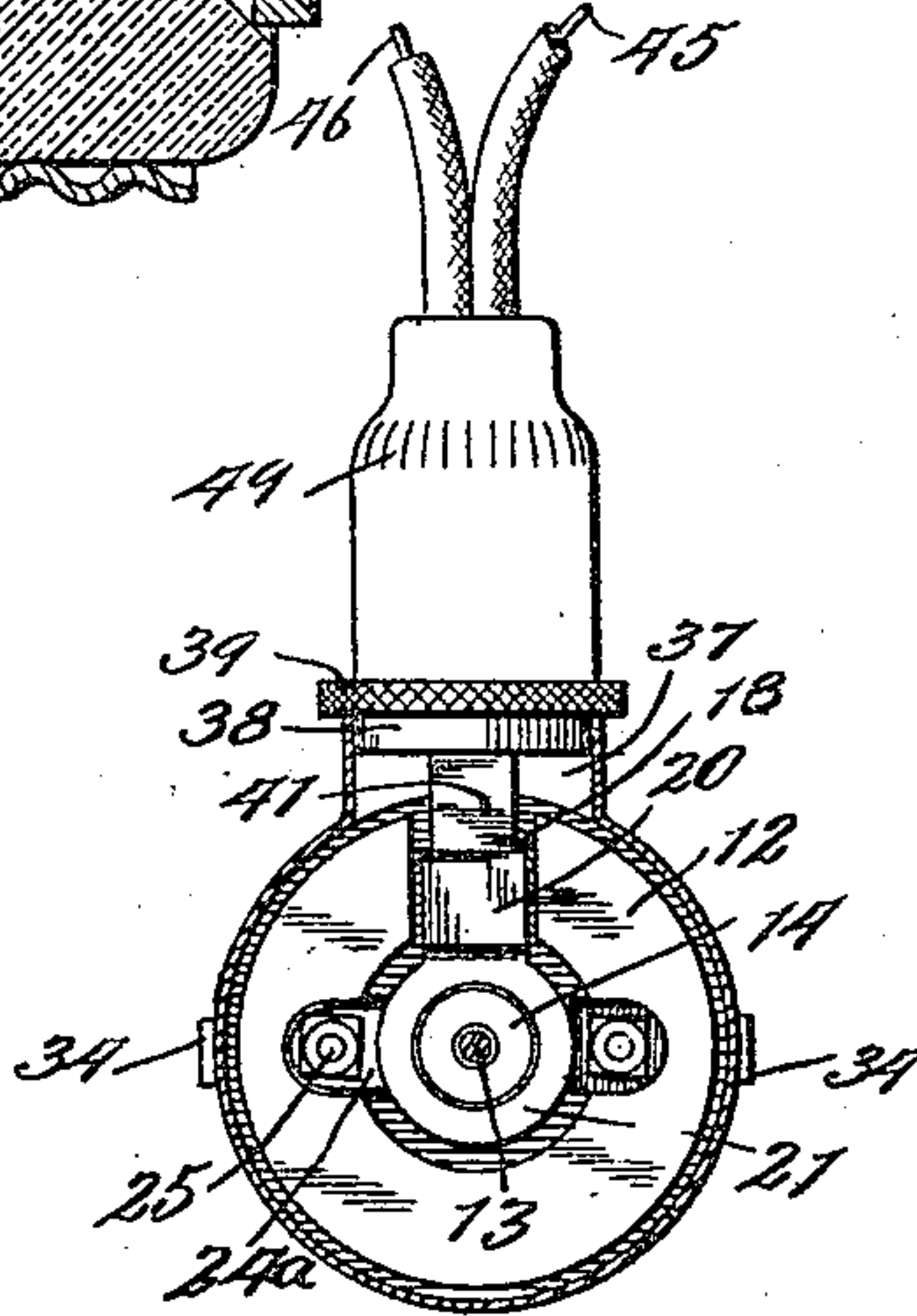


CURRENT TAP.

990,420.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.



