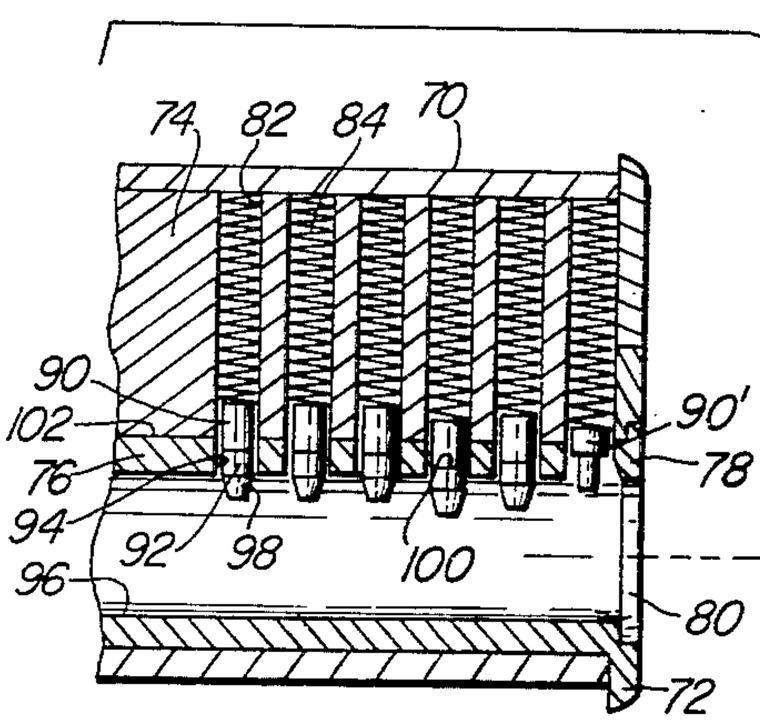
Dec. 30, 1969 O. C. HALFYARD 3,486,355

SAFETY KEY AND LOCK

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FIG 1



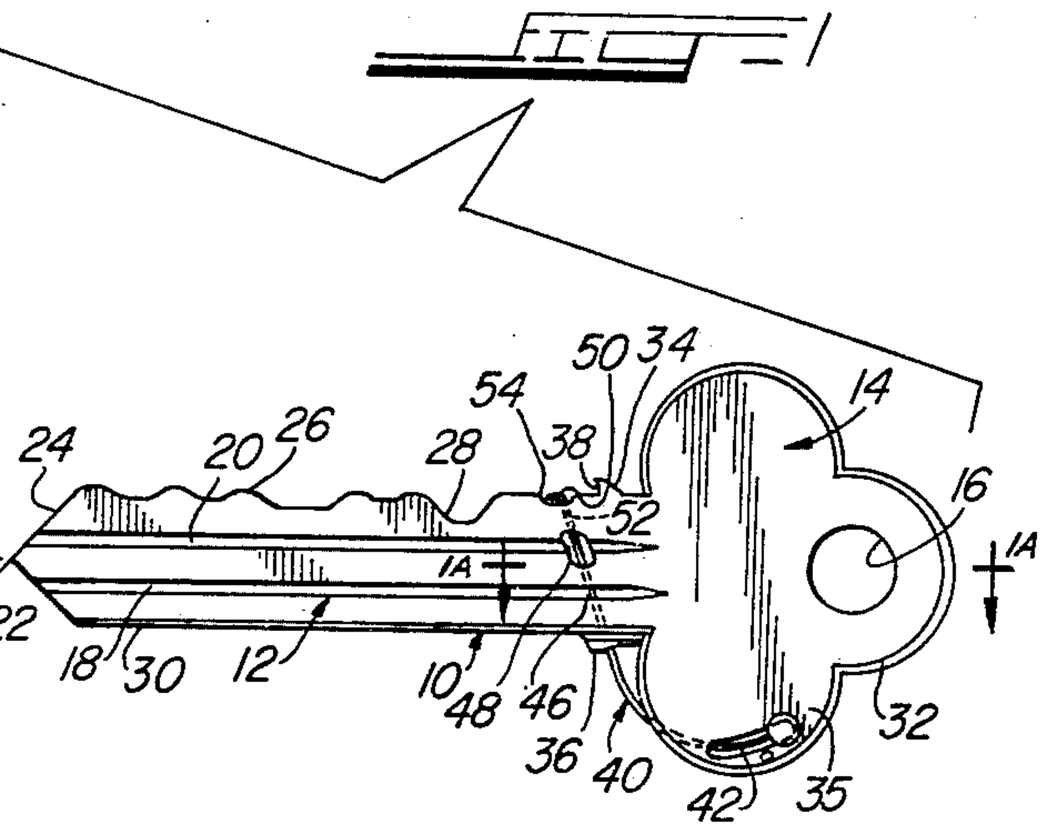


FIG 2

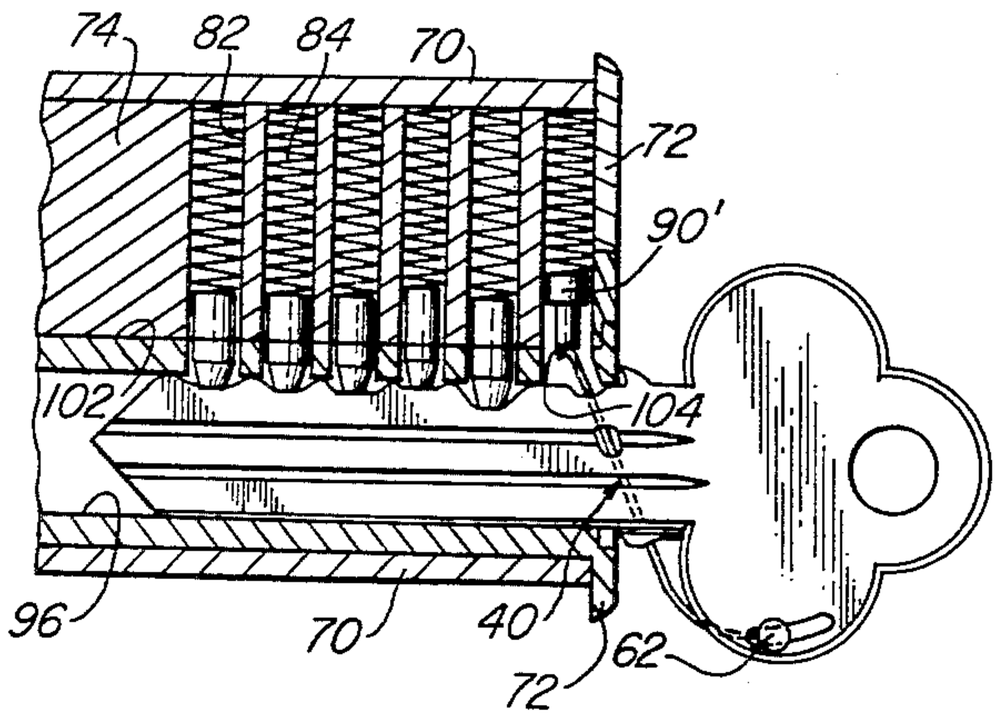


FIG 1A

