July 8, 1941. J. V. RIVERS 2,248,436

KEY CONTAINER

Filed Jan. 15, 1940

Fig. 1.

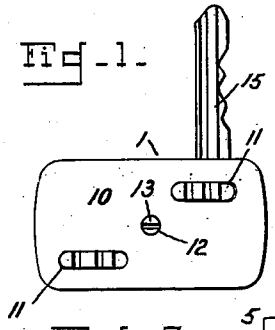


Fig. 2.

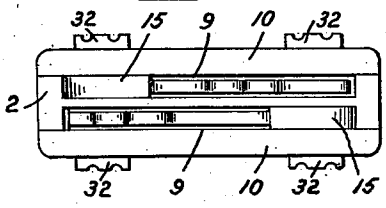


Fig. 4.

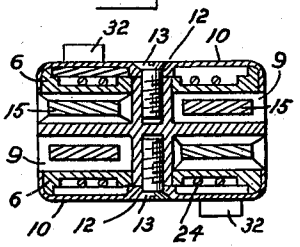


Fig. 7.

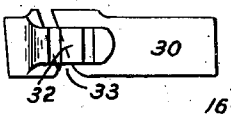


Fig. 3.

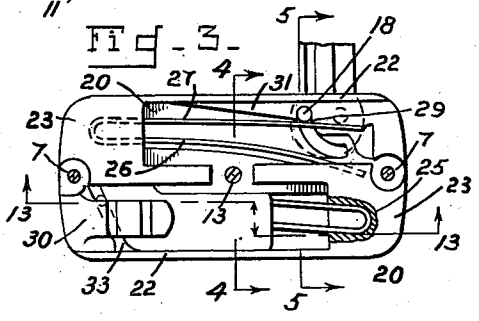


Fig. 5.

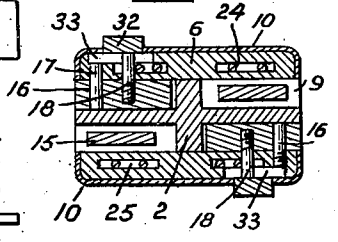


Fig. 8.

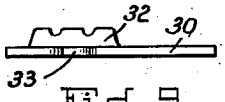


Fig. 6.

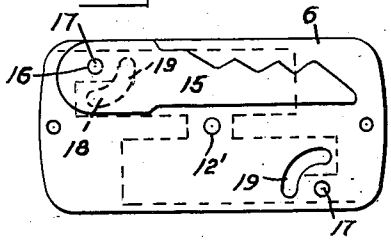


Fig. 9.

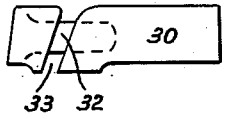


Fig. 11

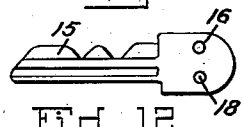


Fig. 12.

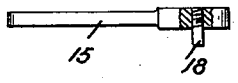


Fig. 10.

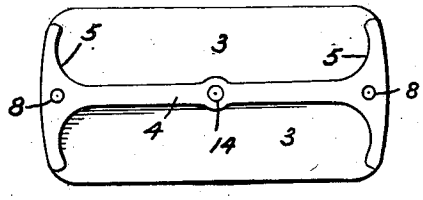


Fig. 14.

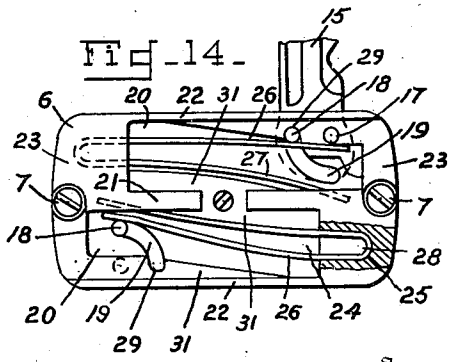
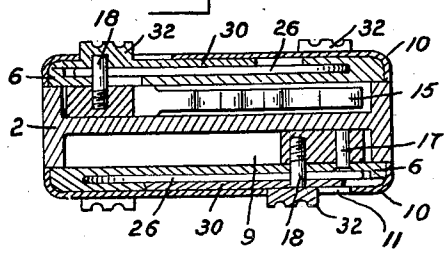


Fig. 13.



