

[54] **SEPARABLE HOLDER FOR KEYS AND SIMILAR OBJECTS**

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[51] **Int. Cl.²**..... **A47G 29/10**

[58] **Field of Search** 70/456 R, 456 B, 459; 285/178, 394; 24/3 K

[56] **References Cited**

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[57] **ABSTRACT**

A first member of the holder is formed with a bore bounded by an inner circumferential surface of circular outline which is concentric with a first axis. A second member of the holder has an outer peripheral surface of circular outline which is removably received within the confines of the inner circumferential surface and is concentric with a second axis parallel to the first axis when the members are in one angular position relative to one another. Cam portions are operatively associated with the members for moving one of the members radially with reference to the other member with a concomitant change in the spacing between the axes thereof, in response to rotational displacement of the members relative to one another out of the aforementioned angular position, so that portions of the surfaces are wedged into strong frictional engagement when the members are rotationally displaced relative to one another in one direction, and are moved out of such frictional engagement when the members are rotationally displaced relative to one another in the opposite direction so as to permit separation of the members. A key ring may be provided on one or both of the members so as to hold keys or other objects, or a different type of holder may be provided.

9 Claims, 7 Drawing Figures

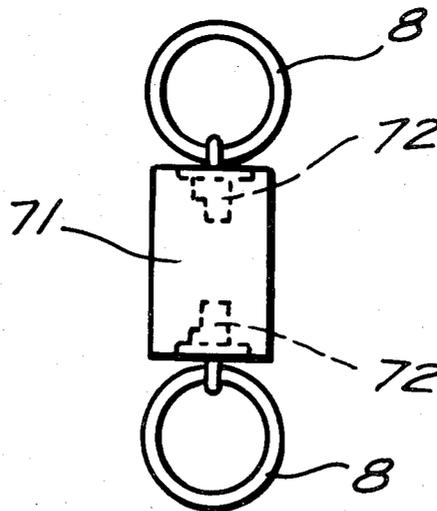


FIG. 1

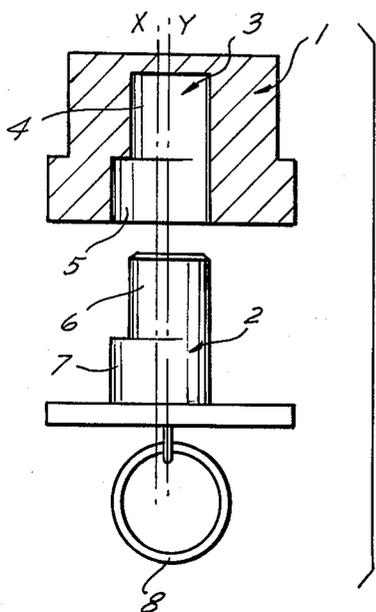


FIG. 2

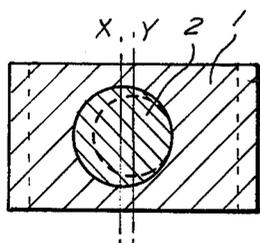
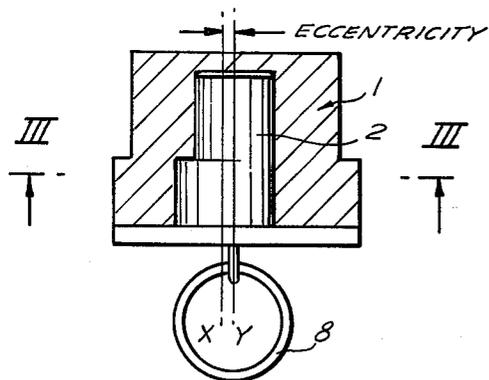