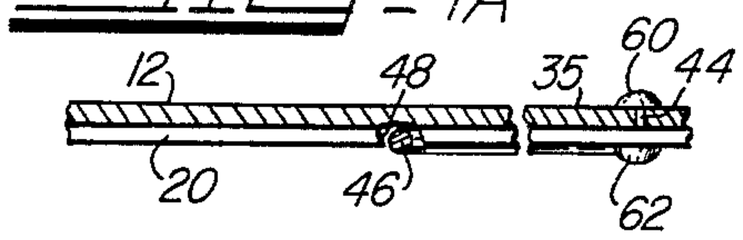


FIG 3

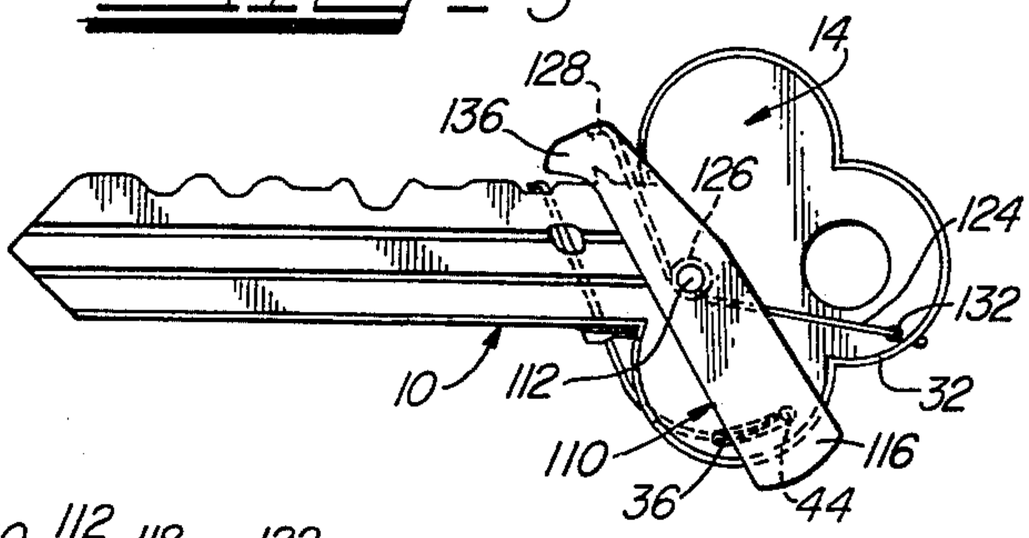
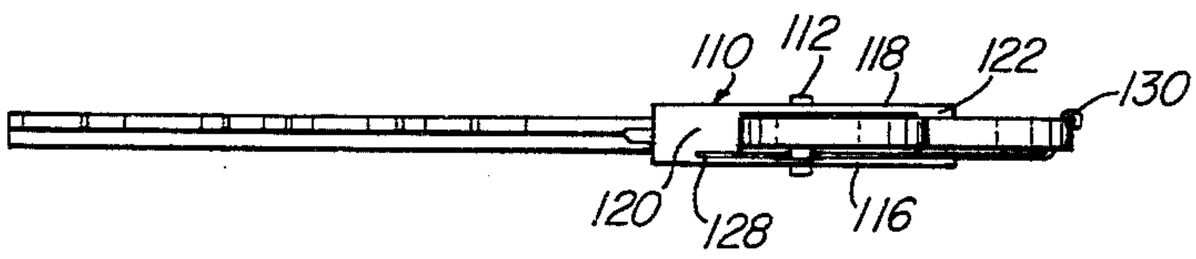


FIG 4



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FIG 5

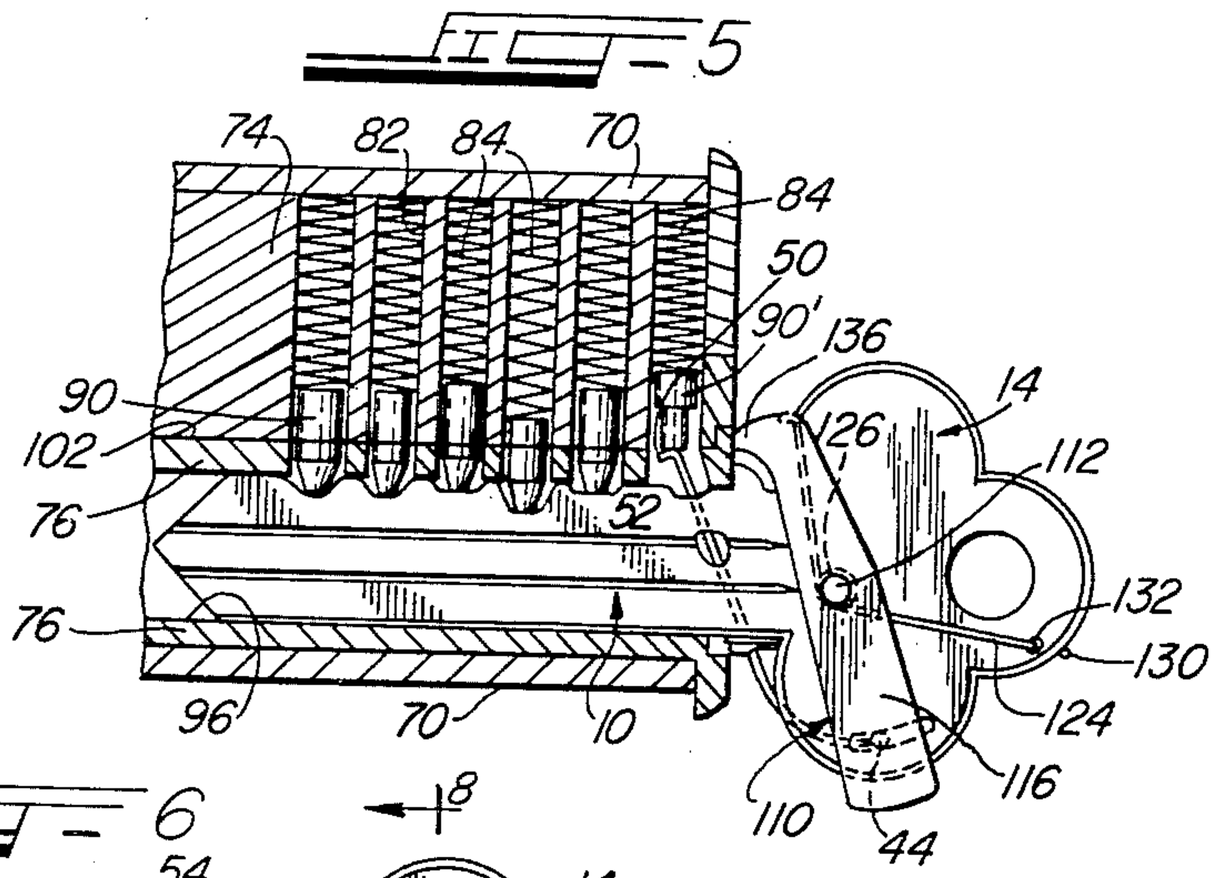
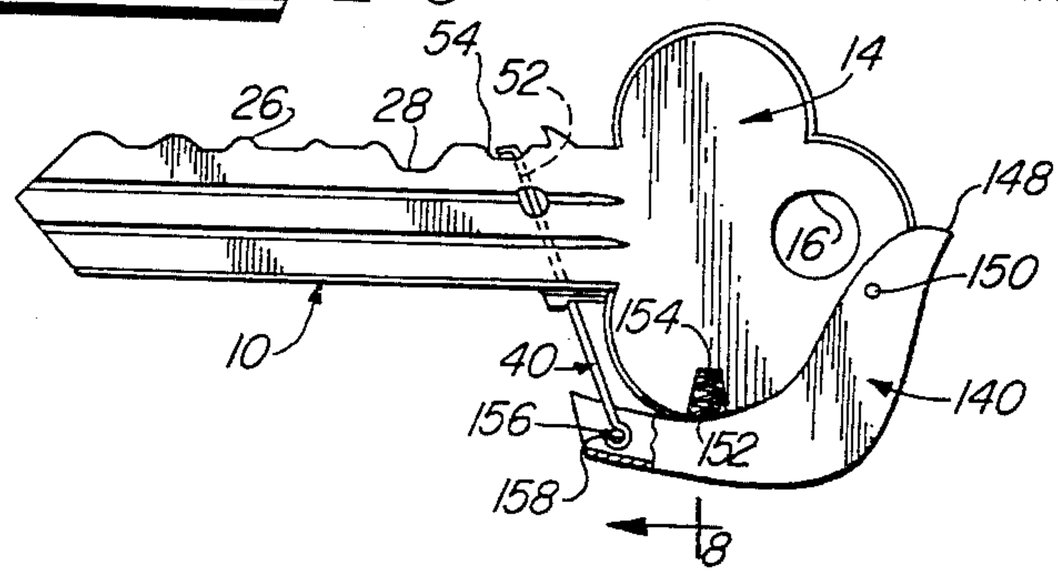


