Oct. 18, 1966 R. HENDERSON 3,279,513

KEY HOLDER WITH PIVOTAL, ROTATABLE KEY HANGERS IN SEPARATE KEY COMPARTMENTS

Filed Feb. 12, 1965 2 Sheets-Sheet 1

Fig. 1.

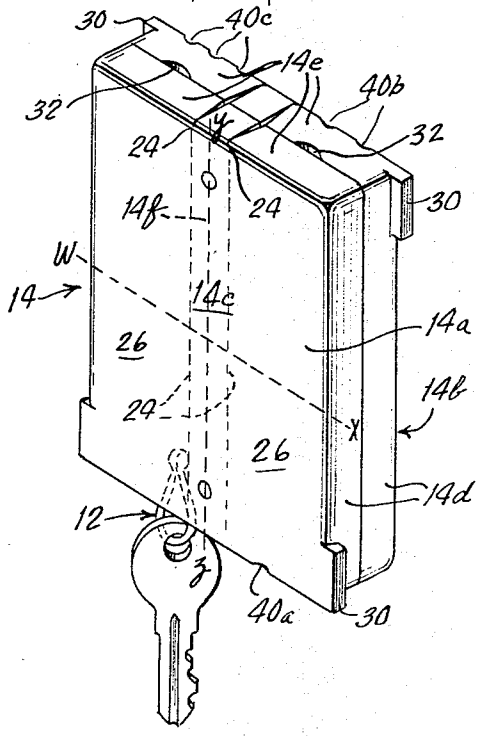


Fig. 2.

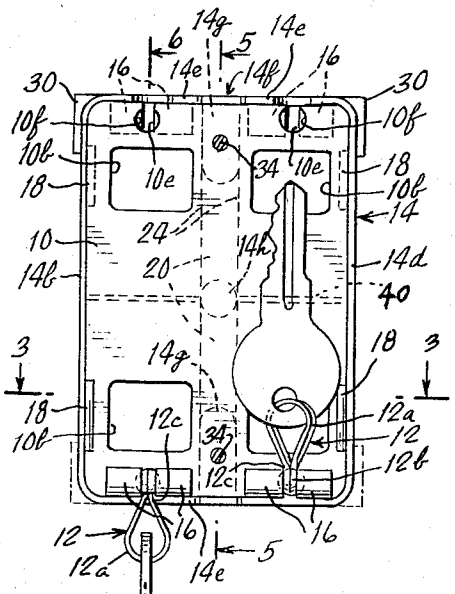


Fig. 3.

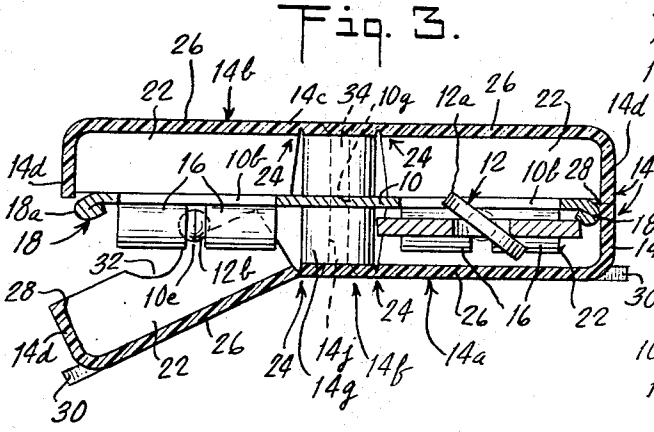
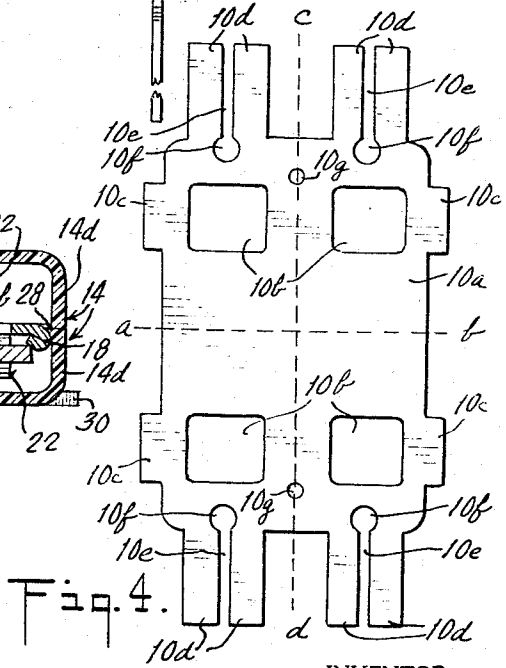


