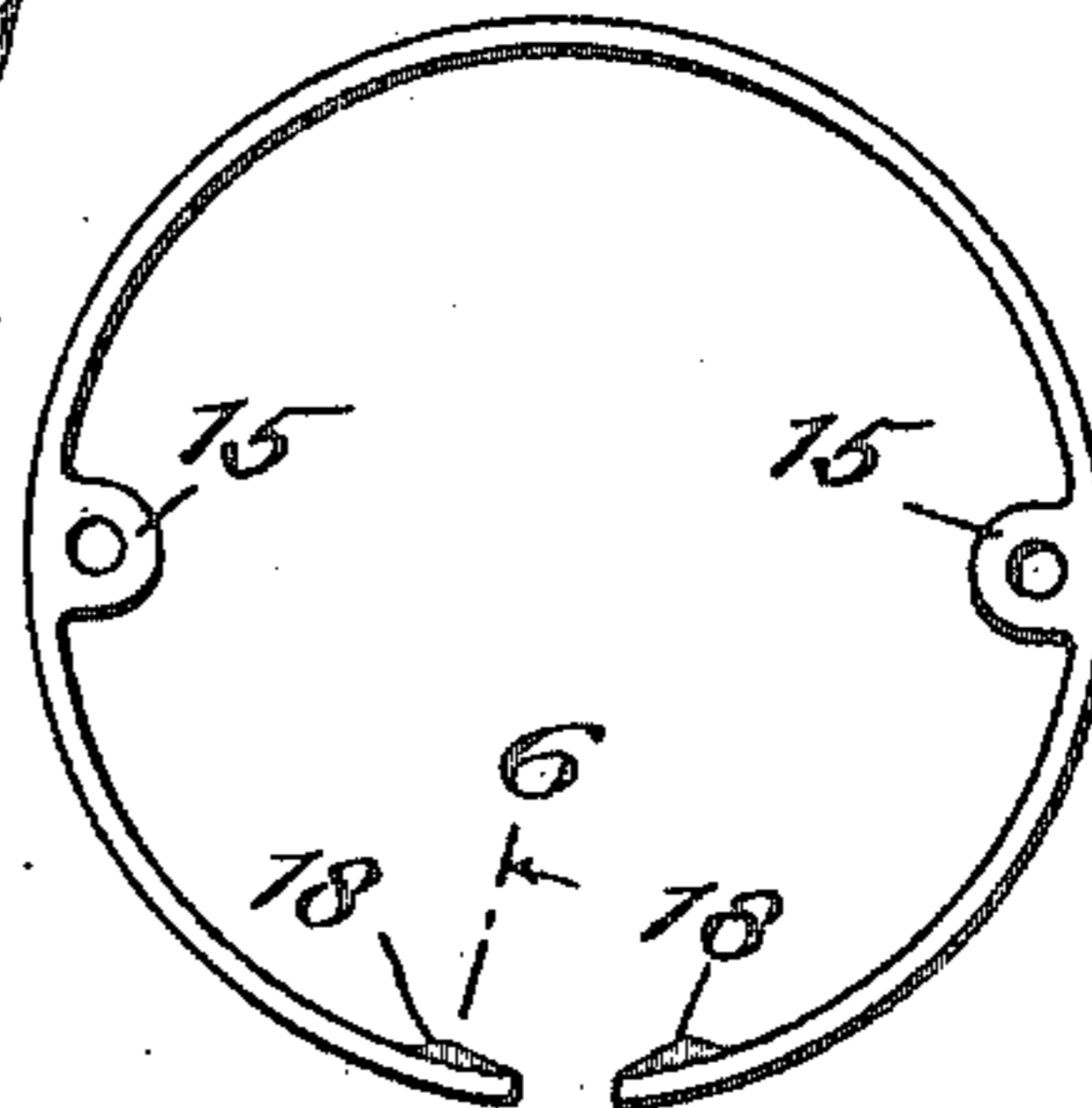
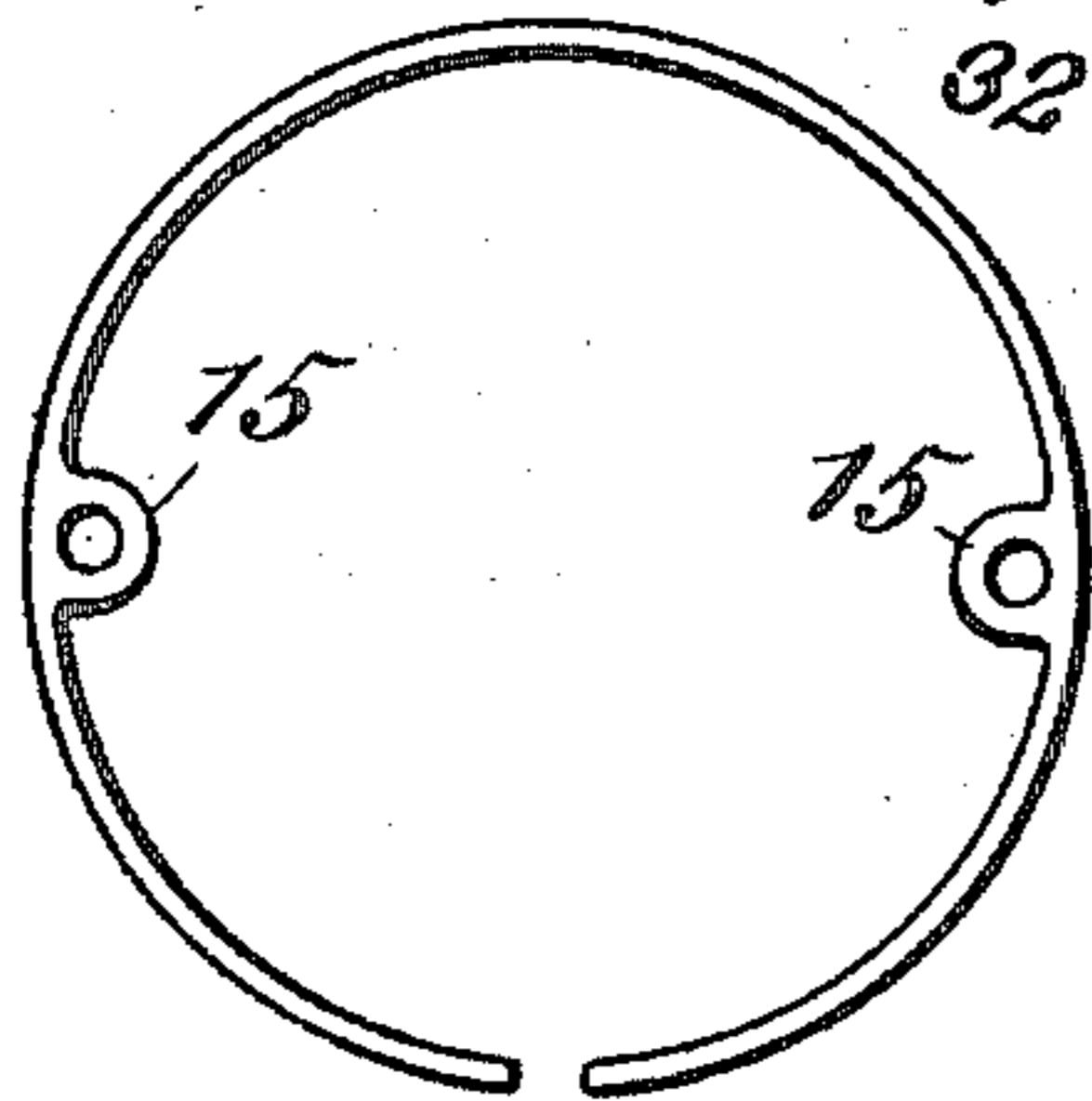
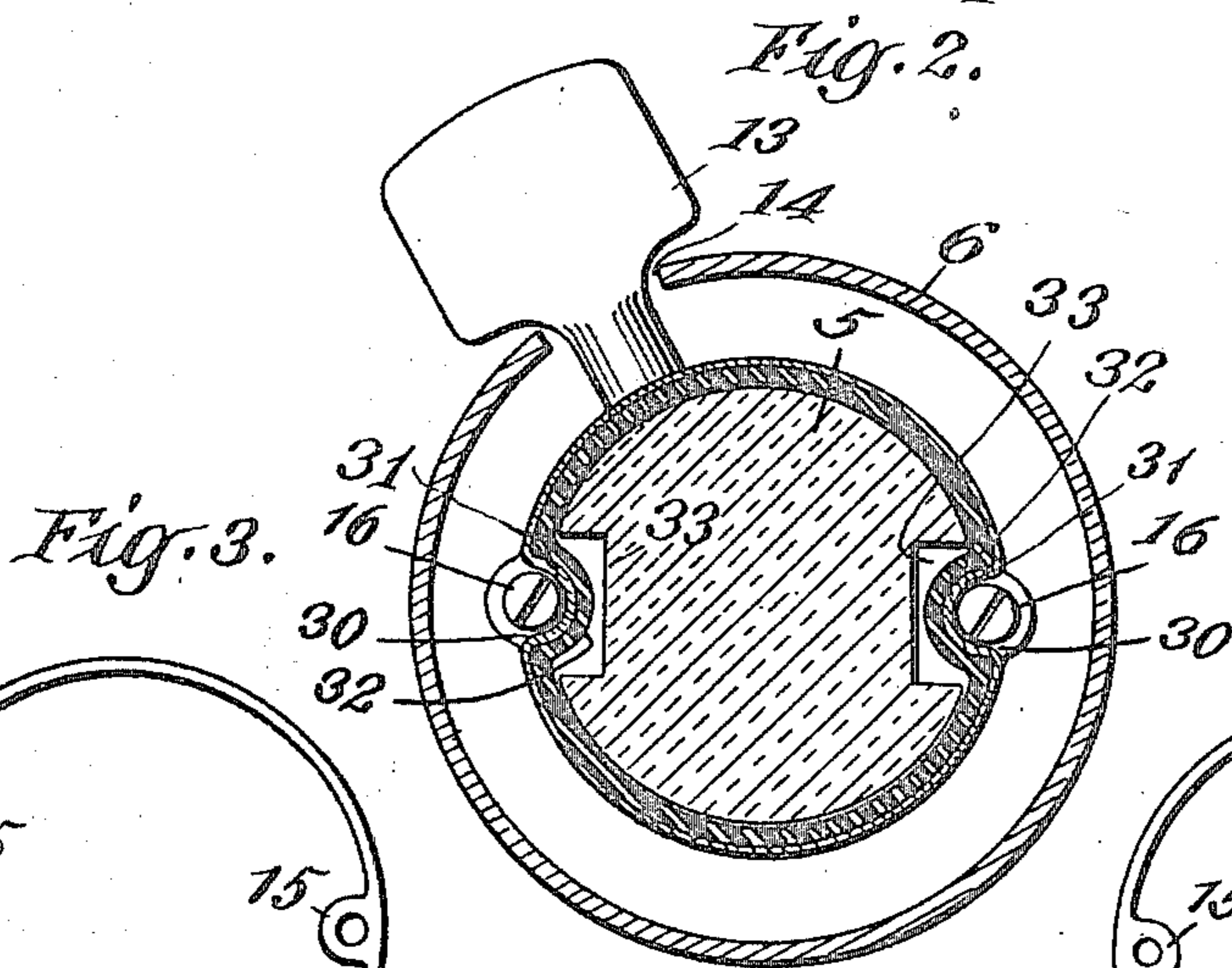
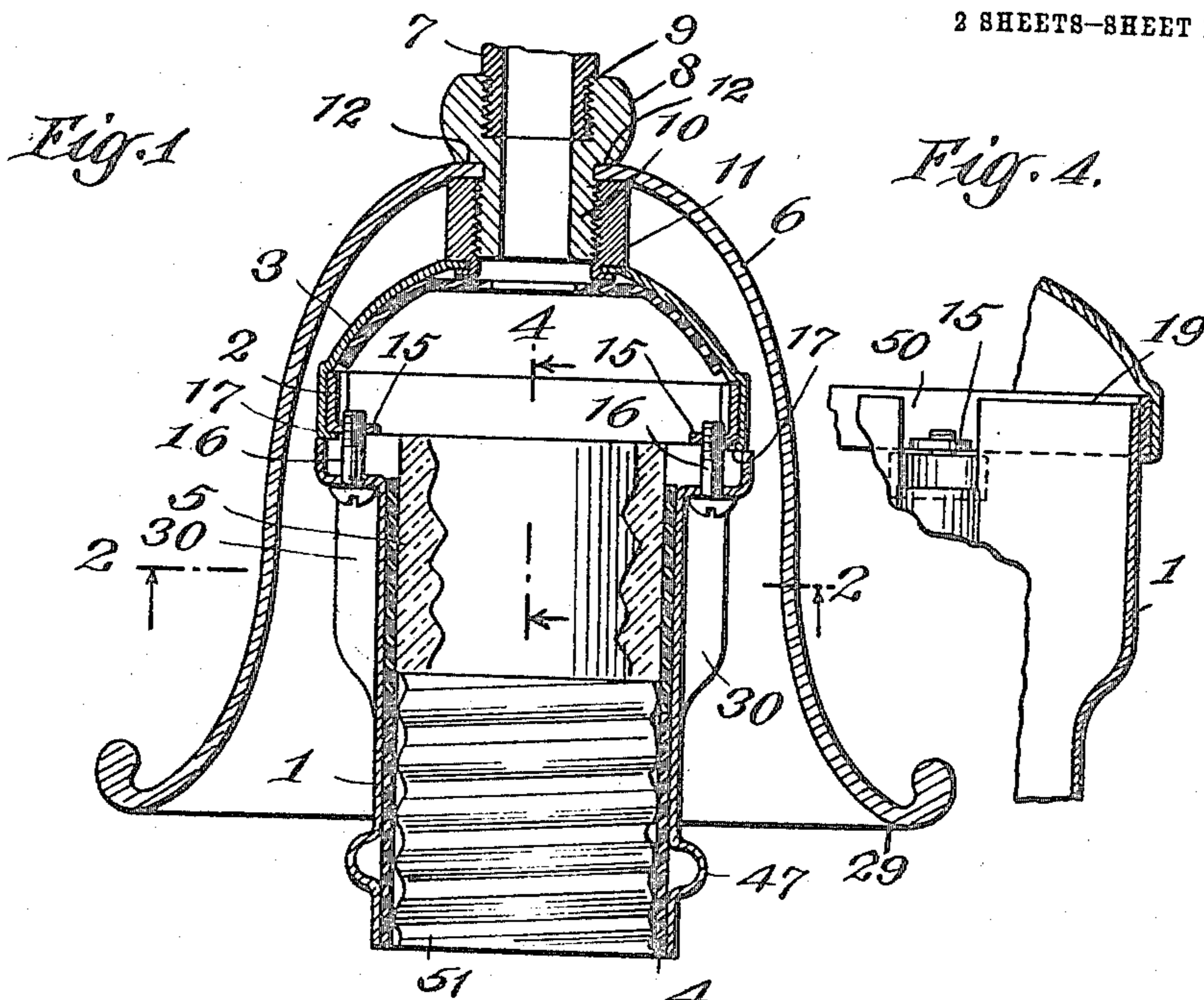