FIG 6



FIG 8





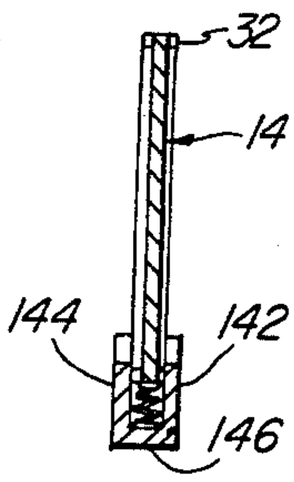


FIG 7

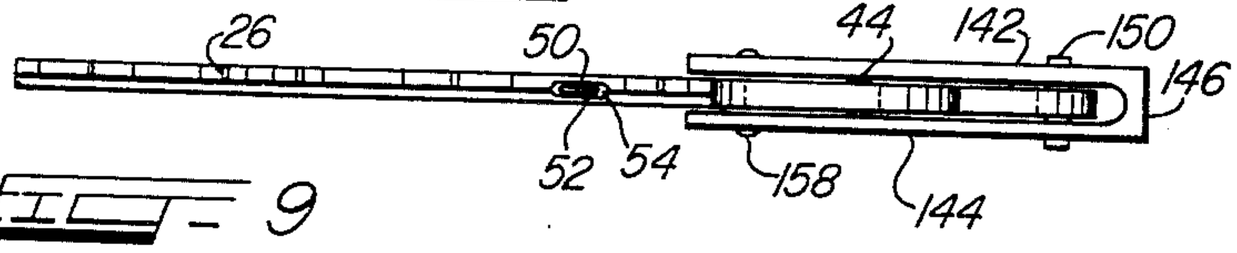
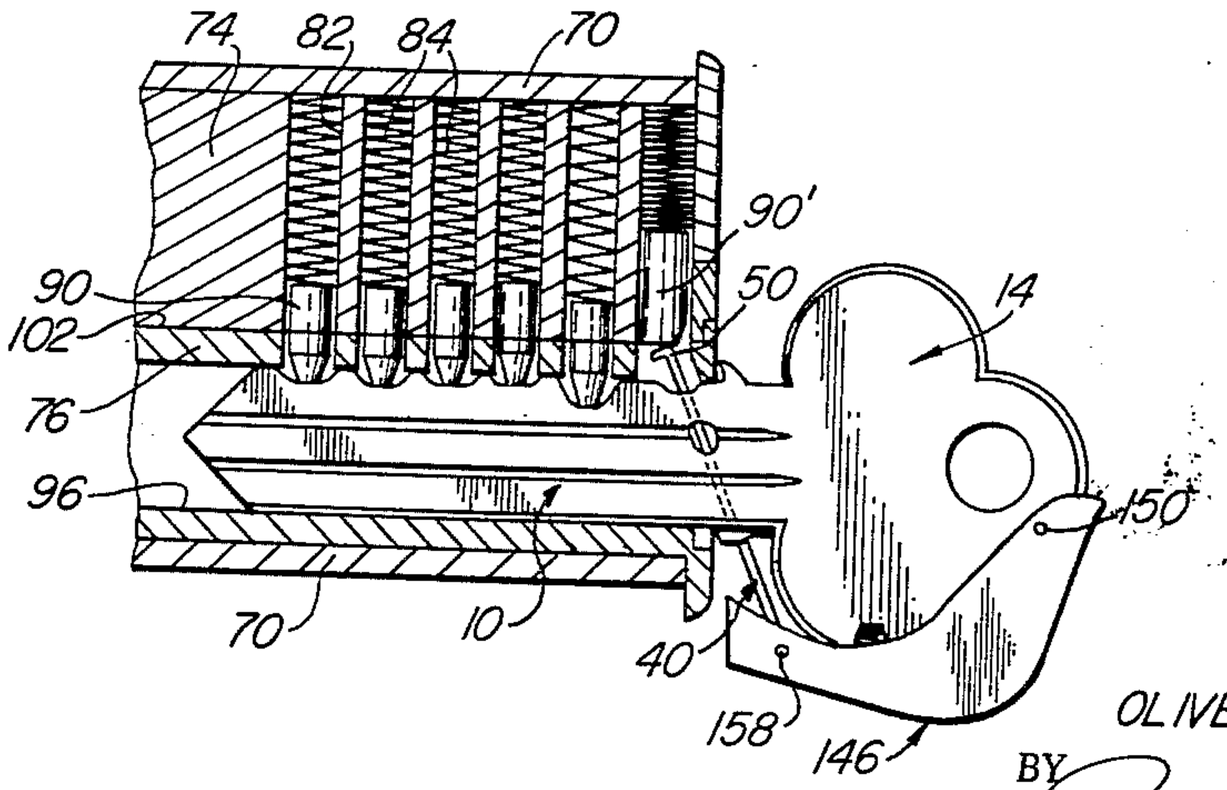