Fig. 4.



INVENTOR:

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KEY HOLDER WITH PIVOTAL, ROTATABLE KEY HANGERS IN SEPARATE KEY COMPARTMENTS

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Fig. 5.

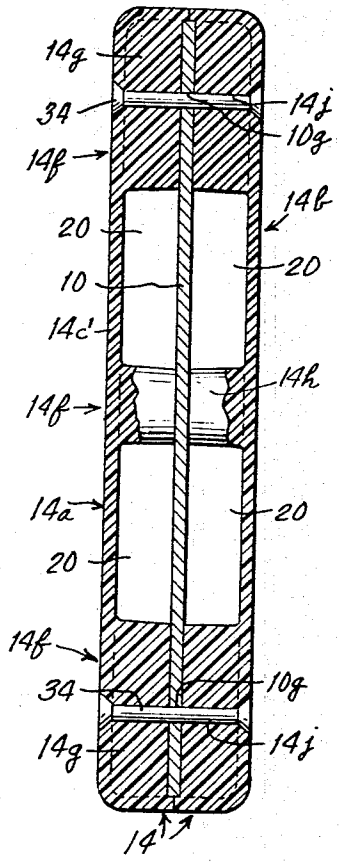


Fig. 6.

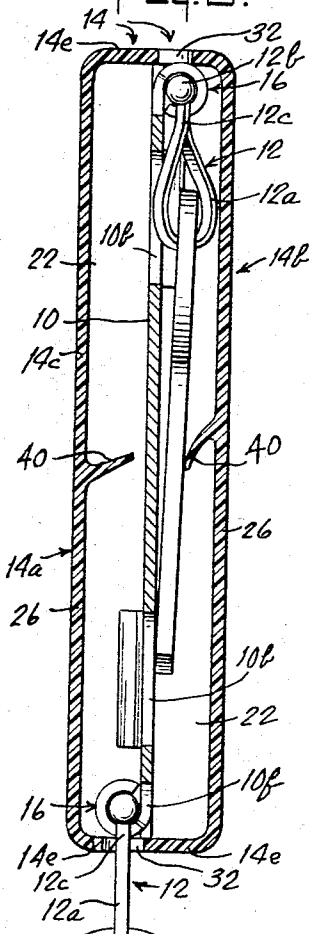


Fig. 7.

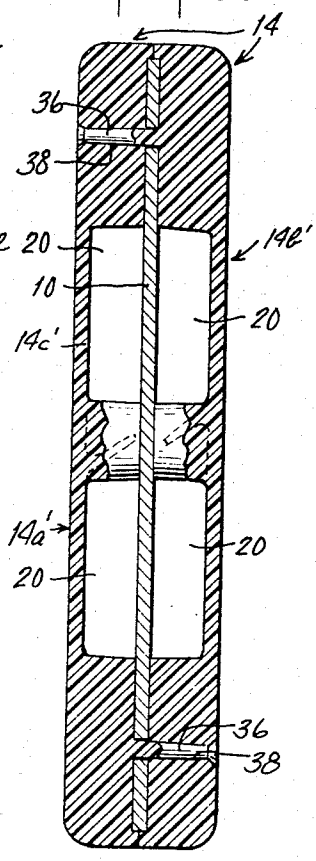


Fig. 8.

