Jan. 3, 1967 L. W. HANKINS 3,295,344

BIT KEY LOCK GUARD

Filed Dec. 8, 1964

Fig. 1

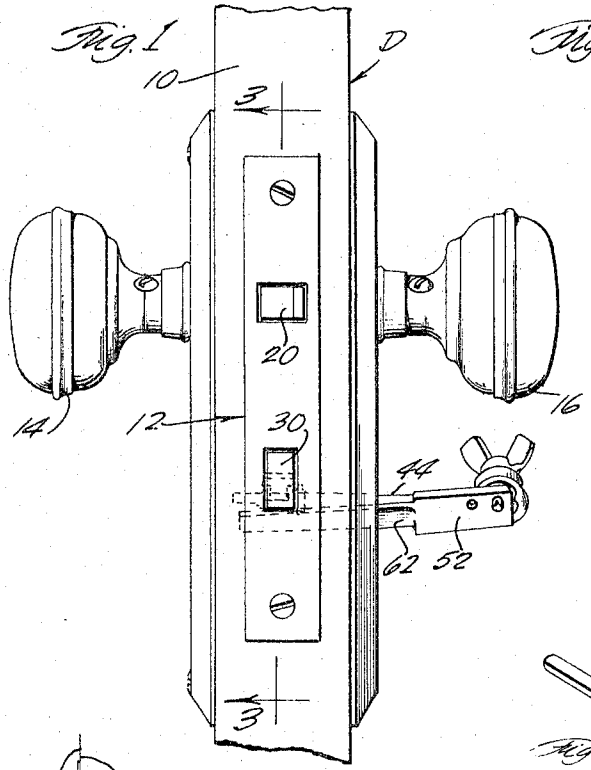


Fig. 2

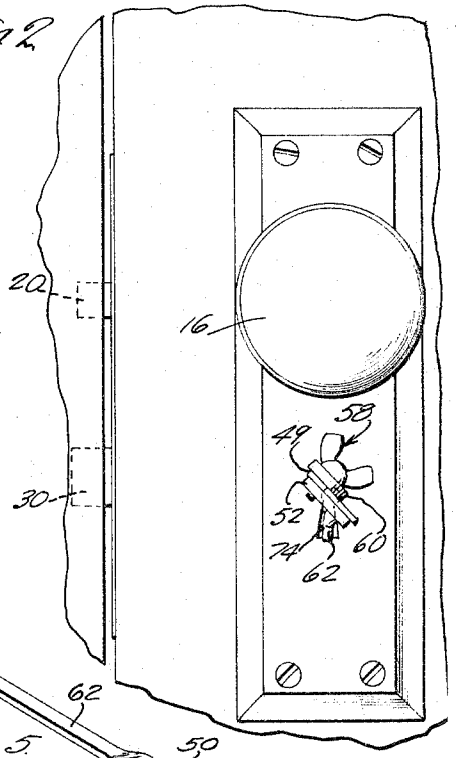


Fig. 5.

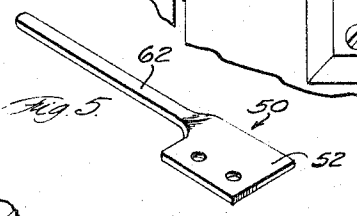


Fig. 3.

