

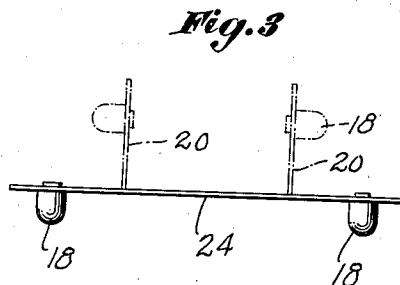
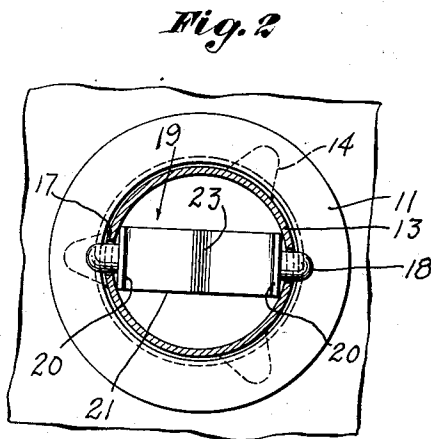
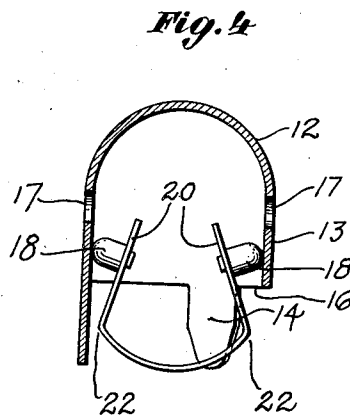
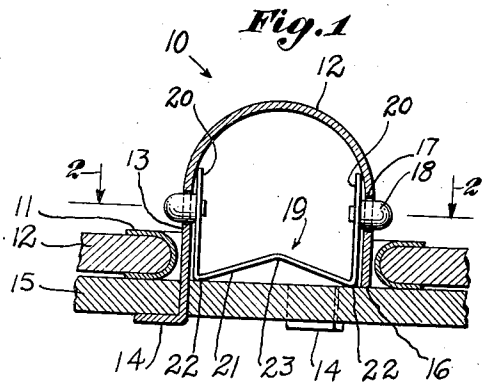
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SNAP FASTENER

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SNAP FASTENER

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2 Claims. (Cl. 24-211)

This invention relates to dome type snap fasteners and methods of making the same.

One object of the invention is to provide a snap fastener or similar device having a one piece spring carrying outwardly urged tits mounted in a casing, so constructed and arranged that the tit and spring assembly can be axially inserted in the casing for assembling, without diminishing the tension on the spring.

Heretofore fasteners of this general type have been impractical because of the large labor cost in assembling. For example, if a U-shaped strip spring be considered, I have found that it was necessary to insert the spring and tit assembly angularly into the dome, so that one tit at a time would be received in the holes of the dome. This was a troublesome time consuming operation, because careful handling was necessary and the spring would not be reliably gripped while handling, especially as there is very little space in the dome. I also found that if it were attempted to axially insert the spring and tit assembly into the dome, the spring had to be deformed in excess of its elastic limit, so that insufficient spring tension for the tits was available.

It is therefore an object of the invention to overcome these difficulties in a simple, practical structure.

Other objects and advantages of the invention will become apparent as the specification proceeds.

With the aforesaid objects in view, the invention consists in the novel combinations and arrangements of parts hereinafter described in their preferred embodiments, pointed out in the subjoined claims, and illustrated in the annexed drawing, wherein like parts are designated by the same reference characters throughout the several views.

In the drawing:

Figure 1 is a central vertical sectional view showing a device embodying the invention.

Fig. 2 is a sectional view on the line 2-2 of Fig. 1.

Fig. 3 is an edge view of the spring and tit assembly as initially formed.

Fig. 4 is a sectional view of the dome showing the spring and tit assembly according to its second stage or shape, and in course of being inserted into the dome.

The advantages of the invention as here outlined are best realized when all of its features and instrumentalities are combined in one and

the same structure, but, useful devices may be produced embodying less than the whole.

It will be obvious to those skilled in the art to which the invention appertains, that the same may be incorporated in several different constructions. The accompanying drawing, therefore, is submitted merely as showing the preferred exemplification of the invention.