Witnesses:

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CURRENT TAP.
APPLICATION FILED JUNE 28, 1909.

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2 SHEETS—SHEET 2.

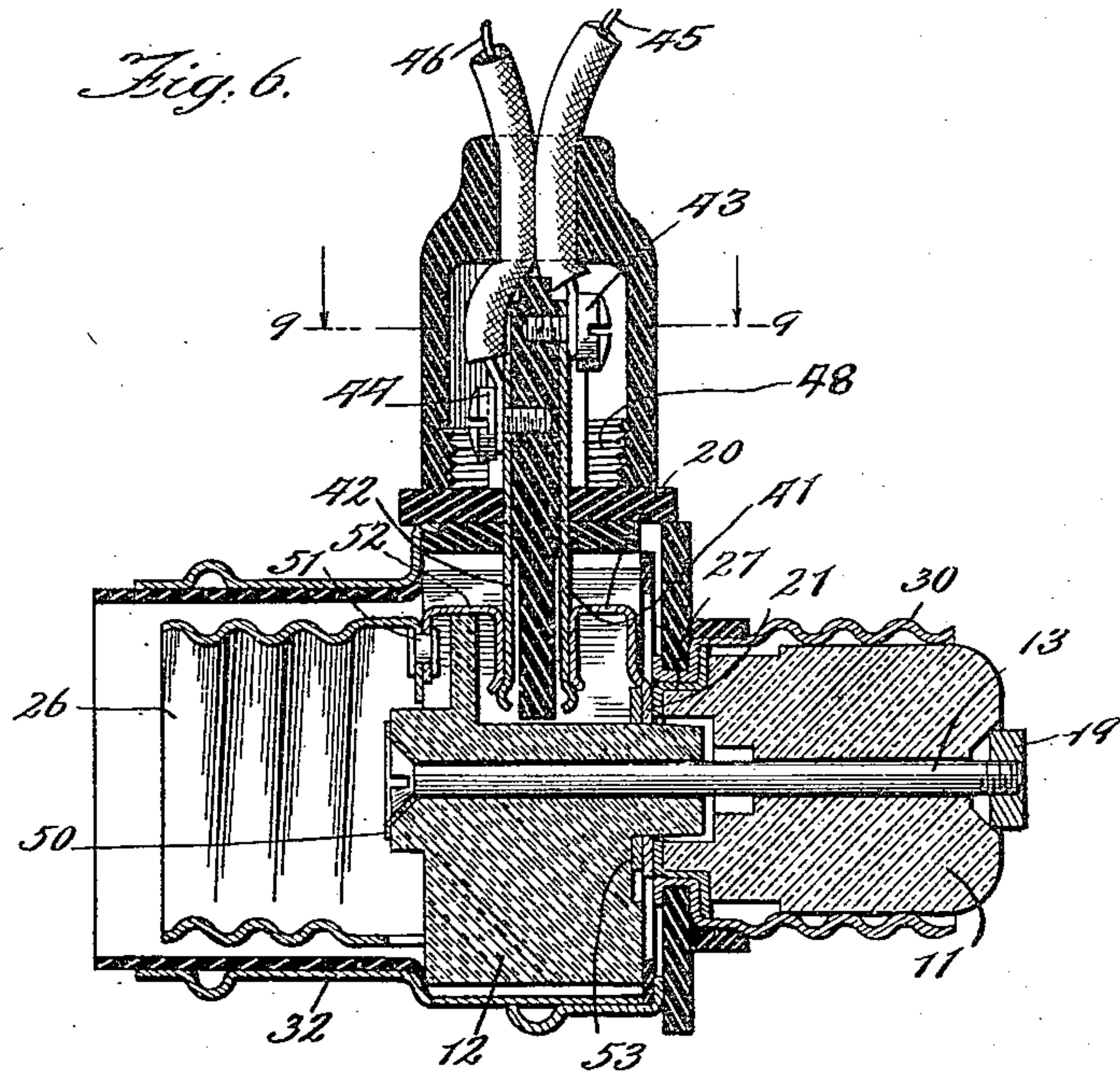
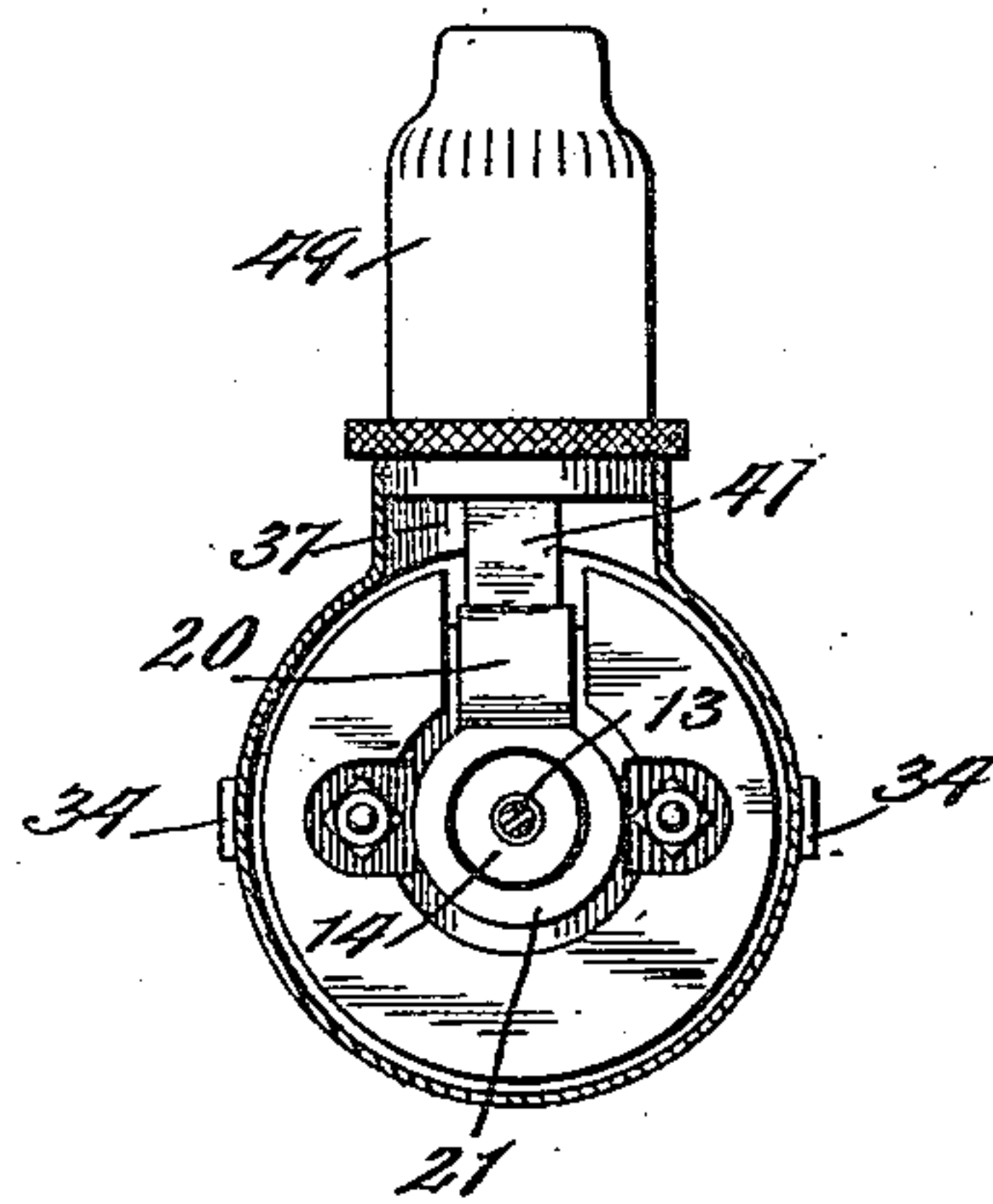