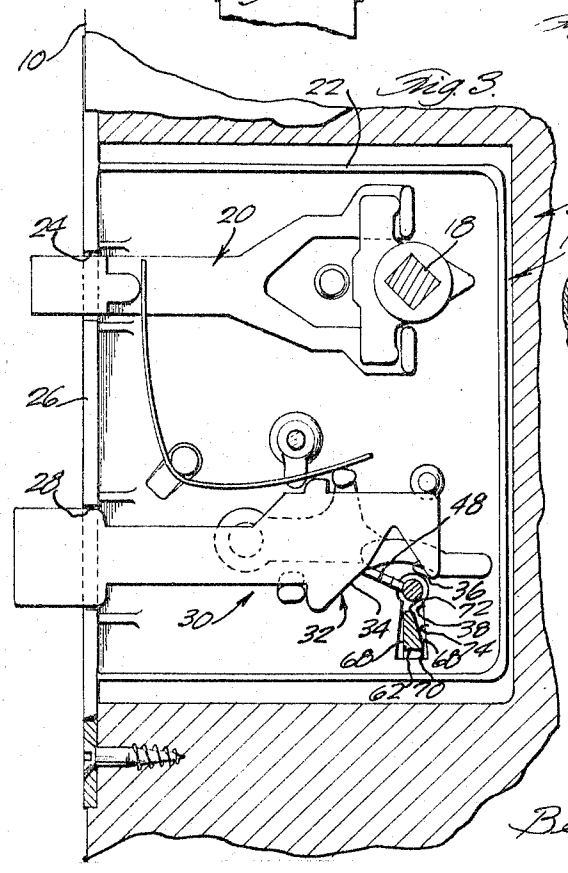


Fig. 6.

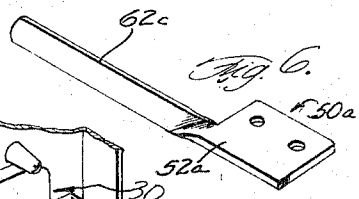
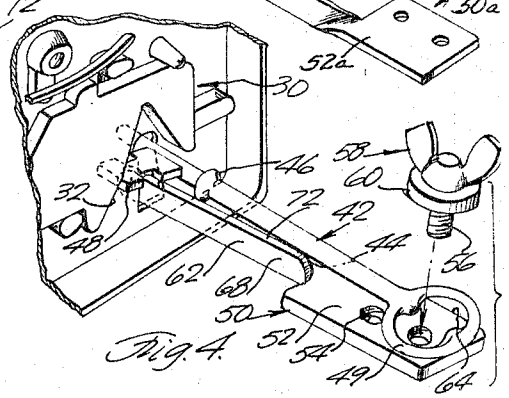


Fig. 4.



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BIT KEY LOCK GUARD

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This invention relates to a guard for bit key operated mortise or rim lock.

Heretofore, devices intended to prevent locks of the kind indicated from being operated and opened from the out sides of doors and the like, have only partially achieved their purposes since these devices failed to preclude operation of their bolts, by various means, such as the insertion and manipulation of implements through their keyholes, and/or the application of vibration or other shocks to the lock mechanisms.

The primary object of the present invention is the provision of a reliable, efficient, easily applied guard, which is adapted to be secured to a bit key and installed through a lock keyhole, from the inner side of the lock, in such a way that the bit of the key is securely held in contact with the lock bolt and positively precludes opening operation of the bolt by any means applied from the outer side of the lock.

Another object of the invention is the provision of a guard of the character indicated above, which is of simple and uncomplex construction, so that it is adapted to be made and sold as an inexpensive and positive means of rendering ordinary locks, of the indicated types, burglar-proof, and as means for preventing keys from being jarred loose from the locks, in open positions of the related doors, or the like.

In the drawings:

FIGURE 1 is a fragmentary edge elevation of a door equipped with a mortise type, bit key operated lock, equipped with a guard of the present invention;

FIGURE 2 is an inside elevation of FIGURE 1;

FIGURE 3 is a vertical section taken on the line 3—3 of FIGURE 1, showing the guard retaining the key-operated bolt of the lock in extended or locking position;

FIGURE 4 is a fragmentary perspective view, showing the guard in process of installation relative to the lock and its key;

FIGURES 5 and 6 are perspective views of a left-hand guard, respectively.

Referring in detail to the drawings, D generally designates a door having a free edge **10**, in which is flush mortised a conventional bit key-operated lock **12**. Rotary handles **14** and **16** extend from the out side and the inner side, respectively, of the door D, and are operatively secured on related ends of a polygonal shaft **18**, which operates a spring latch bolt **20**.

