No 3, 1925. 1,560,503

W. F. DOENGES

LEVER LATCH FOR SAFE LOCKS

Original Filed Aug. 23, 1922 2 Sheets-Sheet 1

Fig. 1.

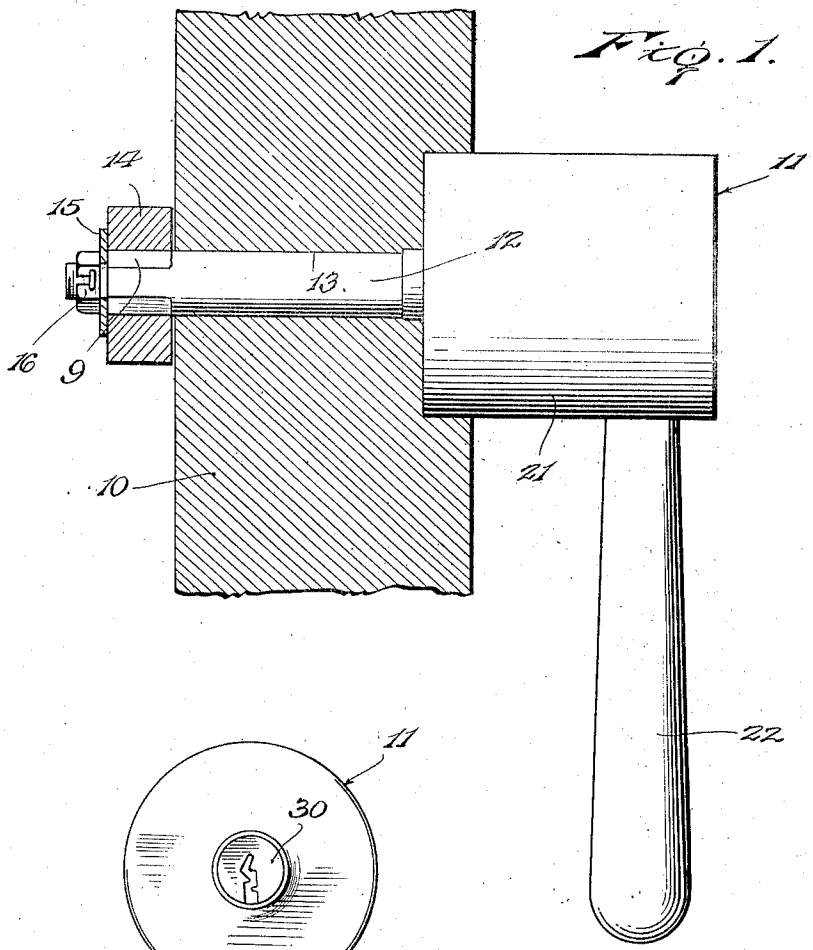


Fig. 2.

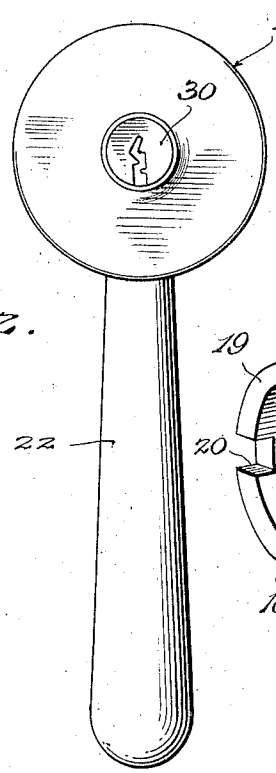
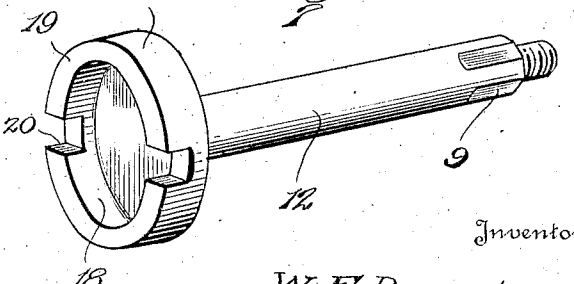


Fig. 7.



