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2,568,124

RETAINING RING FOR INSTRUMENT CASE GLASSES

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Fig. 1.

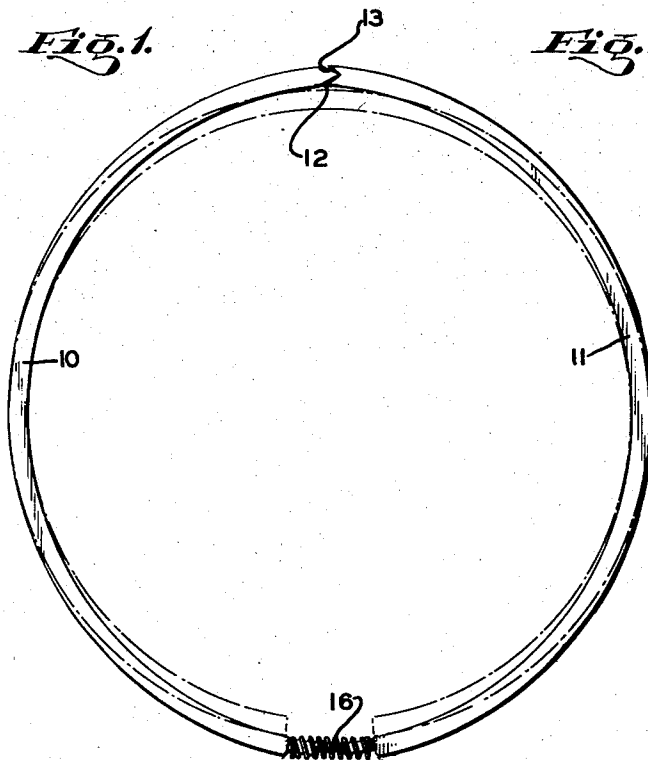


Fig. 2.

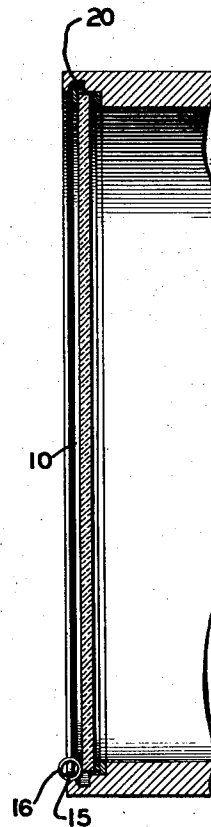


Fig. 3.

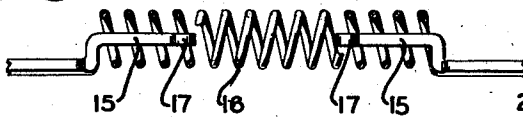


Fig. 4.

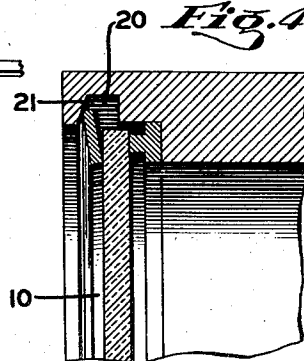
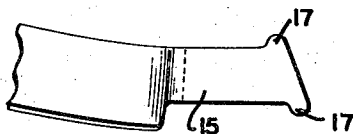


Fig. 5.



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RETAINING RING FOR INSTRUMENT CASE
GLASSESErnest H. Grauel, Bridgeport, Conn., assignor to
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7 Claims. (Cl. 189—78)

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This invention relates to snap rings for retaining glass fronts on instrument cases and analogous devices.

A very common type of construction for instrument cases involves a recess in the front of the instrument case into which the glass fits. A snap ring of elastic material is pressed down into the recess on top of the glass, and its elasticity causes it to spread into a peripheral groove in the side wall of the recess, in which position it holds the glass firmly in place.

This type of construction is somewhat difficult to manufacture on a quantity basis if a well-fitting and attractive instrument front is desired. If the rings are manufactured by bending straight lengths of material, it is difficult to control the bending radius so that the device can be properly assembled in an instrument case. This is especially true as the glass often rests on a sealing gasket, and uniform pressure is required to produce proper sealing without breaking the glass.

It is an object of the present invention to provide a snap ring for holding a glass in an instrument case which can be rapidly produced and assembled and which produces a fairly uniform and sufficiently high pressure on the glass to cause efficient sealing.

Referring now to the drawings:

Fig. 1 is a front view of a ring embodying the present invention;

Fig. 2 is a cross-section of the ring shown in Fig. 1 installed in an instrument case;

Fig. 3 is a view of the spring and short sections of the adjacent members of Fig. 1, as seen from the center of the ring;

Fig. 4 is a view, on an enlarged scale, of the upper section of Fig. 2; and

Fig. 5 is a detail of an end of one member within the spring.