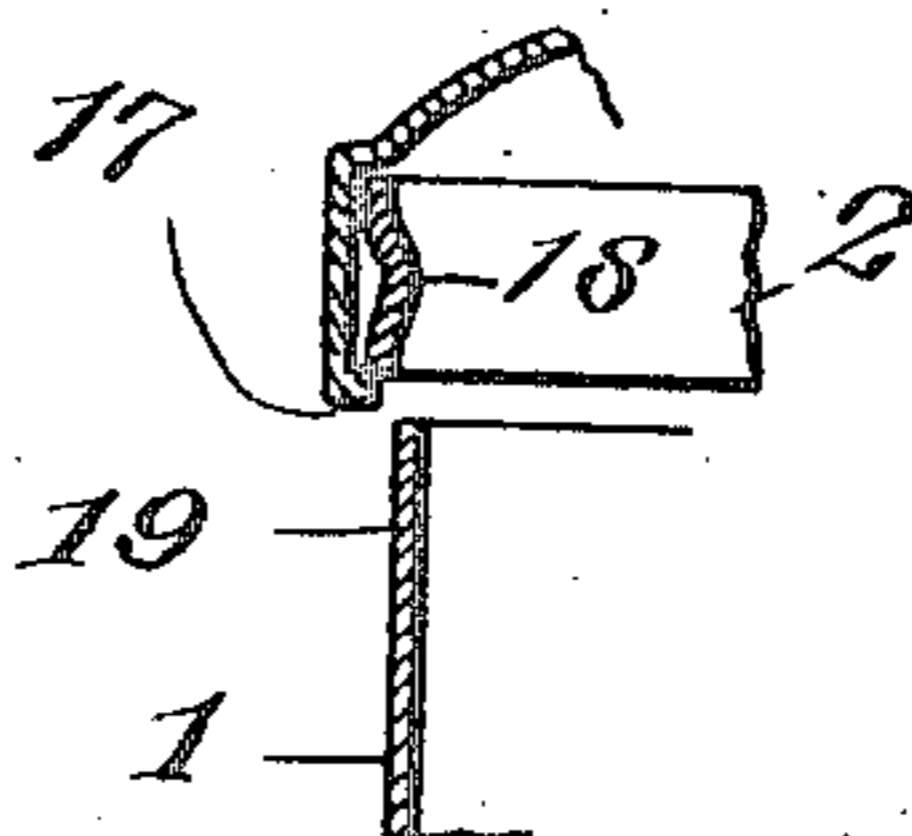
T. A. C. BOTH.  
 LOOK FOR SOCKET SHELLS.  
 APPLICATION FILED APR. 29, 1911.

