Dec. 19, 1967 G. T. LE PAGE 3,358,484

KEY RETAINING LOOP

Filed Feb. 18, 1966

Fig. 1.

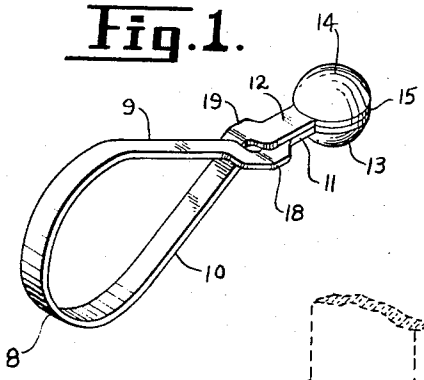


Fig. 2.

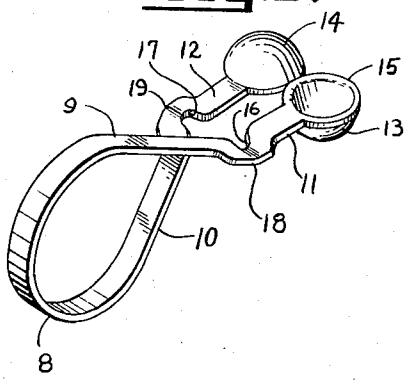


Fig. 3.

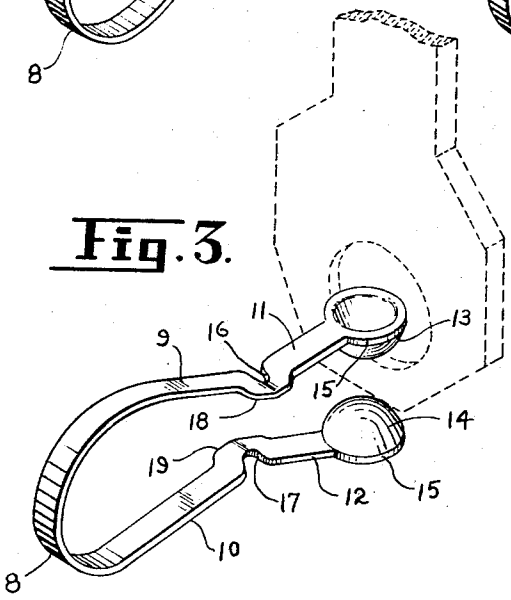


Fig. 6.

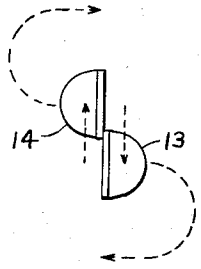


Fig. 7.

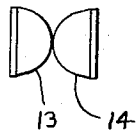


Fig. 4.

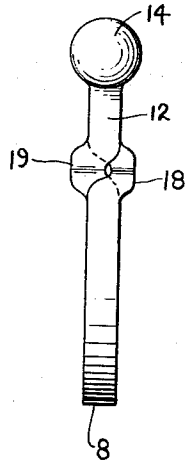


Fig. 5.

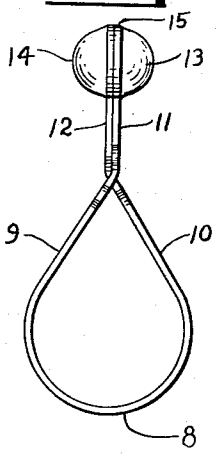


Fig. 8.

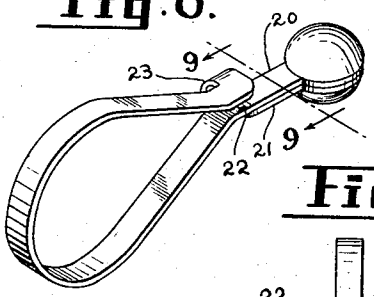
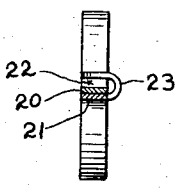


Fig. 9.



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3,358,484

KEY RETAINING LOOP

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1 Claim. (Cl. 70—458)

ABSTRACT OF THE DISCLOSURE

A key retaining loop has a ball shaped head, half of which is formed on one end of a spring loop while the other half is on the other end. The two parts of the head are held together by the spring action of the loop, but they may be separated by twisting one end of the loop around the other. The device consists entirely of a strip of flat spring material and one arm has a notch to receive and hold the other arm.

This invention relates to key retaining loops of the type having a ball-shaped head adapted to be engaged in a slotted support of a key case.

It is intended particularly to be an improvement over the key loops shown in the following two patents: 2,685,193 (Marymont, issued Aug. 3, 1954) and 3,141,321 (Rinaldi, issued July 21, 1964). In common with these patents, the present key loop has arms which terminate in portions of the ball-shaped head which fit together.