Referring in detail to the drawing, 10 denotes a device embodying the invention. The same may include a snap fastener having an outwardly channeled ring 11 adapted to be secured to a member 12 such as fabric or the like. The companion member or section of the snap fastener may include a tubular or dome shaped member 12 having a cylindrical body portion 13 which may terminate in a plurality of prongs 14 which may be inserted into and bent over a member 15 of fabric or the like. Remotely from the open end 16 of the dome member are a plurality of holes 17 disposed along a diameter of the dome member. Slidably mounted in these holes are a plurality of projections or tits 18 which are outwardly resiliently urged by a spring 19 so as to be movable inward and outward by the ring 11 to retain the latter on the dome member and to permit the ring to be readily moved on and off from the dome member. In this manner the members 12 and 15 may be releasably secured together in the well known manner.

The spring 19 is desirably a one-piece element which may consist of phosphor bronze and is preferably in the form of a strip of generally U-form. Accordingly the spring 19 may include a pair of arms 20 extending parallel to the axis of the dome member and being adapted to bear against the side wall thereof. Fixedly connected to the free end portions of the arms 20 as by riveting or in any other suitable manner are the tit portions 18. Thus the spring is in effect mounted and held in place by means of the tit portions. Extending across the open end of the dome member is a bight portion 21 of the spring. This bight portion may bear against the member 15 and may act as a resilient section of the spring or may merely be relatively rigid in operation. It will be noted that the bight portion 21 is of a length approximately equal to the internal diameter of the dome member 12.

At the junctions of the arms 20 with the bight portion 21, I provide relatively sharp bends 22. These may be considered to form approximate right angles, although desirably the angles are

smaller for a reason that will presently appear. Centrally of the bight portion and intermediate of the junctions 22 is a bend 23 which extends inward of the dome member or in the general direction of the free ends of the arms 20. It will be noted that the angle formed at this bend 23 is a relatively large obtuse angle. This bend at 23 need not be sharp, but may have curvature. In a general sense, it may be stated that the bight portion 21 is in flattened condition in contradistinction to a curved form such as that suggested in Fig. 4.

The method of making and assembling the tit and spring unit with the dome member 12 will now be described. First the spring member is made in the form of a plane blank 24 to which the tits 18 are secured as shown in Fig. 3. Then the blank 24 is bent into a U-shape form so as to provide the arms 20 and the bends 22, with the arms 20 being approximately parallel to each other. Now the arms 20 are pressed toward each other by a suitable tool and the spring and tit unit axially inserted into the dome member 12, with the tits 18 riding along the internal face of the cylindrical section 13, and finally snapping into the holes 17. Now the bend 23 is formed by centrally applying to the bight portion of the spring a strain in excess of the elastic limit, thus causing the spring to assume the shape shown in Fig. 1. The assembly is now complete.

It will be noted that due to the length of the tits 18, the deformation required in the spring would be sufficiently great to exceed the elastic limit at the bight portion so that the spring would exert insufficient outward force upon the tits. This drawback is obviated by the present invention. By inwardly convexing the bight portion of the spring, the tension thereon is increased so that the spring can powerfully urge the tits outward. The particular advantage in forming

the bends 22 is that the strain on the spring is localized at certain points so as to prevent the mere collapse of the spring when the bight portion thereof is being inwardly concaved and to assure that the arms 20 will be of equal length for equal action upon the tits.

It is thus noted that the invention provides a dome type fastener with a one piece spring permanently affixed to the tits and adapted to be axially assembled therein according to an arrangement and construction such that the spring exerts a maximum degree of force upon the tits for reliably retaining the ring 11.

I claim:

1. A snap fastener member including a tubular member having holes extending along a diameter, tits slidably mounted in said holes, and a spring of generally U-shape in said member extending lengthwise thereof, said spring having the free end portions of its arms affixed to the tits to outwardly resiliently urge the same, said spring having a bight portion having approximately right angle bend connections with the arms and having a generally central obtuse angle bend toward the free ends of the arms, and the length of the bight portion being approximately equal to the internal diameter of the tube.

2. A device including a snap fastener section having a casing, outwardly movable projections mounted in holes in the casing, and a U-shaped spring, the projections being permanently mounted on the spring arms adjacent to their free ends, and said spring having a portion intermediate of its arms bent in the direction of the free ends of the arms, whereby the spring and its projections can be assembled with the casing by an axial movement and the intermediate bend formed after assembly to tension the spring.

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