F. BARR.

INTERLOCKING TUBULAR CONSTRUCTION.

APPLICATION FILED FEB. 9, 1912.

1,040,257.

Patented Oct. 8, 1912.

Fig. 1.

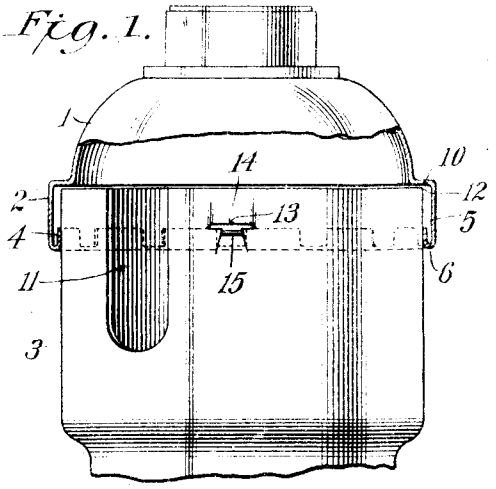


Fig. 2.

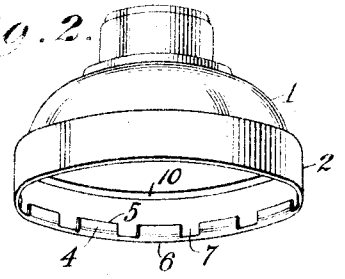


Fig. 3.

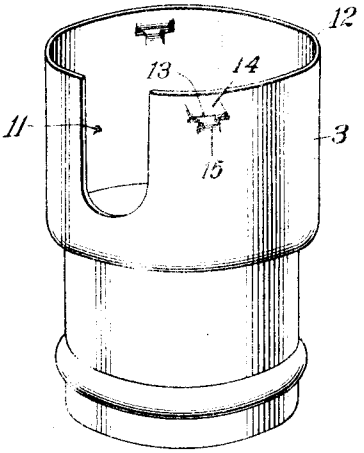


Fig. 4.

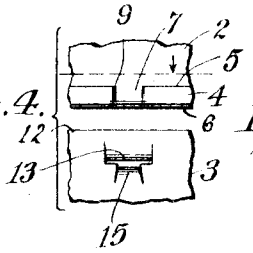


Fig. 5.

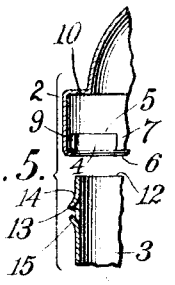


Fig. 6.

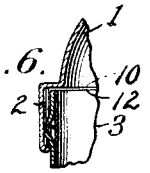


Fig. 7.

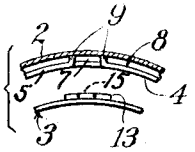


Fig. 10.

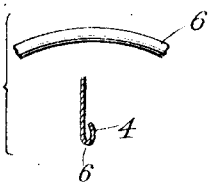


Fig. 9.

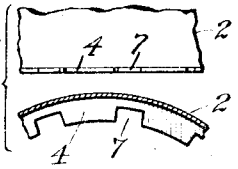


Fig. 8.

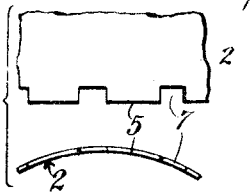


Fig. 12.

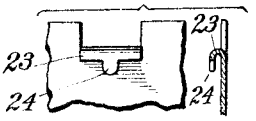
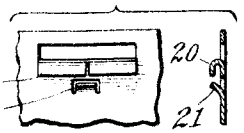


Fig. 11.



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UNITED STATES PATENT OFFICE.

FREDERIC BARR, OF NEW YORK, N. Y.

INTERLOCKING TUBULAR CONSTRUCTION.

1,040,257. Specification of Letters Patent. Patented Oct. 8, 1912.

Application filed February 9, 1912. Serial No. 676,516.

To all whom it may concern:

Be it known that I, FREDERIC BARR, a citizen of the United States, and resident of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Interlocking Tubular Constructions, of which the following is a specification.

My invention relates particularly to detachable means of connection between the cap and shell of electric lamp and switch sockets.

The object is to provide a simple, strong and reliable construction by means of which two tubular members can be readily secured together or separated when desired.

The invention contemplates the formation of a returned flanged edge in one member to afford an interior ledge. The other tubular member is yielding and has shoulders outwardly extending which are adapted to telescope inside of the first member and co-act with the ledge. Preferably the returned flanged edge has one or more notches and the inner tubular member has a lug adapted to snap into a notch to prevent relative rotation.

