Nov. 28, 1967 J. STIFELMAN 3,354,678

KEY CASE

Filed Aug. 23, 1965

FIG. 1

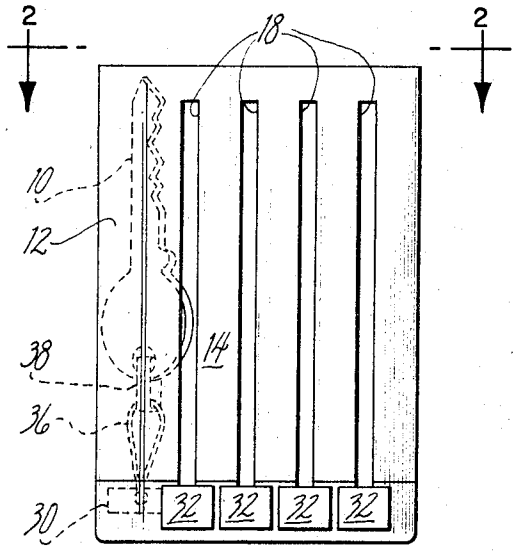


FIG. 3

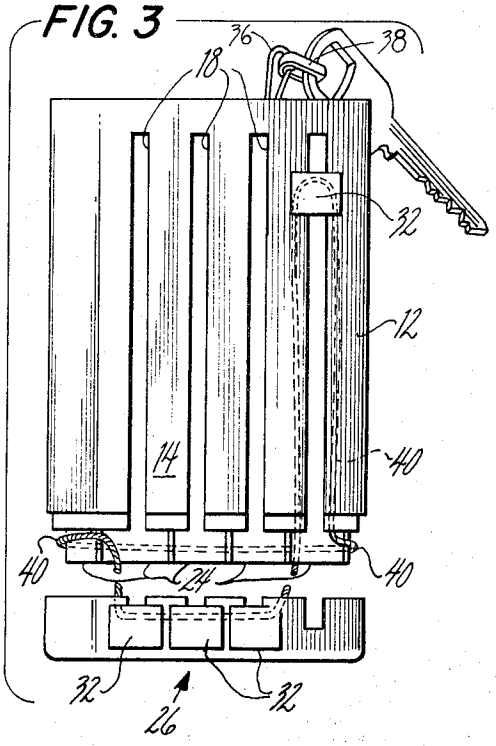


FIG. 2

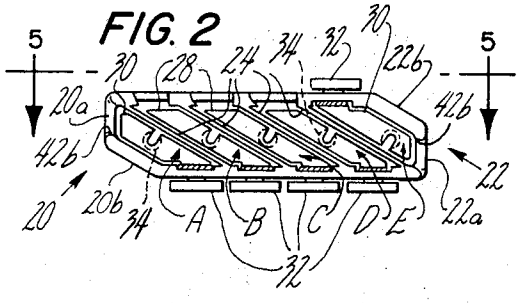


FIG. 5

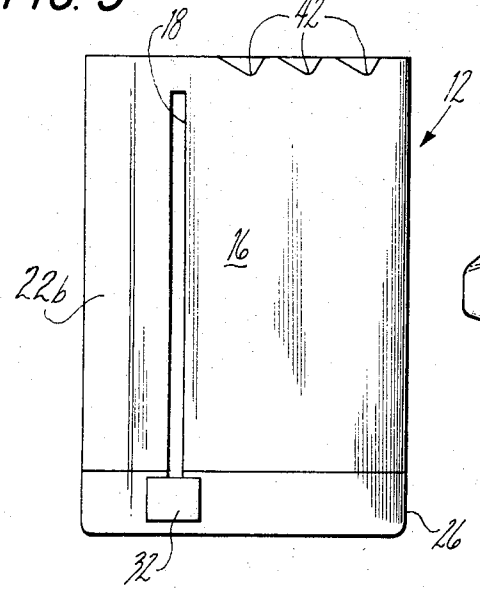
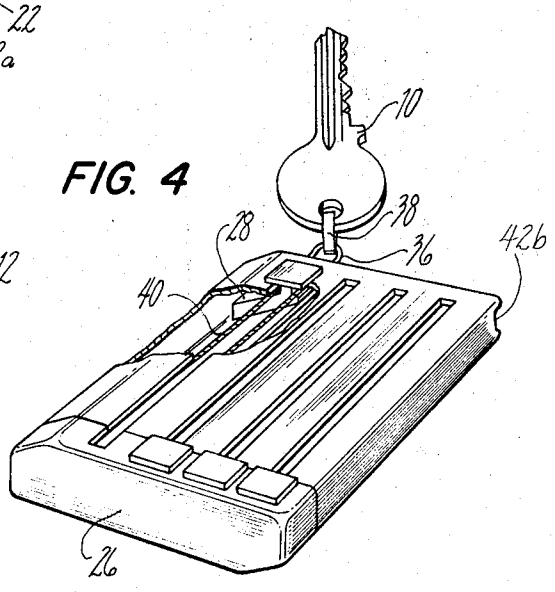