Inventor

John V. Rivers,

By

Attorney

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UNITED STATES PATENT OFFICE

2,248,436

KEY CONTAINER

John V. Rivers, Columbus, Ohio

Application January 15, 1940, Serial No. 313,980

7 Claims. (Cl. 70—456)

This invention relates to certain new and useful improvements in key containers or holders of that type designed for holding one or more keys in compact form so as to be conveniently carried in the pocket of a garment of the user, or in a pocket book, hand bag, purse or other like article or receptacle so as to be readily available to the user, and in which the keys are normally enclosed in the container to prevent injury to the keys or to the garment or article in which the key container is carried or stored.

The primary object of the invention is to provide a key container which may be made in a neat and attractive form of metal, hard rubber, Bakelite or other plastic materials so as to be light in weight and of such small dimensions as to allow it to be carried in a small garment pocket, lady's purse or other like receptacle.

A further object of the invention is to provide a key container which is adapted for holding a plurality of automobile keys or house or office keys and to allow selected keys to be easily and conveniently projected for use and retracted after use.

A still further object of the invention is to provide a key container so constructed as to allow the container to be held in one hand and any key to be projected and retracted by the thumb or a finger of the hand.

A still further object of the invention is to provide a key container which is simple of construction and free from complex parts liable to get out of order and which, while adapted to hold a number of keys, is so compact that it may be used to apply keys to locks in confined spaces, such as in recessed instrument boards.

A still further object of the invention is to provide a container which while of rigid body type to effectually protect the keys and to be proof against wear thereon by the keys, is so formed as to be devoid of surfaces liable to wear holes in a garment pocket or receptacle in which it is carried.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:

Fig. 1 is a view looking toward one side of a key container constructed in accordance with my invention, showing one of the keys in projected position.

Fig. 2 is a longitudinal edge view thereof.

Fig. 3 is a view similar to Fig. 1 of the container with the cover plate at that side of the container removed.

Fig. 4 is a transverse section through the container on line 4—4 of Fig. 3.

Fig. 5 is a similar section through the container on line 5—5 of Fig. 3.

Fig. 6 is an inner side view of one of the supporting plates showing one of the keys of the pair carried thereby as applied and the other removed.

Figs. 7, 8 and 9 are, respectively, an outer face view, a longitudinal edge view and an inner face view of one of the key-projecting slides.

Fig. 10 is a view looking toward one of the faces of the body or partition plate.

Figs. 11 and 12 are plan and edge views of one of the keys.

Fig. 13 is a longitudinal section on line 13—13 of Fig. 3.

Fig. 14 is a view similar to Fig. 3 with cover plate and slides removed illustrating the actions of the springs in the projected and retracted positions of a pair of keys.

In the exemplified embodiment of my invention herein disclosed, the container 1 comprises a main central or partition plate 2, each face 3 of which is a duplicate of the other and on each side of which are arranged sets of key holding and actuating elements, each a duplicate of the other so that a description of one set will suffice for both.

Each face 3 of the plate 2 is provided with a central longitudinally extending partition rib 4 and transverse end ribs or abutments 5 on which rests a supporting or carrier plate 6 detachably secured thereto by screws or other suitable fastenings 7 engaging threaded sockets 8 in the ribs 5. The ribs and plates cooperate to form key receiving chambers or spaces 9 closed at their inner sides by the rib 4 and opening at their outer sides through the longitudinal edges of the container. Disposed on the outer side of the plate 6 is a cover plate or cap 10 of dished or concavo-convex form longitudinally and transversely, the depending portions or flanges of which fit about or embrace the longitudinal and transverse edges of the plate 6. This plate 10 is provided on each side of its longitudinal center adjacent each end with a guide slot 11 and it is also provided with a central opening 12 registering with a correspondingly arranged opening 12' in the plate 6 for passage of a screw or like fastening 13 entering a threaded socket 14 formed in or as a part of the rib 4, whereby said plate 10 is detachably fastened in position.

