April 11, 1967 E. MAIER 3,313,137

KEY HOLDER

Filed Dec. 16, 1964 2 Sheets-Sheet 1

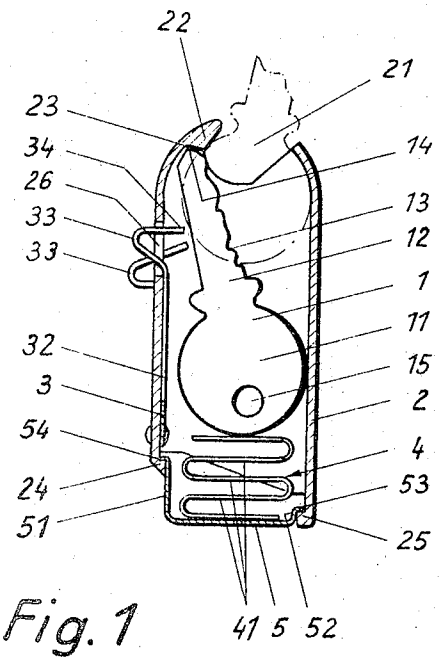


Fig. 1

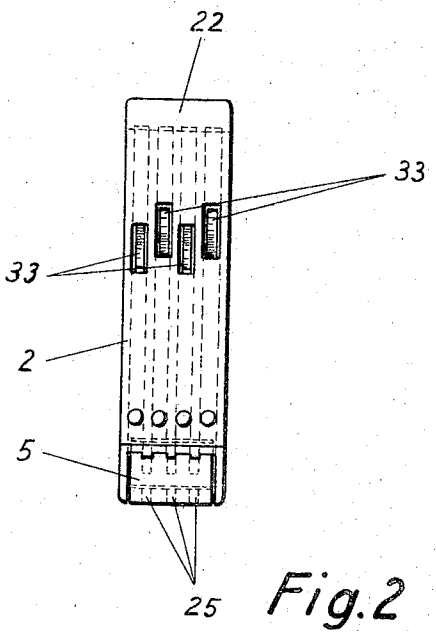


Fig. 2

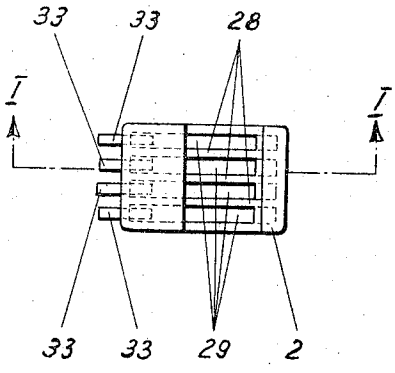


Fig 3

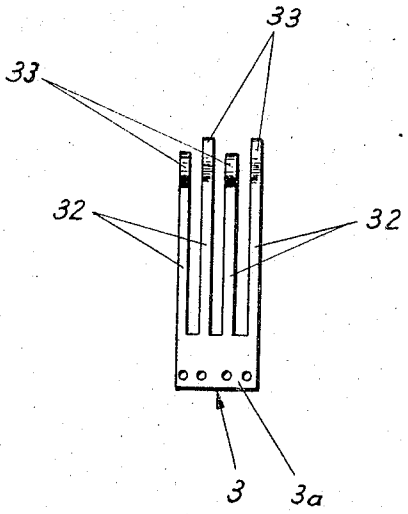


Fig. 4

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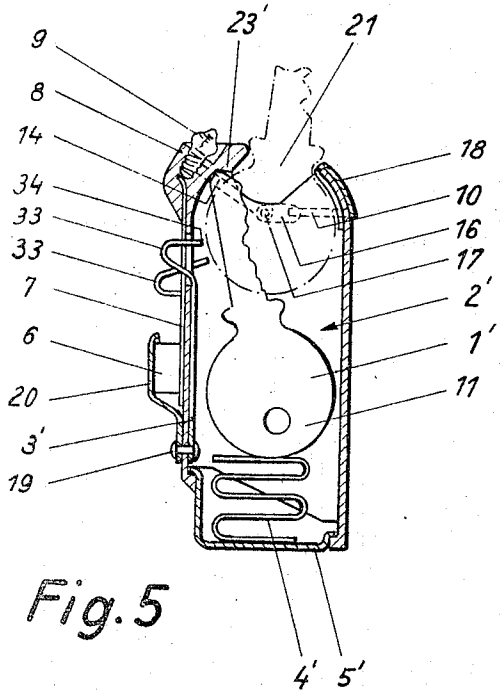