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Original Filed Aug. 23, 1922 2 Sheets-Sheet 2

Fig. 3.

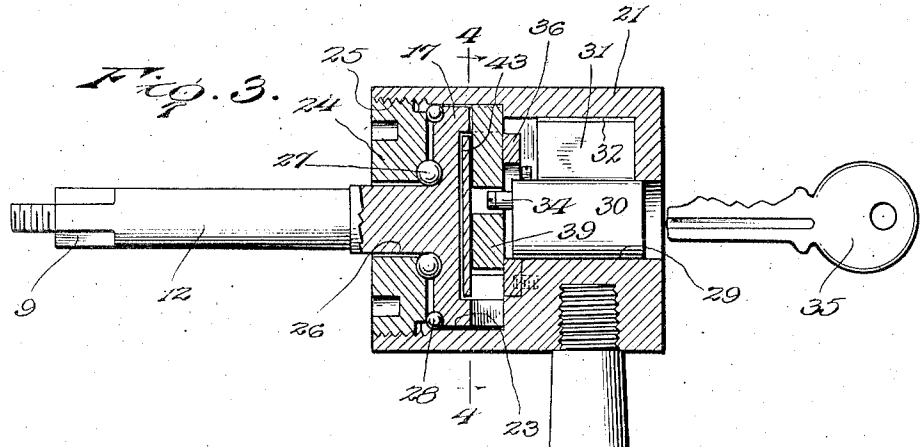


Fig. 4.

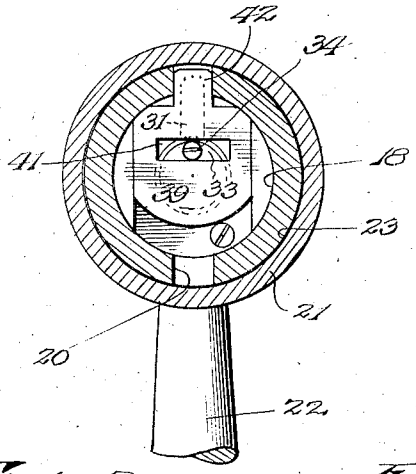


Fig. 5.

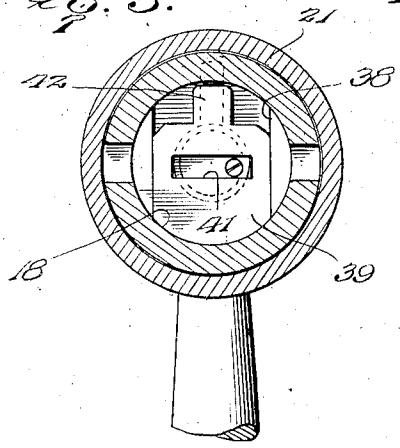
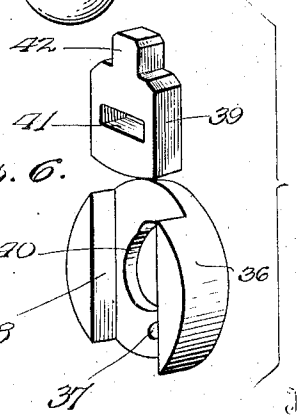


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM FRED DOENGES, OF SAN ANTONIO, TEXAS.

LEVER LATCH FOR SAFE LOCKS.

Application filed August 23, 1922, Serial No. 583,818. Renewed June 19, 1924.

To all whom it may concern:

Be it known that I, WILLIAM FRED DOENGES, citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented certain new and useful Improvements in Lever Latches for Safe Locks, of which the following is a specification.

My invention relates to locks used on safes and vaults and has for its main object to furnish a latch in the lock for securing the operating parts together for the purpose of opening the lock and to arrange the latch in such a manner that the operating handle for the lock will turn loosely as regards the other operating parts, when the safe or vault door is in locked position.