FIG 9



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FIG - 10

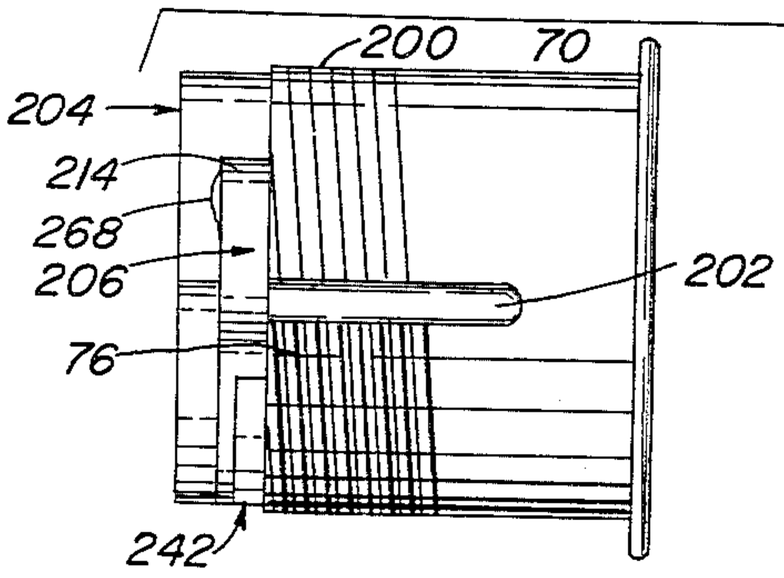


FIG - 11

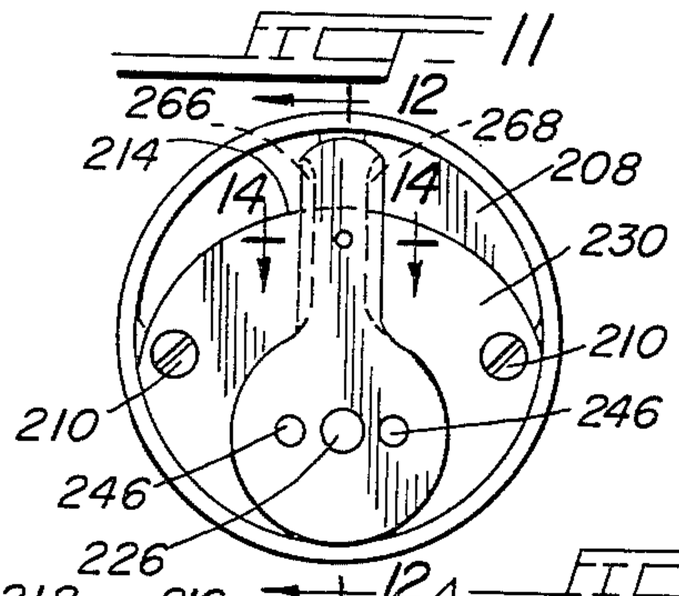


FIG - 12

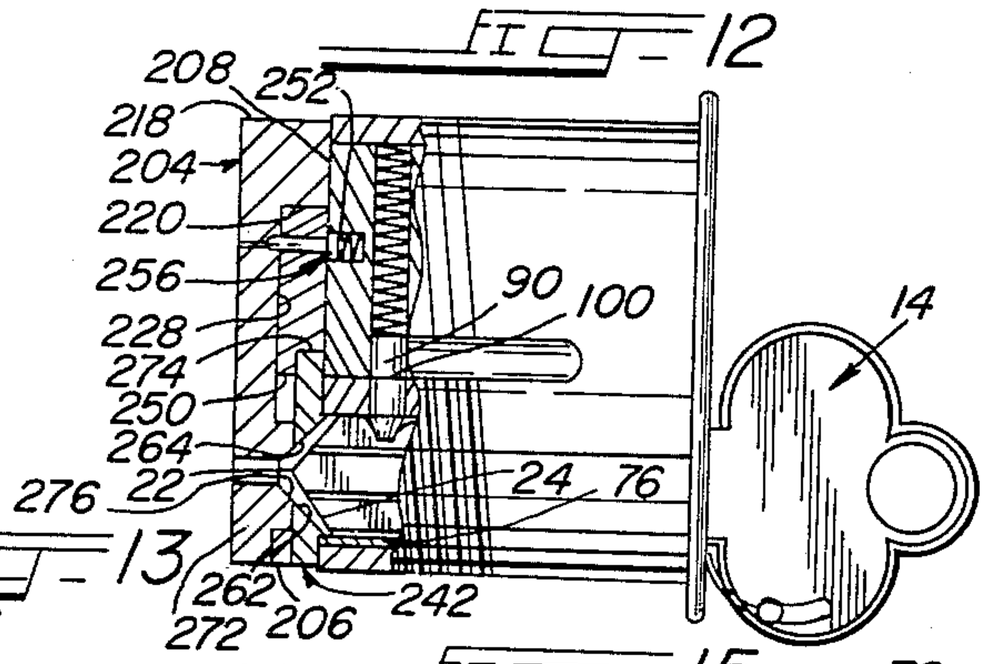


FIG - 13

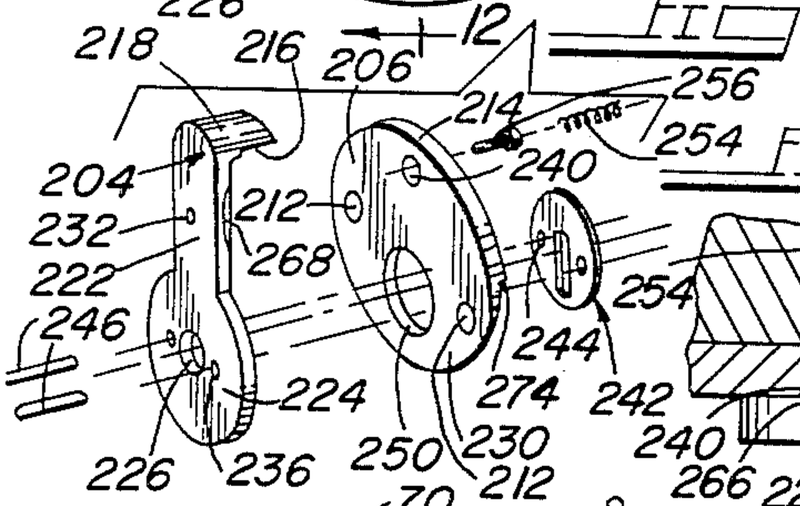


FIG - 14

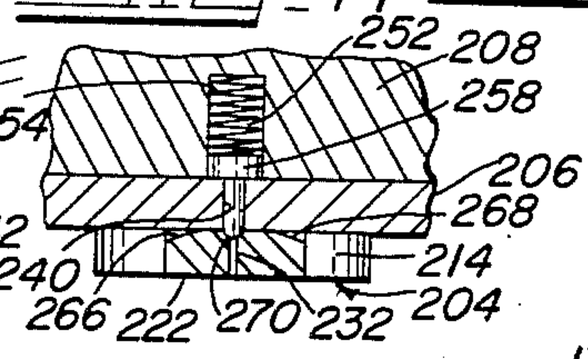


FIG - 15

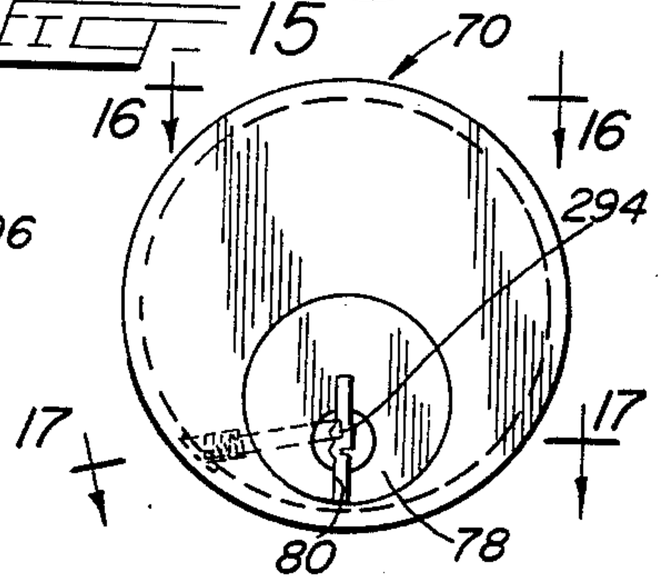


FIG - 16

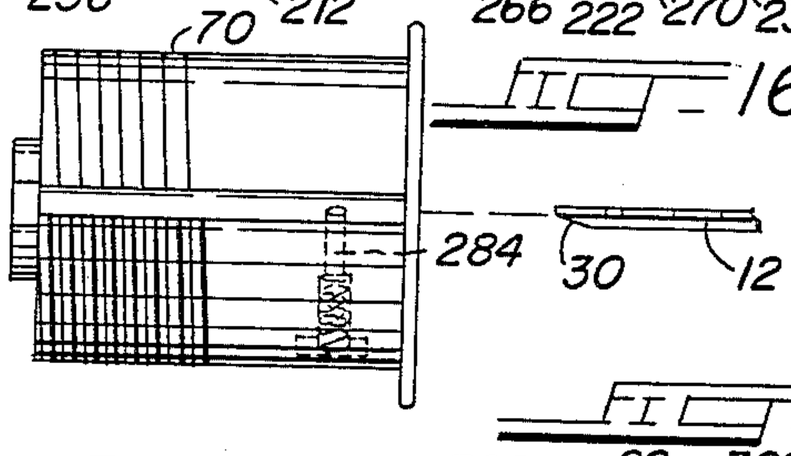


FIG - 17

FIG - 18

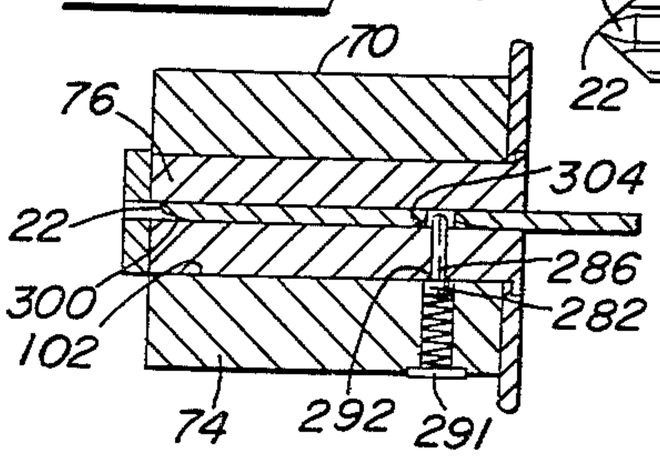
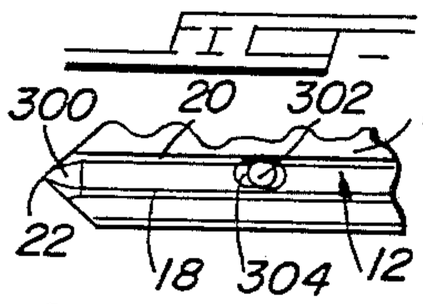
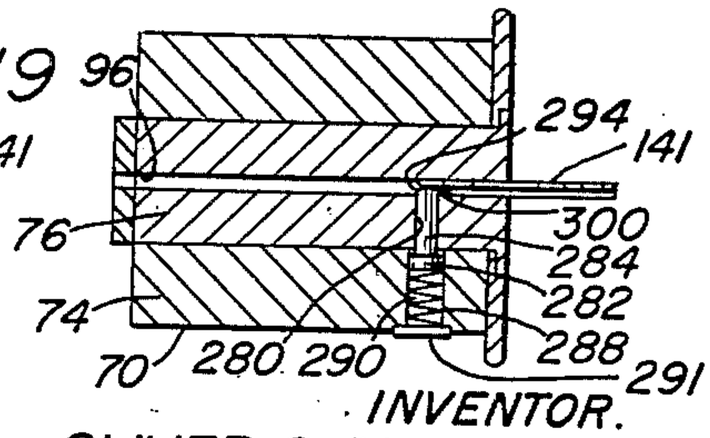


FIG - 19





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United States Patent Office

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SAFETY KEY AND LOCK

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Filed Feb. 21, 1968, Ser. No. 707,189
Int. Cl. E05b *19/12, 27/04, 35/00*
U.S. Cl. 70—421 13 Claims

ABSTRACT OF THE DISCLOSURE

The disclosure describes a key for use in a cylinder-type lock wherein the key has independent means for actuating a tumbler pin to its unlocked position including a hidden push rod which is manually or automatically moved axially from within the base of the key to accomplish the final disengagement of the cylinder. In one embodiment the auxiliary pin-actuating means is actuated by manual movement through a cammed slot within the handle of the key or a pressure actuated lever moves the push rod into engagement with a locking pin of the tumbler. In another embodiment the inner tip of the key provides the means for engaging and rotating the locking lug and a separate circumferentially spaced tumbler is provided in the lock cylinder for actuation by the side of the key or for registry with an aperture through the side of the key for positioning to unlocked position. Key and lock combinations including all of the foregoing improvements are described.

Background of the invention

A wide variety of key and lock combinations are known and used in the art. The keys are designed with a camming edge which frees the lock cylinder for rotation, generally clock-wise, whereby the locking pawl is moved through an eccentric or cam from an extended (locked) position to a recessed (unlocked) position. A number of types of spring-loaded tumblers or pins are used to hold the cylinder in its locked position until a key is inserted. The cams on the edge of the key cause the various pins to be oriented axially so that their ends or shear points clear the circumference of the cylinder.

A large number of combinations of cam heights, different numbers of cams and cross-sectional configurations of keys, e.g., flat, curved or fluted, are used to insure that only one type of key can be used in a given design of lock. However, skillfully designed locks of this type can be opened by the unscrupulous using thin bladed instruments of special design. It is also relatively easy to make copies of keys by tracing or wax impressions since the cross-sectional configurations, lengths and number of cams on existing keys fall into a number of known patterns for which blanks are available. Such key duplication is, of course, sometimes a necessity.

In order to make the opening of a lock more difficult, as in safe-deposit boxes, a double lock system is used requiring the simultaneous use of a master key and the key of the lock box lessee. Such systems are clumsy for ordinary household and business use. There is a need for a key which is not readily copied and which requires something more than its mere insertion into the lock cylinder to accomplish the unlocking process. The instant invention is directed to the provision of a key which operates stepwise to unlock the cylinder and the functions of which are not readily determined by casual inspection. The key and lock combination of this invention is adapted to constructions which require a particular manipulation before the unlocking process is complete which manipulation is not immediately apparent to the unscrupulous individuals of society. To this end additional security is built into the locking device.

Summary of the invention