Fig. 5

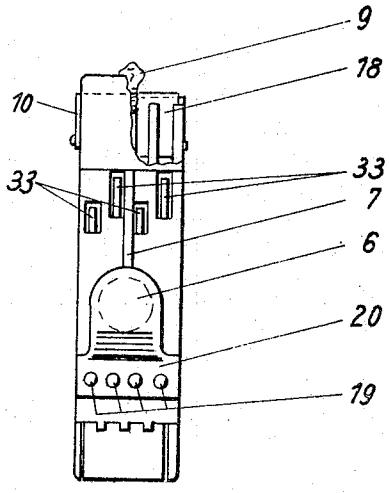


Fig. 6

Fig. 7

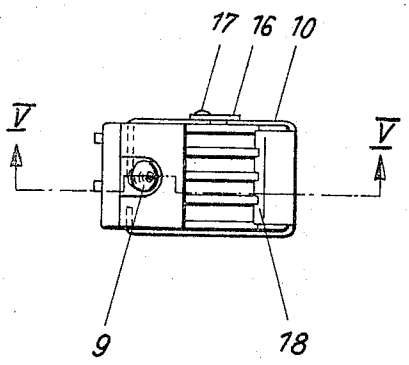
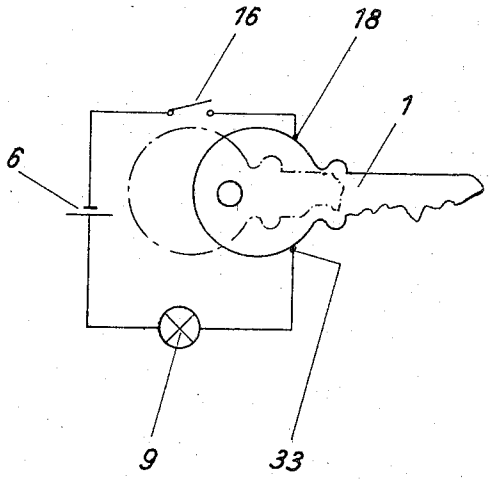


Fig. 8



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3,313,137

KEY HOLDER

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11 Claims. (Cl. 70—456)

This invention relates in general to key holders and in particular to a new and useful key case for one or more keys in which the keys are resiliently biased against a latch or stop within the case in a manner permitting the displacement away from the stop and the projection of the shaft of the key outwardly from the case for use.

The present invention has particular reference to a key case of a type which provides a storage for one or more keys within the case and includes means for releasing the keys selectively.

At the present time, known devices of this nature have many disadvantages especially in respect to the actuating or ejection mechanism for selecting and directing a key out of the container therefor. In most instances, the ejection mechanism will not prevent all of the keys from issuing from the case at the same time. In some instances, the mechanism causes the inclusion of non-selected keys which become interlocked or jammed or project from the casing at undesirable locations. With some types of key case construction, a single key may be ejected from a case when the side walls are pressed to cause the central walls to bulge outwardly. The disadvantages of such construction, however, is that only one key can be accommodated. If more than one key is contained in the case, then all of the keys will be ejected when the case is opened. A further disadvantage in the known key case constructions is that when the keys are ejected in the dark from the case, they cannot be readily introduced into a key slot because of the limited visibility.

It is an object of the present invention to provide a key case which overcomes the disadvantages of the prior art construction by providing a case having means for the selective discharge of one of a plurality of keys which can be carried in the case. In accordance with the invention, there is provided a key case which accommodates one or more keys in a series within separate side by side compartments. Each compartment is provided with a biasing spring at the bottom end which bias the head of the key so that its shaft portion is directed behind a stop or latch defined at the top of the key adjacent an opening. The opening is of a size to permit the exit of the shaft portion, but not of the widened head portion of the key. Each compartment includes an ejector or ejection mechanism which in its simplest form comprises a resiliently mounted member which may be moved inwardly from a side face of a case to bear against the key and direct the shaft portion out of engagement with the latch and through the opening whereupon the biasing spring causes the key to project outwardly through the opening. The biasing spring is such that the key will project through the opening under the force of the spring only to an extent sufficient to permit the shaft end to be grasped and pulled the remaining distance out of the case without being subjected to the influence of the biasing spring. The spring force is sufficient, however, to ensure that the key will not be pushed backwardly into the case out of the operating position without exerting a sufficient force to overcome the biasing of the spring and permit the key to be moved backwardly so that its shaft portion is engaged with the latch.