Mounted at opposite ends of the chambers 9 to

swing into and out of these respective chambers are keys 15. The butt or head end of each key is provided with an opening 16 to engage a pivot pin 17 projecting from the inner face of the plate 6 whereby it is pivoted to swing into and out of its chamber, and adjacent to and at one side of its pivot opening the key is provided with a combined crank pin and locking pin 18. This pin 18 projects toward the outer face of the plate 6 through an arcuate slot 19 in which said key is movable in the swinging motion of the key. The slots 19 open into and are arranged at opposite ends of longitudinal recesses 20 formed in the outer face of the plate 6, said recesses being separated by a rib 21 and having outer side walls 22. The rib 21 and side walls 22 cooperate with unreduced portions 23 of the plate 6 to form a seat surface for the cover plate 10 and serve also as abutments for key controlling springs 24. Each portion 23 of the plate 6 is undercut to form a keeper socket 25 communicating with the adjacent end of the associated recess 20.

The springs 24 are of ribbon type and U-shaped, each spring having inner and outer limbs 26 and 27 connected at one end by a bend or return portion 28. The springs are seated in the recesses 20 and extend longitudinally thereof and have their bent ends 28 confined in the keeper sockets 25 and their free ends projecting toward and overlying the slots 19. As shown, the inner limbs 26 of the springs normally bear at their free ends against the rib 21 while the free ends of the outer limbs of the springs are engaged on their outer faces by the pins 18 on the keys whereby on an inward swinging movement of each key into its receiving chamber the associated spring will be compressed and placed under tension.

Each arcuate slot 19 has an inner end portion substantially parallel with the longitudinal axis of the container and an outer end portion substantially parallel with the transverse axis of the keeper, the end wall of said outer end portion forming a stop 29. When a key is swung inwardly its pin 18 rides back into the slot 19 and in so doing compresses its actuating spring which is compressed to the maximum degree at the time the pin enters the inner end of the slot and moves to a position beyond center or in rear of the pivot pin 17, against the outer side wall of which slot end the pin is pressed by the spring, with the result that the key is locked against outward swinging movement and the spring held compressed. To effect an outward movement of the pin in the slot 19 an actuating slide 30 is provided. Movement of this slide forward from its normal position causes the pin 18 to be forced into the body portion of the slot 19, whereby it is unlocked and the spring is free to move and exert its tension to force the pin outwardly into the outer end portion of the slot and against the shoulder 29, thus swinging the key out to projected position. This movement of the key is limited to a position in which it is at right angles to the container by the stop action of the end wall or shoulder 29 of the outer end portion of slot 19. As this portion of slot 19 is arranged substantially parallel with the transverse axis of the container, the pressure of the spring on the pin 18 in this position of the parts will cause the key to be locked in its projected position from which it cannot be moved backward in a retractive direction by backward movement of the slide. A slight pressure in key closing direction of the thumb or finger of the hand holding the container, however, will serve to release the pin 18 from the outer end portion of slot 19 and allow the key to be swung back to retracted position within its receiving chamber, during which action the key will be locked from outward movement and the spring compressed or placed under tension in the manner previously explained for subsequent release by movement of the slide and the automatic projection of the key.

Each slide 30 comprises a plate mounted for movement beneath the plate 10 on ledges 31 arranged alongside the rib 21 and walls 22 on the plate 6, said slide being formed or provided with a thumb button or finger piece 32 projecting outwardly through and movable in a slot 11 in the plate 10. The slide plate 30 is provided in its underside or inner face with a slot 33 receiving and engaging the combined crank and locking pin 18 on the associated key 15. The slot 33 is arranged at an angle to the longitudinal axis of the slide plate so that its walls form cam surfaces for cooperation with the crank pin to unlock the retracted key for projection by the tensioned spring and for retraction by manual pressure on the key during which the spring is tensioned.