In the Rinaldi patent, the loop is made from flat material like the loop of the present invention, but in the patent the parts of the head are held together by a catch against the normal spring tension of the loop whereas in the present invention, the head portions are pressed together by the spring action of the loop which is also true of the Marymont patent.

The object of the present invention is to obtain the advantages of the Marymont patent in a more economical way by making the loop entirely of flat metal and without any complicated bending or angling of the arms away from one another.

A further object in a loop where the head portions are held together by spring action is to provide further interlocking means spaced from the head where the arms cross each other to insure against unintended opening of the loop.

One of the disadvantages of the Marymont patent is that the head portions require an expensive and difficult forming step which is avoided in the present invention because of the interengaging means along the length of the arms.

Other objects and advantages will hereinafter more fully appear.

In the accompanying drawing, I have shown for purpose of illustration, two embodiments which the invention may assume in practice. In the drawing:

FIG. 1 is a perspective view of the key retaining loop in closed position;

FIG. 2 is a perspective view showing the twisting of one arm around the other in opening or closing the loop;

FIG. 3 shows how a key may be inserted or removed from the loop when the loop is in open position;

FIG. 4 is an end elevation;

FIG. 5 is a side elevation of the closed loop;

FIG. 6 is a diagrammatic view showing the manner of manipulating the heads of the loop;

FIG. 7 is a top plan view showing the open position of the head portions;

FIG. 8 is a perspective view of a modified key loop shown in closed position; and

FIG. 9 is a transverse sectional view taken on line 9—9 of FIG. 8.

The key retaining loop may be described as a strip of spring material having two arms connected by a central U-bend **8** providing a saddle portion having sides **9** and **10**, and end portions **11** and **12** which are inclined outwardly relative to the sides **9** and **10**. These end portions **11** and **12** terminate in cup-shaped head portions **13** and **14**, respectively. The cup-shaped portions have rims **15** with flat surfaces matching each other when the head portions are brought together in the manner seen in FIGS. 1 and 5. In the open position of the loop as seen in FIG. 7 before the saddle portion is stressed, these matched surfaces are remote from or facing opposite one another.

At the juncture of the outwardly inclined end portions **11** and **12** with the sides **9** and **10**, there are notches **16** and **17**, respectively, which open laterally in opposite directions. These notches preferably extend at least halfway across the width of the strip and if desired to prevent weakening of the structure at these points, there may be lateral arches or projections **18** and **19**, opposite the notches **16** and **17**.

Assuming that the loop has been closed as seen in FIGS. 1 and 5, the arms are manipulated laterally and outwardly allowing the head portions to move around one another as seen by the dotted lines in FIG. 6 where they can spring apart so that a key may be easily inserted or replaced; the key being indicated by the letter K. In this unstressed position, the heads may even touch each other as indicated in FIG. 7 because the key can easily cam them apart. The reverse manipulation is required of course to close the loop. When the matching surfaces **15** of the head portions are brought together, they will be held by the spring action of the loop, particularly in the bend **8**. In the closed position of the loop, the arms must cross each other and this is permitted by the interengagement of the notched portions. These interengaging notched sections also provide a strong connection between the arms at this point so as to prevent unintended opening of the loop as by pressure applied with the key.

In the closed loop position, it will be observed that the center line of the U-bend, the saddle side portions and the end portions **11** and **12** do not deviate from a common plane. In other words, the arms of the loop are not bent and angled away from each other as viewed in the end elevation of FIG. 4.

FIGS. 8 and 9 show a modified construction which accomplishes the same results as the loop already described. In this case, one arm **20** is made with uninterrupted edges and the other arm **21** has a relatively deep notch **22** to receive the arm **20** where they cross each other. The notch **22** results from the U-bend or arched section **23** which can readily be formed from a flat metal blank.

What I claim is:

A key retaining loop comprising a strip of flat spring material having two arms connected by a U-bend and providing

(a) a saddle portion;

(b) end portions inclined outwardly relative to the sides of the saddle portion; the center lines of said saddle portion and said end portions being in a common plane;

(c) said end portions terminating in head portions having matching surfaces adapted to be brought together so that said head portions form a single ball-shaped head;

(d) said end portions being spaced from each other and said matching surfaces being on the remote sides

of said head portions when the strip is in unstressed condition;

(e) the springy character of said saddle portion permitting said end portions to be twisted around each other to a closed loop position wherein one of said arms crosses the other adjacent the junctions of said end portions with the sides of said saddle portion and wherein said matching surfaces are held together by the spring tension of said strip; and

(f) wherein one of said arms has a relatively deep laterally open notch to receive the other of said arms where said arms cross to prevent opening of said loop except after a deliberate lateral shifting of one of said arms relative to the other, said other of said arms having uninterrupted side edges.

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