W. H. McFALL.

LATCH LOCK.

APPLICATION FILED JULY 31, 1920.

1,388,732. Patented Aug. 23, 1921.

Fig. 1.

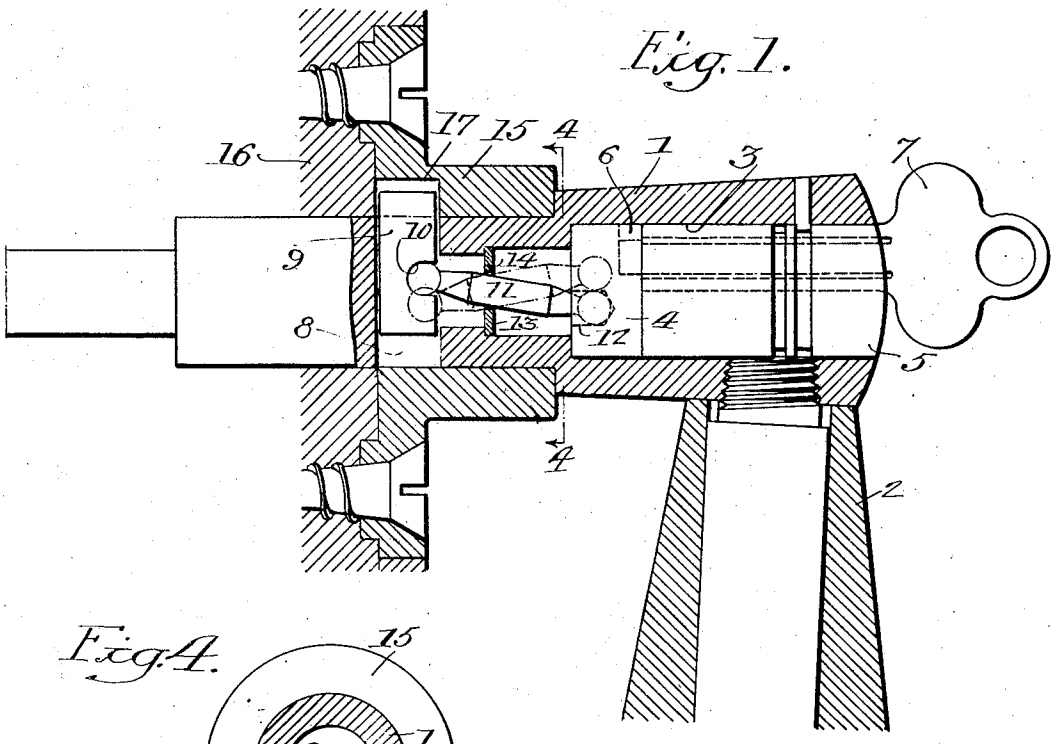


Fig. 4.

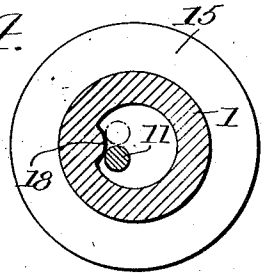


Fig. 2.

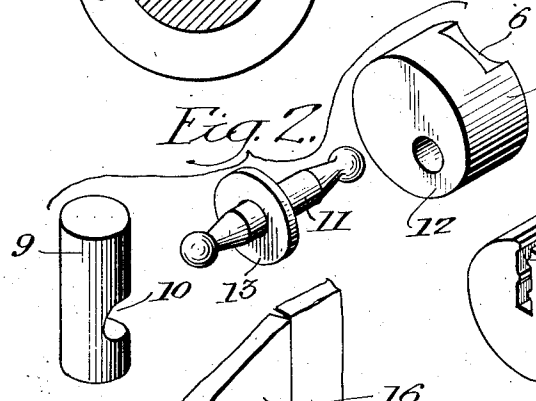


Fig. 3.