997,598.

Patented July 11, 1911.  
 2 SHEETS—SHEET 1.



WITNESSES  
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 2 SHEETS—SHEET 2.

Fig. 7

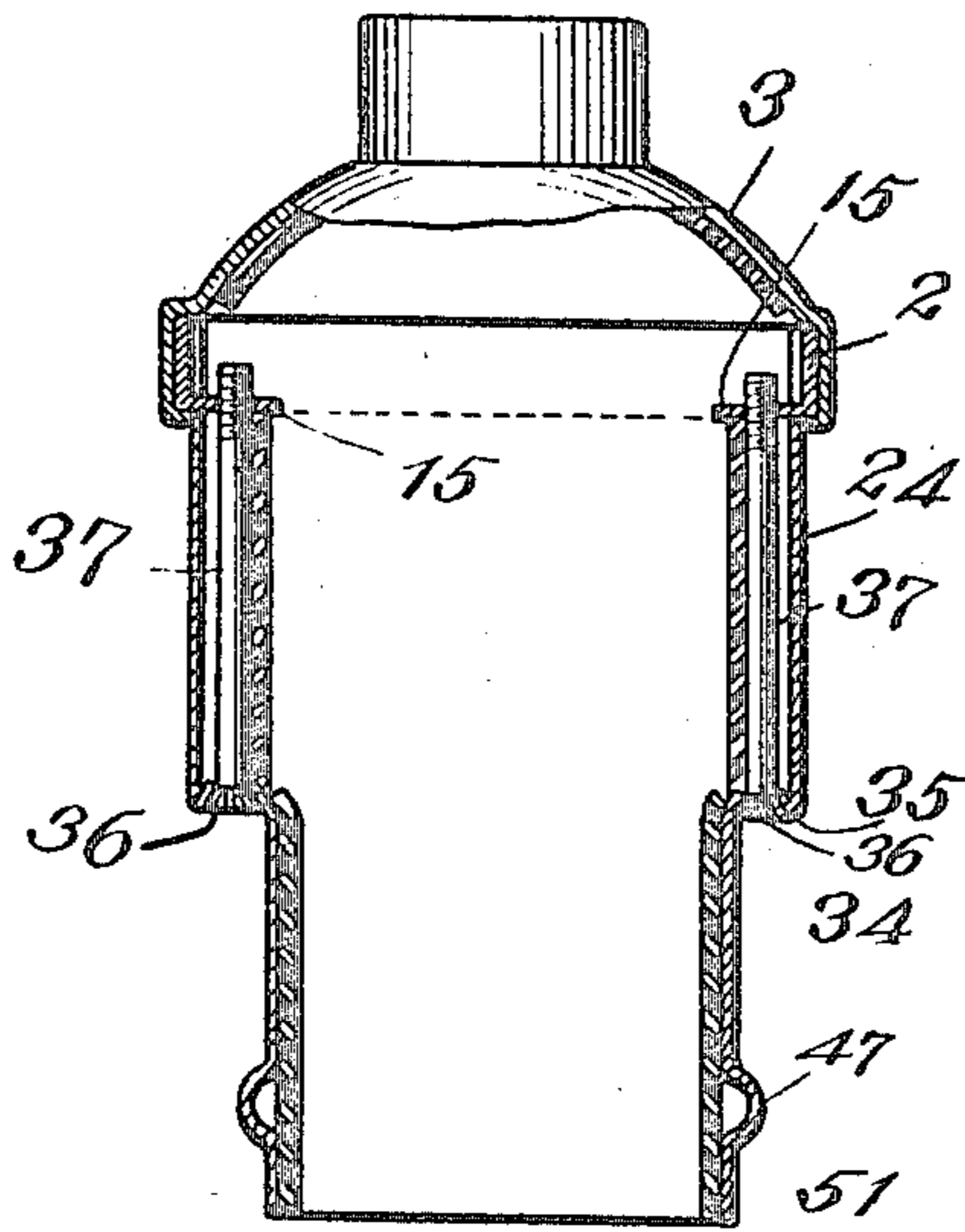


Fig. 8.