As shown in Fig. 1, the device consists essentially of a pair of substantially semi-circular members 10 and 11. These members are jointed at the top, the joint consisting, for simplicity, of a notch 13 in member 11 and a knife edge 12 in the other member 10, the included angle of the knife edge being less than that of the notch to permit some pivotal movement between the members. It is desirable that the jointing of the members prevent displacement of the members with respect to each other in a radial direction. Displacement peripherally, drawing the knife edge and notch apart, is prevented by the instrument case, and displacement out of their mutual planes is prevented by the glass and the case. However, if desired, for convenience, the parts 10 and 11 may

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be actually pivoted together in a manner to prevent interference between the pivot and the case or glass.

Each member 10 and 11 is provided with a tongue 15 shown in detail in Fig. 5. These tongues are encircled by a compression spring 16 and are therefore offset out of the plane of the members 10 and 11, as shown in Fig. 3, so that the spring does not interfere with the glass. As shown in Fig. 5, the outer side of the tongue is set back from the periphery of its member 10 or 11; so the spring does not interfere with the case.

In order to make assembly easier and to prevent loss of the spring when removing the glass, one or both of the tongues 15 are provided with projections 17. These projections may be spaced that the spring may be threaded on them, or simply forced on, whichever is more convenient.

The members 10 and 11 are conical, rather than flat, for the purpose of assuring that the inner periphery is in contact with the glass, to minimize the accumulation of dirt between the glass and the snap ring, and also to generate some pressure against the glass to press it against the gasket.

In order to produce the necessary pressure against the gasket, it is desirable to utilize a groove 20 in the instrument case which has a conical outer wall 21. With such construction expansion of the ring forces it inwardly with respect to the glass.

The material of which the members 10 and 11 are made is somewhat elastic, but elasticity of these members is not as important, nor as critical, as it is in the case of a snap ring of the usual form. Of course it is necessary that the ring be deformable as shown in exaggerated form in Fig. 1, in dot and dash lines, in order that the top and bottom be capable of insertion in the instrument case, the side movement being amply taken care of by the spring 16. In actual practice, the members 10 and 11 are made of slightly greater radius of curvature than the groove in which they are intended to fit. Their resiliency, therefore, exerts some influence in generating proper gasket pressure. However, their resiliency, and even the radius of curvature in relaxed condition, could vary between wide limits, and the effectiveness of the ring is not destroyed because the effect of the spring is so predominant in expanding the ring to a proper fit in the groove. As springs are fairly uniform if properly made, there will be a uniformity of action between rings which is essential for successful mass production of instruments.

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Having described one embodiment of my invention, I wish it clearly understood that the description is illustrative rather than limitative, and that many modifications may be made without departing from the invention as set forth in the appended claims:

I claim:

1. A glass retaining ring for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess comprising a pair of arcuate members forming an open ring when an end of each member is in abutting relation to an end of the other, means on said members preventing relative radial displacement of the abutting ends but permitting relative rotation of the members in their plane, and spring means urging the ends of the members at the ring opening in a direction away from each other.

2. A glass retaining ring for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess comprising a pair of arcuate members forming an open ring when an end of each member is in abutting relation to an end of the other, one abutting end having a reentrant portion and the other abutting end having a portion adapted to enter such reentrant portion to prevent relative radial displacement of said abutting ends, and spring means urging ends of the members at the ring opening in a direction away from each other.

3. A glass retaining ring for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess comprising a pair of arcuate, flexible members having conical surfaces and together forming an open conic frustrum when an end of each member is in abutting relation to an end of the other, means on said members preventing relative radial displacement of the abutting ends but permitting relative rotation of the members in the plane of the base of the frustrum, and spring means urging the ends of the members away from each other.

4. A glass retaining ring for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess comprising a pair of arcuate members forming an open ring when an end of each member is in abutting relation to an end of the other, means on said members preventing relative radial displacement of the abutting ends but permitting relative rotation of the members in their plane,

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the ends of the members at the ring opening having offset tongues, and a helical spring surrounding said tongues for urging the ends of the members away from each other.

5. A glass retaining ring for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess comprising a pair of arcuate members forming an open ring when an end of each member is in abutting relation to an end of the other, means on said members preventing relative radial displacement of the abutting ends but permitting relative rotation of the members in their plane, the ends of the members at the ring opening having offset tongues, at least one of said tongues having a projecting lug, and a helical spring surrounding said tongues for urging the ends of the members away from each other, the projecting lug engaging the interior of the spring to retain it on the tongue.

6. In an open glass retaining ring having adjacent ends for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess, means for yieldingly urging adjacent ends of the ring away from each other including an offset tongue on each end of the ring, and spring means surrounding each tongue for urging the ends of the ring away from each other.

7. In an open glass retaining ring having adjacent ends for use in instrument cases of the type having a glass receiving recess and a peripheral groove in the wall of the recess, means for yieldingly urging adjacent ends of the ring away from each other including an offset tongue on each end of the ring, at least one of the tongues having a projecting lug, and a helical spring surrounding said tongues for urging the ends of the members away from each other, the projecting lug engaging the interior of the spring to retain it on the tongue.

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