FIG. 4



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KEY CASE

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ABSTRACT OF THE DISCLOSURE

A thermoplastic key case having individual key receptacles in which keys can be stored in inclined parallel positions. The top and bottom walls of the case are parallel to one another, and the side walls are angularly related to the parallel walls and to the key receptacles. A closure is provided at one end of the case, and the other end of the case is open, and has notches to cam each key into alignment with its associated receptacle. A plunger is slidably received in each receptacle and has an integral button portion extending through a slot in the key case wall. A cable interconnects all the plungers so that advancing one key by use of its associated button causes any other key and button to be retracted.

This invention relates to key cases and deals more particularly with a key case in which each individual key can be selectively extended or retracted therefrom by operating novel means outside the key case.

A general object of the present invention is to provide a key case which allows the user to select a particular key and extend the same without having to examine all his keys in detail to be sure he has selected the proper one, suitable means being provided for storing a plurality of keys and for indexing these keys so that each key can be readily identified and extended from the case without the usual fumbling movements associated with locating a particular key from among several of similar appearance.

Another general object of the present invention is to provide a key case of the foregoing character wherein only one key can be selected at any one time, selection of a second key automatically causing the first key to be retracted into the case.

Another object of the present invention is to provide a key case in which all of the keys can be retracted inside the case at any one time but in which only one of the keys can be extended therefrom at any one time.

Another object of the present invention is to provide a hand held key case of the foregoing character wherein any key can be extended or retracted therefrom with the same hand in which the key case is held.

Still another object of the present invention is to provide a key case which can be injection moulded of a relatively inexpensive thermoplastic material. The drawing shows a preferred embodiment of the invention and such embodiment will be described, but it will be understood that various changes may be made from the construction disclosed, and that the drawing and description are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

FIG. 1 is a plan view of a key case constructed in accordance with the present invention, and illustrating one key being stored in the case.

FIG. 2 is an end view of the key case shown in FIG. 1 as indicated at 2—2 on that figure.

FIG. 3 is an exploded view of the key case shown in FIG. 1 showing a key as it would appear extended from the key case, and also showing the means for automatically causing any other keys contained in the key case to be retracted therein.

FIG. 4 is a perspective view of the key case shown in FIG. 1 with a portion of the housing broken away to reveal the construction of the key connected part.

FIG. 5 is a bottom view of the key case shown in FIG. 1 as indicated at 5—5 on FIG. 2.

Turning now to the drawing in greater detail, FIG. 1 shows a key case embodying the present invention in which a plurality of keys are adapted to be stored. As set forth hereinbelow, each key (for example the single key shown at 10) can be selectively extended and retracted to and from a position outside the key case by novel means of the present invention. Preferably, and as shown, the key case comprises a generally hollow thermoplastic housing 12 having a generally flat top surface 14 and a generally flat bottom surface 16, the latter surface being best shown in FIG. 5. Each of these surfaces, 14 and 16 define elongated slots 18, 18. Preferably, and as shown, the top wall 14 defines all but one of such slots 18 and the bottom wall 16 will be seen from FIG. 5 to define a single such slot 18. FIG. 2 is an end view of the housing 12 and shows longitudinally extending side walls 20 and 22, which support the top and bottom walls 14 and 16 respectively in spaced parallel relationship. The side walls 20 and 22 are generally similar to one another and the wall comprises a short section as for example 20*a* which is perpendicular to the bottom wall and angled section 20*b* which is connected to the top wall 14 as shown. The opposite side wall 22 is similarly constructed, having a section 22*a* connected at right ang'es to the top wall 14 and located generally opposite the section 20*a* just described and an angled section 22*b* connected to the bottom wall 16 and located generally opposite the section 20*b* just described.

A plurality of individual key receptacles are defined in the housing 12 and each of these receptacles is further defined by a series of transversely spaced interior walls 24, 24 which are relatively thin compared to the thickness of a conventional key.

It will be seen from FIG. 2 that each of these interior walls 24, 24 is parallel to the angled side wall section 20*b* and 22*b* to provide a plurality of key receptacles, A, B, C, D and E in which a conventional key can be slidably received. The keys will not tend to become jammed as they are moved therein due to the smooth side walls. The receptacles B, C, and D are in the shape of a parallelogram, while the end receptacles A and E are generally trapezoidal in shape. Preferably, and as shown, the walls 24, 24 and the angled side wall sections 20*b* and 22*b* are inclined with respect to the top and bottom walls 14 and 16 at approximately 30°. It has been found that this arrangement provides a very compact key case, which is nevertheless, well adapted to receive keys of conventional size and shape.

