T. A. C. BOTH.

SNAP LOCK FOR ELECTRIC SOCKET SHELLS.

APPLICATION FILED APR. 29, 1911.

1,143,937.

Patented June 22, 1915.

2 SHEETS—SHEET 1.

Fig. 1

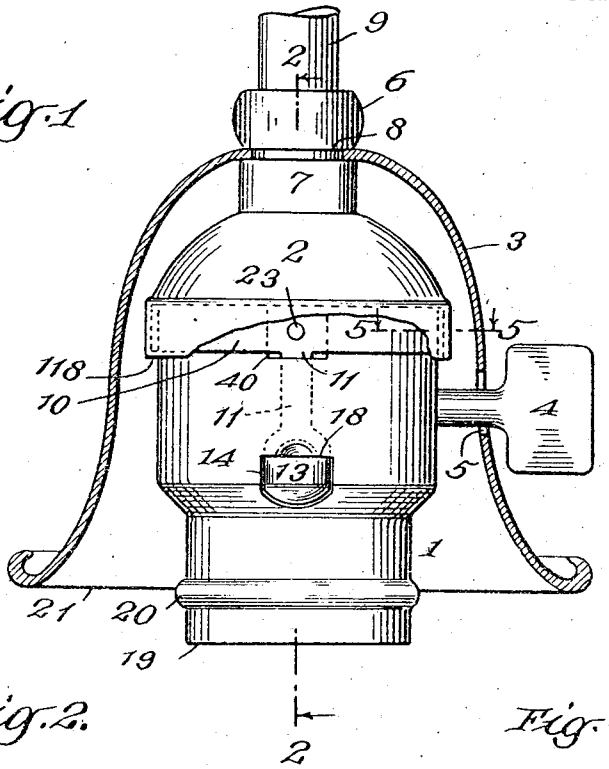
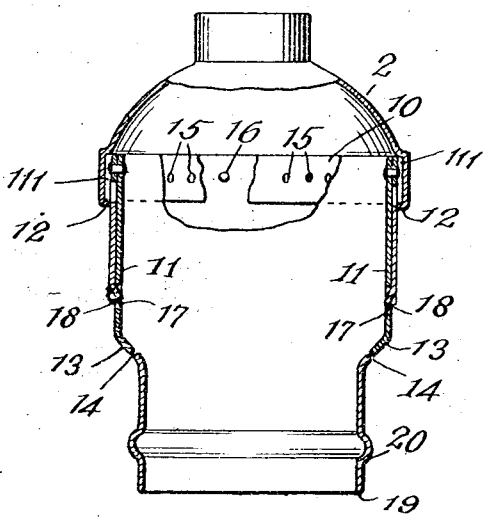
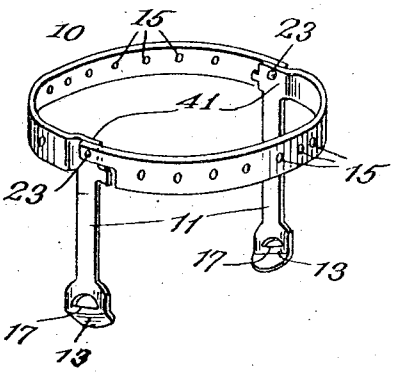


Fig. 2.

Fig. 3.





WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

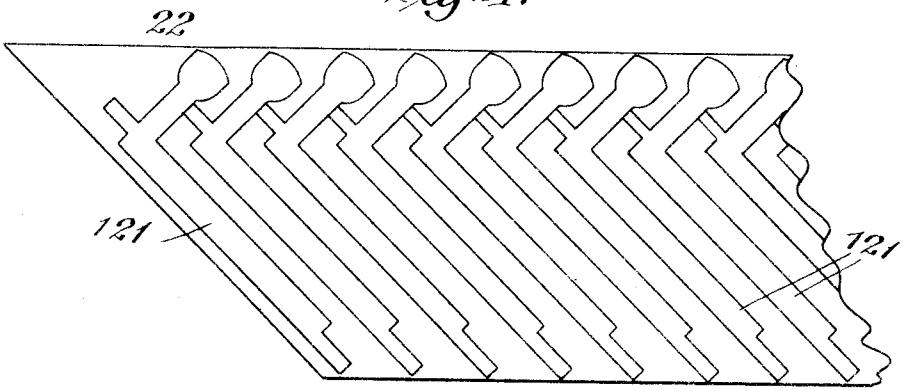


Fig. 5.