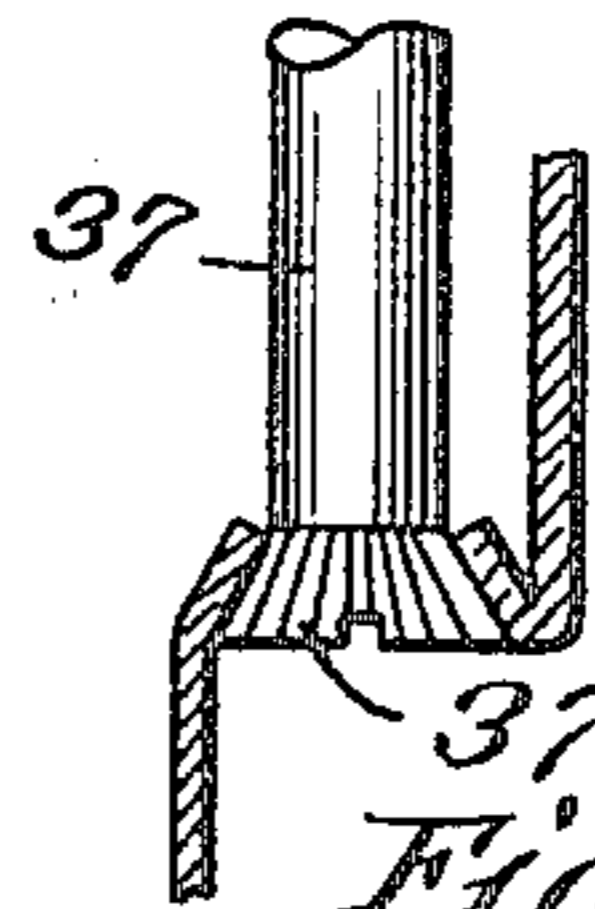


Fig. 9.

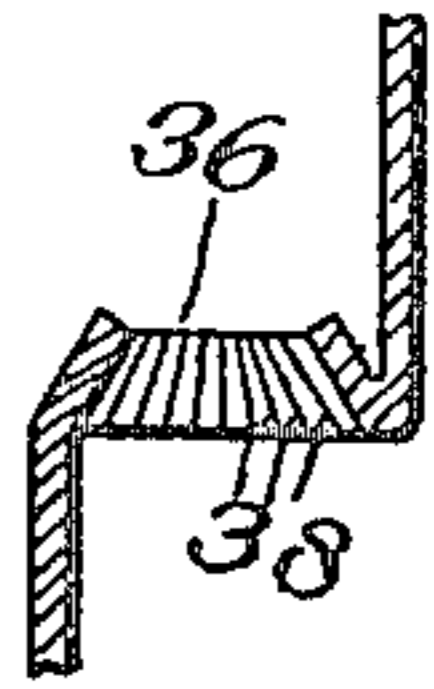


Fig. 10.

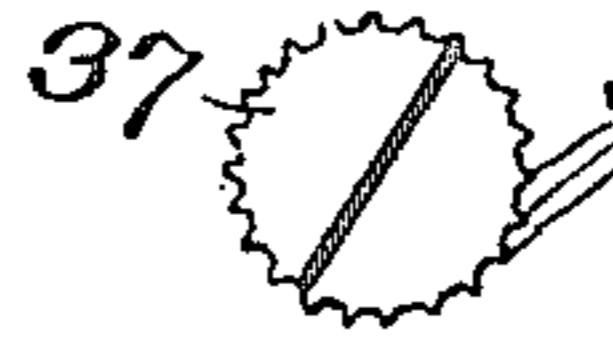


Fig. 12.

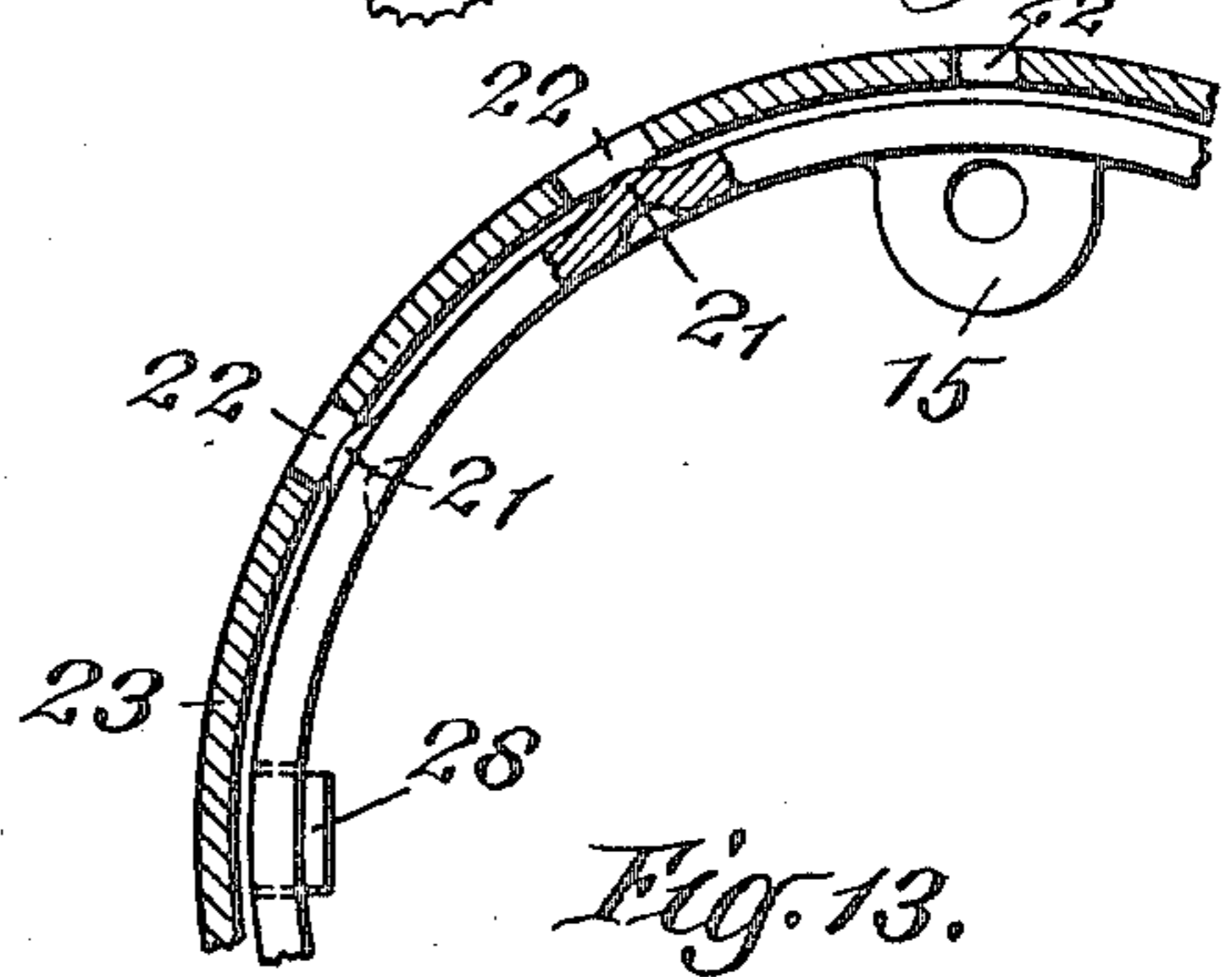


Fig. 13.

