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E. D. SPRINGER

LENS RETAINER

Filed Oct. 14, 1927

FIG. 1

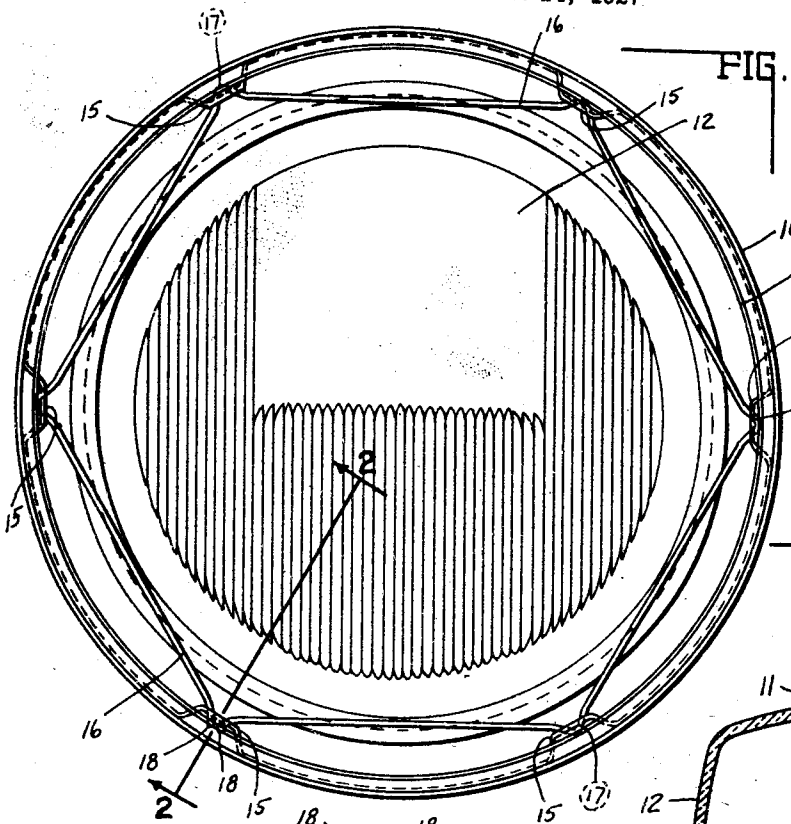



FIG. 2

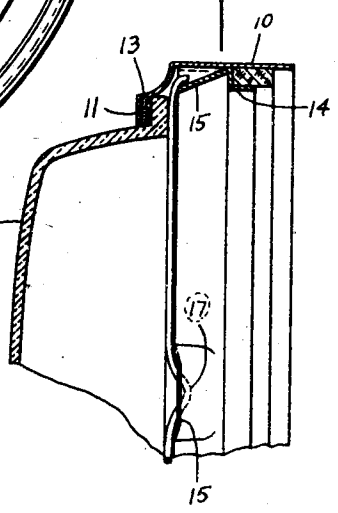
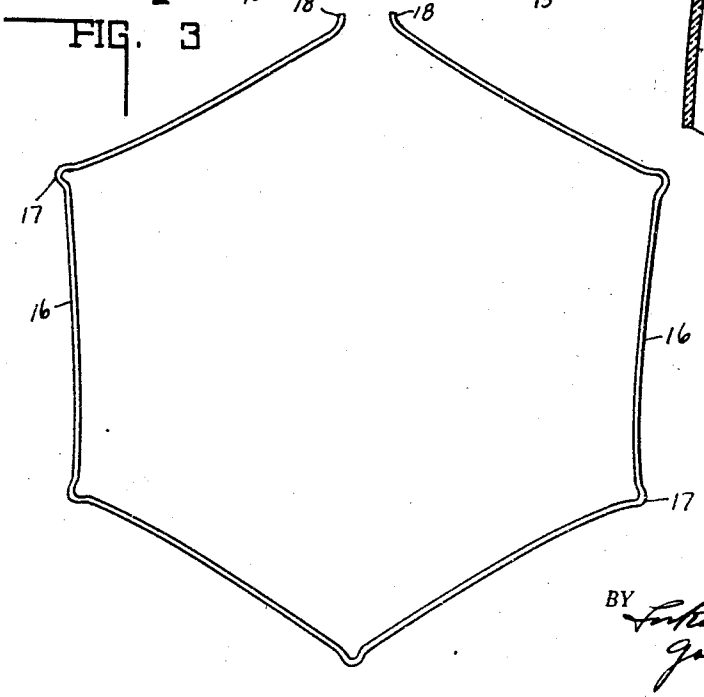



FIG. 3




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# UNITED STATES PATENT OFFICE.