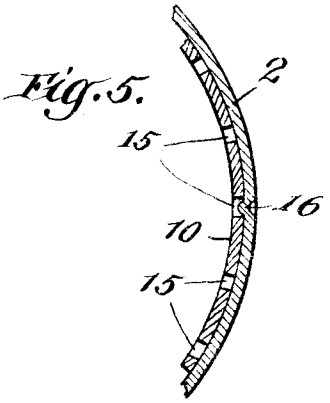


Fig. 6.

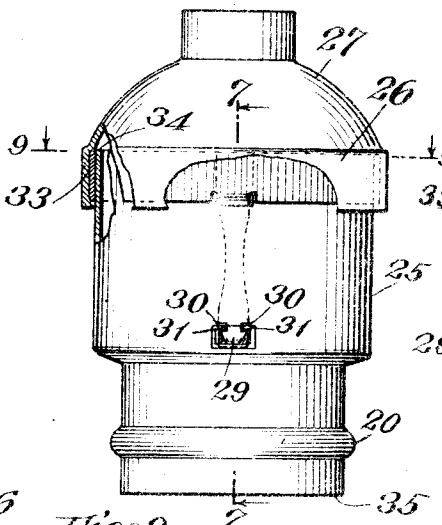


Fig. 7.

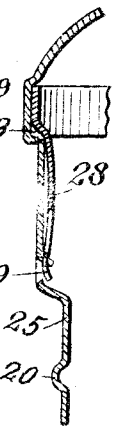


Fig. 8.

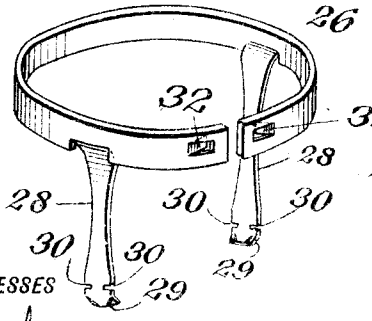


Fig. 9.

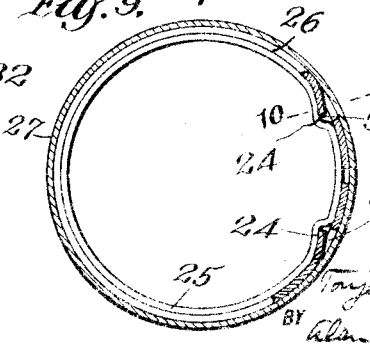


Fig. 10.



WITNESSES

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UNITED STATES PATENT OFFICE.

TONJES AUGUST CARL BOTH, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ZEE SOCKET AND MFG. CO., OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SNAP-LOCK FOR ELECTRIC-SOCKET SHELLS.

1,143,937. Specification of Letters Patent. Patented June 22, 1915.

Application filed April 29, 1911. Serial No. 624,026.

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 Snap-Locks for Electric-Socket Shells, 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 electric light sockets and more particularly to the cap and shell and readily accessible means for securing and disconnecting the shell and cap, even though they be mounted in and surrounded by a husk.

More particularly it relates to a movable locking ring having one or more engaging and disengaging arms having an operating member between the mouth of the cap and the mouth of the shell, or between the mouth of the cap and the shade holder ring, if one is used.

My invention further comprises certain details of construction which will be more fully hereinafter described in the specification and pointed out 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 side elevation of my socket shell, partly broken away for purposes of clearer illustration, and showing it mounted in a husk, which is in vertical section; Fig. 2 is a vertical section through the socket shell on the line 2—2 of Fig. 1; Fig. 3 is a detail perspective view of the preferred form of snap locking ring; Fig. 4 is a plan view of the manner of stamping the sections of the locking ring out of a blank; Fig. 5 is a detail horizontal section on the line 5—5, Fig. 1, showing coöperating engaging surfaces between the locking ring and the cap; Fig. 6 is a side elevation of a modification, partly broken away and partly in section for purposes of clearer illustration; Fig. 7 is a vertical section on the line 7—7 of Fig. 6, looking in the direction of the arrow; Fig. 8 is a detail, perspective view of a modified form of locking ring used in the construction illustrated in Fig. 6; Fig. 9 is a horizontal section on the line 9—9 of Fig. 6 looking in the direction of the arrows; and Fig. 10 is a detail sectional view on line 10—10 of Fig. 9.