The present invention concerns primarily a key adapted to be used in a cylinder-type lock which is provided with at least one independently movable cam surface along its cammed edge whereby after insertion of the key or during its insertion a separate unlocking action takes place. The key of this invention has an individual movable cam surface which may be in the form of a push rod that is either moved upwardly from the edge of the key by the operator to disengage the last in the series of locking pins in the cylinder or is automatically so moved by the thrust of the key into the cylinder. The movable cam is preferably in the form of a small diameter rigid wire operating within a bore hole which extends upwardly through the body of the key with one end movable into operative engagement with a particular locking pin in the lock and with the other end extending into the region of the handle of the key where it is accessible for movement either manually or automatically.

Manual operation of the movable cam is accomplished in accordance with this invention by providing a guide slot for the extended end of same in the handle region along which it can be moved to thrust the cam end in a lifting action against the bottom of at least one locking pin. Manual operation is also facilitated by providing a lever sheath on the handle end of the key, the pivotal end of which engages the extended end of the movable cam. A spring-loaded lever which engages the extended end of the movable cam at the handle of the key at one of its ends and is engaged at its opposite end by the face of the lock provides the lifting or thrust action for the movable cam of this invention in another embodiment so that the latter functions as the key is placed in the lock. The movable cam is further provided with a recess along the top edge of the key so that in its retracted position it does not interfere with the insertion of the key in the lock and is substantially hidden. In addition, a modified locking lug is provided in this invention which is engaged and rotated by the inner tip end of the key, independent of the lock cylinder. Also a separate circumferentially spaced tumbler is provided in the lock cylinder for actuation by the side channel or rib or for registry with an aperture through the side of the key and thereby positioned to an unlocked position in synchronism with the normal tumblers of the cylinder. Also a key and lock combination including all of these improvements is contemplated. By these means, additional safety features are incorporated in the key and lock combination of this invention.

Description of the drawings:

Exemplary embodiments of this invention are shown in the drawings wherein:

FIG. 1 is a partial cross-sectional view of a lock with a side plan view of the key of this invention in position for insertion into the lock;

FIG. 1A is a partial cross-sectional view taken along the lines 1A—1A of FIG. 1;

FIG. 2 is a partial cross-sectional view of the lock and with the key of FIGS. 1 and 1A inserted and the lock in unlocked position;

FIG. 3 is a side plan view of another form of key of this invention;

FIG. 4 is a top plan view of the embodiment shown in FIG. 3;

FIG. 5 is a partial cross-sectional view of a lock with the key of FIGS. 3 and 4 inserted and the lock in unlocked position;

FIG. 6 is a side plan view of another form of key of this invention;

FIG. 7 is a top plan view of the embodiment shown in FIG. 6;

FIG. 8 is a cross-sectional view taken along the lines **8—8** of FIG. 6;

FIG. 9 is a partial cross-sectional view of the lock with the key of FIGS. 6, 7 and 8 inserted and the lock in unlocked position;

FIG. 10 is a side plan view of a lock with a modified locking lug and the key of this invention in position for insertion into the lock;

FIG. 11 is an end view of the lock shown in FIG. 10 showing the modified locking lug;

FIG. 12 is a partial cross-sectional view, along lines **12—12** of FIG. 11 of the lock with the key inserted and ready to turn to unlocked position;

FIG. 13 is an exploded perspective view of the modified locking lug shown in FIGS. 10, 11 and 12;

FIG. 14 is a fragmentary cross-sectional view, along the lines **14—14** of FIG. 11 to show the details of the positioning detent;

FIG. 15 is an end view of a lock showing another modification including an angular side tumbler (parts shown in dotted lines) protruding into the lock cylinder for engagement by the side of the key;

FIG. 16 is a plan side view of the lock of FIG. 15 with a portion of the key blade ready for insertion therein;

FIG. 17 is a cross-sectional view along lines **17—17** of FIG. 15 with a portion of the key blade shown as it first engages the side tumbler on being inserted into the cylinder;

FIG. 18 is a cross-sectional view of one form of cylinder, side tumbler and key of this invention with an aperture in the key to allow the tumbler to assume the unlocked position with the key in place; and

FIG. 19 is a fragmentary side view of the key shown in FIG. 18.