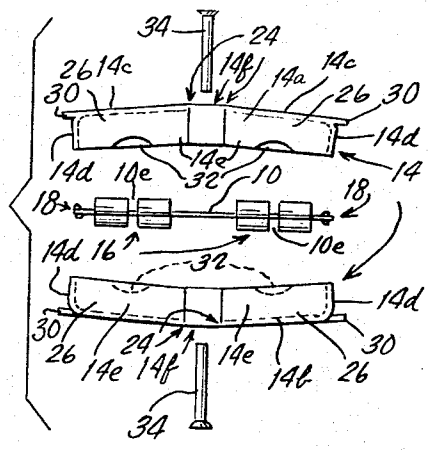
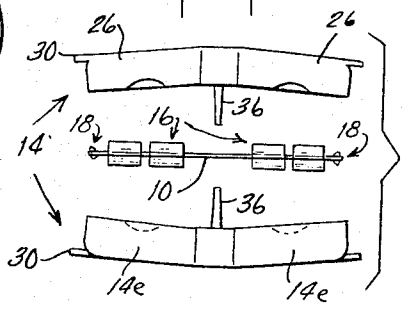


Fig. 9.



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3,279,513

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3,279,513

KEY HOLDER WITH PIVOTAL, ROTATABLE KEY HANGERS IN SEPARATE KEY COMPARTMENTS

Robert Henderson, 40 Mohawk Road, Short Hills, N.J.

Filed Feb. 12, 1965, Ser. No. 432,159
8 Claims. (Cl. 150—40)

This invention relates to devices which accommodate a plurality of keys therein and which, ordinarily, are carried in a user's pocket or handbag. The present invention is an improvement over the key holder disclosed in my Patent No. 2,291,896, dated August 4, 1942.

It has been found that a key holder as disclosed in said patent is unsatisfactory in some respects and so costly to manufacture that it cannot be competitively marketed.

The principal objects of the present invention are to provide an inexpensive key holder for holding plural keys and capable of being readily opened to uncover and present any selected one of the keys for use without uncovering any of the other keys; to provide for the uncovered key to be pivotable relatively to the holder in use; to provide simplified but improved means for attaching keys to the holder; and to enable a user to uncover a selected key for use under guidance solely of the sense of touch, such guidance being, of course, available from the sense of sight where light conditions permit.

The foregoing and other objects, which will be apparent from the following description, are attainable from the present invention of which a preferred embodiment and several variations thereof are illustrated in the accompanying drawing without, however, limiting the invention to said embodiment and variations.

In the accompanying drawing:

FIGURE 1 is a perspective view of a key holder according to the mentioned preferred embodiment with one of plural keys, carried by the holder, in extended position in readiness for use in the lock which it is designed to open.

FIG. 2 is an elevational view of the interior of the holder; a front half of the holder's casing (as viewed in FIG. 1) being omitted to disclose details of the inside of the device.

FIG. 3 is an enlarged, transverse sectional view of the device, substantially on the line 3—3 of FIG. 2, but including both halves of the casing and showing one key compartment cover as hingedly swung open briefly toward open position to enable the key in that compartment to swing out to its FIG. 1 and FIG. 2 position for use.

FIG. 4 is a plan view of a compartment-dividing plate blank of sheet metal or other suitable relatively rigid sheet material.

FIG. 5 is an enlarged, sectional view, substantially on the line 5—5 of FIG. 2 showing the compartment-dividing plate sandwiched between two identical halves of the device's casing and being held thus by two rivets or grommets.

FIG. 6 is an enlarged, sectional view, substantially on the line 6—6 of FIG. 2.

FIG. 7 is an enlarged, sectional view, differing from FIG. 5 only in showing projecting studs of each half of the casing employed instead of rivets or grommets as means for holding the casing halves and the compartment-dividing plate together.

FIG. 8 is an exploded, endwise elevational view of the device, including the grommets of FIG. 5, but omitting hangers provided for the keys.

FIG. 9 is a similar exploded view but showing the stud means of FIG. 7 for holding the casing halves and the backbone plate together.