Another object of the invention is to furnish a device with an ordinary barrel lock of the cylinder type or other similar construction, which is operated by means of a key.

In the accompanying drawing one embodiment of the invention is illustrated and Fig. 1 represents a side elevation of the lock in position in the vault door;

Fig. 2 is a rear end view of the lock;

Fig. 3 is an axial section thereof;

Fig. 4 is a transverse section along line 4—4 of Fig. 3 with the latch in operative position;

Fig. 5 is a similar view to Fig. 4 with the latch in inoperative position;

Fig. 6 is a perspective view of some of the details of the lock and

Fig. 7 is a perspective view of another detail of the lock.

Reference numeral 10 represents a door of a safe or vault, in which the lock 11 is carried in the usual manner. The lock is carried on shaft 12 mounted in a corresponding bore 13 in the door 10 and extending through the door to the inner side thereof a short distance, in order to engage with the bolt operating member 14, which is keyed as at 9 to the shaft 12. The member 14 is held in position on the shaft by means of a washer 15 and a nut 16 threaded on the inner end of the shaft.

At its outer end the operating shaft 12 is provided with a disk 17 which has a central recess 18 forming a side wall 19 through which are cut a pair of oppositely positioned notches 20.

Reference numeral 21 represents a hub in which a handle 22 is rigidly secured for the purpose of turning the hub in the door 10. This hub is provided with an interior chamber 23, in which the disk 17 fits loosely. A screw plug 24 is threaded as at 25 in the chamber 23 and is intended to retain the disk 17 in position in the chamber, for which purpose it has a central bore 26, near which a central ball bearing 27 is furnished to engage with a corresponding groove in the disk 17. An outer ball bearing 28 is also furnished between the outer edge of the disk 17 and the chamber 23 of the hub 21. In this manner the hub 21 will be made to turn easily around the disk 17 and the operating shaft 12 when the latch is not in operation.

In the outer end of the hub 21 is provided a central bore 29. This bore is intended to receive the barrel 30 of a cylinder lock or any other lock of similar construction. The side tongue 31 on the barrel engages in a corresponding narrow passage 32 in the hub preferably placed diametrically opposite to the handle 22. The cylinder 33 of the cylinder lock has an eccentrically mounted projection such as a stud or a screw 34, which extends inwardly from the inner face of the cylinder lock and the usual type of key 35 is furnished for turning the cylinder in the barrel 30.

In the bottom of the chamber 23 of the hub 21 is rigidly secured a guide 36 by means of one or more screws, or the guide may be formed as an integral part of the hub itself. However, in order to facilitate manufacture it is preferred to make the guide 36 separate and insert it as described in the recess 23. This guide has two flat side walls 38 between which the flat sides of the latch member 39 are guided to travel up and down. A center opening 40 is provided in the guide 36 through which the stud 34 extends permitting the rotation thereof when the cylinder 33 is revolved. The latch member 39 has a transverse aperture 41 in which the stud 34 engages, and this aperture is very narrow in the length direction of the latch member but extends almost across its whole width. The latch member has a toe 42 adapted to engage with one of the notches 20 provided in the side wall 19 of the disk 17. It will be noted that only one of these notches would be necessary to operate the device, but by fur-

nishing two or more of them, the position of the handle 22 may be selected to suit conditions.

Between the inner face of the latch member 39 and the bottom of the recess 18 in the disk 17 is inserted an antifriction plate 43 to facilitate the operation of the latch member 39.

With the parts in the relative positions as indicated in Figs. 3 and 4, the latch toe 42 engages in the corresponding notch 20 and the operating shaft 12 and the hub 21 with the handle 22 is consequently rigidly secured to the disk 17 of the operating shaft 12 through the intermediary of the flat sides of latch member 39 engaging with side walls 38 of the guide member 36. The turning of the handle 22 will then turn the operating shaft 12 and actuate the bolt operating member 14 and lock the door. This condition is made possible only by the insertion of the key 35 in the cylinder 33 of the lock 30. Upon turning the key 35 to remove the same from the lock the stud 34 will act in the slot 41 to retract the toe 42 from engagement with the notch 20 of the disk 17. When the key 35 is removed and the parts stand in the position indicated in Fig. 5, it will then be possible to turn the hub 21 by means of the handle 22 in any direction around the disk 17 and the operating shaft 12 and the door 10 will accordingly remain locked or unlocked as the case may be.