The preferred embodiment

Referring to the drawings, particularly FIGS. 1 and 1A there is shown a key **10** having a blade portion **12** and handle **14** with the aperture **16** for attachment in a key ring. The key **10** may be constructed of any desired metal or metal alloy such as brass which is strong and machinable. The blade **12** has one or more flutes **18** and **20** along one side and a corresponding groove (not shown) on the opposite side, in the manner known in this art, so that the blade **12**, when viewed from the end **22**, is circuitous in cross-section and adapted to fit a certain design of slot in a lock cylinder face.

The end **22** of the blade **12** has an upper beveled edge **24** and a series of cams **26** with intervening valleys **28** adapted to slide under and receive the spring-biased pins or tumblers of a lock. A lower bead **30** may be provided on the bottom of the blade to impart additional circuitous configuration to the blade. This bead is also carried around the lobes of the handle as indicated at **32**. A pair of shoulders **34** and **36** having at least one square face **38** are provided on the top and bottom edges to limit the inward movement of the key into the slot in a lock cylinder.

The bottom lobe **35** of the handle **14** has an arcuate slot **36** therethrough. A movable cam means **40** in the form of an elongated steel rod having a curved end **42** at the handle end with a bent end **44** (FIG. 1A) extending through the slot **36** is provided in accordance with this invention. The cam means, in the embodiment shown in FIG. 1, has a straight shank **46** extending through the recesses **48** in the flutes **18** and **20** and carries at its upper end the cam tip or surface **50** formed by bending the end at about 90° to the shank **46**. The shank **46** extends through a guide bore **52** in the top part of the blade **12** in a sliding fit relationship. A recess **54** is provided in the top surface of the blade **12** to receive the cam end **50** so that it is flush with or recessed in the top surface in its retracted position. The tip **44** in the slot **36** also rides in a sliding fit relationship and has affixed thereto one or more finger knobs **60** and **62** on either side which serve to retain the tip **44** within the slot and act as a protuberance enabling a person operating the key to grasp same between

the fingers or push against either side knob and move the cam means **46** from its retracted position shown in FIG. 1 to the extended position shown in FIG. 2. This action, the limits of which are controlled by the length of the slot **36** and its arcuate guiding shape raises the cam surface **50** from the recess **54** to a raised position above the top edge of the blade **12**.

The key **10** is adapted to be used with any form of cylinder tumbler lock, one type of which is illustrated in FIG. 1 having a cylindrical housing **70** and the face plate **72**, the inner block **74** which carries the cylinder lock **76** in a bore therebetween and provided with an outer flange **78** with a key slot **80**. The block **74** has a series of in-line radial bores **82** serving as housings for the springs **84** carrying at their ends the pins or tumblers **90** each having a separable tip **92** which is carried within a series of bores **94** in the cylinder lock **76**. The bores **94** register with the corresponding bores **82** in one position of the cylinder **76** and allow the tumblers **90** to extend therein under the biasing of the springs **84** to prevent rotation of the cylinder **76**. The cylinder **76** has an opening **96** to receive the key and each tip **92** is prevented from further entry into the opening **96** by means of a shoulder (not shown) in the bores **94** or a shoulder (not shown) on the outer periphery of each tip. The ends are chamfered, as at **98**, to provide a camming surface for the end **24** of the key **10**. Each tumbler **90** is separable from its corresponding tip **92** at the shear line **100** when the cams **26** or recesses **28** of the key bring same into alignment with the juncture line **102** of the cylinder lock **76** as shown in FIG. 2.

In accordance with this invention a selected tumbler such as **90′** is provided in the lock which is not actuated as the key is thrust into the cylinder, until the cam means **40** is moved into the upward position shown in FIG. 2. By this separate camming action the tumbler **90′** is raised so that its end surface **104** is at the shear line **102** of the cylinder. Not until then can the key **10** be turned to rotate the cylinder **76** and actuate the latch mechanism (not shown) which is connected to the tumbler and allow the opening of the door, drawer or other device with which the lock is used. Referring to FIGS. 3, 4 and 5, another embodiment of this invention is shown wherein the key is fitted with the lever **110** which is pivotally mounted on the pin **112** which extends through the handle **14** at any desired position between the top and bottom edges of the key, but preferably at a point which is substantially mid-way of the blade **12**. The lever **110** has a pair of flat side plates **116** and **118** which engage the pin **112** on either side of the handle **14** and are closely spaced therefrom. The side plates are connected to each other at the top by the transverse end **120** and at the bottom by the transverse arcuate wall **122**. A spring **124** is provided, with one turn around the pin **112** as indicated at **126**, to bias the lever **110** in a counter-clockwise direction about the pin **112**. The spring **124** has a tab **128** which engages the end **120** of the lever **110** and the remaining end **130** passes through a hole **132** in the rear edge of the handle **14** and is crimped around the bead **32**. This holds the spring **110** in place as illustrated.

The tip end **44** of the cam means **40** is guided by the slot **36** and is affixed to one or both of the side plates **116** and **118**. The transverse end **120** and the sides **116** and **118** are shaped to form a flat-ended lobe **136** at the other end of the lever **110**. As the key is inserted into the lock cylinder **76** (FIG. 5) the lobe **136** of the lever **110** strikes the face **78** of the cylinder, just as the cam surface **50** is below the tumbler **90′** and rotates the lever clockwise against the spring **124**, whereby the cam surface **50** of the cam means **40** is thrust upward to raise the tumbler **90′** to unlocked position.

Referring to FIGS. 6, 7, 8 and 9, another embodiment of this invention is shown wherein the key **10** is fitted with a sheath lever **140** having side walls **142** and **144** joined at a curved connecting wall **146** which encompasses the bottom portion of the handle **14**. The lever **140** is

pivotally mounted at its extended end **148** to the pin **150** which extends through the handle. A recess **152** is provided in the bottom edge of the handle to receive the spring **154**, the bottom end of which extends into pressure contact with the inside of the wall **146** between the side walls **142** and **144**. The spring may be affixed to the key at one end and to the wall **146** at the other end or may be free at both ends as desired.

In this embodiment the cam means **40** is modified at its lower end to be affixed to the other end of the sheath lever **140** as indicated by the loop **156** engaging the second pin **158** which is held by the opposed walls **142** and **144**. By making the cam means **40** of spring steel rod the pin and loop arrangement, to provide a pivot can be eliminated and the end of the cam means welded or soldered to the lever.

In operation the key is inserted in the lock as shown in FIG. 9 and finger pressure is applied at the lower wall **146** to actuate the cam means **40** to raise the tumbler **90'**. If desired, the lever **140** can be omitted and the cam means **40** provided with a finger knob, like **60** and **62**, or a loop as at **156**, for engagement with the user's finger to thrust the cam means into the position shown in FIG. 9. The cam surface **50** at one end of the cam means and a knob **60–62** or the loop **156** at the other end prevent loss of the cam means from the key.