In accordance with another feature of the invention, the case advantageously includes a light circuit which is completed to cause the light to be turned on when the key is moved to a fully ejected position, at which time the head of the key completes the electrical circuit to effect the shining of the light. The light is oriented so that it is directed in the same direction as the shaft of the key when it projects from the case. The key case is advantageously formed as an elongated member forming a handle for operating the key when the shaft of the selected key projects from the case. In addition, the handle is provided with a current source such as a storage battery for the lighting circuit. The ejector mechanism advantageously includes a metallic spring member with which it is electrically connected to the storage battery and which completes a contact through the head of the key against a metal portion of the case when the key is in an operative position.

Accordingly, it is an object of the invention to provide an improved key case construction.

A further object of the invention is to provide a key case having one or more compartments for accommodating one or several keys with means in each compartment for biasing the shaft of the key against a holding latch within its own compartment and carrying an ejector which may be moved from the exterior of the case against the shaft of the key to free it from the latch and to cause it to project outwardly through an opening in the case in an operative position.

A further object of the invention is to provide a key case having at least one compartment for a key with an ejector mechanism for effecting the release of the key outwardly through an opening in the case and wherein the ejector mechanism includes an electrical circuit which is actuated to light a light only when the key is in an ejected or operative position.

A further object of the invention is to provide a key case in which the plurality of keys may be accommodated with means for selectively ejecting the shank portion of the key while the head portion is retained within the case.

A further object of the invention is to provide a key case which is simple in design, rugged in construction and economical to manufacture.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings in which there are illustrated and described two preferred embodiments of the invention.

In the drawings:

FIG. 1 is a longitudinal section through a key case constructed in accordance with the invention, taken along the line 1—1 of FIG. 3;

FIG. 2 is a side elevational view of the key case of FIG. 1;

FIG. 3 is a top plan view of the case indicated in FIG. 1;

FIG. 4 is an elevational view of a comb spring providing an ejector mechanism and contact element;

FIG. 5 is a longitudinal section similar to FIG. 1 of another embodiment of the invention, and taken on the line 5—5 of FIG. 7;

FIG. 6 is a side elevational view of the case as indicated in FIG. 5;

FIG. 7 is a top plan view of the case indicated in FIG. 5; and

FIG. 8 is a schematic electrical diagram of the lighting circuit.

Referring to the drawings in particular, the invention embodied therein in the embodiment of FIGS. 1–4 comprises a case housing generally designated 2 which, in

the embodiment illustrated, accommodates four (4) separate keys 1 in separate compartments 29 which are separated by partitions 28. The key case is designed for ordinary keys having a head portion 11 which is wider than a shaft portion 12. The head portion 11 includes the usual opening 15.

In accordance with the invention, each key 1 is retained within its compartment by biasing means 4 which urges the pointed end 23 of the shaft portion 12 against a latch or projection 22 formed at the top interior corner 22 of each compartment adjacent a key shaft opening 21. In the solid line position of the key 1 indicated in FIG. 1, the key will be carried within the housing and will not project from the housing unless it is desired to use the same.

In accordance with a feature of the invention, each key may be selectively used by causing the shaft portion 13 to be moved off the latch 22 and projected through the opening 21 to position the key in the dotted line position indicated in FIG. 1 in which case the case or housing 2 would become the handle for operating the key. In order to accomplish this, there is provided an ejection mechanism, generally designated 3, which in the embodiment illustrated comprises a comb spring having a lower bridging portion 3*a* which is adapted to be riveted to the housing so as to extend across the width thereof and to position individual actuating elements for ejectors 32 in each of the compartments 29. Each ejector 32 is aligned with an associated key 1, and includes an outwardly projecting finger engaging portion 33 which extends through an associated opening 26 for each compartment and a contact-making and key-engaging portion 34 which projects inwardly into the associated compartment within the housing.

When it is desired to remove a selected key, the finger engaging portion 33 of the compartment containing the key desired is depressed inwardly to cause the contact portion 34 to move the shaft portion 13 of the key 1 off the latch 22 and to cause it to project through the opening 21. The biasing means 4 is such that it will urge the shaft 13 upwardly to project outwardly beyond the housing to an amount sufficient to permit the key to be grasped and moved outwardly to an operative position, as indicated in dotted lines in FIG. 1. In such a position the projecting portions 34 will engage under the head 11 of the key and will hold it in an operative position so that it will not be pressed backwardly into the housing inadvertently. In the embodiment illustrated, the biasing means 4 comprises a spring member having a plurality of turns 41 which is inserted into the housing from the bottom after the key is first positioned within the selected compartment. The biasing means 4 is retained within the housing by means of a plate 5 having side walls 51 and 52 with projections 53 and 54 thereon which may be sprung over projections 24 and 25 formed at the lower portion of the housing. The side wall 51 is made of relatively thin resilient material so that it may be pressed inwardly for the easy removal of the retaining member or cover 5. It has been found advantageous to have one cover member 5 for all of the compartments 29, but of course individual compartment covers could be provided for each of the compartments to permit selective removal or installation of a key in each.