In the illustrative embodiments of my invention shown in the drawing, 1 is a shell and 2 is a cap which is preferably stamped out of a single sheet of metal at one stamping to save expense of materials and labor in assembling the parts.

Snap shells, wherein the upper surface of the shell 1 and the lower portion of the cap 2 are provided with serrations or locking surfaces which directly coöperate with each other are well known in the art. When however, these devices are used in conjunction with a surrounding member, such as a husk 3, difficulty is experienced in assembling the parts so that the key 4 will be made to register with the openings 5 in the husk, it being understood, of course, that the husk is secured to the fixed nozzle 6 by means of the nipple 7 clamping it against the shoulder 8 of the nozzle. In assembling the parts it is customary to pass the feed wires through the fixture 9, thence through the nozzle 6 after the husk 3 has been secured into position, by means of screwing up the cap 2. In the majority of instances, when this form of shell is used with a key, it is found when the husk is clamped in position that the key 4 will not register with the opening 5 in the husk 3 and at the same time permit the securing means on the cap and shell to be brought into engagement. This necessitates the re-adjustment of the parts and considerable additional and unnecessary labor by the electrician, for not only has the key 4 to register with the opening 5, but the parts must all be in their proper position and the husk must be securely held from rotation. Even when the cap and shell are properly assembled in a husk, it is practically impossible to disengage them except with a tool and the danger of marring the snap members.

By my invention I use a snap locking ring 10 having one or more depending spring arms 11. While I preferably use two such spring arms, it is, of course, to be understood that one or more such arms may be used as may be found convenient or expedient. This locking ring 10 is rotatably mounted in the seat 111 in the bottom por-

tion of the cap 2, an inturned flange 12 serving to prevent the ring from becoming disconnected from the cap and yet not preventing the relative rotation of the ring with relation to the cap. By the aid of this locking ring the cap 2 may be screwed up so as to hold the husk 3 in its proper position without fear of having the coöperating locking surfaces between the ring and shell reach a position wherein the key 4 would not register with the opening 5 in the husk. After the cap has been secured to the nozzle 6 and the key has been made to pass through the opening 5 of the husk, the locking ring 10 can be readily rotated in its seat 111 by the finger of the operator, until the engaging end 13 registers with the opening 14 in the shell 1 wherever that opening happens to be located with relation to the original position of the spring arm 11. At the same time the cut out portion 40 of the shell will receive the indented portion 41 of the ring to which the arm is connected, preferably by being formed integral with it. Of course, when more than one spring arm 11 is used, then the engaging members 13 of each spring arm 11 will have to be brought into register with its own openings 14, as well as the indented portion 41 with its own slot 40. Of course, in locating one of the engaging members 13 the others will also be opposite their own openings 14 so that the shell 1 will be secured by means of these spring arms to the locking ring 10.

To prevent the relative rotation of the shell 1 and the cap 2, I may in some cases, though not necessarily, provide the shell and ring with coöperating locking surfaces. These surfaces may be formed in various ways to accomplish their desired function. They may, for example, take the form of a plurality of openings 15 in the ring and teats 16 on the interior surface of the cap formed in any suitable manner but preferably by indenting the cap as shown in Fig. 5.

The arms 11, 11 are mounted within and protected by the shell 1 only their engaging members 13 being exposed, their engaging surface 17 coöperating with the engaging surface 18 of the shell. The openings 14 in the shell are substantially closed by the engaging members 13.

One portion of my invention consists in locating the releasing members 13 beneath the mouth 118 of the cap 2 and above the mouth 19 of the shell 1. When a shade holder ring 20 is used these engaging members 13 are located preferably between the mouth 118 of the cap and the shade holder ring 20.

The advantage of such a construction is obvious. The releasing members 13, 13 are brought well down beneath the mouth 118 of the cap and toward the mouth 21 of the husk 3 where they can be readily grasped and pressed in by unskilled labor, whenever it is desired to disconnect the shell 1 and cap 2. While I locate the releasing member 13 in substantially the position shown, it is, of course, to be understood that it may be mounted nearer the mouth 118 of the cap 2, but beneath it, or nearer the shade ring holder 20 as the particular exigencies of the case may demand. I have found in practice that when these arms are located in substantially the position shown they can be readily pressed in by the thumb and forefinger of the operator even though the entire shell is surrounded with a husk 3. In the old construction of having a snap shell formed by serrated surfaces on the cap and shell, these surfaces, when the socket shell was mounted in a husk, were rendered inaccessible and it was impossible to disconnect them except by forcing a screw driver or other tool up into the husk and between the cap and shell. This usually resulted in marring the cap or shell, or both of them, so that the two members did not again readily coöperate so as to hold the parts in exact alinement, if the engaging members were not entirely ruined.