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## LENS RETAINER.

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This invention relates to a wire spring retainer for lenses in connection with lamp doors or closures.

Such wire spring retainers have heretofore been employed for the purpose of detachably securing a lens in a lamp door closure, which have been circular in their general contour and having their general conformation extending in the same plane. Difficulty has been experienced with such structures which has destroyed their commercial value by reason of the fact that they only engage the lens immediately adjacent the outer edge thereof, and if the lens runs slightly small in diameter or is not a perfect fit in the door or closure, there will be sections of the periphery not engaged by the retaining ring. This tends to permit wobbling of the lens and, in some instances, permitting it to work out of place. In addition, the lens engaging portion of the spring retaining ring extending in the same plane, does not exert sufficient resilient pressure upon the lens to prevent rattling, and allows dust and moisture to enter the lamp between the lens and door or closure, in which it is relatively loosely secured by this type of ring.

It is the object of this invention to provide a spring retaining ring consisting of a plurality of cord-like sides subtending sections of the periphery of the lens, which cord-like sides are bowed inwardly to exert a constant resilient pressure between the lens and the door or closure. This arrangement of the retaining ring also facilitates the installation thereof as well as permitting its ready removal, and at the same time not only secures the lens in place regardless of its fit in the door, but maintains such pressure between the lens and the door as to eliminate any possibility of rattling or passage of dust or moisture into the lamp.

The full nature of the invention will be understood from the accompanying drawings and the following description and claim:

In the drawings Fig. 1 is a plan view of a door or closure showing the lens mounted therein held by the wire retaining ring. Fig. 2 is an enlarged section taken on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of the retaining ring.

In the drawings there is shown a lens door or closure comprising an annular drum-like body 10 adapted to fit over the open end of a lens housing. Said body portion is provided with a forward inturned flange portion 11. A lens 12 is adapted to seat therein, said lens being herein illustrated as of the bowl or conical type. The usual packing ring 13 is positioned between the flange and the periphery of the door or closure. Secured to the body portion 10 of the door or closure there is an annular sleeve 14 which is formed with a plurality of pockets 15 spaced about the inner periphery thereof, projecting inwardly and opening outwardly toward the lens. The open ends of said pockets are spaced slightly from the rear surface of the periphery of the lens 12.

The wire retaining ring is formed as herein shown hexagonal in general outline, having six cord-like sides 16 connected by the upwardly bent portions 17, the ring being split to provide the free ends 18. As shown in Fig. 3, the cord-like sides 16 are bowed inwardly in the direction of the lens and are adapted to bear against the inner surface thereof so as to subtend a section of the periphery and be held in place by the projections of the bent portions 17 extending rearwardly into the pockets 15. Also the free ends 18 are formed to extend rearwardly and inserted and held in one of said pockets. When the ring is mounted in place the bowed cord-like portions 16 are substantially flattened out by their engagement with the lens and thereby exert a constant spring pressure against said lens so as to maintain it at all times against the packing ring 13.

The ring is readily inserted in place by threading the bent portions 17 into their respective pockets. One of the free ends 18 is first inserted into its pocket 15 and then each bent portion is inserted in its respective pocket in succession until the last free end is brought into place after all the bent portions have been inserted. The ring may be readily removed by removing first one of the free ends and then each successive bent portion.

The invention claimed is:

The combination with a closure member, a lens member secured therein, and a plurality

of pockets spaced about the inner surface of said closure and from the rear peripheral surface of said lens, of a wire spring retaining ring for securing said lens in said closure member, said ring comprising a plurality of cord-like sides adapted to subtend sections of the periphery of said lens and bear thereagainst under spring pressure, and a plurality of bent portions connecting said cord-like sides adapted to extend into said pockets for retaining said ring in place.

In witness whereof, I have hereunto affixed my signature.

EDGAR D. SPRINGER.