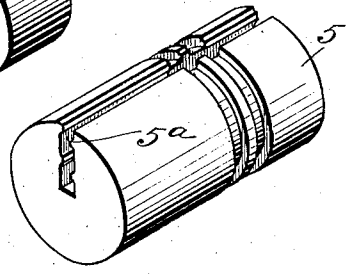
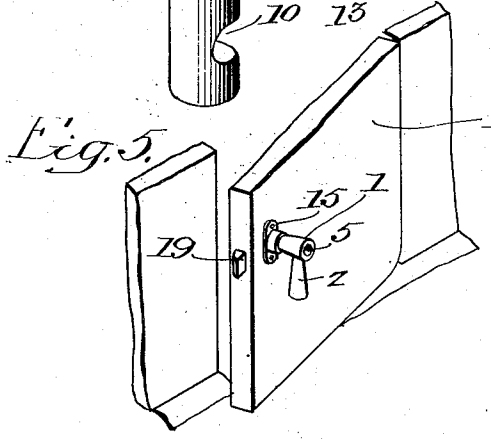


Fig. 5.



Inventor:

William H. McFall,

by his Attorneys.

Howson & Howson

UNITED STATES PATENT OFFICE.

WILLIAM H. McFALL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO EDWARD REUKAUF AND WILLIAM H. McFALL, COPARTNERS, TRADING UNDER THE FIRM STYLE OF CAREY-McFALL CO., OF PHILADELPHIA, PENNSYLVANIA.

LATCH-LOCK.

1,388,732. Specification of Letters Patent. Patented Aug. 23, 1921.

Application filed July 31, 1920. Serial No. 400,435.

To all whom it may concern:

Be it known that I, WILLIAM H. McFALL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Latch-Locks, of which the following is a specification.

My invention relates to locks for door handles, the object of my invention being to provide a lock simple and effective and particularly adaptable to use in connection with handles of the doors of automobiles.

In the accompanying drawings:

Figure 1, is a vertical section of a handle made in accordance with my invention;

Fig. 2, is a detached perspective of the working elements of my device;

Fig. 3, is a perspective of the key cylinder;

Fig. 4, is a vertical section taken on the line 4—4, Fig. 1, and

Fig. 5, is a view in perspective of a section of an automobile door equipped with a latch handle made in accordance with my invention.

With reference to the drawings, the numeral 1 indicates the shank or body portion of the handle, to which may be attached a suitable hand lever or equivalent member 2. The shank 1 is hollow, having a chamber 3 in the interior thereof in which is established, in the present instance, a revoluble cylinder 4, and a second cylinder 5, the outer end of which lies flush with the end of the body portion 1, said latter cylinder having therein a slot or way 5^a for the reception of a key by means of which the said cylinder 4 is revolved. In the present instance, the said cylinder 4 has a recess 6 at one side of the forward face thereof in which an eccentric portion of the end of the key 7 is adapted to lie when the latter is inserted in the slot formed for its reception in the cylinder 5. Both the cylinders 4 and 5 are loosely mounted in the chamber 3.

Seated in a recess 8 in the said body portion 1 at the rear end of the chamber 3, is a bolt member 9, said bolt member having in one side thereof a recess 10 adapted to receive one end of a pin 11 which lies within the chamber 3, the other end of the said pin occupying a recess 12 formed in the rear face of the cylinder 4. Established in the said chamber 3 intermediate the said cylinder and the bolt member 8 is, in the present instance, a plate or washer 13, said washer having an aperture 14 therein positioned preferably concentric with the face of the cylinder 4, through which the pin 11 passes, said aperture being only slightly larger than the sectional area of the pin itself so as to provide a universal bearing therefor. In the present instance, the pin 11 has at each end thereof a ball formation, said balls fitting respectively into the said recesses in the bolt member 9 and in the cylinder 4.