My locking ring may be formed in various ways. Preferably, I form each ring out of two separate blanks 121, 121 which are stamped out of a sheet of metal 22, Fig. 4. These blanks 121 are then curved and riveted together by the rivets 23 as shown in Fig. 3. It is to be understood, however, that the locking rings may be formed in any suitable manner and out of one piece of material if so desired, Fig. 8.

In some cases instead of using the engaging surfaces 15 and 16, or in addition to them, I may provide wedge or inclined surfaces 24, 24 upon the shell 25 to coöperate with a locking ring 26 carried by the cap 27. The inclined surfaces 24, 24 incline in the direction of an element in the surface of the cylindrical shell, their highest portion merging substantially into the circumference of the shell 25.

The locking ring 26 is provided with downwardly extending spring arms 28 having engaging members 29 provided with slots 30, 30 to receive the inwardly extending lugs 31, 31 of the shell 25, Fig. 6. This locking ring 26 is also provided with one or more inwardly projecting lugs 32, 32 preferably formed by stamping them out of the ring, Fig. 8. These lugs are preferably, though not necessarily, placed near the ends of the ring so that when they coöperate with the wedge or inclined surfaces 24, 24 carried by the shell, they will be caused to ride up the inclined or wedge surfaces, as the shell 25 is pressed home in the cap 27 and expand the locking ring 26 against its seat 33 in the lower portion of the cap 27 and in this manner frictionally hold the ring 26, with

its attached shell 25 from rotation with relation to the cap 27.

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 shell, a cap provided with a rotatable locking ring provided with one or more spring arms for locking the shell and ring together and having an engaging member accessible between the mouth of the cap and the mouth of the shell.

2. In a snap lock for electric light switches the combination of a shell, a cap, a rotatable ring mounted in the cap, one or more spring arms depending from the rotatable ring, a portion of the spring arms being accessible between the mouth of the cap and the mouth of the shell.

3. In a snap lock for electric light switches the combination of a cap provided with a rotatable ring, a shell, depending arms from the rotatable ring, and means carried partly by the ring to cause the ring to automatically expand and lock the cap and locking ring together upon the insertion of the shell.

4. In electric light sockets the combination of a cap, a rotatable member carried by the cap and provided with one or more depending locking spring arms, coöperating locking surfaces carried by the ring and the shell to prevent the rotation of the ring after it has been moved into its adjusted position, a shell to coöperate with the cap having one or more openings located beneath the mouth of the cap for the reception of a portion of the spring arms so that they may be readily operated to disengage the cap and ring.

5. In electric light sockets the combination of a cap provided with a rotatable locking ring having one or more depending locking spring arms, a shell provided with one or more openings located beneath the mouth of the cap to receive the engaging members of the spring arms, said spring arms closing the openings in the shell.

6. In electric light sockets the combination of a cap provided with a rotatable locking ring having one or more depending locking spring arms and one or more indented portions, a shell provided with one or more openings between its ends to receive the engaging members of the spring arms and provided with one or more cut out portions to receive the indented portions of the ring, said spring arms closing the openings in the shell.

7. In electric light sockets the combination of a cap provided with a rotatable locking ring having one or more depending locking spring arms and one or more surfaces to coöperate with inclined surfaces carried by the shell, a shell provided with inclined surfaces to coöperate with the surfaces of the locking ring and with an opening or openings located beneath the mouth of the cap to receive the operating member or members of the spring arm or arms.

8. In electric light sockets the combination of a cap provided with a rotatable locking ring having one or more depending spring arms and with one or more surfaces to coöperate with the inclined surfaces carried by the shell, a shell provided with surfaces inclined in the direction of an element in the surface of the cylindrical shell to coöperate with the coöperating surfaces carried by the ring, said shell being provided with an opening or openings located beneath the mouth of the cap to receive the operating member or members of the locking spring arm or arms.

9. In electric light sockets the combination of a shell, a cap, and rotatable automatic engaging means having a member located between the mouth of the cap and the mouth of the shell which member has means to hold the cap and shell together.

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