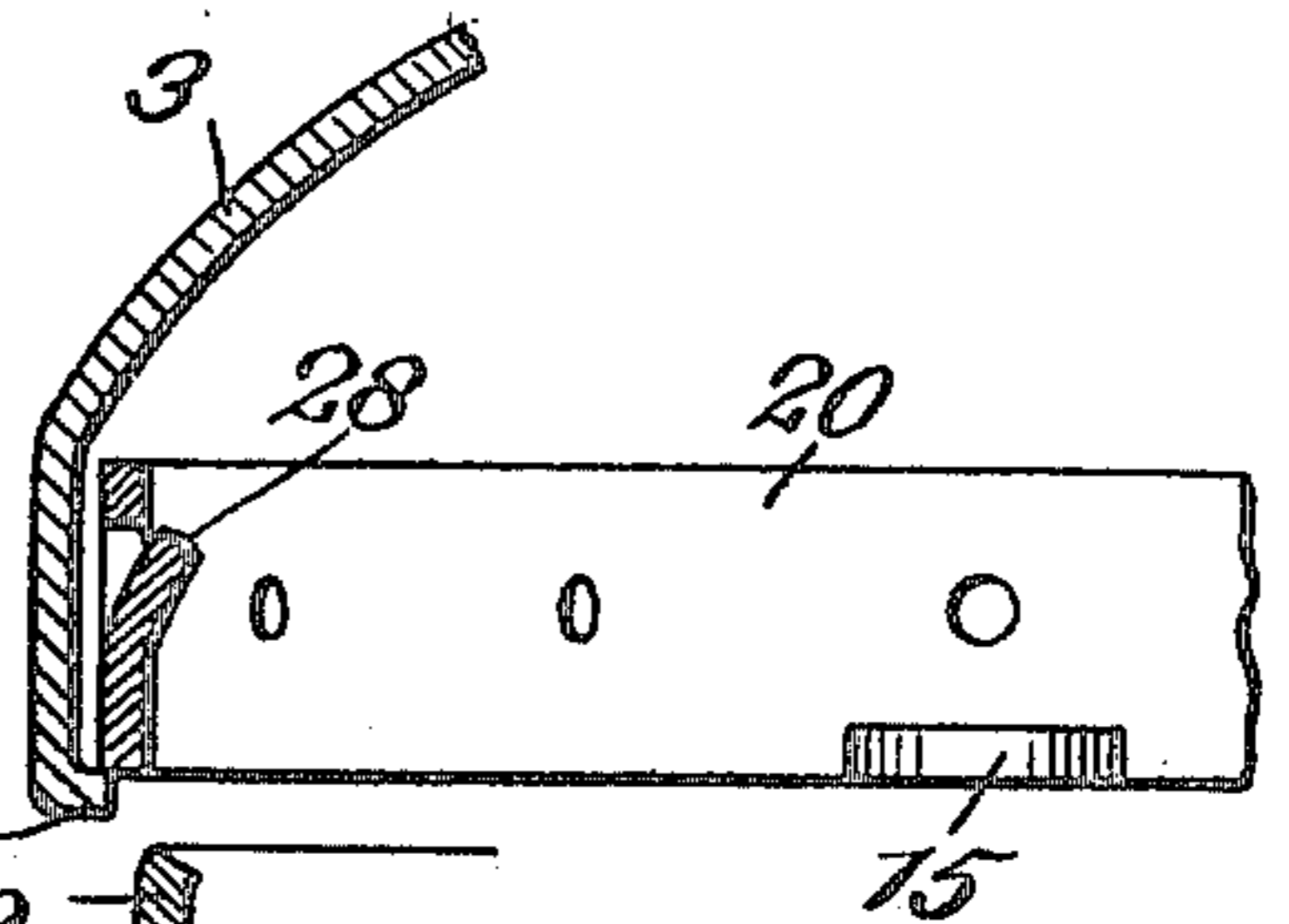


Fig. 15.

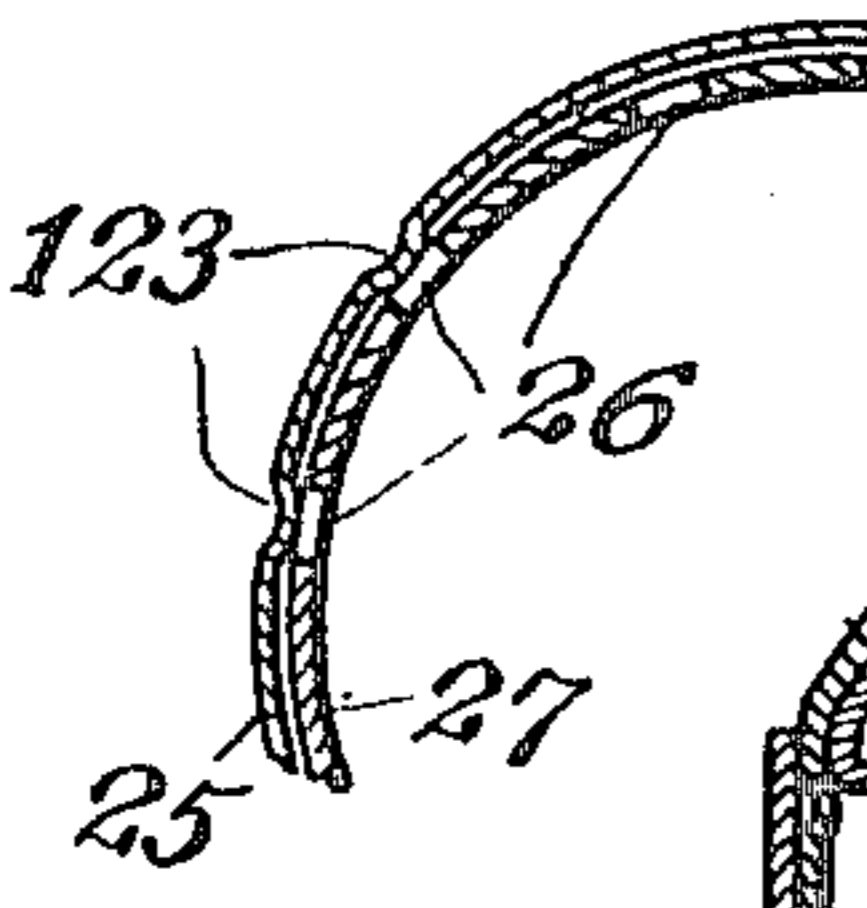


Fig. 11.