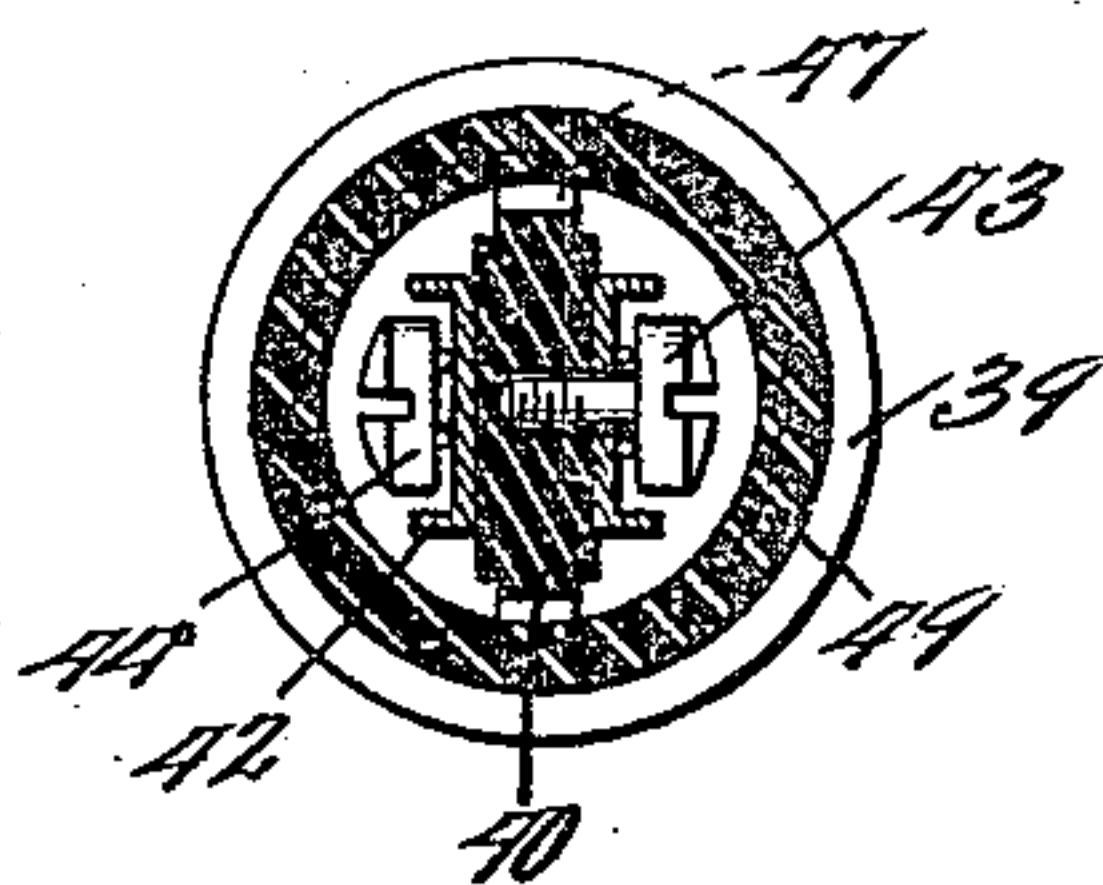
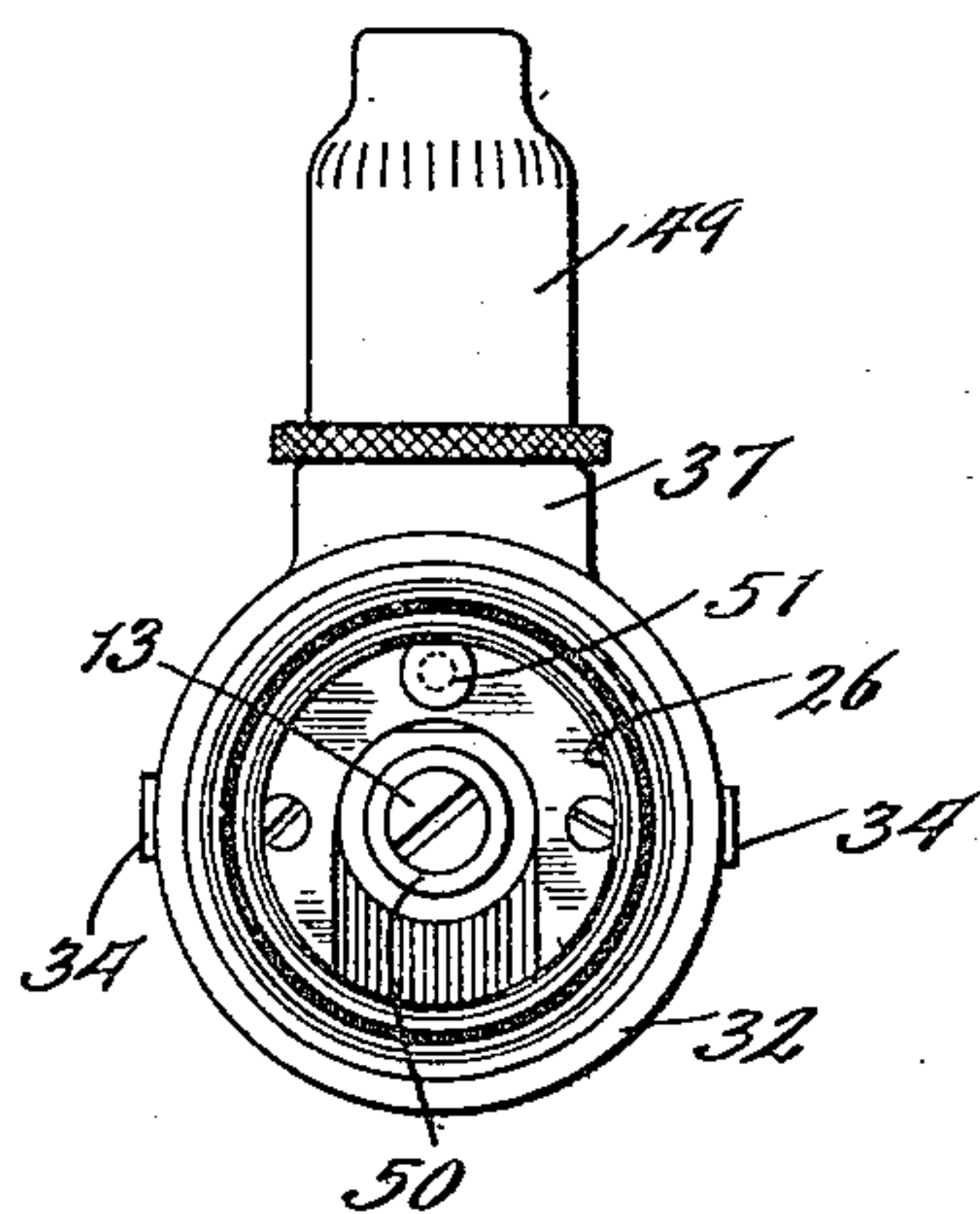