The construction described provides a key container which is of substantially oblong rectangular form in plan, preferably rounded at its ends and corners so as to be devoid of angular surfaces liable to catch in the lining of a pocket, purse, or other receptacle in which the container is arranged and to wear a hole in the lining. This container is of a length not greatly exceeding the length of keys of a form to be contained therein, which may be flat keys of Yale or similar type. For the purpose of reducing the length of the keys, and correspondingly reducing the length of the container, a portion of the head of each key may be sheared off, leaving sufficient head area for the formation of the pivot opening 16 and mounting of the combined crank pin and locking pin 18. The container may, therefore, hold as many as four keys, while being so small and compact that it may be conveniently carried in a vest pocket or other small pocket or in a purse, hand bag or like receptacle, or in a pocket therein. In the exemplification disclosed, the container is provided on each side of its main plate 2, and between the same and each cover plate 10, with compartments to receive two keys which may be automobile keys or keys used for any other purpose or purposes and which are customarily carried by an individual on his person. By the provision of a container of compact form holding as many as four keys, it will be understood that three of these keys may comprise ignition, door and compartment or pad lock keys of an automobile, while the fourth comprises a house or office door key or the like. The principle of the invention may, of course, be employed in the construction of a container for holding keys of the type described of a normal length or which are unreduced in size by the shearing away of the head of each key for the purpose of reducing its length, and the form and size of the container may be such as to adapt it to hold all general styles of keys, with certain exceptions, which are of a form and construction most generally in use.

As before stated, the sets of key-holding and actuating elements are in duplicate on each side of the main or partition plate 2, each set being adapted to hold and control the action of two keys, allowing four keys of a similar type to be

carried. The push buttons of the slides 30 which control the keys may be provided with numbers or marks to identify or indicate the purposes for which the respective keys are intended or the locks in connection with which they are to be used. The size and shape of the container is such that it may be conveniently held in a hand of the user and a key projected by pressure of the thumb of the hand on the thumb button 32 to move the slide in key unlocking or releasing direction, which is effected by engagement of one of the walls of the slot 33 of the slide with the pin 18, the key upon being so released being instantly swung on its pivot to projected position by the action thereon of its tensioned impelling spring. The key upon being so projected will be locked in the manner previously described in projected position so that it cannot be moved out of fully projected position or retracted until unlocked for the purpose, which cannot be effected by backward movement of its actuating slide. Each projected key, however, may be readily unlocked and swung back to retracted position by pressure of a thumb or forefinger of the hand holding the container on the key, the movement of the key back to retracted position within its receiving compartment causing the tensioning of its impelling spring and the final locking of the key in retracted position ready for a subsequent unlocking movement by its actuating slide and projection by the spring upon manual actuation of the slide in the key projecting direction.

A special feature of my invention, aside from the general construction of the container allowing compactness to be obtained, resides in the fact that each key is adapted on actuation of a part to be projected by a spring, and to be manually retracted, thus avoiding the annoyances and difficulties present in ordinary holders of the user having to attempt to manually extract a key. Another important feature of my invention is that the key when manually retracted, which is easily effected, automatically tensions or sets its spring for a subsequent key projecting action, while the key is at the same time at the end of its retractive movement locked in retracted position. Other important or advantageous features of my invention reside in the general construction of the holder and mode of mounting the key and its controlling parts, whereby simplicity of construction as well as compactness of parts are also obtained. In practice, the container, as stated, may be made of metal, or of Bakelite or other plastic materials. When made of metal the fastening screw-receiving sockets are directly formed in the metal. When made of Bakelite or other plastic materials the sockets may be in the form of metal inserts embodied in the plastic material.