As best indicated in FIG. 3, the projecting finger engaging portions 33 may advantageously be made to project by different amounts and may, for example, be of a different color in order to make the identification of the key within the compartment easy. With the construction described above, the key 1 will always be retained securely within the housing 2 and there will be no possibility that it will be dislodged completely from the housing since the head is made larger than the opening 21. In addition, the key will always be retained in a non-operable position unless the finger engaging portions 33 are depressed. In order to ensure that the key will have no tendency to be pressed out of the operative position indicated in dotted lines because of the resistence of the tumblers and the lock, for example, the associated finger engaging portion 33 may be depressed to hold the key in the operative position by causing the projecting portion 34 to engage under the head. It should be also noted that the openings 26 for the finger engaging portions 33 are arranged in a staggered manner so that each finger engaging portion may be engaged without engaging one of the others.

In the embodiment indicated in FIGS. 5–8, there is provided a housing 2′ which includes the ejector biasing and latching mechanisms of the other embodiment which are similarly designated but with a prime. In this embodiment, the upper part of the housing is provided with a bossed portion or projecting defining a cavity for a light bulb 9 which is electrically connected through a cable or contact element 7 to one side of a dry cell or battery 6 which is mounted in a receiver or pocket 20 formed by a resilient member which is held to a side of the housing by means of a rivet 19. The resilient member 20 is an electrically conductive element which is connected through the rivet 19 to the ejector comb generally designated 3′.

The electrical lighting circuit is completed by contact through the comb member projection 34 with the head 11 of the key 1′. The other side of the key head 11 is forced into engagement with the conductive element 18 which completes the circuit to ground. Thus, when the key is an operative position, the projection 34 is made to bear against the key either by exerting a slight additional pressure or by the natural resilience of the comb element 3. A feature of the construction is that the light 9 will be flashed on whenever the key is in an operative position and it will be disconnected when the key is returned within the casing or housing 2′. An additional sliding switch member 16 is provided on one side of the housing in order to provide an independent means for disconnecting the circuit when the key is in an operative position. The switch 16 is connected in the electrical circuit by means of the conductive elements 14 and 10 carried by the housing and seperated by a gap. The switch 16 is provided with a raised button 17 to permit sliding thereof. The switch 16 is rather difficult to move so that accidental disconnection can be prevented.

While two specific embodiments of the invention have been shown and described in detail to illustrate the application of the inventive principles, it will be understood that the invention may be embodied otherwise without department from such principles.

What is claimed is:

1. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having an opening large enough to permit passage of only the shank portion of the key, mean defining a latching recess in said housing adjacent to but offset from the opening for receiving an end of said shank portion of the key and holding it in a position withing said housing at which it is not aligned with and will not move through the opening, means for biasing a key positioned in the housing into said latching recess, and ejector means displaceable against said key to move the end of its shank portion out of the recess into alignment with and through the opening of the housing to an operative position in which the head portion remains within the housing.

2. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having an opening large enough to permit passage of only the shank portion of the kep, a latch defined in said housing adjacent to and offset from the opening for engaging the key and holding it withing said housing out of alignment with the opening, means for biasing a key positioned in the housing against said latch, and ejector means for disenegaging the key and moving its shank portion out of engagement with the latch and into alignment with the opening of the housing, said biasing means acting to urge the shank portion to project out of the housing, said

ejector means including a finger member exposed outside of said housing being movable, said finger member having a portion extending inside said housing and engageable with the key to move it out of engagement with said latch and into alignment with the opening when said finger member is moved.

3. A key holder for a key having engaging shank portion and a widened head portion comprising a housing having an opening large enough to permit passage of only the shank portion of the key, a latch defined in said housing adjacent to and offset from the opening for engaging the key and holding it within said housing out of alignment with the opening, means for biasing a key positioned in the housing in a direction toward said opening but against said latch, and ejector means for disengaging the key from said latch and moving its shank portion into alignment with the opening of the housing, said biasing means being effective after alignment of the key with the opening to move the shank portion through the opening, said housing having an access for insertion and removal of the keys in an end opposite from said opening and a removable cover member closing said access.

4. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having a key shank opening at one end large enough for permitting passage of only the shank portion of a key, said housing having an interior projection adjacent to and offset from said opening, spring means in said housing for biasing a key positioned in the housing so that its shank portion will be engaged behind the projection of said housing and out of alignment with the opening, and ejector means for moving the key shank portion over the projection into alignment with the opening, said spring means being effective to move the shank portion out through the opening of said housing after it is aligned with the opening.

5. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having a key shank opening at one end large enough for permitting passage of only the shank portion of a key, said housing having an interior projection adjacent to and offset from said opening, spring means in said housing for biasing a key positioned in the housing so that its shank portion will be engaged behind the projection of said housing and out of alignment with the opening, and ejector means for moving the key shank portion over the projection into alignment with the opening, said spring means being effective to move the shank portion out through the opening of said housing after it is aligned with the opening, said ejector means including a finger member exposed outside of said housing for operation by a finger of a user and including a portion adapted to contact the key inside said housing and move it off said projection.

6. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having a key shank opening at one end large enough for permitting passage of only the shank portion of a key, said housing having an interior projection adjacent to and offset from said opening defining a latch, spring means in said housing for biasing a key positioned in the housing so that its shank portion will be engaged behind the projection of said housing and out of alignment with the opening, and ejector means for discharging the key and moving the key shank portion over the projection into alignment with the opening, said spring means being effective to move the shank portion out through the opening of said housing after it is aligned with the opening, said ejector means including a finger member exposed outside of said housing for operation by a finger of a user and including a portion adapted to contact the key inside said housing and move it off said projection and to remain in contact with the head of said key when the shank portion is moved out of said housing, a light mounted on said housing, current producing means carried by said housing, an electrical circuit connected between said light and said current producing means, said circuit including said ejector finger member which completes the circuit through the contact of a key therewith and with a grounded portion of said housing.

7. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having a key shank opening at one end large enough to permit only the passage of the shank portion of the key and not the head portion thereof, a projection defined on the interior of said housing adjacent to and offset from said shank opening, an access opening at the opposite end for effecting the insertion and removal of the key, a cover adapted to close said access opening, a spring within said housing adapted to bear on one side against said cover and at its opposite side against the head portion of a key to bias said key shank portion against the projection in a position out of alignment with the opening, and a resilient finger member secured to said housing and having a portion projecting outwardly from a side of said housing and a portion projecting into said housing and adapted to be moved against said key upon depression of the outside portion to move said key over the projection into alignment with the opening to permit the shank portion to be moved out of said opening by the action of said spring.

8. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having a plurality of compartments for a plurality of keys, each of said compartments having an opening of a size large enough to permit passage of only the shank portion of the key therethrough, the interior of each of said compartments including a projection against which the end of the shank portion of the key is adapted to be latched, spring means in each of said compartments urging the key upwardly against the projection into latching engagement, and an ejector finger carried by said housing adjacent each of said compartments and including a portion projecting outwardly from a side of said housing and a portion projecting inwardly into said housing and adapted to be moved against said key to dislodge it from said projection, said spring being of a size to cause the shank portion of the key to be forced out of the opening of said housing by an amount sufficient to be engaged by the fingers of a person's hand, said key being movable further until the head portion is positioned adjacent said opening and within said housing, said finger member being engageable with said head portion to hold said head portion adjacent the opening during the operation of the key, said finger member for each of said compartments comprising a comb-like member having a bridging portion adapted to be secured to said housing with individual finger portions extending outwardly from said comb portion adjacent each of the respective compartments.

9. A key holder according to claim 8, wherein some of said finger portions are of different lengths.

10. A key holder according to claim 8, wherein said finger portions each include an outwardly projecting finger engaging portion, alternate ones of said projecting portions of said fingers being offset.

11. A key holder for a key having a lock engaging shank portion and a widened head portion comprising a housing having at least one compartment for a key, said compartment having an opening of a size large enough to permit passage of only the shank portion of the key therethrough, the interior of said compartment including a projection against which the end of the shank portion of the key is adapted to be latched, spring means in said compartment urging the key upwardly against the projection into latching engagement, and an ejector

finger carried by said housing adjacent said compartment and including a portion projecting outwardly from a side of said housing and a portion projecting inwardly into said housing and adapted to be moved against said key to dislodge it from said projection, said spring being of a size to cause the shank portion key to be forced out of the opening of said housing by an amount sufficient to be engaged by the fingers of a person's hand, said key being movable further until the head portion is positioned adjacent said opening and within said housing, said finger member comprising a comb-like member having a bridging portion adapted to be secured to said housing with a finger portion extending outwardly from said bridging portion adjacent the compartment.

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