The illustrated preferred embodiment comprises, as its principal parts, a relatively rigid mounting plate **10**, key

hooks or hangers **12**, carried by the mounting plate for pivoting and rotation relatively thereto a casing or key enclosure **14** which, with said plate, forms separate compartments for separate keys, and means for securing together two similar elements **14***a*, **14***b*, of said casing with the plate **10** sandwiched therebetween.

The plate **10** is oblong and generally flat and preferably is of sheet metal, although it may be of other suitable sheet material such as, for example, relatively stiff plastic material. In an initial step in its manufacture, the sheet metal plate is a flat blank **10***a* approximately of the form shown in FIG. 4. This blank is conventional as to its form both with respect to a transverse central line *a . . . b* and with respect to a longitudinal central line *c . . . d*. The plate is formed with four similar cut-outs **10***b*, four side ears **10***c*, and four pairs of end ears **10***d*, given the character of pairs by slots **10***e* which open, at their outer ends, at the periphery of the blank and terminate, at their inner ends, in enlarged openings **10***f*. Additionally, the plate is formed with two circular holes **10***g* through which extend certain holding means, in a complete key holder, to hold the plate **10** and the casing **14** together, as hereinafter explained.

The plate **10** is given its final form by deformation of the ears **10***d* and **10***c* of the blank from the main plane of the blank **10***a*.

The ears **10***d* at the top of the plate **10**, are rolled into loops or hanger retainers **16**, the loops at the top of the plate being rolled rearwardly or rightwardly, as in FIGS. 2 and 6, respectively, and those at the bottom of the plate being rolled forwardly or leftwardly, as in the last-mentioned figures. In forming these loops, the ears **10***d* of each pair are maintained in parallelism so that the slots **10***e* are maintained of uniform width; and the ends of the ears **10***d* come into contact with or close relationship to the flat part of the plate **10** to close the slots **10***e*.

The ears **10***c* of the blank **10***a* are deformed as shown in FIGS. 2 and 3 to constitute them as striker members **18** of latch arrangements hereinafter described. These ears, at the lower part of the blank, are bent forwardly as the striker members **18** as in FIG. 2, or i.e., downwardly as in FIG. 3. The corresponding ears, at the upper part of the blank, are bent rearwardly as shown in broken lines in FIG. 2. As may best be undesrtood from FIG. 3, the extremities of the ears forming the striker members **18** are folded inwardly to provide smooth, rounded latching surfaces **18***a* at the outer ends of said members.

The key hooks or hangers **12**, as illustrated, are all like and each is in the form of a loop **12***a* of thin wire-like spring material such as, for example, steel, the ends of the spring material being in yieldable interengagement and being enlarged to form an enlarged, pivotal member **12***b*. The loop **12***a* converges to form a neck portion **12***c* adjoining the pivotal member **12***b*, this neck portion being thinner than the width of slots **10***e*.

The pivotal member is shown as a ball which is of slightly less diameter than the diameter of the enlarged opening **10***f* of its related hanger retainer **16** and of greater diameter than the width of the slots **10***e*. This permits the key hanger **12** to be attached to the retainer **16** merely by inserting the pivotal member **12***b* into the enlarged opening **10***f* and then sliding the hanger around the retainer with the pivotal member **12***b* within the retainer, the neck portion **12***c* extending through the slot **10***e*, and the loop **12***a* outside of the hanger retainer. As is hereinafter explained, the various parts of the key holder are in such coacting relationship that the key hangers **12** cannot accidentally become separated from the device in normal use.

The casing or key enclosure **14** comprises the two elements **14***a* and **14***b* which, advantageously, are identical as to all parts thereof which cooperate with each other in

the use of the device or in holding the parts of the device together. These two elements need differ only in some identifying characteristic by means of which a user of the device may distinguish between several key compartments thereof. For convenience, the difference just mentioned is ignored herein, in referring to the element **14***a* and **14***b* as "substantially identical."