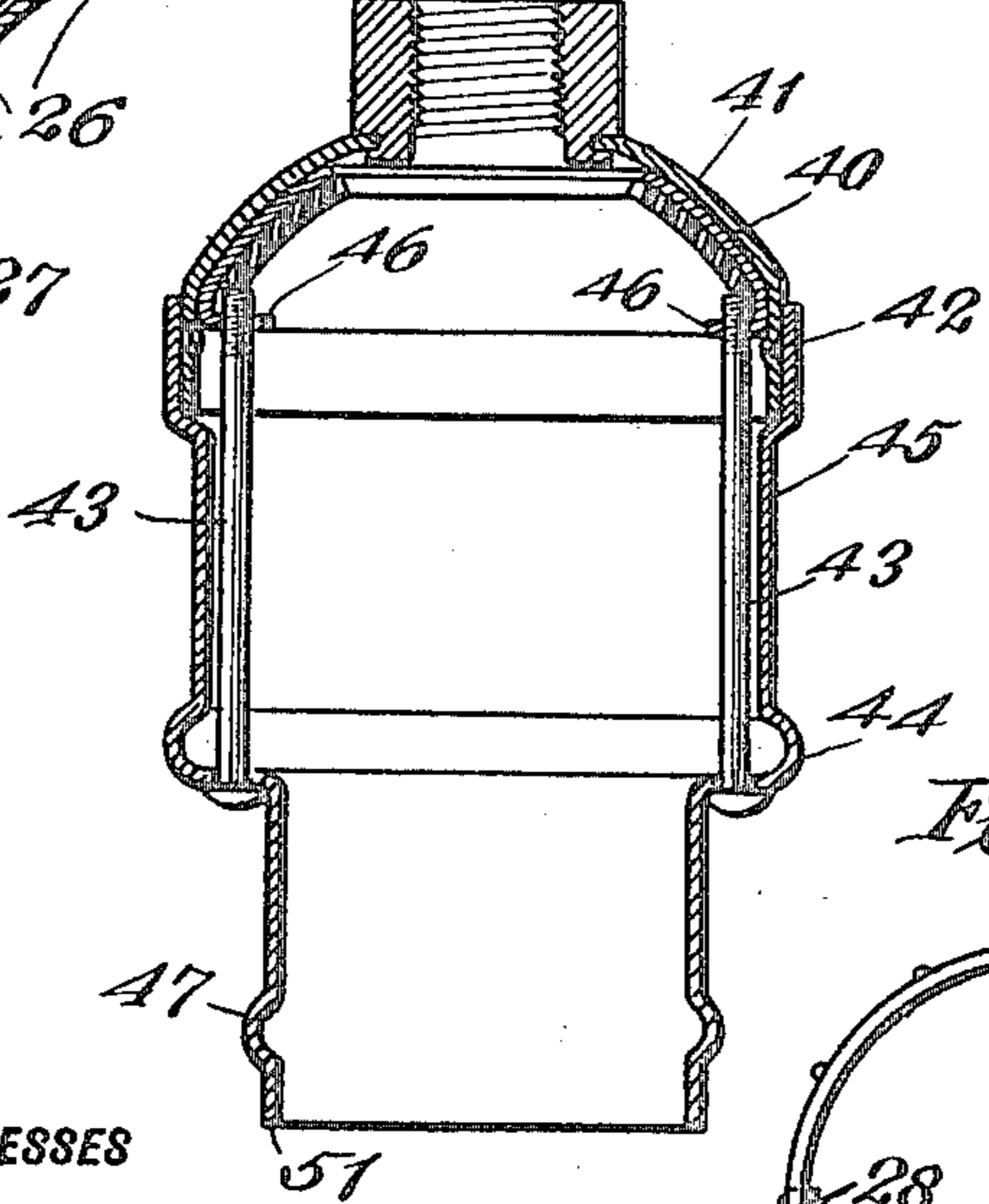
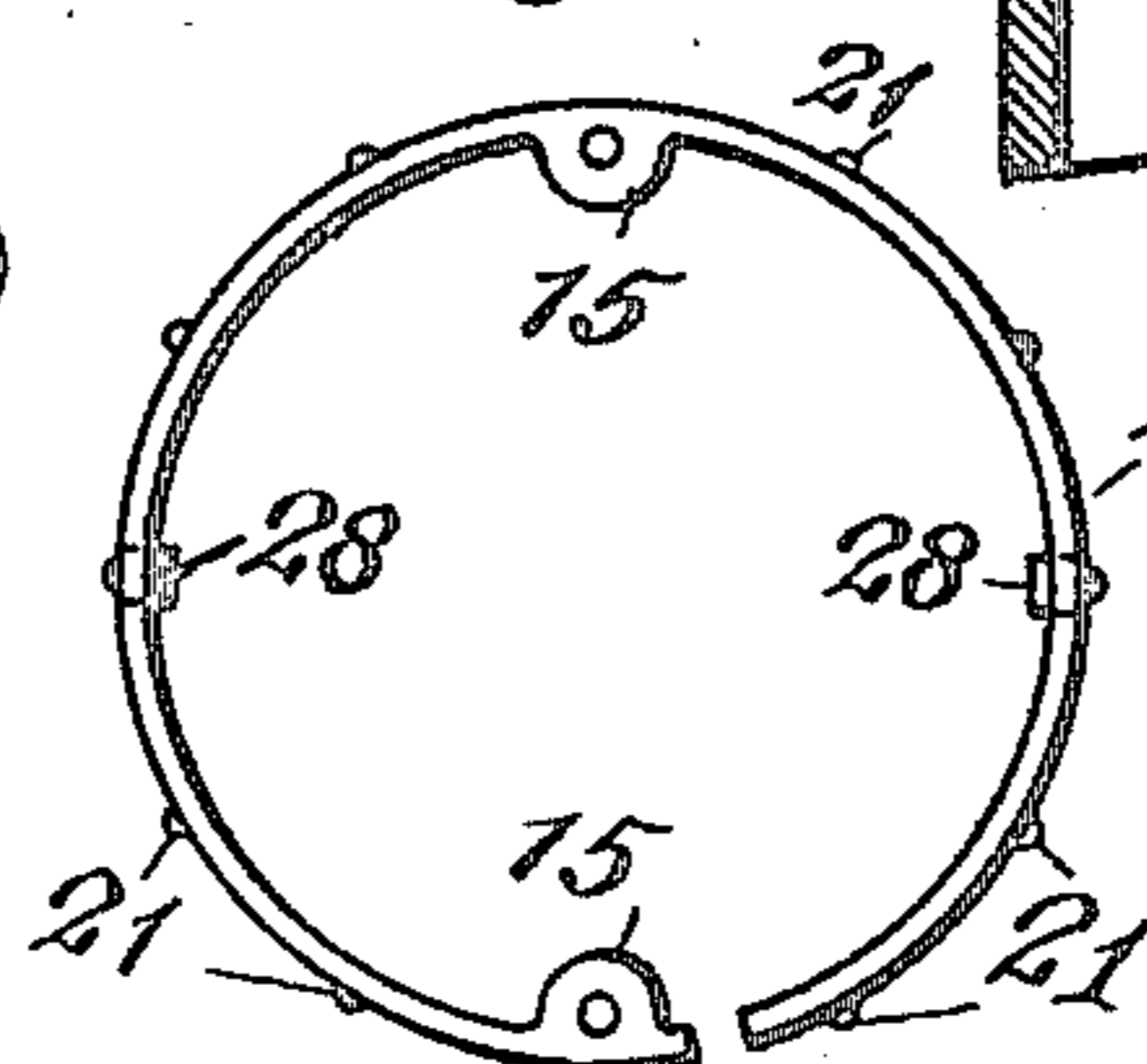


Fig. 14.



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# UNITED STATES PATENT OFFICE.

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## LOCK FOR SOCKET-SHELLS.

997,598.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed April 29, 1911. Serial No. 624,025.

*To all whom it may concern:*

Be it known that I, TONJES AUGUST CARL BOTH, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Locks for Socket-Shell, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to sockets for electric lights, and more particularly to a locking mechanism between the shell and cap which will always be readily accessible to permit engagement or disengagement of the shell and cap, even though the socket be used with some surrounding member, for ornamental or other purposes, which is usually termed in the art a "husk."