Having thus described the invention, what is claimed as new is:

1. The combination with a barrel lock, having an eccentric stud; of a hub in which the barrel lock is mounted, a handle on said hub, guiding means in said hub, a slide provided with a radial lug and mounted in said guiding means for transverse reciprocation in the hub, said slide having engagement with said stud, a revoluble member mounted coaxially with said barrel lock in said hub, said member having a recess corresponding to said radial lug and adapted to engage therewith in one position of said slide, and a retaining plug for said revoluble member, said plug being secured in said hub, and there being a keyhole in the bottom wall of the cup.

2. The combination with a barrel lock, having an eccentric stud; of a hub in which the barrel lock is mounted, a handle on said hub, guiding means in said hub, a slide provided with a radial lug and mounted in said guiding means for transverse reciprocation in the hub, said slide having engagement with said stud, a revoluble member mounted coaxially with said barrel lock in said hub, said member having a recess corresponding to said radial lug and adapted to engage therewith in one position of said slide, a retaining plug for said revoluble member, said plug being secured in said hub and antifriction bearings between said revoluble member and said plug on the one hand, and between the hub and the revoluble member on the other hand.

3. The combination with a barrel lock, having an eccentric stud; of a hub in which the barrel lock is mounted, a handle on said hub, guiding means in said hub, a slide provided with a radial lug and mounted in said guiding means for transverse reciprocation in the hub, said slide having engagement with said stud, a revoluble member mounted coaxially with said barrel lock in said hub, said member having a recess corresponding to said radial lug and adapted to engage therewith in one position of said slide, said guiding means including a disk rigidly secured in said hub and flanges on the disk engaging the sides of said slide, a spacing element between said revoluble member and said slide, a retaining plug for said revoluble member, said plug being secured in said hub and antifriction bearings between said revoluble member and said plug on the one hand, and between the hub and the revoluble member on the other hand.

4. The combination with a cup-shaped casing, of a shaft extending into the open end of the same, means arranged wholly within the casing interlocking said shaft and said casing against relative movements lengthwise of the shaft and permitting relative rotary movements, and key-controlled mechanism in the casing for locking the shaft and the casing together against relative rotary movements.

5. The combination with a casing in the form of a thick-walled hollow cylinder closed at one end, of a strong closing wall screwed into and lying wholly within the open end of the casing, a shaft extending through and rotatable in said closing wall, means on the inner end of the shaft beyond said closing wall cooperating with the said closing wall and with the casing to prevent relative movements between the shaft and the casing lengthwise of the shaft, and key-controlled mechanism in the casing for locking the casing to the shaft to prevent relative rotation between the same.

6. The combination with a cup-shaped casing, of a closing device detachably secured within the open end of the same, a shaft extending through and rotatable in said closing device, said shaft having a shoulder thereon beyond and adjacent to the inner end of the closing device to prevent the withdrawal of the shaft, means in the casing for preventing endwise movement of the shaft in a direction tending to carry said shoulder away from said closing device, and key-controlled mechanism in the casing for locking the latter to the shaft so as to prevent relative rotation between the casing and the shaft.

7. The combination with a wall, of a shaft extending through said wall, a shoulder on the shaft engaging with the wall on one side thereof, a cup-shaped casing extending over completely and concealing the end of the shaft on the other side of the wall, means within the casing interlocking the same to the shaft to prevent relative movements lengthwise of the shaft and permit relative rotary movements, said means serving to hold the open end of the casing against said wall, and key-controlled mechanism in the casing for locking the casing and the shaft together against relative rotation.

In testimony whereof I affix my signature.

WILLIAM FRED DOENGES. [L. S]