FIG. 3

FIG. 4

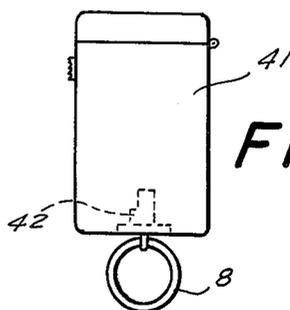


FIG. 5

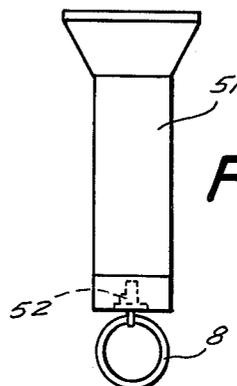


FIG. 6

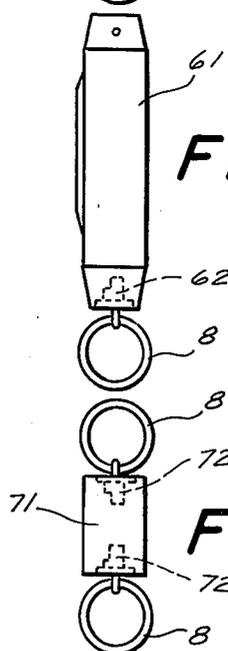
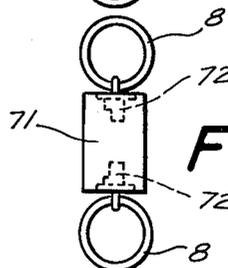


FIG. 7



SEPARABLE HOLDER FOR KEYS AND SIMILAR OBJECTS

BACKGROUND OF THE INVENTION

The present invention relates generally to holding devices, and more particularly to separable holding devices. Specifically, the invention relates to a separable holder for keys and similar objects.

There are many instances when it is desirable to be able to connect two objects with one another in such a manner that the connection can be readily established, but can be released with ease whenever desired. A particular application of this requirement is in the area of separable key rings, that is holders wherein one member of the structure is separably connected with the other member and at least one of the members carries a key ring or similar arrangement for holding keys or other objects. It is, for instance, frequently desirable to be able to detach the keys of an automobile which must be left with an attendant at a parking garage or parking lot, from other keys which either should not be left with the attendant for reasons of ordinary prudence, or which are required to be used while the automobile is in the lot, such as apartment keys, safety deposit box keys and the like.

For this purpose, the prior art provides separable key holders having two members which can be releasably connected and which are each provided with a key ring, so that on the key ring of one of the members only the automobile key or keys will be secured, whereas the key ring of the other members carries keys which are not related to the automobile, such as the aforementioned apartment key, safe deposit box key or the like. The same principle applies, of course, if it is the habit of a user to have fixed to his key holder an object of value, for instance a valuable medallion or the like, rather than two sets of keys. In this case, also, it is desirable to be able to detach the automobile keys from the other member carrying the object of value, and later to be able to reconnect them.

Various types of separable holders for this purpose are known in the art. They are all satisfactory to some degree or other, but they all rely upon principles of connection which over a relatively short period of time cause the devices to break, that is to cease operating. Some of these devices use spring-biased engaging members, and the spring may break or lose its elasticity, to name just one example.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to avoid the disadvantages of the prior art.

More particularly, it is an object of the invention to provide an improved separable holder for keys and similar objects which is not possessed to the aforementioned disadvantages.

An additional object of the invention is to provide such an improved separable holder which is very easy to operate and has a significantly greater lifetime than those known from the prior art.

In keeping with these objects, and with others which will become apparent hereafter, one feature of the invention resides in a separable holder for keys and similar objects which, briefly stated, comprises a first member formed with a passage bounded by an inner circumferential surface of circular outline which is concentric with a first axis. A second member is provided having

an outer peripheral surface of circular outline and being removably received within the confines of said inner circumferential surface and concentric with a second axis which is parallel to the first axis when said members are in one angular position relative to one another. Cam means is operatively associated with the members for moving one of the members radially with reference to the other member with a concomitant change in the spacing between the axes, in response to rotational displacement of said members relative to one another out of the aforementioned angular position, whereby portions of the surfaces are wedged into strong frictional engagement when the members are rotationally displaced relative to one another in one direction, and are moved out of such frictional engagement when the members are rotationally displaced relative to one another in the opposite direction so as to permit separation of the members. Holding means is provided on at least one of the members for engaging and holding of objects which are to be separably connectable with the other of the members.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a partially sectioned fragmentary view of an arrangement according to the present invention, showing the arrangement in separated condition;

FIG. 2 is a view similar to FIG. 1, but showing the arrangement in connected condition;

FIG. 3 is a section taken on line III—III of FIG. 2;

FIG. 4 is a perspective view showing a further embodiment of the invention;

FIG. 5 is a view similar to FIG. 4 showing an additional embodiment of the invention;

FIG. 6 is a view similar to FIG. 5 showing a further embodiment of the invention; and

FIG. 7 is a view similar to FIG. 6, but illustrating still another embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

My invention is based upon the principle of using cam action to obtain a releasable wedging engagement between cooperating members, as fully set forth in my prior U.S. Pat. No. 3,447,821, the disclosure of which is herewith incorporated by reference.