It further relates to such a locking mechanism which does not directly secure the cap and shell together, but does so by means of some additional element which is preferably, though not necessarily, in the form of a ring mounted on the interior of the cap and having at first an independent movement with relation to it. After the shell has been adjusted, regardless of the then position of the ring, to readily permit a key carried by it to register with an opening in a husk, the ring is rotated, with relation to the cap, if necessary, to bring its securing means into register with those carried by the shell, in which position of the parts the ring is locked in any suitable manner to prevent relative rotation between the cap and shell. This locking of the ring is preferably, though not necessarily, done automatically by the insertion of the shell into the cap or locking ring.

My invention further relates to certain details of construction which will be hereinafter more fully pointed out in the specification and set forth in the claims.

In the accompanying drawings showing illustrative embodiments of my invention and in which the same reference numerals refer to similar parts in the several figures,—Figure 1 is a vertical section through an electric light socket provided with my invention, the socket being shown mounted in a husk; Fig. 2 is a horizontal section on line 2—2 of Fig. 1 looking in the direction of the arrows; Fig. 3 is a detail plan view of

the ring which is preferably, though not necessarily, split; Fig. 4 is a detail fragmentary vertical section on line 4—4 of Fig. 1; Fig. 5 is a detail plan view of a ring such as shown in Fig. 3, with the addition of ridges or teats; Fig. 6 is a detail fragmentary vertical section of a cap and ring such as shown in Fig. 5, together with a section of the shell which coöperates with it, the view of the ring being taken on line 6—6 of Fig. 5; Fig. 7 is a vertical section showing a modified form of locking mechanism; Fig. 8 is a detail enlarged view of a portion of the mechanism shown in Fig. 7; Fig. 9 is a detail vertical section, on an enlarged scale, showing a portion of the shell in Fig. 7, provided with serrations to coöperate with these mounted on the head of the screws, Figs. 8 and 10; Fig. 10 is a detail plan view of the head of the screw used with this form of my invention; Fig. 11 is a vertical section of another modified form of locking mechanism; Fig. 12 is a fragmentary view on an enlarged scale of a modified form of ring and cap; Fig. 13 is a fragmentary vertical section of the ring shown in Fig. 12 and a portion of the shell which coöperates with it; Fig. 14 is a plan view of the ring shown in Figs. 12 and 13; and Fig. 15 is a fragmentary view of a modification showing the reversed arrangement of holes and indentations from that shown in Fig. 12.

In the illustrative embodiments of my invention shown in the drawing, 1 is a socket shell connected to a ring 2, the latter being adjustably mounted in the cap 3 but being adapted to be held from relative movement with relation to the cap when the parts are secured together. The shell is provided with the usual insulation 4, and insulating block 5 which is usually of porcelain and which carries the switch mechanism, not shown.

In practice it is customary to use the electric light socket with a surrounding husk 6 which may have any desired contour and be used simply for purposes of ornamentation or to carry the electric light shade as is well known in the art. The husk and socket are commonly mounted upon a hollow fixture 7, through which the feed wires are passed (not shown), which wires are connected to the binding posts (not shown) carried by the insulating

block 5. The usual procedure of mounting the husk and cap on the fixture 7 is by means of a nozzle 8 provided with female screw threads 9 to cooperate with the male screw threads mounted on the fixture 7. The lower portion 10 of the nozzle is provided with exterior male screw threads to cooperate with the interior threads upon the nipple 11 of the cap 3. The husk 6 which is in the form of a bell is slipped over the extension 10 of the nipple and is clamped between the nipple 11 and the shoulder 12 of the nipple by screwing the nipple upon the lower portion 10 of the nozzle until the husk is firmly clamped so that it cannot rotate. The feed wires are then passed through the nipple and their ends properly secured to the binding screws (not shown) carried by the block 5, when the shell with its block is secured to the cap 3 which has already been mounted upon the nipple, as previously described.

It has been found in practice that if the socket is provided with a key 13 it is very difficult to assemble the parts in the husk so that the key will register with the opening 14 in the husk 6, Fig. 2. This has resulted in a great waste of the electrician's time, for in a workmanlike job it is essential that the key 13 be made not only to pass through the opening 14 in the husk, but the husk must be firmly and non-rotatably secured on the nozzle 8.

By my invention I secure the shell 1 to a separate interior locking ring 2 which can be first readily rotated with relation to the cap 3 to bring the ears 15, 15 into register with the locking screws 16, 16 entirely regardless of the position that the cap 3 may assume rotatably, to bind the husk 6 against the shoulder 12 of the nozzle. By my invention, therefore, the electrician simply assembles the husk and cap 3 in the manner previously described and secures the husk in its final position by means of the cap 3. He then, if necessary, with a screw driver or with his fingers, rotates the locking ring 2 into a position where its ears 15, 15 will register with the screws 16, 16, it, of course, being understood that the shell 1 with the screws 16, 16 has first been brought into a position so that the key 13 can be forced through the opening 14 of the husk.

After the shell 1 has been secured to the ring 2 it is desirable to then secure it against rotation with relation to the cap 3. If the locking ring 2 should not, after it has been adjusted, be prevented from such relative movement, the shell 1 would continue to have a relative movement with relation to the cap 3 which, while permissible in some instances, is as a rule to be avoided, for accidental blows upon the shell 1, or movements of it, due to cleaning, or

other causes, would tend to disconnect the feed wires from their binding post and form short circuits, or otherwise impair the structure. I, therefore, after adjusting the ring 2, lock it to the cap 3 in any suitable manner. This ring 2 is secured to the cap by means of the inturned flange 17, Fig. 1. It is obvious that by screwing up on the locking screws 16, 16 this ring can be made to bind the inturned flange 17 to such an extent as to prevent its relative rotation with relation to the cap. This inturned flange 17 forms the mouth of the cap.

In addition to the action of the locking screws 16, 16, I may in some cases, though not necessarily, provide the ring 2 with ridges or teats 18, 18, Fig. 5; preferably, these ridges or teats are formed simply by bending in a portion of the ring, as shown in Fig. 6. It is, therefore, clear that from such a construction the act of assembling the shell 1 in the cap 3 will automatically lock the ring 2 to the shell by the upper portion 19 of the shell cooperating with the inturned ridges or teats 18, Fig. 6, and spreading or expanding the ring 2 against the interior surface of the cap 3. The degree of friction in this form will, of course, depend upon the extent to which the ridges or teats extend within the ring 2. The ring will further be locked to the cap 3 by the friction of the ring on the inturned flanges 17 of the cap, as previously described. The upper portion 19 of the shell 1 is preferably cut away at 50, Fig. 4, to receive the ears 15, 15. In some cases I may also provide locking surfaces between the locking ring and the cap. I have shown for example the locking ring, 20, Fig. 14, provided with a plurality of outwardly projecting bosses 21, 21 which are adapted to be received in the openings 22, 22 in the cap 23, Fig. 12, which is substantially the same as the cap 3 except that it is provided with one or two holes 22 which cooperate with the bosses 21. It is to be readily understood, however, that the locking surfaces between the cap and ring may be reversed. In Fig. 15 I have shown the bosses 123 formed by indentations in the cap 25 cooperating with holes 26 in the ring 27. Preferably, there are an uneven number of locking surfaces between the ring and the cap, one or two such locking surfaces being provided on the cap with a greater number on the locking ring. In both these forms I preferably, though not necessarily, provide an inclined lug 28, extending within the ring to cooperate with the upper edge 19 of the shell 1. This inclined lug may be formed in various ways, such as by stamping it out of the ring, Fig. 13. By this form of my invention the cap and husk are secured in the manner previously described and the locking ring is then brought into position to register with the

locking screws 16, 16, after the key 13 has been passed through the opening 14 in the husk. Upon bringing the shell 1 into its proper position within the cap, the upper surface 19 of the shell 1 will automatically cause the ring 20 or 27, as the case may be, to expand and cause the locking bosses and holes to cooperate to prevent further relative rotation of the locking ring and the shell with relation to the cap; it is immaterial whether the bosses or holes are formed upon the cap or upon the ring, Figs. 12 and 15. In either form, the locking ring will be positively held from rotation. It is, of course, to be understood that the inclined lug 28 may be omitted, the diameter of the ring and shell being such that the shell 1 itself will expand the ring and bring the locking surfaces into engagement when the shell and cap are assembled.