The lock **12** comprises a vertically elongated case **22**, containing, within its upper part, the spring latch bolt **20**, which extends through an opening **24**, provided in the lock face **26**.

Working through an opening **28**, in the lock face **26**, at a point spaced below the spring bolt **20**, is a locking bolt **30** which is formed, in its lower edge, adjacent to its inner end, with a generally V-shaped notch **32**, having outer and inner cam edges **34** and **36**, respectively. Aligned keyholes **38** are provided in the side walls **40** of the lock case **22**, beneath the locking bolt **30**, in the region of the notch **32**. A conventional bit key **42** comprises a round shaft **44**, having a stop collar **46**, adjacent its free end, and a lateral radial flat bit **48** located between the stop collar and the free end of the shaft, and an eye **49** on its outer end.

The bit **48** is adapted to be passed through a related keyhole **38**, into the locking bolt notch **32**, for extending and retracting the locking bolt **30**. With reference

to FIGURE 3, the key **42**, after insertion in the lock, is adapted to be rotated, in a clockwise direction, so as to cause the bit **48** to bear against the inner cam edge **36**, of the notch **32**, for retracting the bolt **30**; and to be rotated, in the opposite direction, for operatively engaging the outer cam edge **34**, for extending the bolt **30**, to the position shown. Positive retention of the locking bolt **30**, in the extended locking position is obtained by a guard **50** of the present invention.

The guard **50** for use where the lock is at the left-hand edge of a door, as shown in FIGURE 5, comprises a longitudinally elongated flat head **52**, formed with two or more longitudinally spaced threaded holes **54**, adapted to receive the shank **56** of a wing-screw **58**, having a relatively large diameter head **60**. A longitudinally elongated, relatively narrow, substantially flat guard arm **62** extends from the inner end of the flat head **52**. The arm **62** is substantially narrower than the head **52** and is offset to and is flush with one side edge **64** thereof.

As shown in FIGURES 1, 2 and 4, the side edge **64** of the guard head **52** is, in the installed position of the guard, the depressed edge of the head **52**, the arm **62** is twisted out of the plane of the head **60**, into a substantially perpendicular plane, disposed at an acute angle to the plane of the head. As shown in FIGURE 3, the arm **62** has upwardly converging opposed sides **66** and **68**, respectively, and has a slightly rounded lower edge **70**, and a flat upper edge **72**. While the cross section of the arm **62**, as shown in FIGURE 3, is less than the width of the slot **74** of the keyhole **38**, in which the outer end portion of the arm **62** is located, in the installed position of the guard, the arm **62** must be wide enough to preclude substantial turning of the arm in the keyhole.

The guard **50** is installed by turning the key **42** in the lock so as to extend the bolt **30** to its locking position, as shown in FIGURE 3. The guard arm **62** is then inserted in the slot **74** of the keyhole **38**, beneath the key, as far as the arm **62** will go. The eye **49** of the key **42** then overlies the guard head **52**. Then, if necessary, the guard **50** is somewhat drawn out, until the key eye **49** registers with one of the threaded holes **54** in the guard head **52**. The shank **56** of the wing-screw **58** is then engaged in this hole **54** and the wing-screw tightened to secure the key to the guard **50**.

It will be understood that the downward angulation of the guard head **52**, relative to the guard arm **62**, and relative to the keyhole slot **74**, corresponds to the upward angulation of the key bit **48**, in its locking bolt retaining position, and that the substantially rotationless engagement of the guard arm **62**, in the keyhole **38**, precludes rotation of the key **42**, relative to the lock, and thereby prevents rotation of the key bit **48**, out of the locking bolt retaining position shown in FIGURE 3.

The guard **50** serves also to prevent the key **42** from being jarred out of the lock **12**, when the door D is opened or closed, and slammed.