In that patent, I have disclosed a fastening mechanism for joining and locking together two or more component units without requiring the use of auxiliary parts, such as nuts or bolts, and without the necessity of providing screw threads on the component units.

According to my present invention, this basic principle can be employed in a separable holder for keys and similar objects, as will be discussed with reference to the drawing.

Referring firstly to FIGS. 1-3, which in essence explain the principle of my novel separable holder, it will be seen that reference numeral 1 identifies a first member which may have any desired shape, not merely the shape that has been illustrated by way of example. A

second member 2 is to be releasably connected with this first member. The first member 1 is formed with a passage or bore 3 having one portion 4 and a second portion 5 which is axially adjacent to and merges with the portion 4. In the illustrated embodiment, the passage 3 is a blind bore. The member 2 has a portion 6 and a second portion 7, both of which have cylindrical exterior surfaces, just as the portions 4 and 5 of the passage 3 have cylindrical interior circumferential surfaces. It is evident that the portion 6 is receivable in the portion 4, whereas the portion 7 is receivable in the portion 5, as is indeed illustrated in FIG. 2.

The central axis of the portion 4 of the bore 3 is identified by the line $y-y$, whereas the central axis of the portion 7 of the member 2 is identified by the line $x-x$. The same line $x-x$ also identifies the central axis of the portion 5 of the bore 3, whereas the line $y-y$ also identifies the central axis of the portion 6 of the member 2.

It will be evident that when the member 2 is inserted into the bore 3 of the member 1, which is possible in only one relative position, and whereupon angular displacement of the members 1 and 2 occurs, a slight displacement of this type will be sufficient to cause engagement of the eccentric surface of the portion 7 with the surface bounding the portion 5, while the concentric surface of the portion 6 (i.e., which is concentric with the axis defined by the line $y-y$) rotates in the portion 4 of the bore 3. This results in a camming action, causing the member 2 to be tightly wedged in frictional engagement with the bore 3 of the member 1, and to be retained therein unless and until the angular displacement of the members is reversed. The diameter of the cylindrical surface of the portion 6 is smaller than that of the cylindrical surface bounding the passage portion 4 only by the normal tolerance which is required to permit easy sliding movement of the members 1 and 2 relative to one another. The same is true with respect to the tolerance between the surfaces bounding the bore portion 5 and the portion 7 of the member, respectively.

The member 2 is provided with a ring 8 from which keys or the like can be suspended in known manner. The ring 8 can also be of the type which is provided with a clamp lock that is conventional for key rings for automotive vehicles and for other keys.

It is quite evident that the principle of FIGS. 1-3 can be employed in various ways in my novel separable holder for keys and similar objects. For instance, FIG. 4 shows that the member 41 could be configured as a lighter for tobacco products, such as cigarettes. Evidently, the particular shape that has been illustrated for the lighter 41 is not to be considered limiting, as any shape conventional for lighters could be selected. The member 41 would then, of course, be provided with the bore 3, and a member 42 corresponding to the member 2 in FIGS. 1-3 would cooperate with it in the same manner as described with respect to FIGS. 1-3. The member 42 would again carry the key ring 8.

FIG. 5 shows that instead of configuring the member 1 as a lighter, as shown with respect to the member 41 in FIG. 4, it is also possible to configure it as a flashlight 51 with which the member 52 corresponding to the member 2 cooperates. Reference numeral 8 again identifies a key ring. Here it is again emphasized that the shape of the flashlight 51 could be different from that illustrated, but that in all respects other than the provision of the bore 3, the flashlight 51 can corre-

spond to any conventional flashlight. Usually, of course, it would be desirable to make either the lighter or the flashlight small enough to fit a pocket.

