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KEY RING AND LOCK

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FIG. 1

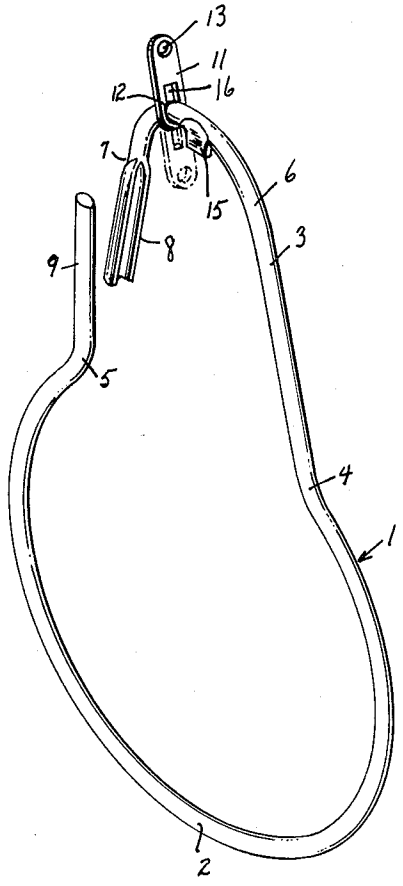
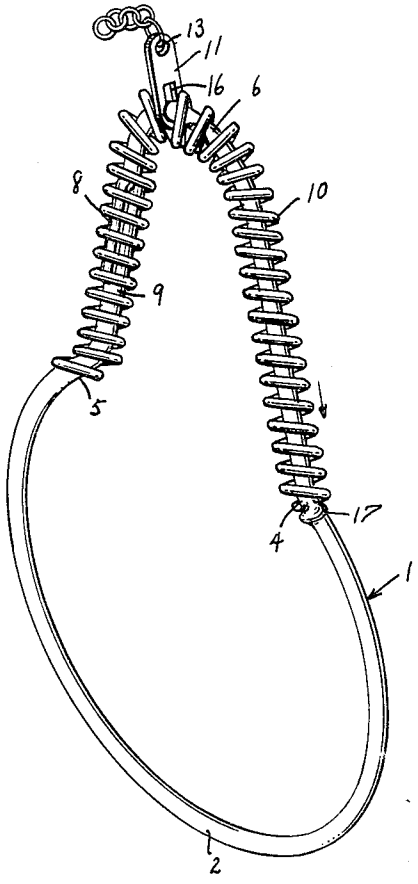


FIG. 2



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KEY RING AND LOCK

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3 Claims. (Cl. 70—459)

This invention relates to an article of manufacture, and more particularly to an article which may be used as a key ring or unique pocket lock.

Key rings, of course, are well known. They usually consist of a ring-shaped member for carrying keys and a catch or lock to maintain the keys on the ring.

The key ring of this invention includes the conventional ring-shaped member and in addition comprises a unique locking means for preventing unauthorized removal of keys from the ring. The same locking means adapts the article for use as a simple lock.

Accordingly, it is an object of the invention to provide an article of manufacture which may be used as either a key ring or lock.

It is a further object of the invention to provide a novel key ring which includes unique locking means to prevent or make difficult the removal of keys by any except those who have knowledge of the lock.

It is a further object of the invention to provide a simple lock comprising only three essential parts, and which is light in weight and relatively simple to manufacture.

In accordance with the invention, there is provided an article comprising a spring-wire clip member having an arcuate portion and an elongated, relatively narrow portion extending continuously and symmetrically from chordal points of said arcuate portion, whereby the clip is generally pear-shaped. One side of the elongated portion is in the shape of a goose-neck and terminates on the other side of the elongated part in an enlarged, contoured catch. The catch receives an overlapping end of the remainder of the elongated portion. The shape of the wire clip is such that the remainder of the elongated portion is maintained under tension under the catch. Means are provided for preventing accidental opening of the clip, comprising a helical spring surrounding the elongated portion of the clip. The inside diameter of the helical spring is sufficient to permit movement of the spring from the elongated portion to the arcuate portion but insufficient to permit opening of the clip. In accordance with a broad aspect of the invention, a tab is provided, located intermediate the ends of the helical spring. The tab includes an opening of sufficient size to permit it to be moved with the spring on the clip member; the opening, however, being smaller than the enlarged catch so as to restrict the movement of the helical spring in one direction only.

In accordance with another aspect of the invention, a locking lug is provided at the underside of the goose-neck, and the tab is slotted to register when in a predetermined position with the locking lug. In all other positions, the tab blocks the spring from movement in either direction.

The above-mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawing, wherein:

Fig. 1 is a perspective view of the wire clip showing the locking tab in a position between the catch and the locking lug; and

Fig. 2 is a perspective view of a fully assembled article with a pocket chain shown attached to one end of the tab.

Referring now to the figures, the article comprises a spring-wire clip member **1**, which when in its closed position is generally in the shape of a pear. The clip member may be made of any suitable springy material, but is preferably made of steel, plated with an attractive metal, such as silver or chromium. The size of the clip member is variable, and depends on the number of keys it is desired to carry.

