3^f$  on its outer side and a contact piece  $3^g$  on its end, separated by an insulation  $3^h$ , said contact pieces being connected with wires in the conductor 6 in the usual



manner, so that when the plug is in the socket, current can be transmitted from conductor 1<sup>a</sup> to conductor 6, and thence to any suitable receptive device, such as an incandescent lamp (not shown).

The wedge plate 4 is provided with an enlarged head or widened portion 4<sup>c</sup> on its outer end, by which it can be easily grasped by two fingers and the thumb, or in other manner, so as to be easily and readily manipulated.

Before attempting to insert the plug into a socket, the wedge 4 is drawn outward, thus contracting the plug, so that the reduced portion 2<sup>a</sup>, 3<sup>x</sup>, thereof can be directly entered into the socket 1<sup>a</sup> without screwing it therein, until contact 3<sup>g</sup> strikes contact 1<sup>b</sup>, then by pushing wedge 4 inward the plug is expanded bringing contact 3<sup>g</sup> into contact with the socket-contact 1<sup>a</sup>, and locking the plug in place; if desired the plug may be given a fractional turn, after it is expanded, so as to insure the engagement of the threaded parts of the contacts 3<sup>f</sup>, 1<sup>a</sup>. To withdraw the plug, it is simply necessary to pull wedge 4 outward, which permits the plug to contract and simultaneously disengage the socket without any twisting or turning of the plug.

In Figs. 5 and 6 of the drawings the parts 2 and 3 are held together by an encircling helical spring 5<sup>a</sup>, and the internal springs 5 can be dispensed with.

Obviously the form and proportions of the parts could be varied to suit the designer and the size and kind of socket with which the plug is to be used.

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

1. A contact plug for electrical connections, comprising opposite relatively movable members, contacts carried thereby, means for yieldingly drawing these members together, and a wedge plug interposed between the members and adapted to be operated by hand to expand the plug when the plug is inserted in a socket, and to permit the contraction of the plug when it is to be removed from the socket.

2. A connector plug for electrical extension conductors consisting of opposite members, insulated contacts carried thereby, and a manually operable wedge piece inserted between the members or parts and adapted to expand the plug when pushed into the socket, and to permit the contraction of the plug and withdraw it from the socket when pulled outward.

3. An electrical connector plug comprising opposite parts having contracted ends adapted to enter a connector socket, springs for holding and drawing the parts together, a hand piece inserted between the parts and adapted to expand the parts when pushed inward and permit their contraction when drawn outward and whereby the plug may be readily inserted into and withdrawn from the socket.

4. The herein described connector plug comprising opposite longitudinal parts provided with insulated contacts adapted to enter a socket, springs connecting the parts, a wedge piece interposed between the parts and having an enlarged outer end whereby it can be manually handled, and adapted to expand the plug after the contacts are inserted into the socket and to permit the plug to contract and be withdrawn from the socket when the wedge is pulled outward.

5. The herein described connector plug comprising opposite longitudinal parts provided with reduced portions adapted to enter a socket, insulated contacts on the reduced portions of the plug, springs connecting the parts, a wedge piece interposed between the parts and having an enlarged outer end whereby it can be manually handled, and adapted to expand the plug after the reduced end is inserted into the socket, and to permit the plug to contract and be withdrawn from the socket when it is pulled outward.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

WILLIAM EDWARD O'NEIL.

Witnesses:

ROY F. HOLMES,  
MYLES REDMOND.