As the casing elements **14***a* and **14***b* are substantially identical in the sense indicated, the following description of element **14***a*, applies to element **14***b*. These two elements, preferably, are molded of plastic material such as, e.g., polypropylene, largely because of the facility of this specified plastic material hingedly to bend back and forth an almost infinite number of times without breaking.

Referring to the casing element **14***a*, it has a main wall **14***c* which, when the device is closed, is flat. The periphery of this main wall merges into integral side flanges **14***d* and pairs of integral top and bottom flanges **14***e*. The elements **14***a* and **14***b*, like the plate **10**, are conventional as to form, both with reference to a transverse central line *w* . . . *x*, and with reference to a longitudinal central line *y* . . . . *z* (FIG. 1).

Centrally of the casing element **14***a* and extending longitudinally thereof, is a mounting portion **14***f* comprising an outer wall **14***c'*, coplanar with and shown as a part of the main wall **14***c*, inner, end blocks **14***g* adjoining and preferably integral with the outer wall **14***c'*, and a center block or post **14***h*, also preferably integral with the wall **14***c'*. Although, within this invention, the blocks **14***g* and **14***h* may be unified or continuous as a single longitudinally extending stiffening member, it is advantageous to have them separate, as indicated, to provide intervening interior spaces **20** for a purpose hereinafter explained.

It may be seen, particularly by reference to FIGS. 2, 3, and 6, that the casing elements **14***a* and **14***b* are substantially dish-shaped so that the casing walls **14***c*, the flanges **14***d* and **14***e*, the mounting portion **14***f* and the plate **10**, defiine therewithin four identical key compartments **22**. It is to be noted, also, that the plate **10**, in the illustrated embodiment, is enclosed within the casing **14** and that the key hangers **12** and, of course, keys carried by said hangers, are in separate compartments **22**.

The main walls **14***c* are scored, at their inner faces, along parallel, longitudinally extending lines to form hinges **24** in the casing elements **14***a* and **14***b*, which hinges give adjacent portions of said elements the character of swingable doors or key compartment covers **26**. The side flange **14***d* are formed with integral, inturned lips **28** which coact with related striker members **18** as a latch arrangement, as best shown in FIG. 3, to hold the doors **26** yieldably closed. The plastic of the casting **14** is sufficiently resilient to permit each lip **28** to slide over its related striker member **18** for the related door to be opened and is sufficiently stiff to oppose such opening by accident.

It should be noted that each striker member **18** is preferably longer than the related lip **28** whereby to minimize wear of the latter. Each door **26**, also, is preferably formed with an integral, protruding ear **30** at or near to one corner of the door and preferably quite close to the latch arrangement of that door. The ear **30** is provided to facilitate manipulation of a door so that it can be opened.

The top and bottom flanges **14***e* of the casing elements may optionally be formed with arcuate cut-outs **32** so that, as best shown at the bottom of FIG. 6, any one of the key hangers **12**, with a key thereon to be used, may project from the device with the door of the compartment for the projected key either only slightly ajar or even completely closed so that the key holder will not materially interfere with the use of the projected key.

The two casing elements **14***a* and **14***b* are held firmly assembled with the plate **10** sandwiched therebetween by securing means which, in all figures excepting FIG. 7 and 9, comprise two grommets or rivets **34** which extend through holes **14***j* of the mounting portion **14***f* and through the holes **10***g* of the plate **10**; the grommets or rivets being headed at their opposite ends to spread into countersinks at the outer ends of the holes **14***j*.

FIGS. 7 and 9 illustrate one of various possible alternatives for the just-described grommet or rivet arrangement. According to this alternative, toward one end of the mounting portion of each of casing elements **14***a'* and **14***b'* is formed an integral stud **36** and toward that mounting portion's other end is provided a hole **38**. When the parts of the device are properly assembled, the stud **36** of each casing element extends through a hole **10***g* in the plate **10** and through hole **38** of the other casing element; the ends of these studs being broadened or flattened, like a rivet head, to oppose separation of the assembled parts.