As best shown in FIGS. 1 and 3, a closure 26 is provided at one end of the key case 12 and this closure 26 corresponds generally to the exterior shape of the housing 12. As shown in FIG. 3, the interior walls 24, 24 may extend some distance beyond said one end of the housing 12 and as so arranged these walls are adapted to be received in and supported by the closure 26 when the latter is assembled with the housing 12. The depth of the closure corresponds approximately to the thickness of the plungers 30 and 32 to be described.

With further reference to FIG. 2, each of the parallel sided key receptacles B, C, and D has a plunger 28 slidably received therein. The left and right hand end receptacles A and E respectively, each have a trapezoidally shaped plunger 30 slidably received therein. All of the plungers 28, 28 and 30, 30 are provided with an integral button 32 which extends through the slot 18 associated with each receptacle and each of said buttons thereby

provides a thumb engageable means accessible externally of the key case for extending and retracting a key in a particular receptacle. Additionally, each of said plungers includes a socket defining portion **34** for rotatively receiving a conventional loop member key case link **36** which is of slightly greater lateral width than the lateral width of the key receptacle. The key **10**, as best shown in FIG. 3, is connected to the link **36** by a clasp **38** and as so connected it will be apparent that the key is free to rotate with respect to the plunger **30** but that the clasp permits only limited articulation of the key with respect to the link **36**.

In further accord with the present invention, each of the plungers **28**, **28** and **30**, **30** are interconnected by a cable **40** which passes around the button portion **32** of each plunger, as shown in FIG. 4, and around the depending portion of each of the interior walls **24**, **24**, as shown in FIG. 3. Suitable grooves are provided in the interior walls **24**, **24**, and in the plungers **28**, **28**, and **30**, **30**, for the cable **40** so that the closure **26** can be slidably received on the housing as shown without interferring with the operation of the cable **40**. The cable **40** is preferably of such a length that the extension of one of the keys, as shown in FIG. 3, causes the remaining keys to be urged toward their retracted positions so that only one key at any one time will be positioned outside the housing **12**. The cable **40** preferably comprises a flexible synthetic multifilament cord of particular length for operation in the manner just described. It will be apparent that all of the keys can be retracted inside the housing and that a portion of the flexible cable **40** will be stored in one of the key receptacles.

In further accord with the present invention, the bottom wall **16** of the housing **12** is notched as best shown in FIG. 5 in order to provide a camming surface for engaging the side edge of a key being retracted to urge the same into its proper receptacle. Thus each of the key receptacles has a notch **42** associated therewith. It will be observed that the slot **18** defined in the rear wall **16** has its notch **42***b* defined in the side wall section **22***a* and a similar notch **42***b* is defined in the corresponding side wall section **20***a* as best shown in FIG. 2. The function of these camming notches **42** and **42***b* is best shown in FIG. 3 wherein one of the buttons **32** is located in a position adjacent the end of its slot **18**. The key **10** will be cammed by the notch **42**, not shown, as the button is drawn downwardly toward the enclosed end of the housing **12**.

Preferably, and as shown in FIG. 3, the clasp maintains the key in alignment with its key receptacle during return movement of the associated plunger. The notches **42** and **42***b* further cam the key into alignment with the side walls of the associated key receptacle thereby facilitating the retraction of the key therein.

The invention claimed is:

1. A key case for storing a plurality of keys so that any one key can be selectively extended therefrom, said case comprising a generally hollow thermoplastic housing

having generally flat top and bottom walls arranged parallel to one another, said housing having side walls supporting said top and bottom walls in spaced relation to one another, said housing further including transversely spaced interior walls which are relatively thin compared to the thickness of a conventional key, which interior walls are also parallel to one another and are inclined with respect to said top and bottom walls at an angle of approximately 30°, all of said walls cooperating with one another to define a plurality of key receptacles, each of which key receptacles is adapted to slidably receive a conventional key, a closure for one end of said housing which defines an inner end of each of said key receptacles, a plunger slidably received in each of said key receptacles for reciprocable movement toward and away from an open end of each of said key receptacles, link means for connecting said keys to said plungers, each of said plungers including an integral button extending through an elongated slot in one of said housing walls associated with a particular key receptacle whereby each key can be selectively extended and retracted to and from a position outside said housing, each of said slots extending from the inner end of its associated key receptacle, to a point spaced inwardly from the outer edge thereof, cable means interconnecting said plungers so that advancing movement of one of said button connected plungers is accompanied by reverse movement of the remaining plungers so that only one key can be positioned outside said housing at any one time, and key camming notch means adjacent the open end of each of said key receptacles, each of said notch means being located opposite to the slot defining portion of each key receptacle so that return movement of that particular plunger connected button cams the key into alignment with the interior walls of said key receptacle, thereby facilitating the retraction of the key therein.

2. A key case as set forth in claim **1** wherein all but one of said elongated slots are provided in the top wall of said housing, said single slot in said bottom wall being provided adjacent a side edge of said housing to provide a key case with symmetrical housing side walls.

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