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W. R. BUXTON

1,968,989

KEY RETAINING MEMBER OR KEY RING

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Fig. 1.

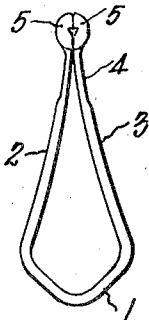


Fig. 2.

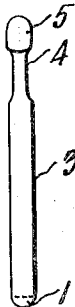


Fig. 4.

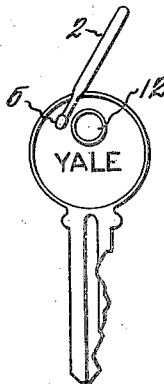


Fig. 3.

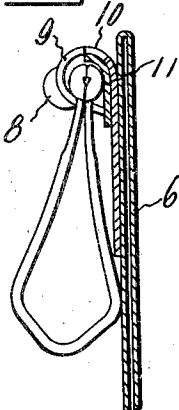


Fig. 6.

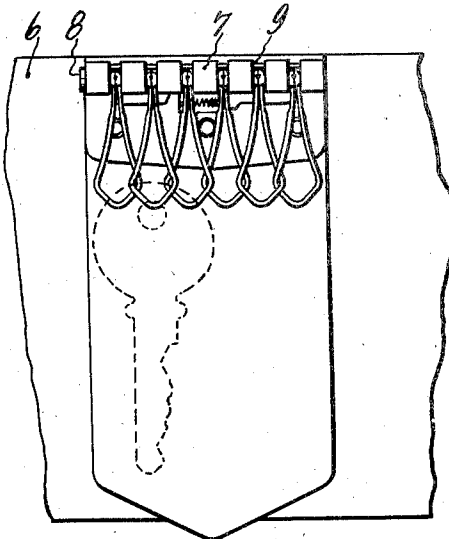
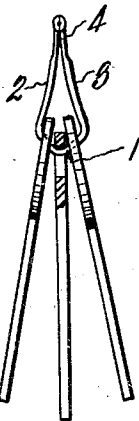


Fig. 5.



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KEY RETAINING MEMBER OR KEY RING

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6 Claims. (Cl. 150—40)

This invention relates to an improved key retaining member, having the general character of a small key ring, but of particular shape and structure. It is primarily intended for use as the key retaining member in a key case. In such use a desired number of the improved key retaining members are used as part of the key case combination. But according to one feature of this invention the key retaining part of the combination may be removed from the other parts for independent use as a key ring. And it is with particular relation to such independent use in addition to the use in the key case combination that my improvement is designed. In other words, my invention is directed to an improved article of manufacture that is especially adapted for part time use in combination with a key case and part time use when separated from the key case, and particularly adapted for either or both uses.

I will describe the preferred form shown in the accompanying drawing and then refer to the features of novelty with relation to their utility.

Fig. 1 shows a side view and

Fig. 2 an end view of the key retaining member;

Fig. 3 is a sectional detail view indicating the way in which the retaining member is mounted in a key case for swiveled movement;

Fig. 4 indicates a detail view of a "Yale" lock key as it is part way assembled on the key retaining member;

Fig. 5 indicates three "Yale" lock keys on a single key retaining member; and

Fig. 6 is a view of a key case with a row of the new key hangers therein.

The member for retaining the keys, as shown, is made of a single piece of spring metal in the form of a stirrup-shaped loop. It is an elongated loop rather than circular. The stirrup-shape includes a bottom curve 1, elongated substantially straight sides 2 and 3, a short neck portion 4 where the sides are almost parallel, and a small rounded head portion 5 (preferably with very small shoulders where the head 5 joins the neck portion 4, as indicated in Fig. 2) where the sides 2 and 3 finally meet under spring pressure. The article is so made that the spring pressure normally holds the two halves of the rounded head portion 5 tightly together so as to give the effect of an integral rounded ball-shaped head mounted on the neck portion. Since the head 5 is made in two halves, the loop can be opened at the head so

as to put keys on the loop. One idea of the invention is to have the loop so shaped that the key needs to be threaded on the loop by movements that can be readily accomplished by hand through intentional manipulation of the key and its retaining member but which will not occur accidentally in the reverse order to allow a key to accidentally fall off the loop.

Referring to Figs. 1, 2, and 3, the key ring is shown enlarged beyond the normal size that I have found most useful. The smaller size is shown in Figs. 4, 5, and 6. The shape of the loop is like that of a stirrup. I have referred to the stirrup shape to indicate that kind of a loop or ring that is commonly hung from a top portion where the loop is narrow and from which it widens out like an inverted V until its gradually spread-out legs are joined by the bottom portion, in this case a semi-circular curve or bow-shaped portion. It might be referred to as hairpin shape, with the free ends only pressed together to close the loop. But stirrup-shape, when seen as in the position of Fig. 1, is what the loop is.