To oppose rattling of keys carried in the holder, the plate **10** and/or the inside face of each door **26** may be covered with a sound-absorbent material. As anti-rattling means, however, the doors **26**, as shown in FIGS. 2 and 6, may be molded with thin, integral flanges **40**, extending centrally and transversely of each door, inwardly from the door's inner face; these flanges being of a suitable thinness and resiliency that when the doors are held closed by their latching arrangements, the flanges **40** gently press and hold adjacent keys motionless against the plate **10** to prevent rattling of the keys. The flanges **40** may be continuous from end to end or may consist of a series of resilient, inwardly extending fingers.

It is desirable, although not essential, that when a key is projected from the device for use, the door of the compartment which houses that key should be either closed or only slightly ajar. The described hinges **24** of of plastic material contribute to this desirable condition.

Even if the plastic casing elements **14***a* and **14***b* are molded with the main outer surfaces of their doors coplanar as the doors of element **14***b* appear in FIG. 3, the doors after being opened manually by being swung outwardly, as the one door appears at the lower left part of said figure, may be released whereupon the opened door will swing toward closed position by reaction of the plastic material in the door's hinge to the distortion which that material underwent when the door was opened.

This closing, swinging movement of the door may leave the door slightly ajar and the door, then, can be manually pressed entirely closed if desired. In either the closed or ajar condition of the door, a key hanger of the related compartment **22** and the key carried by that hanger may remain projected from the holder, through cut-outs **32**, ready for convenient use, as shown in FIGS. 1, 2, and 6.

The just described swinging of the doors to or toward their closed positions may be accentuated by molding the casing elements **14***a* and **14***b* to a condition in which the doors **26** of said elements extend inwardly of a plane coincident with the plane of the outer face of the mounting portion **14***f* as shown in FIG. 8. When the thus molded casing elements are pressed and secured together in assembling the key holder, the doors in each of said elements are held in coplanar relationship as in FIG. 3. However, as the plastic material in the hinges of the doors affords bias of the latter toward their molded relationship, the bias of the doors has an increased tendency to swing released open doors to or toward closed positions.

As the loops **12***a* of the key hangers pass through holes in keys to hold the latter, said loop of a hanger extends transversely of the general plane of a key hung therethereof transversely of the general plane of a key hung thereon so that the key holder must provide adequate transverse space for the key and the loop of its hanger. In the illustrated embodiment, as best understood from FIG. 3, the portion of loop **12***a* which extends at one side of key protrudes into an adjacent cut-out **10***b* of the plate **10**, thereby minimizing the thickness dimension of the related key compartment and of the key holder as a whole.

Somewhat similarly, as shown in FIG. 2, the spaces **20**, in the mounting portions of the casing elements, accommodate portions of the wider parts of keys, thereby minimizing the width of the key holder as a whole.

To enable a user to distinguish between the several doors **26** and, hence, to know which door to open to make a selected key available for use, the upper parts of several of the doors may be given identifying markings. Thus, as illustrated in FIG. 1, a single recess or notch **40***a* may be formed in one door, two notches **40***b* may be formed in a second door, three notches **40***c* may be formed in a third door, and the fourth door may be left free of such notches. Alternatively, to give only one example, the four doors may each be differently formed with raised club, spade, heart, and diamond formations, respectively on their fronts.

The just-described door-identifying means are such as to enable one to select and make available a particular selected key for use, using only the sense of touch in so doing. Such identifying means, of course, enable the sense of sight to be used when sufficient light is present.

It is preferable that only a single key be hung on each hanger **12**. To attach a key to a hanger, the latter is first separated from the plate **10** by sliding it from its related slot **10***e* into the latter's enlargement **10***f* and, thence, clear of said plate, the doors of the key's compartment and the directly opposite compartment on the opposite side of the holder both being manually held open during this operation. Then, by spreading the separated hanger apart temporarily at its pivotal portion **12***b* the key may be attached to the hanger's loop portion **12***a* in a well-understood manner.