It will now be clear that revolution of the cylinder 4 will carry the end of the pin 11, which is attached thereto, in an arcuate path, and since the said pin is held stationary at the point where it passes through the aperture in the washer 13, the end of the pin which lies within the recess in the bolt member 8 is given a motion corresponding to that of the opposite end, this arcuate motion of the rear end of the pin causing a reciprocation in its recess of the said bolt member 9, the extent of the movement of the bolt depending upon the relative distances intervening between the pin bearing and the cylinder 4 and the bolt member, respectively. Thus, if the washer is nearer to the bolt member than to the said cylinder, it will be clear that the arc of the circle described by the end of the pin which lies within the recess in the bolt member will have a smaller radius than that described by the end of the pin lying within the recess in the cylinder, the difference in the said radii being directly proportionate to the respective distances between the washer and the bolt and the cylinder, respectively. The recess in the said bolt 8 which is occupied by the pin 11 is made sufficiently large to allow for the motion laterally of the bolt of the end of the pin.

In the drawings, I have shown an embodiment of my invention in which the handle 1 is employed in connection with the well known form of snap latch employed on automobile and other doors, the latch member being indicated by the numeral 19 in Fig. 5. In this instance, a keeper plate 15, with means for attaching the plate to the door, is provided, said door being indicated by the numeral 16, and a suitable cavity 17 is formed, in the present instance in the said

plate 15 which the bolt 9 enters when it is moved outwardly; whereby the handle 3 is prevented from turning.

In Fig. 1, the bolt is shown in the locked position, the pin 11 being shown in full lines in the position which it assumes when the bolt is shot, the retracted position of the bolt and the corresponding position of the pin being shown in broken lines.

In the present instance, I provide a protrusion 18 extending into the chamber 3, as shown in Fig. 4, against which protrusion the pin 11 is adapted to strike when the bolt is in either the extreme retracted or advanced position, whereby the motion of the cylinder 4 is limited and the respective positions of the bolt indicated.

It is clear that the device may lend itself to numerous modifications with no departure from the essential features of the invention. Particularly is it possible by variation in the form of the cylinder 5 and by other means to provide a distinct key for each lock, which is particularly desirable.

I claim:

1. In a lock, the combination of a reciprocatory bolt member, a pin having one end operably connected with said bolt member, a universal bearing for said pin intermediate the ends, and means for moving the free end of said pin in an arcuate path.

2. In a lock, the combination of a revoluble element, a reciprocatory bolt member, means interconnecting said element and bolt member whereby revolution of the said element effects reciprocation of said bolt member, and means for revolving said element.

3. In a lock, the combination of a revoluble cylinder, a reciprocatory bolt member, a universally mounted pin interconnecting said cylinder and bolt member whereby revolution of the cylinder effects reciprocation of said member, and means for revolving said cylinder.

4. In a lock, the combination of a revoluble cylinder, a reciprocatory bolt member, a pin having its ends connected respectively with said cylinder and bolt member, a universal bearing for said pin intermediate the said ends, and means for revolving said cylinder.

5. In a lock, the combination of a revoluble cylinder, a reciprocatory bolt member, recesses in the adjacent faces of said cylinder and bolt member, a pin pivoted universally intermediate the cylinder and the bolt member and having its ends respectively established within the said recesses, and means for revolving said cylinder.

6. In a door lock, the combination of a latch for said door, an operating handle for said latch, said handle having a chamber in the interior thereof, a bolt slidable in said chamber and adapted to be moved into engagement with said door to prevent operation of said handle, a pin in said chamber having one end operably connected with said bolt, a universal bearing for said pin intermediate the ends thereof, and key-actuated means for moving the free end of said pin in an arcuate path.

7. In a door lock, the combination of a latch for said door, an operating handle for said latch, said handle having a chamber in the interior thereof, a bolt slidable in said chamber and adapted to be moved into engagement with said door to hold the handle stationary, a revoluble cylinder in said chamber, a pin having the ends thereof operably connected respectively with the bolt and the cylinder, a universal bearing for the pin intermediate the said ends, and detachable means for revolving said cylinder.

WILLIAM H. McFALL.