While the structure herein disclosed for purposes of exemplification is preferred, it is, of course, to be understood that changes in the form, construction and arrangement of the parts within the scope of the appended claims may be made without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim is:

1. A key container comprising a holder having a key receiving compartment, a key pivoted at one end to the holder to swing between retracted and projected positions into and out of said compartment, a spring on the holder adapted to be tensioned by the key on its retracting movement for automatically projecting the key, a projection on the pivoted end of the key located at one side of and substantially in transverse alinement with its pivot and engageable with the spring for tensioning said spring in the retracted movement of the key, said projection being movable on the retraction of the key to a position beyond the dead center line between the pivot and spring for locking the key against movement by the spring in its retracted position, and a slide on the holder for releasing the key for projection by the spring.

2. A key container comprising a holder having a key receiving compartment therein, a key pivoted to the holder to swing into and out of said compartment between retracted and projected positions, a spring adapted to be tensioned by the key on its retractive movement, means including a pin on the key for tensioning the spring, locking the key in retracted position and releasing it for projection by the spring, and means for releasing the key for projection by the spring.

3. A key container comprising a holder having a key receiving compartment therein, a key pivoted to the holder to swing into and out of said compartment between retracted and projected positions, a spring adapted to be tensioned by the key on its retractive movement, means including a pin on the key for tensioning the spring, locking the key in retracted position and releasing it for projection by the spring, and a slide on the holder engageable with said pin for releasing the key for projection by the spring.

4. A key container comprising a holder having a key receiving compartment, a key pivoted to swing into and out of said compartment between retracted and projected positions, a looped spring having arms one normally engaging the container and the other movable to tension the spring and project the key, a pin on the key engageable with the latter-named arm of the spring for tensioning the spring and for action thereon by the spring to project the key, said pin being movable to a position on the inner side of its pivot when the key is retracted to lie between said pivot and said latter named arm of the spring to lock the key against projection by the spring, and a slide on the holder having a portion engageable with the pin to release the key and to permit of its projection by the spring.

5. A key container comprising a holder having key containing compartments at opposite sides thereof, keys pivotally mounted at opposite ends of the holder for swinging movements into and out of the respective compartments between retracted and projected positions, springs on the holder adapted to be tensioned to project the keys, pins on the keys arranged at one side of their pivots and engageable with the springs to tension the springs on the retractive movement of the keys and movable to positions on the inner sides of their pivots to lock the keys in retracted position and for the action of the springs thereon to subsequently project the keys, the pins in their retractive positions being arranged to lock the keys against projection by the springs, and slides on the holder having portions engageable with the pins to effect release of the keys for projection by the springs.

6. A key container comprising a holder of substantially oblong rectangular form having key containing compartments at opposite sides thereof, keys pivoted each at one end to the holder for swinging movements into and out of the respective compartments, springs in the holder adapted to be tensioned by the keys on the retractive movement of the keys for subsequent

reaction to swing the keys to projected position, projections on the keys for engaging and tensioning the springs and arranged to move to a position inside their pivots when the keys are retracted for locking the keys in retracted position against projection by the springs, and slides on the holder engageable with said projections for releasing the keys to permit of their projection by the springs.

7. A key container comprising a holder of substantially oblong rectangular form and consisting of a central main or partition plate, a supporting plate on each side of the partition plate, said plates being spaced to form key receiving compartments on opposite sides of the longitudinal center of the holder, keys pivoted to the holder to swing into and out of said compartments, springs mounted in the supporting plates and adapted to be tensioned by the keys on their retractive movement to subsequently project the keys, pins on the keys disposed adjacent to and at one side of the pivots of the keys for engagement with the springs to tension the same and movable to positions in the retractive positions of the keys to lock the keys against projection by the springs, cover plates overlying the supporting plates on opposite sides of the holder and having slots therein, and slides mounted on the supporting plates, one for cooperation with each key, each slide having a thumb or finger piece projecting outwardly through a slot in a cover plate and having a portion for cooperation with the pin of an associated key to shift a retracted key to released position for automatic projection by its spring.

JOHN V. RIVERS.