Details of the preferred form of construction and some modifications are illustrated in the accompanying single sheet of drawings.

Figure 1 is a side view and partial section showing the construction of the preferred embodiment of the invention as applied to a lamp socket shell, the cap being shown in partial section. Fig. 2, is a perspective view of the cap member. Fig. 3, is a perspective view of the body member. Fig. 4, shows fragmentary views of the inner face of the two interlocking parts of the members. Fig. 5 shows fragmentary vertical sectional views of the parts separated. Fig. 6 is a fragmentary sectional view showing the parts interlocked. Fig. 7 shows horizontal sectional views of the parts separated. Fig. 8 shows fragmentary views of the edge of the outer member notched and before flanging. Fig. 9, shows the part of Fig. 8 with the edge flanged over substantially at right angles in the process of forming the interior returned flanged edge. Fig. 10, shows fragmentary edge and sectional views of the same, the interior returned flanged edge being completed. Fig. 11 shows fragmentary views of a modified form of the interlocking construction of the interior tubular member. Fig. 12, shows similar views of another modification of the interlocking parts of the inner tubular member.

The invention is illustrated as embodied in a shell or socket for incandescent lamps, switches, etc., consisting of the cap 1 whose lower flange 2 constitutes the outer tubular member and the body 3 which constitutes the inner tubular member.

The edge of the metal forming the outer tubular member is formed into a return flange 4 the upper edge 5 of which forms a ledge. The return flange is formed so as to leave the edge 6 rounded over and continuous or uninterrupted around the entire periphery. The interior flange is provided with one or more notches such as 7 which extend part way down in the interior flange. The interior flange 4 is preferably not closed tight against the interior surface of the outer tubular member 2 but is spaced away from the same slightly as shown for instance in Fig. 7 at 8 and the edges of the metal adjacent the notch 7 are flanged outwardly as at 9 to meet the wall 2 so as to stiffen the flange and in this way form a deeper pocket at the notch 7. Above and opposite the ledge 5 I prefer to form a shoulder 10 as shown particularly in Figs. 1 and 5.

The upper edge of the body or inner tubular member is provided with a slot 11 so that the edge is resilient and may be compressed. The diameter of the inner tubular member 3 is such that it fits snugly inside the interior flange 4 of the outer tubular member and the edge 12 is adapted to abut against the shoulder 10 in assembling the parts telescopically. Adjacent the upper edge 12 is provided a plurality of shoulders such as 13 facing downward from the edge 12. These are preferably formed by cutting the metal along a line substantially parallel with the edge and forcing a portion of the metal outwardly so that the shoulder 13 is approached by an inclined portion 14 to facilitate the introduction of the inner tubular member into the outer tubular member. The shoulders 13 are located at such a distance from the edge 12 that the shoulders 13 engage the ledge 5 in the outer tubular member when the parts are assembled and the edge 12 is adjacent the shoulder 10 so that there is but little if any play longitudinally. The inner tubular member may be readily inserted in the outer tubular member, the

inclines 14 when passing by the interior flange 4 compressing the inner tubular member 3 until the shoulders 13 snap over the ledge 5. It will be noted that the shoulders 13 are wider than the notches 7 so that the shoulders 13 are adapted to bridge the edges of any one of the notches 7 in any position that the two members may be assembled. This prevents longitudinal separation of the members. The inner tubular member is also provided with one or more lugs such as 15 located preferably below a shoulder 13 and adjacent the slot 11 where the member is more readily compressible. This lug 15 is of slightly less width than the width of the notch 7 so that when the members are telescopically assembled and rotated to bring the lug 15 opposite a notch 7 the lug will snap out into the notch and prevent further relative rotation. The parts may be readily disengaged however by compressing the inner tubular member adjacent the slot 11 and releasing the lug 15 and the shoulder 13. By locating the lug 15 immediately adjacent one of the the shoulders 13 it is possible to form both by a single die operation. The location of the shoulder and lug adjacent the slot 11 makes it easier to release the parts when desired.

In forming the interior return flange 4 the edge of the tubular member is bent inward and backward. The formation is expedited materially by providing a plurality of notches such as 7 in the edge of the outer tubular member so that when the metal is flanged over as shown in Fig. 9 and backwardly as shown in Fig. 10 there is no tendency for the metal to crimp or buckle as would be the case if the edge were unnotched.