Although this invention has been described in relation to specific embodiments it is readily apparent that various modifications can be made within the scope and spirit of the invention. The cam means **40**, for example, can have more than one cam surface **50** of the same or different heights to simultaneously or sequentially actuate two or more tumblers **90'** in the series. The cam surface **50** can depend toward the handle **14** of the key instead of toward the blade **12**. Normally the slot **36** is constructed of such a length that when the cam means **40** is in the retracted positions in the embodiments shown, as in FIG. 1, the tip **44** is at or near the one end of the slot **36**; and when the cam means **40** is in its actuated or extended position (FIG. 2) the tip **44** abuts against the other end of the slot **36**. This assures the proper in-line registry of the bottom **104** of the tumbler **90'** with the juncture **102** so that the lock cylinder **76** can be rotated. The slot **36** can be made longer than the movement of the cam means **40** so that the proper positioning of the cam **50** and the tumbler **90'** is a matter of feel by the user of the key.

Similarly in FIG. 3, the pivotal action of the lever **110** can be adjusted so that in addition to the thrust of the key into the lock cylinder as shown in FIG. 5, the lever **110** has to be manually moved an additional small distance clock-wise to bring the tumbler **90'** into proper registry to free the lock cylinder. Also the lever action shown in FIG. 5 can be made to operate to the position of proper registry before the shoulder **38** abuts the face of the cylinder and to provide an over-riding or cam-interfering safety lock, through only partial or excessive displacement of the tumbler **90'** in any other position.

The embodiment shown in FIGS. 6–9 can also be modified so that the tumbler **90'** is cleared of the lock cylinder before the sheath lever **140** has reached the maximum rotation about the pivot **150**. The cam **50** can be omitted from the tip and the cam means terminated in a truncated cylinder at the tip end. The key **10** may be suitably reinforced to overcome any weakness imparted by the bore hole **52** for the cam means **40**. Both the levers **110** and **140** can be constructed to house the entire handle **14** in a manner to further obscure the functioning of the key.

Referring to FIGS. 10–14, still another embodiment of this invention is shown wherein, in FIG. 10 the lock housing **70** has the conventional threads **200** and key-way **202** for attachment into a door assembly in the known manner, along with the key **14**, already described. The internal parts of the lock **70** are, as shown in FIG. 1, for cooperation with the movable cam means **40** and the cam tip **50**. In this embodiment the tip **22** formed by the intersecting beveled edges **24** and **24'** of the key **14** are

utilized to actuate the locking lug **204** which is mounted on the inner end of the lock housing **70**. Normally the key of a lock does not engage the locking lug which is carried by the lock cylinder alone.

However, in accordance with this aspect of the invention, the locking lug **204** is mounted independent of the lock cylinder **76** by means of the yoke plate **206**, which is affixed to the back plate or wall **208** (FIG. 11) of the lock housing **70** by any suitable means such as the screws **210**. The screws **210** pass through the apertures **212** (FIG. 13) of the plate **206** and into the body of the wall **208**. The plate **206** has an off-center circumferential arcuate edge **214** about which the locking lug **204** rotates with the underside **216** of the off-set actuator end **218** in spaced or guiding relationship therewith. The radius of the edge **214** is larger than and its center is off-set from the radius and center of the rotation of the lug so that in locked position (FIG. 11) the underside **216** of the lug end **218** is closely spaced or in sliding contact therewith as indicated at **220** in FIG. 12. In unlocked position, as where the locking lug **204** has been turned clock-wise or counter clock-wise (depending on the lock design), a required number of degrees, generally about 15° to 45°, in order that the latch mechanism (not shown) of the enclosure or door in which the lock is used is reciprocated, the underside **216** will be removed or radially spaced from the surface **214**. This assures a sturdy rigid construction for the lock **70** in its locked position and also freedom of movement to the unlocked position.

The modified locking lug **204** has a flat radial arm **222** formed integral with the rounded body **224** and may be provided with a central aperture **226** for the reception of the tip **22** of the key **14** as will be described, depending on the key design. The aperture **226** also permits inspection of the parts in their assembled condition by a locksmith and the proper assembly during manufacture. The aperture **226** can be omitted.

The locking lug is offset to provide a flat inner side **228** which is flush against the outer surface **230** of the plate **206**, and rotates thereagainst. These opposed surfaces may be lubricated if desired. The radial arm **222** has a small aperture **232** therethrough and a pair of radially spaced apertures **236** in the rounded body **224**. The plate **206** has an aperture **240** which aligns with the aperture **232** in the locked position of the locking lug **204**. The inner end of the lock cylinder **76** (FIG. 12) has affixed thereto a washer **242** having a pair of apertures **244** and a central key slot **246**. The washer is held to both the locking lug **204** and the cylinder **76** by means of a pair of pins **246** which are press-fitted into the apertures **236** and the apertures **244**. Instead of using pins for this construction screws may be used. A bore hole **250**, larger than the outer circumferential distance across the pins **246** is provided in the plate **206**, so that the pins can pass therethrough and also rotate within the bore hole as the lug **204** is turned.

The back plate or wall **208** of the lock housing **70** has a blind bore **252** (FIGS. 12 and 14) forming a retaining housing for the spring **254** (FIG. 13) which biases the detent **256**. The detent **256** has a flanged base **258** which is in sliding relationship within the blind bore **252** and has a detent end **260** which extends through the bore **240** of the plate **206** and engages the inner open end of the aperture **232** in the arm **222** of the locking lug **204**. The relationship of these parts can be reversed with the spring biased detent being carried by the locking lug.

As shown in FIG. 12, the top and bottom edges **262** and **264** of the slot **246** are beveled to receive the tip **22** and the beveled edges **24** of the key **14**. The inner edges of the radial arm **222** are beveled, as at **266** and **268** (FIGS. 11 and 14) and the inner open end of the aperture **232** has a pocket **270** to receive the tip end of the detent **256**. As an alternate construction the bore **232** can be made smaller than the diameter of the detent **260** or the pocket **270** alone can be used. The body **224** has a boss **272** on the inner side which rotates within the bore hole **250** of

the lug **204**. Also, the back or inner side of the plate **206** is off-set inwardly as at **274** to receive the washer **242** though it is not concentric therewith.

In operation of the modified lock and key combination described in relation to FIGS. 10–14, as the key **14** is inserted the tip **22** passes into and is engaged by the key slot **246**. The tumblers **90** are raised to the shear lines **100** so that the cylinder **76** can be rotated by the key. This causes the tip **22** to rotate the washer **242** and through the pins **246** carries or rotates the lug **204** in the direction of the key turn. The rotative pressure of the key causes the detent **256** to ride out of the pocket **270** and the lug **204** is moved to actuate the latch and unlock the door. Upon removal of the key, in the locked position, not only do the modified tumblers **90'** and the cam means **40** offer theft-proof design, but the added necessity of turning the washer **242** simultaneously to unlock the lock makes unauthorized entry highly improbable. Although the tip **22** of the key **14** is shown to be spaced radially from the edges of the slot, it is to be understood that the slot and key can be made so that these parts are flush or more closely spaced when the key **14** is in the position shown in FIG. 12. Other modifications are apparent. The washer **242** can be omitted and the boss **272** extended into the cylinder or adjacent the end thereof, so that the key tip **22** engages the lug **204** as directed. In this arrangement, the boss **272** would be enlarged and the inner open end of the bore **226** would be slotted as at **276** to receive the tip **22** in the same manner as described in relation to the washer **242**.

Referring to FIGS. 15 to 19, still another embodiment of this invention is shown which can be used alone as a safety lock and key combination or used in combination with the embodiments shown in FIGS. 1–9, or the embodiments shown in FIGS. 10–14. It is also apparent that the safety key **14** and modified lock **70** of FIG. 1 can incorporate the modified lug and washer arrangement of FIGS. 10–14 along with the third safety feature to be described in relation to FIGS. 15–19. Also each of these embodiments can be used alone in a key-lock combination.