The clip member comprises an arcuate portion **2** and an elongated, relatively narrow portion **3** extending continuously and symmetrically from chordal points **4**, **5** of the arcuate portion **2**. One side **6** and a portion of the other side of the elongated portion being in the shape of a goose-neck which terminates on the other side **7** of the elongated portion in an enlarged, contoured catch **8**.

The catch portion **8** is formed by stamping the end of the goose-neck portion, and is provided with a cradle deformation. The contoured catch **8** receives an overlapping end **9** of the remainder of the elongated portion.

The shape of the wire clip is such that it tends to assume the open position as shown in Fig. 1, whereby when the clip is closed, the separable parts are held under tension.

Other shapes of catches will occur to those skilled in the art, and the specific shape illustrated is only by way of preferred example.

If the article is to be used as a key ring, the keys are slipped over the end **9** and supported on the arcuate portion **2** of the clip.

In order to prevent accidental or inadvertent opening of the clip, a helical spring **10** is positioned around the elongated portion of the clip. The axial length of the helical spring is approximately equal to the length of the elongated portion. The inside diameter of the helical spring is selected so as to permit movement of the spring from the elongated portion to the arcuate portion, but not so large as to permit the overlapping end of the elongated portion to become disengaged from the catch **8**. The change in shape between the arcuate portion and the elongated portion impedes the movement of the helical spring once it is positioned on the elongated portion. This constitutes a first locking means for preventing accidental opening of the clip, whereby keys could be lost.

A more positive locking means is provided by a tab **11**, which is located intermediate the ends of the helical spring, and is provided with an opening **12** of sufficient size to permit the tab **11** to be moved with the spring on the clip member.

The tab is essentially a flat piece of metal provided with one or two openings **12**, **13**, and which is sufficiently rigid to resist bending from ordinary stresses applied to a key ring. The opening **13** permits the tab to be used as a coupling link between the clip member and, for example, a pocket chain as suggested in Fig. 2. The diameter of the opening **12** is selected so as to permit the above-mentioned movement of the tab on the clip member, but is smaller than the enlarged catch **8**. Thus, if the tab is located as shown in Fig. 2, the enlarged catch would resist substantial movement of the spring in the counter-clockwise direction so that in order to open the clip, the spring would have to be moved in the

clockwise direction or in the direction of the arrow. This tab, therefore, provides a second locking means against unintentional opening of the clip.

A third and still more positive locking means comprises a lug **15**, preferably formed integrally on the underside of the goose-neck portion. The tab **11** is provided with a correspondingly shaped slot **16** on the side normally opposite from the lug **15**, and the tab is positioned between the lug **15** and the catch **8**. In order, therefore, to open the clip, it is necessary to rotate the tab 180 degrees so that the slot **16** registers with the lug **15**, whereby the spring and tab may be moved away from the separable portions of the clip. It is apparent, therefore, that unless the tab **8** were rotated so as to provide registry between the slot and the lug, it would be virtually impossible to slide the spring away from the catch.

This unique and simple locking means permit the article to be used as a lock where only moderate safety is required. For example, in many show-cases, where at the end of the day the show-case doors are closed, and protection against maintenance personnel is desired, a lock of this sort would be eminently suited.

The tab is positioned simply by threading the tab on the overlapping end **9**, past the lug **15** and against the catch **8**. The spring **10** is then similarly threaded on the clip member, and the clip is then closed. The tab is positioned by rotating the tab in and around the successive turns of the spring until the desired position is obtained.

If desired, the spring **10** may be permanently retained on the clip, after assembly, simply by deforming a portion **17** on the clip so as to prevent movement of the tab beyond the deformed portion.

While the foregoing description sets forth the principles of the invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation of the scope of the invention as set forth in the objects thereof and in the accompanying claims.

I claim:

1. An article of manufacture, comprising a spring-wire clip member having an arcuate portion and an elongated relatively narrow portion extending continuously and symmetrically from chordal points of said arcuate portion, one side and a portion of the other side of said elongated portion being in the shape of a goose-neck and terminating on said other side of said elongated portion in an enlarged contoured catch for receiving an overlapping end of the remainder of said elongated portion, the shape of the wire clip being such that the remainder of said elongated portion is maintained under tension in said catch, a helical spring surrounding the elongated portion of said clip and having an inside diameter sufficient to permit movement of the spring from the elongated portion to the arcuate portion, but insufficient to permit disengagement between said overlapping end and said catch, and a tab located intermediate the ends of said helical spring and provided with an opening of sufficient size to permit the tab to be moved with said spring on said clip member, the opening being smaller than said enlarged catch, whereby the helical spring may be moved away from said catch in one direction only.

2. The article of manufacture according to claim 1, wherein said helical spring has an axial length approximately equal to the length of the two sides of said elongated portion.

3. The article according to claim 1, and further comprising a locking lug formed on the underside of said goose-neck, said tab including a slot extending from said opening and corresponding in shape to said lug, whereby the tab may be moved over said lug only when the slot is in registry therewith.

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