The ring or loop shown is made of stiff spring wire, preferably with a semi-circular surface in cross-section on the outer side and flat on the inner side of the loop. At the top the sides 2 and 3 are drawn out in a neck portion and the drawn-out metal worked into hemispherical head portion on the top of each side 2 and 3. The two hemispherical head portions are substantially solid with their flat faces matching and held tightly together under the spring tension of sides 2 and 3 which spring from the bowed bottom portion 1. When separated, sides 2 and 3 have a stiff spring action to bring their upper ends together. The normally contacting head portions 5 are preferably being constantly pressed together by the unspent spring force of sides 2 and 3. This is arranged for by the permanent bend of portions 1, 2, and 3, so that the spring pressure tending to bring sides 2 and 3 together at the top is still strong when the halves of head 5 meet on their flat hemispherical faces. The action is somewhat like a pinching form of spring clip.

In this structure the pinch is applied entirely on the flat faces of the hemi-spherical head portions 5. From this pressure portion the sides 2 and 3 spread out gradually until the widest part of the loop is reached or where the bottom portion 1 joins the side portions. The neck portion 4 has its sides almost parallel at least in appearance which will be more apparent from

Figs. 5 and 6 than from enlarged Figs. 1 and 3. As heretofore mentioned, the wire is preferably of half round cross-section. This form of wire helps in making a thin neck where sides 2 and 3 join the head portion 5. It is desirable to have a thin but strong neck portion in order to make a neat and strong connection where the hangers enter the slots 9 of the key case. The half round wire section, doubled up at the neck portion, makes a good structure for the strong jointure between the head portion inside the hollow pivot rod 7 and the stirrup-shaped loop below. The neck portions are a little thinner due to taking some of its metal for the head portions 5, and the spring action tends to straighten out the thinner necked-down parts of sides 2 and 3, as they approach the head portions 5.

It will be seen that the key ring or stirrup-shaped loop of Fig. 1 gives a particularly pleasing appearance. It is streamlined, of gradually changing contour, balanced in arrangement, without any protuberances except the ball-shaped head portion capping off the top. The latter is rounded so as to avoid corners and while it is actually made in two halves, these halves have their flat surfaces pressed so tightly together that there is apparently no break whatever in even contour and surface of the ring. I contemplate a modification in the described structure brought about by having the flat sides of the hemispherical head portions 5 provided one with a male and the other with a female part which will interfit when these surfaces are pressed together, like a tongue and groove. This is a small refinement in holding the head portions together but not necessary to the broader aspects of the head portion in relation to the other parts. Such a refinement would be more useful in a key ring loop that was not of the inverted V formation as it would play the part of restricting the outlet of the keys which the restricted neck portion plays in the form shown. As I have illustrated the structure and prefer to use it, the only entrance to the ring is so tight lipped as to give the general appearance of a permanently closed loop. One advantage in the stirrup-shaped loop for the key ring when used in a key case is this: When the ring has two or more keys on it they are all held nearer the outer end of the loop so that the ones not used will stay out of position (near the pivot with the key case) where one key would interfere with pivoted movement of the hanger with relation to the case as the other key is being turned in a lock.

This stirrup-shaped loop structure provides a key hanger or key ring as an article of manufacture. As a key hanger it can be used in key cases of a form now in wide commercial use. The key case is indicated at 6, Fig. 6. Along its top side is a tubular metal pivot rod 7 having slots 9. A key hanger is hung with its ball head resting loosely on the sides of each slot 9 (see Figs. 3 and 6), with which it forms a ball and socket joint for universal movement with relation to the case in manipulating a key on the hanger. Each hanger can be removed from its slot when keeper plate 11 is slid by finger piece 8 for enlarged holes in the keeper plate to match with enlargements 10 (Fig. 3) of slots 9 at the back of the pivot rod 7. Through such enlargements the ball heads of the key hangers can pass. The form of key case apart from the hanger has been patented as

well as widely used. So the brief reference to its structure is thought to be sufficient.

The character of the present invention is in the key hanger. When in the key case it forms a locked loop for the keys which cannot possibly work out of the loops. Heretofore, key hangers in general commercial use, have been in their simplest form, ball headed hooks. The keys could and did work off the hooks. Such hooks are not of as good appearance, artistically, as the series of stirrup-shaped key loops seen in Fig. 6, for example. And the improved appearance is of real importance in any part of a key case structure which is for personal use.

A part of the prior art is shown in my Patent No. 1,561,906, November 17, 1925. The key hanger invention of that patent has some of the characteristics of the one herein disclosed. But the present invention embodies improvements in detail of form and structure that are of real commercial value as I have discovered by test and actual experience.

One of the values in the key hanger now disclosed is in the use to which it may be put apart from the key case. When the hanger is removed from the case it may have as many as three keys, for example, or only one on it. The hanger may now be used as a key ring. It is adapted for this use since, as indicated in Fig. 5, the keys tend to stay at the permanently closed end of the loop and they cannot normally get through the neck 4 and out at the head end 5 except with a lot of deliberate manipulating. The action will not occur by accident except in the most unusual cases which need not be considered.