In FIGS. 15, 16, 17 and 18 the lock or lock housing **70** has the conventional cylinder lock **76** with inner key slot **96** and face plate or outer flange **78** with exposed key slot opening as previously described. The cylinder **76** is modified to include an angular radial bore **280** with a tumbler **282** having separable tip **284** and shear line **286** (FIG. 18) biased therein by the spring **288** operating within the radially aligned bore **290** in the body **74** of the lock **70**. The tumbler **282** is larger in diameter than the separable tip **284** and the interengagement of the inner surface **292** of the tumbler maintains the rounded tip **294** at least part way across the slot (FIG. 15). A cover member **291** is attached or made integral with the body **74**.

The key **14'** has been modified to include a side cam surface **300** at the tip **22** between the grooves **18** and **20** of the blade **12**. The key **14'** has an aperture **302** with a chamfered or beveled edge **304** therearound on one side of the key, i.e., on the side toward the tumbler **282**. The chamber **304** may surround the aperture **302** or be on the leading edge only, that is the edge nearest the tip **22**. The aperture **302** can be a blind bore, however by drilling a hole through the blade **12** and chamfering both sides of the hole, the manner of operation of the modified key blade is more obscure. In either event the structure is such that as the key **14'** is inserted into the slot **80** the beveled tip **300** engages the rounded tip **294** of the tumbler (FIG. 17) and moves the tumbler to a locked position so that the cylinder **76** cannot at this time be turned. As the key **14'** is moved to its fullest extent into the key slot **96**, the rounded end of the tip **294** registers with the aperture (or blind bore) **302** and the shear line **286** is brought in circumferential registry with the juncture line **102** between the cylinder **76** and the body **74** of the lock **70**. The cylinder **76** can then be turned in the lock since the key is holding the other tumblers **90** (not shown) in proper release position as previously described. The aperture **302** ran be omitted and the cam tip **302** used alone to move the tumbler **104** to unlocked position, in which event the shear line **286** would not be in registry with the juncture **102** when the key **14'** is not in the lock.

What is claimed is:

1. A key having a handle with an extended blade portion provided with a cammed edge to engage the inner tumblers of a cylinder lock including:

(a) a recess in said cammed edge of said blade portion adjacent said handle;

(b) a guide bore extending obliquely from said recess to the opposite side of said blade toward said handle;

(c) a rod member extending in slidable relationship within said guide bore;

(d) said rod member having a protuberance at one end with an effective diameter larger than said guide bore;

(e) said protuberance seating within said recess as a stop member in the retracted position of said rod member; and

(f) means arcuately guiding the other end of said rod member from said retracted stop position to an extended position with said protuberance in operable engagement with an outer tumbler of said lock whereby said cylinder is released for rotation to the unlocked position.

2. A key in accordance with claim **1** in which:

(a) said means arcuately guiding said other end of said rod member comprises a transverse slot in said handle and spaced thereby from said opposite side of said blade portion;

(b) said rod member is provided with a tab end slidably engaged within said transverse slot; and

(c) a finger knob is provided on said tab end to slidably retain said rod member therein.

3. A key in accordance with claim **2** in which:

(a) the ends of said slot correspond to and stop the extended and retracted positions of said rod member.

4. A key in accordance with claim **1** in which:

(a) means are provided for resiliently biasing said rod member to said retracted position.

5. A key for a cylinder lock comprising:

(a) a handle with an extended blade portion having a cammed edge to engage the inner tumblers of said cylinder lock;

(b) a recess in said cammed edge of said blade portion adjacent said handle;

(c) a guide bore extending obliquely from said recess to the opposite side of said blade portion toward said handle;

(d) a rod member extending in slidable relationship within said guide bore;

(e) said rod member having a protuberance at one end having an effective diameter larger than said guide bore;

(f) said protuberance seating within said recess in the retracted position of said rod member;

(g) a lever pivotally mounted on an axis in said handle;

(h) one end of said lever being pivotally attached to the other end of said rod member; and

(i) means resiliently biasing said lever to retain said rod member in the retracted position whereby movement of said lover against said biasing means extends the protuberance of said rod member into operable engagement with an outer tumbler of said lock.

6. A key in accordance with claim **5** in which:

(a) said handle is essentially flat sided with an arcuate outer edge;

(b) said lever comprises an arcuate sheath with walls encompassing and spaced from the sides and edge of said handle; and

(c) said means resiliently biasing said lever is intermediate the respective pivotally mounted ends thereof.

7. A key in accordance with claim 5 in which:
(a) said handle is essentially flat sided with a pair of arcuate lobes on opposite sides thereof, one of said lobes being spaced from and in the plane of said cammed edge of said blade portion;
(b) the axis of said lever extends transverse said handle and intermediate the said lobes;
(c) an arcuate slot is provided in the other lobe and radially spaced from the axis of said lever;
(d) said other end of said rod member having a transverse tab extending into said arcuate slot and being pivotally attached to said lever; and
(e) the other end of said lever extends in the space between said first lobe and said cammed edge, whereby to be contacted by the face of the lock and thereby move said rod member and protuberance into operable contact with an outer tumbler of said lock.

8. A key and lock combination comprising:
(a) a lock having a housing;
(b) a series of spring-biased tumblers in said housing;
(c) a lock cylinder rotatably mounted in said housing having a corresponding series of radial bore holes registerable with said tumblers in a locked position;
(d) a key having a handle with an extended blade portion having a cammed edge adapted to be positioned within said cylinder and engage all but the outermost of said tumblers and raise same to unlocked position;
(e) a recess in said cammed edge of said blade portion adjacent said handle;
(f) a guide bore extending obliquely from said recess to the opposite side of said blade toward said handle;
(g) a rod member extending in slidable relationship within said guide bore;
(h) said rod member having a protuberance at one end with an effective diameter larger than said guide bore;
(i) said protuberance seating within said recess as a stop member in the retracted position of said rod member; and
(j) means arcuately guiding the other end of said rod member from said retracted stop position to an extended position with said protuberance in operable engagement with an outer tumbler of said lock whereby said cylinder is released for rotation to the unlocked position.

9. A key and lock combination in accordance with claim 8 in which:
(a) said means arcuately guiding said other end of said rod member comprises a transverse slot in said handle and spaces thereby from said opposite side of said blade portion;
(b) said rod member has a straight shank and a curved extended end depending to a side of said handle;
(c) a transverse tab end is provided on said extended end of said rod member, said tab end being slidably engaged within said transverse slot;
(d) a finger knob is provided on said tab end to slidably retain said rod member therein; and
(e) the respective ends of said slot corresponding to the extended and retracted positions of said rod member.

10. A key and lock combination in accordance with claim 8 including:
(a) means to resiliently bias said rod member to the retracted position.

11. A key and lock combination in accordance with claim 8 including:
(a) a lever pivotally mounted on an axis in said handle;
(b) one end of said lever being pivotally attached to the other end of said rod member; and
(c) means resiliently biasing said lever to retain said rod member in the retracted position whereby movement of said lever against said biasing means extends the protuberance of said rod member into operable engagement with an outer tumbler of said lock.

12. A key and lock combination in accordance with claim 11 in which:
(a) said lever comprises an arcuate sheath with walls encompassing and spaced from the sides and edge of said handle; and
(b) said means resiliently biasing said lever is intermediate the respective pivotally mounted ends thereof.

13. A key and lock combination in accordance with claim 11 in which:
(a) said handle is essentially flat sided with a pair of arcuate lobes on opposite sides thereof, one of said lobes being spaced from and in the plane of said cammed edge of said blade portion;
(b) the axis of said lever extends transverse said handle and intermediate the said lobes;
(c) an arcuate slot is provided in the other lobe and radially spaced from the axis of said lever;
(d) said other end of said rod member having a transverse tab extending into said arcuate slot and being pivotally attached to said lever; and
(e) the other end of said lever extends in the space between said first lobe and said cammed edge, whereby to be contacted by the face of the lock and thereby move said rod member and protuberance into operable contact with an outer tumbler of said lock.

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