A guard **50***a*, shown in FIGURE 6, is for use where the lock is on the right-hand edge of the door. The guard **50***a* is the same in construction as the left-hand guard, shown in FIGURE 5, except that the angulation of its head **52***a*, relative to its arm **62***a*, is the reverse of the head **52** of the guard **50**, and extends from the opposite side of its arm **62***a*.

What is claimed is:

1. In combination, a lock case containing an extensible and retractable locking bolt, said locking bolt being formed with a notch having outer and inner cam edges, the case being formed with a keyhole located in the region of said notch, a key having a shaft formed with an eye on its outer end and with a lateral bit at its inner end, the key being engaged through the keyhole with

its bit positioned in said notch, the key being adapted to be rotated in opposite directions for operatively engaging the bit with the cam edges for extending and retracting the locking bolt, and a guard fixed to the key, said guard having an arm engaged non-rotatably through the keyhole, said keyhole has a vertical slot through which the guard arm is non-rotatably engaged, said guard comprising a relatively wide flat head on the outer end of said arm, said head being angled relative to the guard arm, the bit of the key being in upwardly and outwardly angled position relative to the keyhole slot in engagement with the outer cam edge of the bolt notch in the extended position of the bolt and the guard head being in an inwardly and downwardly angled position relative to the keyhole slot, the bit and the eye of the key being located in the same plane, the head of the guard and the key eye being angled out of the horizontal, a side of the head being engaged with a side of the key eye, and means fixing the key eye to one side of the guard head.

2. In combination, a lock case containing an extensible and retractable locking bolt, said locking bolt being formed with a notch having outer and inner cam edges, the case being formed with a keyhole located in the region of said notch, a key having a shaft formed with an eye on its outer end and with a lateral bit at its inner end, the key being engaged through the keyhole with its bit positioned in said notch, the key being adapted to be rotated in opposite directions for operatively engaging the bit with the cam edges for extending and retracting the locking bolt, and a guard fixed to the key, said guard having an arm engaged non-rotatably through the keyhole, said keyhole has a vertical slot through which the guard arm is non-rotatably engaged, said guard comprising a relatively wide flat head on the outer end of said arm, said head being angled relative to the guard arm, the bit of the key being in upwardly and outwardly angled position relative to the keyhole slot in engagement with the outer cam edge of the bolt notch in the extended position of the bolt and the guard head being in an inwardly and downwardly angled position relative to the keyhole slot, the bit and the eye of the key being located in the same plane, the head of the guard and the key eye being angled out of the horizontal, a side of the head being engaged with a side of the key eye, and means fixing the key eye to one side of the guard head, the guard

arm being substantially narrower than the guard head and offset to one side edge of the guard head.

3. In combination, a lock case containing an extensible and retractable locking bolt, said locking bolt being formed with a notch having outer and inner cam edges, the case being formed with a keyhole located in the region of said notch, a key having a shaft formed with an eye on its outer end and with a lateral bit at its inner end, the key being engaged through the keyhole with its bit positioned in said notch, the key being adapted to be rotated in opposite directions for operatively engaging the bit with the cam edges for extending and retracting the locking bolt, and a guard fixed to the key, said guard having an arm engaged non-rotatably through the keyhole, said keyhole has a vertical slot through which the guard arm is non-rotatably engaged, said guard comprising a relatively wide flat head on the outer end of said arm, said head being angled relative to the guard arm, the bit of the key being in upwardly and outwardly angled position relative to the keyhole slot in engagement with the outer cam edge of the bolt notch in the extended position of the bolt and the guard head being in an inwardly and downwardly angled position relative to the keyhole slot, the bit and the eye of the key being located in the same plane, the head of the guard and the key eye being angled out of the horizontal, a side of the head being engaged with a side of the key eye, and means fixing the key eye to one side of the guard head, said means comprising longitudinally spaced threaded holes in the guard head adapted to be registered with the opening of the key eye, and a clamping bolt having a shank threaded into a registered hole and an enlarged diameter head bearing upon the key eye.

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