The hanger's pivotal portion **12***b* is then re-inserted into enlargement **10***f* and, thence, along slot **10***e* into the key compartment to which the said hanger relates; the same two mentioned doors being manually held open during this operation. This leaves the key in its compartment available for projection from the latter for use.

It will be realized that in normal use of the key holder, only the door covering a key to be used would be opened; hence, a key hanger and the key thereon would never become separated from the device by accident or inadvertence.

In using the key holder, one would first hold it in one hand with the door which covers the desired key facing him and the ear **30** of that door disposed toward the top of the device, the mentioned notch arrangement having guided him in selecting the proper door. Then, aided by the ear **30** on thaat door, the latter is manually swung forwardly to open position and the user's hand, with the key holder therein, may be sharply jogged upwardly, causing the uncovered key and its hanger to pivot up to project the selected key from the device while still attached to its hanger.

The user, to manipulate the selected key in using it to open a lock, lets go of the opened door which, by the described reaction of the plastic material in the door's hinge, then swings to an ajar position leaving the key holder compactly in the palm of the user's hand to enable him conveniently to turn the key in the lock, without disturbing the position of the key holder in the user's hand.

After opening the lock and withdrawing the key therefrom, the user again swings the door open, flips the key with its hanger pivotally back into its related compartment in the holder, and closes the door, pressing the latter fully to its latched position.

Although latching means have been disclosed, they may be dispensed with if the hinges of the doors or biasing means associated therewith are adequate for holding the doors closed.

It will be understood that the disclosed concepts may be practiced in various other ways without, however, departing from the invention as set forth in the following claims.

I claim:

1. A key holder comprising a relatively rigid plate and a pair of casing elements overlying opposite faces of said plate; said elements having elongate, parallel coaligned central mounting portions and each of said elements including a pair of stiff doors, hinges connecting said doors to opposite sides of the element's said mounting portion, each of said doors, with said plate and said mounting portions, defining a separate key compartment; the key holder further comprising means for yieldably retaining said doors in closed positions in close relation to said plate, holding means coacting with the mounting portions of the two casing elements to hold said mounting portions relatively rigidly together with said plate held therebetween, and separate key hangers pivotally and rotatably connected to the key holder, within each key compartment in position to swing outwardly when the related door is open, to protrude from the key holder whereby to render a key hung thereon, accessible for use.

2. A key holder according to claim **1**, said casing elements being of molded plastic material and the hinge connections of said doors to said mounting portions being of thin sections of said plastic material.

3. A key holder comprising a relatively rigid plate and a pair of casing elements overlying opposite faces of said plate; said elements having elongate, parallel, co-aligned central mounting portions and each of said elements including a pair of openable doors hingedly connected to opposite sides of the element's said mounting portion, each of said doors, with said plate, defining a separate key compartment; the key holder further comprising holding means coacting with the mounting portions of the two casing elements to hold said mounting portions relatively rigidly together with said plate held therebetween, and separate key hangers pivotally connected to the key holder, within each key compartment in position to swing outwardly when the related door is open, to protrude from the key holder whereby to render a key hung thereon, accessible for use; said casing elements being of molded plastic material and the hinged connections of said doors to said mounting portions being of said plastic material said holding means comprising a separate stud of plastic material integral with and toward one end of the mounting portion of each of said casing elements, said studs of each of said elements, when the holder is assembled, extending oppositely through aligned holes in the plate and in the mounting portion of the other of said elements toward one end of the latter mounting portion, and the ends of said studs being enlarged to opposite retraction thereof from said holes.