In the modified form of locking shoulder and lug shown in Fig. 11 to be formed on the inner tubular member, a shoulder 20 is formed by cutting out and bending down a lip or lips as distinguished from merely pressing the shoulder outwardly as shown in the form previously described. In this construction the lug 21 is formed in a manner somewhat similar to the lug 15 but more in the form of a tongue. The shoulder 20 is adapted to interlock with the ledge 5 and the lug 21 is adapted to engage with one of the notches 7 of the outer tubular member.

In the form shown in Fig. 12 all the interlocking parts on the inner tubular member of shoulder 23 and lug 24 are formed by cutting out a part of the edge and bending it outward and downward. The shoulder is thus in two parts separated by the lug 24 but the relative location and coöperation of the parts is similar to those previously described.

It will be apparent that changes may be made in details of construction and arrangement of the parts without departing from the spirit and scope of my invention and it should be understood that the terms employed in the claims are terms of limitation only so far as required by the state of the prior art.

What I claim is:—

1. The combination of an outer tubular member having a continuous rounded edge with a return-flange forming an interior ledge together with an inner tubular member having a resilient portion near the end and having a plurality of outer shoulders interlocking with the edge of said interior ledge to prevent longitudinal separation, one of said shoulders being carried by the resilient portion whereby the shoulder may be disengaged by pressing that portion of the inner member inward, the shoulders being so formed as to permit the ready insertion of the inner tubular member into the outer tubular member.

2. The combination of an outer tubular member having a continuous rounded edge with a return-flange forming an interior ledge together with an inner tubular member having a resilient portion near the end and having a plurality of outer shoulders interlocking with the edge of said interior ledge to prevent longitudinal separation, one of said shoulders being carried by the resilient portion whereby the shoulder may be disengaged by pressing that portion of the inner member inward, the shoulders being so formed as to permit the ready insertion of the inner tubular member into the outer tubular member, said return-flange having a notch and said resilient portion having a lug adapted to snap into said notch to prevent relative rotation.

3. The combination of an outer tubular member having a rounded edge with a return-flange forming an interior ledge spaced away from the inner wall and having a notch, the side walls of which are bent outward against the inner wall together with an inner tubular member having a resilient portion near the end and having a plurality of outer shoulders interlocking with the edge of said interior ledge to prevent longitudinal separation, a lug adjacent one of said shoulders and carried by the resilient portion whereby the shoulder may be disengaged by pressing that portion of the inner member inward, the shoulders being so formed as to permit the ready insertion of the inner tubular member into the outer tubular member, said lug being adapted to snap into said notch.

4. The combination of an outer tubular member having an interior notched ledge integral therewith and a resilient inner tubular member having a plurality of shoulders formed by cutting the metal parallel with the edge and bending a portion out-

wardly so that they are adapted to be interlocked with the edge of said ledge by telescopic movement and a lug carried by said resilient tubular member adapted to snap into said notched ledge when rotated to proper position.

5. In combination an outer tubular member having an interior ledge with one or more notches between the ledge and the edge of the tubular member and an inner resilient tubular member having outstanding shoulders for engaging said ledge and an outstanding lug beneath one of said shoulders for engaging in a notch of the outer tubular member.

6. In combination an outer tubular member having an interior ledge with one or more notches between the ledge and the edge of the tubular member and an inner resilient tubular member having outstanding shoulders for engaging said ledge and an outstanding lug beneath one of said shoulders for engaging in a notch of the outer tubular member said outer tubular member having an interior shoulder serving as an abutment for the end of said inner tubular member when the shoulders of the inner member are interlocked with said ledge.

7. The combination of an outer tubular member having a continuous rounded edge with a return-flange forming an interior ledge together with an inner tubular member having a resilient portion near the end and having a plurality of outer shoulders interlocking with the edge of said interior ledge to prevent longitudinal separation, one of said shoulders being carried by the resilient portion whereby the shoulder may be disengaged by pressing that portion of the inner member inward, the shoulders being so formed as to permit the ready insertion of the inner tubular member into the outer tubular member and interlocking means for preventing relative rotation.

8. The combination of an outer tubular member having an interior notched ledge integral therewith, and a resilient inner tubular member having a plurality of shoulders wider than the notches and formed by bending portions outwardly so that they are adapted to interlock with the edge of said ledge by telescopic movement and a lug carried by said resilient tubular member adapted to snap into said notched ledge, said shoulders being located nearer to the end of said inner tubular member than said lug.

9. The combination of an outer tubular member having an interior notched ledge and an inner tubular member having a wide shoulder inclined toward the end and a narrower lug below said shoulder, said shoulder and lug being formed by stamping the metal outwardly and adapted to interlock with said notched ledge.

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Witnesses:
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