FIG. 6 shows that the analog to the member 1 can be constructed as a pocket knife 61, again provided with the bore 3 in which the member 62, corresponding to the member 2 of FIGS. 1-3, is removably received. The member 62 again carries a key ring 8.

It is clear that the examples in FIGS. 4-6 are only illustrative, and in fact any utensil or accessory can be used as the member 1, or that the member 1 could be an ornamental member, for instance a medallion or the like, or could be a separate member that is connected, in turn, with an ornamental member or with an accessory of some type.

Heretofore, I have always described by way of example a holder according to the present invention wherein only one key ring is provided. It is quite evident, however, that instead of using a decorative article or an accessory as the member 1, the latter can also itself be provided with a key ring, as is shown in FIG. 7. The member 71 in FIG. 7 may have any desired shape and may be provided with a single bore 3 in which the member 72, corresponding to the member 2 of FIGS. 1-3, is releasably received. The member 72 carries a key ring 8. The member 71 may itself be provided with a key ring 8 which is non-movably connected with it. If desired, however, the member 71 can be provided with a second bore 3 and a second member 72 carrying a second key ring 8 can be removably received in this second bore 3. This latter possibility may be provided in circumstances in which it may be desired to separate the member 71 entirely from two sets of keys.

Due to the fact that the surfaces bounding the portions 5 and 7 are concentric with one another, whereas the surfaces bounding the portions 4 and 6 are also concentric with one another but eccentric with reference to the surfaces of the portions 5 and 7, only a slight twisting of the two members 1 and 2 with reference to one another will properly and quickly establish a tight frictional engagement between them, but will with equal ease permit a separation whenever desired. Since there are no components that can wear out or break down, the disadvantages of the prior art are avoided and a highly reliable holder for keys and similar objects, such as charms or the like, is provided which can be manipulated with great ease, even in the dark, and merely by feel.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the type described above.

While the invention has been illustrated and described as embodied in a separable holder for keys and similar objects, it is not intended to be limited to the details shown since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

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What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A separable holder for keys and similar objects, comprising a first member formed with a passage bounded by an inner circumferential surface of circular outline which is concentric with a first axis; a second member having an outer peripheral surface of circular outline removably received within the confines of said inner circumferential surface and concentric with a second axis which is parallel to said first axis when said members are in one angular position relative to one another; cam means operatively associated with said members for moving one of said members radially with reference to the other member with a concomitant change in the spacing between said axes, in response to rotational displacement of said members relative to one another out of said one angular position, whereby portions of said surfaces are wedged into strong frictional engagement when said members are rotationally displaced relative to one another in one direction, and are moved out of such frictional engagement when said members are rotationally displaced relative to one another in the opposite direction so as to permit separation of said members; and a pair of rigid annular planar holding means respectively provided on said members for engaging and holding objects which are to be separably connected with each other, the planes of said rigid annular planar holding means being mutually parallel when said members are displaced in said one direction and mutually perpendicular when said members are displaced in said other opposite direction, whereby said rigid annular planar holding means pro-

vides an affirmative grip to facilitate the rotational displacement of said members relative to each other.

2. A holder as defined in claim 1, wherein said holding means comprises a key ring.

3. A holder as defined in claim 1, wherein one of said members is a pocket knife.

4. A holder as defined in claim 1, wherein one of said members is a flashlight.

5. A holder as defined in claim 1, wherein one of said members is a lighter for tobacco products.

6. A holder as defined in claim 1, wherein said holding means comprises a key ring on each of said members.

7. A holder as defined in claim 1, wherein said cam means comprises a portion that is integral with one of said members.

8. A holder as defined in claim 1, wherein said passage is a bore comprising a first portion having said first axis and being bounded by said inner circumferential surface, and a smaller-diameter second portion of circular outline which constitutes an extension of said first portion and has an axis laterally offset from but parallel to said first axis.

9. A holder as defined in claim 8, wherein said second member has a pin-shaped part including a cylindrical smaller-diameter section received in said second portion of said bore and an axis coincident with said axis of said second portion, and a larger-diameter cylindrical section having said second axis which is laterally offset from said axis of said second portion and said smaller-diameter section.

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