Fig. 7.

Fig. 8.

Fig. 9.



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CURRENT-TAP.

990,420.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed June 28, 1909. Serial No. 504,734.

To all whom it may concern:

Be it known that I, REUBEN B. BENJAMIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Current-Taps, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to an improved current tap in which a plug having a threaded contact member, adapted to be screwed into an ordinary electric lamp socket, carries a removable secondary or tapping plug from which may lead wires to a movable electric translating device such as a heater, fan-motor or sad iron.

One of the objects of my invention is to provide a device in which the tapping plug may be made to extend radially in any direction around the axis of the main plug. As current taps are usually made, when the threaded plug with which these devices are provided is screwed into a socket until firmly seated the flexible conductors may lead off from the side of the device at an undesirable point. This would be especially objectionable in a device having a tapping plug extending radially with respect to the threaded plug. If a sudden accidental jerk were given the flexible conductors, as might be the case were a sad iron to fall off a table, the tapping plug should be able to pull out of its receptacle and thus save the device, or the socket into which it was screwed, from damage. This would not be the case were the tapping plug to project upward. Moreover, the tapping plug can be more readily inserted with the right hand of a person on one side of the device than upon the other side, and more readily on the lower than on the upper side. In practice it is usually desired to have the tapping plug and the conductors leading therefrom extend downward.

Another object of the invention is the provision of a device of this kind in which, although good electrical contact is made when the tapping plug is in position, the latter may be withdrawn with but very little strain upon any part of the device, whereby the danger of loosening the socket into which the device is screwed is lessened.

Another object of my invention is the provision of a current tap device of simple, economical and durable construction.

I have illustrated my invention as applied to a device having a socket for receiving a lamp, and a tapping plug extending at a right angle with the socket and the main plug.

In the accompanying drawings—Figure 1 shows a vertical section of the device arranged with the contacts of the socket connected in parallel with the contacts for co-operation with the tapping plug; Fig. 2 shows a section on the line 2—2 of Fig. 1; Fig. 3 is a front end view on a reduced scale; Fig. 4 is a rear end view on a reduced scale, the main plug being omitted; Fig. 5 is a view of a detail; Fig. 6 shows a vertical section of a device made up with the contacts of the socket connected in series with the contacts for coöperation with the tapping plug; Fig. 7 is a front end view of the same on a reduced scale; Fig. 8 is a rear end view on a reduced scale, the main plug being omitted; and Fig. 9 is a cross section on the line 9—9 of Fig. 6.

The device, when made up as illustrated, comprises an insulating base of porcelain or the like to which a plug of similar material is secured by means of a screw passing through both. The plug carries an outer contact and a center contact for engaging the corresponding contacts of the wall socket or other socket with which it is desired to make connection, the center contact of the plug being electrically connected, by means of the above mentioned screw, to a center contact carried by the insulating base. The insulating base carries a threaded lamp receiving socket shell, and is formed with a lateral recess containing spring contacts and forming a receptacle for receiving a tapping plug having spring contacts corresponding to those of the socket. In Figs. 1–5 the spring contacts of the tapping socket are shown as being connected in parallel with the contacts of the lamp receiving socket, while in Figs. 6, 7 and 8 the arrangement is such that a lamp inserted in the socket will be in series with the device to which the tapping plug leads.

Referring now by reference characters to the various parts of the device illustrated in Figs. 1 to 5 inclusive, the insulating plug

11 is connected to the insulating base 12 by means of a screw 13, perfect alinement being secured by the provision, on the base 12, of a boss 14 entering a corresponding recess formed in the plug 11. The center contact 15 of the lamp socket is secured beneath the head of the screw 13 and is provided with a rearward projection 16, bent so as to be U-shaped in cross section, which extends rearwardly and upwardly over a wall 17 into a recess 18 formed in the base 12 and constitutes one of the spring contacts of the tapping plug receptacle. Upon the other end of the screw 13 a nut 19 is threaded, this nut forming the center contact of the plug. The other spring contact of the tapping receptacle consists of a strip 20, also bent so as to be U-shaped in cross section, extending from a metallic ring 21 surrounding the boss 14 and clamped between the plug 11 and base 12. Another metallic ring 22 also surrounds the boss 14 and is in contact with the ring 21, this ring being formed with an arm 23 extending downwardly into a depression 24 formed in the base 12. The arm 23 is bent outwardly at its end to form a lug 24^a through which passes the end of a bolt 25 serving to secure the threaded lamp-receiving shell 26 in place upon the base 12. By this means connection is made between the lamp-receiving shell 26 and the ring 22, and consequently between the shell 26 and the ring 21 and spring contact 20.

Current is supplied to the ring 21, and thus to the spring contact 20 and shell 26, by means of a dish-shaped metallic washer 27 which is clamped upon the ring 21 between the plug 11 and base 12. The washer 27 is formed with an outwardly extending flange 28 adapted to engage over a corresponding inturned flange 29 formed upon the contact sleeve 30 of the plug 11, and thereby retain the contact sleeve 30 upon the plug securely but in such manner as to permit the sleeve to be readily rotated relatively to the plug. Upon the inner end of the sleeve 30 is fixed an insulating ring 31 which is knurled at its periphery to afford a secure grip for the fingers, the inner edge of the sleeve being turned over to securely hold the ring 31 in place.

Surrounding the base 12 and the sleeve 26 is a casing 32 of ordinary construction, between which and the shell 26 is inserted an insulating lining 33 of fiber or the like. The casing 32 is formed with catches 34 adapted to engage beneath the bead 35 of a cap 36 which is placed over the inner end of the base 12 and retained in position by the ring 31. An insulating ring 37 is placed between the inturned edge of the cap 36 and the base 12. Current from the threaded sleeve 30 passes by way of the dished washer 27 to the rings 21 and 22, where it divides and passes to the spring contact 20 of the

tapping receptacle and to the lamp-receiving socket shell 26. The other spring contact 16 of the tapping receptacle and the center contact 15 of the lamp socket are in electrical connection with each other and are connected to the center contact 19 of the plug by means of the screw 13.

It will be seen that the device may be attached to an ordinary wall socket by screwing the sleeve 30 into the same until the center contact 19 of the plug is forced against the center contact of the wall socket, without turning the body of the device. Thus it is possible to connect the device to a wall receptacle in such manner that the tapping plug extends in any desired direction. Moreover, the arrangement of parts by which the result is obtained is simple and the socket may be economically manufactured.

The cover 32 is formed with a hollow boss 37 so disposed as to come opposite the recess 18 of the base when the cover is placed in position. The upper end of this boss is closed by an insulating plate 38 having formed therein an aperture of sufficient size to admit the end of the tapping plug. The tapping plug comprises a disk 39 made of insulating material through which passes a flat insulating shank 40. Secured upon opposite sides of the shank 40 and also passing through the disk 39 are a pair of spring metal strips or fingers 41 and 42 constituting contacts of the tapping plug, the ends of these contact fingers being bent outwardly to form humps for engaging under the ends of the spring contacts 20 and 16 respectively of the tapping receptacle, with which receptacle contacts the fingers are adapted to engage when they, together with the insulating shank 40, are pushed through the opening of the insulating disk 38 into the recess of the insulating base. The humps upon the ends of the contact fingers 41 and 42 serve to retain the tapping plug firmly in position, but the resiliency of these parts is sufficient to allow them to spring toward each other when a slight pull is exerted upon the plug and thus enable the plug to be readily withdrawn. The insulating shank 40 is extended slightly beyond the ends of the contact fingers 41 and 42 in order to preclude any chance of short circuiting by reason of the fingers coming together.

The outer ends of the contacts 41 and 42 are provided with binding terminals, 43 and 44 respectively, beneath which are secured the ends of the conductors 45 and 46 which lead to the lamp, motor, or other translating device which is to be fed with current. The edges of the shank 40 at the part thereof adjacent the disk 39 are formed with screw threads 47 (see Fig. 9) with which engage corresponding screw threads 48 of a cap 49 which incloses the outer end

of the shank 40, the outer ends of the contact strips or fingers 41 and 42, and the binding terminals of these contact strips. The cap 49 is formed at its outer end with an opening of just sufficient size for the passage of the conductors 45 and 46. The length of the shank 40 and the inside depth of the cap 49 are such that the upper end of the shank will come into close proximity with the inner edge of the opening of the cap 49 when the latter is screwed in place upon the shank 40, and the conductors 45 and 46 will then be firmly gripped between the shank 40 and the inner edge of the opening of the cap 49, as will be readily understood by reference to Fig. 1.

The features of a firm conductor grip and ready detachability of the tapping plug from its receptacle are of considerable importance in devices of this character, since such devices are often employed in connection with heavy electrical appliances, such as massage instruments, sad irons, and the like, and in case the appliance is dropped or the user should give a sudden pull upon the conductors, the latter are liable to be wholly or partly pulled away from the binding terminals, thus rendering repairs necessary and a short circuit probable. With the above described device any heavy pull upon the conductors would simply cause the plug to be withdrawn from its receptacle. This advantage is not only due to the fact that the conductors are firmly gripped in the plug and the plug readily detachable from its receptacle but is also largely due to the possibility of causing the tapping plug to extend toward the translating device or in any other direction desired.

The series device shown in Figs. 6, 7 and 8 is similar in its general characteristics to that shown in the preceding figures and described above, but in this case the center contact 50 consists simply of a washer and is not connected to either of the spring contacts of the tapping receptacle. To the lamp receiving shell 26 is connected, by means of a rivet 51, a rearwardly extending spring strip 52 which forms one of the spring contacts of the tapping receptacle and corresponds to the spring strip 16 of the parallel form of device. The ring 22 with its downwardly extending arm 23 and lug 24 is replaced by a simple washer 53. It will be understood that current from the threaded sleeve 30 of the plug will pass by way of the dished washer 27 to the ring 21, thence by the spring contact 20 to the tapping plug contact finger 41, through the translating device to the other finger 42, thence by spring contact 52 to the lamp receiving socket shell 26, through the lamp to the center contact 50 of the lamp receiving socket, and thence by way of the screw 13 to the center plug contact 19.

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

1. A plug lamp socket comprising, in combination, an insulating base having a center contact upon one side thereof, a threaded contact rotatably mounted on said base and arranged to cooperate with said base and said center contact to form a plug adapted for insertion into a wall socket, a center contact carried by the opposite side of said base and connected with said first-named center contact, a threaded lamp receiving contact carried by said base and arranged to cooperate with said last-named center contact and said base to form a lamp socket, a tapping contact associated with said last-named center contact, a second tapping contact member arranged to slidably engage said rotatable threaded contact, said tapping contacts being spaced apart, and a tapping plug having a pair of tapping contacts arranged to be inserted between said first-named tapping contacts for the purposes set forth.

2. A plug lamp socket comprising, in combination, an insulating base having a center contact upon one side thereof, a threaded contact rotatably mounted upon said base and arranged to cooperate with said center contact to form a plug adapted for insertion into a wall socket, a center contact upon the opposite side of said base and connected with said first-named center contact, said last-named center contact being provided with an extension forming a tapping contact, a threaded lamp receiving shell mounted upon said base and arranged to cooperate with said last-named center contact and said base to form a lamp socket, a ring mounted upon said base and having sliding engagement with said rotatable threaded contact, said ring being provided with an extension forming a second tapping contact, and a plug having a pair of tapping contacts arranged to be inserted between said first-named tapping contacts.

3. A plug lamp socket comprising, in combination, an insulating base having a center contact upon one side thereof and having a recess therein, a threaded contact rotatably mounted on said base and arranged to cooperate with said base and said center contact to form a plug adapted for insertion into a wall socket, a center contact carried upon the opposite side of said base and connected with said first-named center contact, said last-named center contact being provided with an extension arranged to be located in said recess and forming a tapping contact, a threaded lamp-receiving shell mounted upon said base and arranged to cooperate with said last-named contact and said base to form a lamp socket, a ring mounted upon said base and having sliding

engagement with said rotatable threaded
contact, said ring being provided with an
extension arranged to enter the recess of
said base and form a second tapping con-
5 tact, and a plug having a pair of tapping
contacts arranged to be inserted between
said first-named tapping contacts.

In witness whereof, I have hereunto sub-
scribed my name in the presence of two wit-
nesses.

REUBEN B. BENJAMIN.

Witnesses:

CHARLES G. COPE,

CHARLES L. HOPKINS.