In addition to the locking engagement, just described, there will also be the frictional engagement between the intumed flange 17 and the rings 20 and 27, as the case may be, due to the action of the locking screws, which, in themselves, under all ordinary circumstances, will prevent the rotation of the rings with relation to the cap, it being understood that the bosses and holes on the ring or cap are mere additional features to prevent the rotation of the locking ring and that they may or may not be used as may be found convenient or expedient.

It has been found in practice that in the ordinary form of connecting the shell and cap together when they are mounted in a husk as 6, it is practically impossible to disconnect them, or to do so without damaging the parts. Obviously, no tool can be inserted in the husk and work with any degree of speed or accuracy to release the shell from the cap when such may be desirable for any purpose. Even in what is known as snap shells it is necessary to force a tool up within the husk to release the two members and this often results in the parts being so bent that they will not again register, or if it is feasible to connect them together again, the shell will not assume its proper position with relation to the cap and be equidistant from the rim 29 of the husk.

By my invention I use securing means between the shell 1 and the locking ring 2 which are readily accessible at all times, both to secure the cap and shell together, as well as to release them. One feature of my invention comprises broadly any engaging means between the shell and the cap which will permit ready accessibility to connect or disconnect the shell and cap, particularly when surrounded by a husk. I have shown for example the engaging means between the cap and shell consisting of locking screws 16, 16 and an interior locking ring 2, the locking means or screws extend-

ing longitudinally of the shell and preferably, though not necessarily, are mounted in longitudinal grooves 30, 30 formed by indenting a portion of the shell to form interior ridges 31, 31, Figs. 1 and 2. The insulation 4 is caused to conform to these interior ridges 31, forming similar ridges 32, 32 which are received in the longitudinal slots 33, 33 in the insulating block 5.

Instead of forming longitudinal grooves 30, 30 in the shell 1, I may in some cases form a shell 34, Fig. 7, with a circular shoulder 35 apertured at 36 for the reception of the locking screws 37, 37 which pass into the shell 34 and are concealed by it, their upper ends cooperating with the ears 15, 15 of the ring 2 carried by the cap 3. In this form of my invention I preferably, though not necessarily, form the edges of the apertures 36 with serrations 38, 38 to cooperate with similar serrations 39, 39, Fig. 10, on the screws 37, though, of course, it is to be understood that the serrations both upon the shell and upon the screws may be omitted without departing from my invention. When used they tend to prevent the accidental rotation of the locking screws 37, 37 from any cause.

In some cases I may form a locking ring 40 to conform to the interior curvature of the cap 41, Fig. 11, and secure it from becoming disconnected from the cap by spinning a ridge 42 on the interior surface of the cap beneath the locking ring. In this form of my invention the locking screws 43 pass through a circular shoulder 44 and are concealed by the shell 45, their inner ends cooperating with the ears 46 carried by the locking ring 40. When the longitudinal grooves 30, 30 are not used, the slots 33, 33 receive the locking screws 37, 37 or 43, 43, as the case may be.

In all forms of my invention I preferably, though not necessarily, provide the different shells with a shade ridge 47 to cooperate with the shade holder (not shown) if one is used. The lamp (not shown) is passed through the mouth 51 of the different shells and secured by cooperating screw threads or otherwise. Preferably, in all forms of my invention the cap is formed from one piece of sheet metal and made at one stamping to save cost of material, as well as labor in assembling the parts.

Having thus described this invention in connection with several illustrative embodiments thereof to the details of which I do not desire to be limited, what is claimed as new and what it is desired to secure by Letters Patent is set forth in the appended claims:

1. In electric light sockets the combination of a cap, a shell, and rotatable locking means having a part located beneath the mouth of the cap and above the mouth of

the shell to secure the shell and cap together.

2. In electric light sockets the combination of a cap provided with an interior rotatable locking member, a shell, and locking means to secure the shell and locking member together, said locking means having an engaging part exposed between the mouth of the cap and the mouth of the shell.

3. In electric light sockets the combination of a cap provided with a rotatable locking ring, a shell, and locking means to secure the shell and locking ring together, said locking means having an engaging part mounted and exposed between the mouth of the cap and the mouth of the shell.

4. In electric light sockets the combination of a cap, a shell, and rotatable engaging means for securing them together having an operating portion always accessible and located beneath the mouth of the cap and above the mouth of the shell.

5. In electric light sockets the combination of a shell, a cap, a movable locking ring mounted on the interior of the cap, and engaging means between the shell and locking ring to secure the two together.

6. In electric light sockets the combination of a shell, a cap, a movable locking ring mounted on the interior of the cap, and locking means extending longitudinally of the shell to secure the shell and locking ring together.

7. In electric light sockets the combination of a shell, a cap, a rotatable locking ring mounted on the interior of the cap, engaging means between the shell and rotatable locking ring to secure the two together, and means to prevent the rotation of the locking ring when it has been placed in its adjusted position.

8. In electric light sockets the combination of a shell, a cap provided with a rotatable locking ring mounted upon its interior, and means between the shell and

ring operated by the insertion of the shell to prevent the rotation of the locking ring in the cap.

9. In electric light sockets the combination of a shell, a cap provided with a rotatable locking ring, engaging locking surfaces carried by the ring and cap and automatically operated by the insertion of the shell to prevent the rotation of the locking ring in the cap.

10. In an electric light socket the combination of a shell, a cap provided with a normally rotatable locking ring, cooperating ridges, and holes between the cap and ring to prevent the rotation of the locking ring and a shell to expand the locking ring to bring the cooperating ridges and holes into locking position.

11. In an electric light socket the combination of a cap provided with a normally rotatable locking ring, cooperating ridges and holes between the cap and ring to prevent the rotation of the locking ring, and an inclined surface on the ring to cooperate with a shell, and a shell to cooperate with the inclined surfaces and expand the locking ring to bring the cooperating ridges and holes between the locking ring and cap into locking position.

12. In an electric light socket the combination of a shell provided with an apertured shoulder, a cap provided with a normally rotatable locking ring cooperating ridges and holes between the cap and ring to prevent the rotation of the locking ring, the ridges and holes being automatically brought into locking engagement by the insertion of the shell into the cap, and locking means securing the shell to the locking ring, said means having an exposed engaging operating surface between the mouth of the shell and the mouth of the cap.

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Witnesses:

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