This feature will be seen from a consideration of Fig. 4. To put a key on the loop, and the commonly used keys are of the "Yale" lock type shown, the legs 2 and 3 are separated by the flat key head much as one would slice a coin in between the legs to separate them. The head portion 5 is then slid over the flat key head until it registers with the hole 12 in the key. Then by tipping the hanger or key out of the common plane (seen in Fig. 4) the key can be run down a leg of the hanger and the halves 5 of the latter spring together after only a momentary widening beyond the thickness of the key. Now after the key is on the hanger (see Fig. 5) it will not come off easily for this reason: As it approaches neck 4 it starts to cramp between legs 2 and 3 before it is in a position to slide out at the small end of the loop. As the key cramps the spring pressure from sides 2 and 3 increases the tendency to hold the key against further cramping. If the key is to pass along the spring pressed closing neck or throat portion 4 and the head portions 5 it has a considerable distance to go from the time that cramping starts until the key can be pulled or pushed out, and during this travel there is a gradually increasing spring pressure. It is only by carefully manipulating the key in the reverse order as described in connection with Fig. 4 that it can be removed easily. The chances for such manipulation taking place accidentally are extremely remote. The difference in the plan between the present form of key hanger and the one shown in my prior patent will be seen upon comparison. In the latter the key can readily slide without cramping to the open end of the loop and has a small distance to travel through that spring pressed clip which is widened out

above and below for straight action in both putting on and taking off a key.

When the new key hanger is removed from a key case it has no parts to catch on the pocket if used as an ordinary key ring would be used. I have found that it is a real convenience not only to remove the key hanger from its key case but also to have the hanger retain in one group two or more keys that are on it. Thus, the key case can be used as a central storage means for many keys but separate groups may be conveniently lent or used apart from the case. For example, when it is desirable to lend some keys but not others, the choice ones may be grouped separately and the others lent as a group and retained by the hanger as a group until returned to the owner's case.

With the key hanger arranged to serve also as a key ring, there is a greater tendency for those who retain the old habit of wanting keys on a ring to combine that habit with the use of a key case.

The features of the invention described are particularly pointed out and claimed as follows:

1. A key retaining member comprising a closed loop of spring metal, said loop being formed with a rounded curve portion at one end, a small ball-shaped head portion at the other end, and substantially straight side portions connecting the opposite ends of the curve portion with the head portion all in a single continuous strip, said head portion being split in half so that one-half of the head portion is one termination of the strip and the other half is the other termination of the strip, the ball halves of said head portion being held in matched relation by sufficient spring pressure exerted by the opposite sides of the loop to put the split ball in condition for work in a ball and socket joint.

2. A key retaining member comprising a ball-shaped head portion, a neck portion, relatively long side portions diverging from the neck portion, a curved end portion joining the side portions, and all made of a single piece of stiff spring wire bent to the shape of an elongated loop permanently closed at the side and curved end portions and closed by sufficient spring pressure from the sides applied at the head portion to hold the latter in condition to operate as a ball for a ball and socket joint.

3. A key retaining member comprising a stirrup-shaped ring of stiff spring wire, said ring having its sides brought together to form a neck portion and a head portion at the upper end, the head portion being rounded into solid form and split so as to have one-half on the end of each side portion, said halves being normally pressed together by sufficient spring pressure applied by

the sides to put the head portion in condition to operate as the ball element for a ball and socket joint.

4. A key ring comprising a single piece of stiff spring wire having each end upset into hemispherical form, said wire being bent into the form of a stirrup-shaped loop with the flat sides of each hemispherical end matching one another under spring pressure from the sides of the loop, said loop sides forming a neck portion below their end portions and separating gradually from the neck portion toward the lower end of the loop where they form the widest part of said stirrup shape, said spring pressure being sufficient to hold said hemispherical end portions in position to function in a ball and socket joint.

5. A key ring adapted to be hung in a key case and comprising a single piece of stiff spring wire having a rounded side and a flat side in cross-section, said wire bent into the form of a stirrup loop having the rounded side of the wire facing outwardly and with the upper end of the loop formed into a relatively short neck portion and a terminal head portion, the latter formed from two hemispherical upsets on the ends of the wire and with the flat sides of such upset portions arranged in a plane substantially parallel to the flat sides of the neck portion, said stirrup-shaped ring applying sufficient spring pressure to hold the halves of the head portion into solid ball form for closing the loop and for providing the ball means of a ball and socket to hang the loop in jointed connection with a key case.

6. In a key case of the type in which key hangers are removably mounted in a row for each to swing out of the case and turn with the key independently of the case or to be removed entirely from the case, the combination of a key hanger formed as a key ring shaped in an unbroken stirrup loop form and made of a single piece of stiff spring wire, said loop having a ball headed top portion made of hemispheres formed on the ends of the wire and tightly pressed together and held in matched relation by the sufficient spring pressure in the loop to make the ball function in a ball and socket joint, a relatively short neck portion below the top portion where the sides of the loop are almost parallel, the upper part of the loop being narrow enough to cramp the common kind of keys and only the lower part of the loop being wide enough to permit free play of the keys threaded on the ring whereby keys are securely held on the ring and the latter may be connected to the key case with a ball and socket joint.

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