4. A key holder comprising a relatively rigid plate and a pair of casing elements overlying opposite faces of said plate; said elements having elongate, parallel, co-aligned central mounting portions and each of said elements including a pair of openable doors hingedly connected to opposite sides of the element's said mounting portion, each of said doors, with said plate, defining a separate key compartment; the key holder further comprising holding means coacting with the mounting portions of the two casing elements to hold said mounting portions relatively rigidly together with said plate held therebetween, and separate key hangers pivotally connected to the key holder, within each key compartment in position to swing outwardly when the related door is open, to protrude from the key holder whereby to render a key hung thereon, accessible for use; said casing elements being of molded plastic material and the hinged connections of said doors to said mounting portions being of said plastic material said plate having peripheral edge portions within the outer confines of said doors, permitting abutment of peripheral edges of opposed doors located at opposite faces of said plate, each door of the key holder being formed with a reentrant lip at the inner side of one of its said edges and said plate having separate peripheral protuberances adapted to engage said lips of each door to hold

the latter releasably in closed position; the plastic material of the doors being sufficiently resilient to permit disengagement and holding reengagement of said lips with said protuberances.

5. A key holder according to claim 4, each door having a protruding, integral ear adapted for manual engagement to facilitate disengagement of the door from its related one of said protuberances.

6. A key holder comprising a relatively rigid plate and a pair of casing elements overlying opposite faces of said plate; said elements having elongate, parallel, co-aligned central mounting portions and each of said elements including a pair of openable doors hingedly connected to opposite sides of the element's said mounting portion, each of said doors, with said plate, defining a separate key compartment; the key holder further comprising holding means coacting with the mounting portions of the two casing elements to hold said mounting portions relatively rigidly together with said plate held therebetween, and separate key hangers pivotally connected to the key holder, within each key compartment in position to swing outwardly when the related door is open, to protrude from the key holder whereby to render a key hung thereon, accessible for use; said plate being formed with open areas in position to receive portions of adjacent key hangers therein, to minimize the thickness of the key holder.

7. A key holder comprising a relatively rigid plate and a pair of casing elements overlying opposite faces of said plate; said elements having elongate, parallel, co-aligned central mounting portions and each of said elements including a pair of openable doors hingedly connected to opposite sides of the element's said mounting portion, each of said doors, with said plate, defining a sparate key compartment; the key holder further comprising holding means coacting with the mounting portions of the two casing elements to hold said mounting portions relatively rigidly together with said plate held therebetween, and separate key hangers pivotally connected to the key holder, within each key compartment in position to swing outwardly when the related door is open, to protrude from the key holder whereby to render a key hung thereon, accessible for use; said plate having peripheral, key-hanger

retainers each comprising a pair of parallel ears curled inwardly of a related key compartment to provide therein an arcuate slot adapted to slidably accommodate therein a neck portion of a key hanger with an enlarged end part of the hanger retained within said retainer; the slot having an end, within said related key compartment, which is closed against escape of the key hanger therefrom and having an enlargement at its opposite end, within a key compartment opposed to said related key compartment, enabling the key hanger to be removed from said retainer by escape of the enlarged end part of the key hanger through said enlargement.

8. A key holder comprising a generally rectangular plate which is symmetrical with reference to a center line extending between opposite edges of said plate; a pair of approximately similar, dished casing elements, of plastic material which is relatively flexible in thin sections and relatively stiff in thicker sections, said elements having relatively stiff central mounting portions, relatively thick, stiff doors, and hinges of flexible, relatively thin sections of said plastic material connecting said doors to opposite side edges of said mounting portions, said doors, with said plate and mounting portions, defining separate key compartments; and holding means coacting between the mounting portions of the casing elements and extending through the plate at said center line to hold the said elements together with the plate sandwiched therebetween and the concave faces of said elements facing said plate; and the key holder further comprising key hangers separately, rotatably and pivotally connected, peripherally to said plate, within each key compartment, at opposite sides of said center line, and means yieldably holding said doors in closed positions in close relation to said plate.

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JOSEPH R. LECLAIR, *Primary Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,279,513 October 18, 1966

Robert Henderson

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 2, line 2, for "thereto a" read -- thereto, a --; line 49, for "like" read -- alike --; column 3, line 51, for "casting" read -- casing --; column 4, line 66, strike out "transversely of the general plane of a key hung there-"; column 5, line 49, for "thaat" read -- that --; column 6, line 49, for "opposite" read -- oppose --.

Signed and sealed this 12th day of September 1967.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents