S. E. REUTTER.

LOCK.

APPLICATION FILED AUG. 27, 1915.

1,164,017.

Patented Dec. 14, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

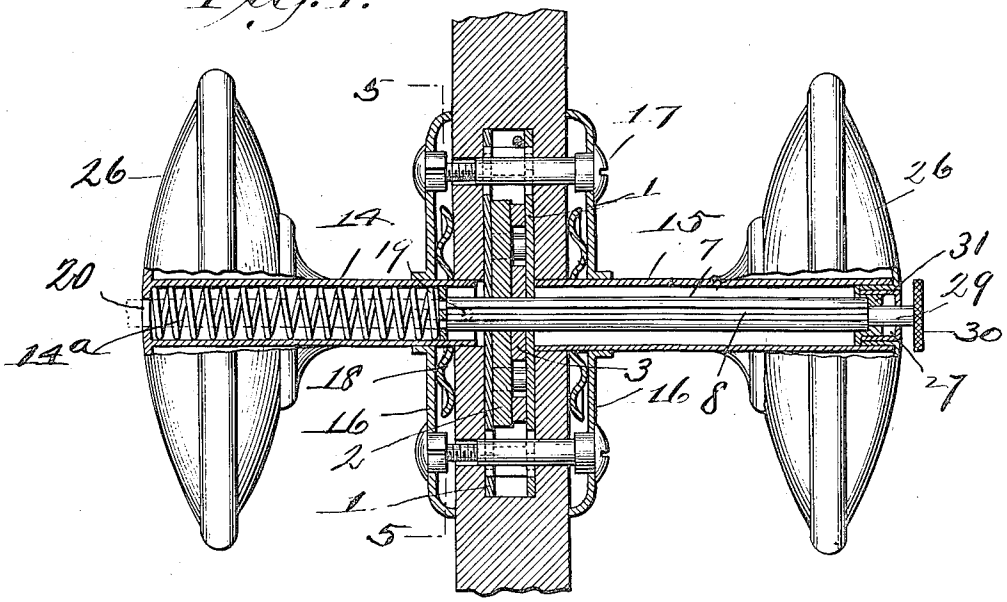
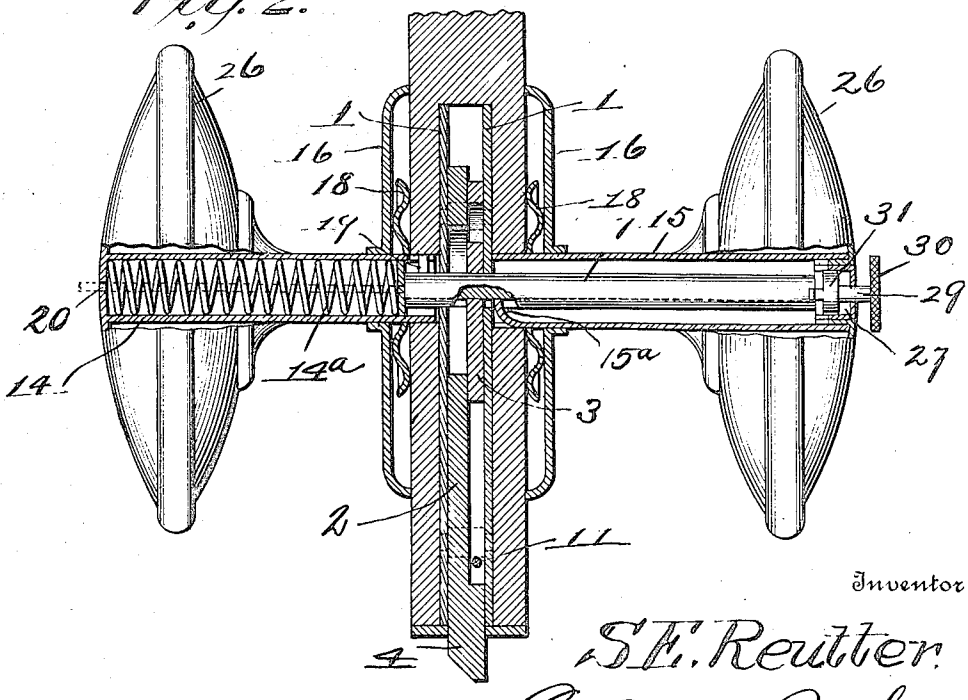


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

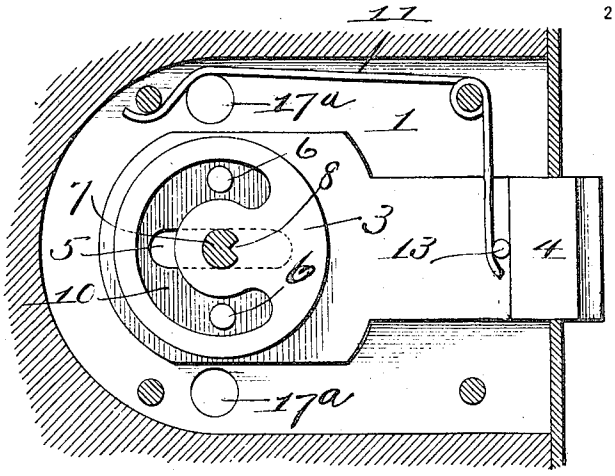


Fig. 4.

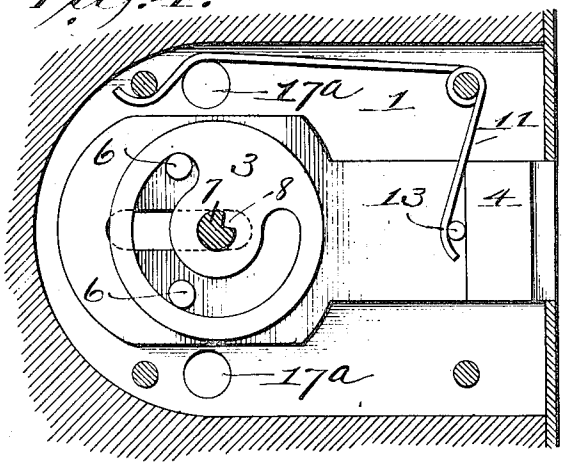


Fig. 5.

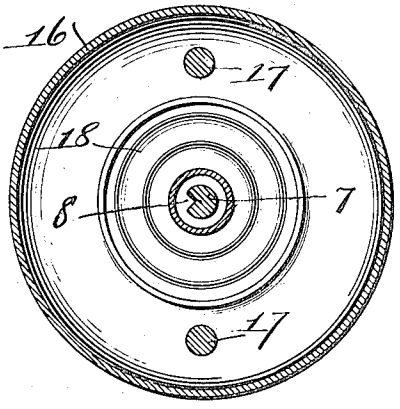


Fig. 8.

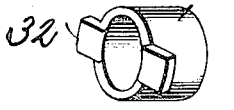


Fig. 6.

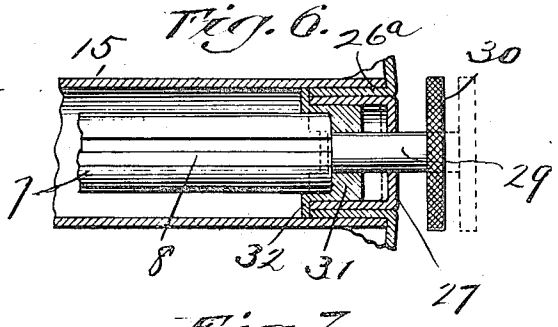


Fig. 9.

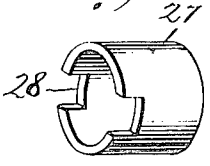
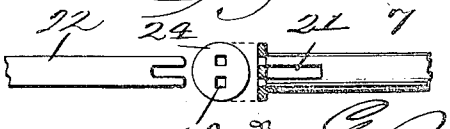


Fig. 7.



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UNITED STATES PATENT OFFICE.

SAMUEL E. REUTTER, OF CLEARFIELD, PENNSYLVANIA.

LOCK.

1,164,017. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed August 27, 1915. Serial No. 47,656.

To all whom it may concern:

Be it known that I, SAMUEL E. REUTTER, a citizen of the United States, residing at Clearfield, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Locks, of which the following is a specification.

This invention relates to a door lock, and the object of the invention is to improve upon the construction of the lock shown in my application filed June 15th, 1914, Serial Number 845,249.

In addition to providing a lock of this particular type which will contain a less number of parts than the usual lock now in use one of the objects of the invention is to produce a lock that is comparatively thin.

There is a considerable demand for a light weight door of somewhat less thickness than the standard door, but the sale of these lighter doors is handicapped by reason of the fact that the standard size lock now on the market is too wide to be inserted in these cheaper and lighter doors. My lock by reason of its thinness can be employed in connection with these doors thereby overcoming the main objection by builders to their use.

The invention also consists of the novel features of construction hereinafter described, pointed out in the claims and shown in the accompanying drawings, in which:

Figure 1 is a vertical section through the lock. Fig. 2 is a horizontal section, the bolt being shown in locking position. Fig. 3 is a face view of the bolt and the cam disk for operating the same, the bolt being shown in locking position. Fig. 4 is a similar view the bolt being in unlocking position. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a detail longitudinal sectional view of the exterior end portion of an inner sleeve. Fig. 7 are detail views of a key, a shaft and an end cap for said shaft, said parts being shown detached. Figs. 8 and 9 are detail perspective views of a collar and thimble, respectively.

In the drawings I have illustrated my lock fitted into a seven eighth inch door, the parts being shown substantially in exact size. In constructing the lock I employ two shell plates 1 which are fitted within a suitable mortise cut in the door, and said plates are spaced just sufficiently to permit their being placed between them a locking bolt 2 and a cam disk 3, allowance being made for easy movement of these parts. A bolt 2 comprises a projectable locking member 4, which is of somewhat greater thickness than the remainder of the bolt, and the inner end portion of said bolt is of greater width than the portion 4 and is provided with a longitudinal slot 5 and upon each side of said slot with pins 6.

A suitable shaft 7 provided with a longitudinal groove 8 extends through the plates 1 and loosely through the slot 5 and keyed on said shaft and turning with it is a disk 9 provided with a circular slot 10 into which project the pins 6.

A spring 11 has one end in engagement with one of the rivets securing the plates 1 together and the intermediate portion of the spring is coiled about another of said rivets while the other end bears loosely upon a pin 13 carried by the bolt adjacent the locking portion 4.

When the shaft 7 and the disk 9 occupy the positions shown in Fig. 3 the spring 11 forces the bolt outwardly, or into locking position. But on rotation of the shaft and the disk one end of the slot 10 will engage one of the pins 6 thereby retracting the bolt as shown in Fig. 4. The bolt spring and disk are the only movable parts inclosed between the shell plates 1.

I provide also a loose exterior sleeve 14 and an interior sleeve 15, said sleeve having a tongue 15ª which extends into the groove 8. The shaft 7 extends through the door and through the sleeve 15 and is adapted to be moved longitudinally therein. These sleeves are secured in place by suitable escutcheon plates 16 said plates being secured in position by compound bolts or studs 17, and secured upon the sleeves are corrugated spring washers 18 which are arranged between the door faces and the escutcheon plates 16, said washers holding the sleeve in position and preventing them from turning too loosely, and also preventing wabbling or rattling of the parts.

A suitable spring 14ª is placed within the sleeve 14 and said spring normally forces the shaft 7 away from and out of engagement with the inner end of the sleeve 14, substantially as in the construction shown in the application above referred to. The shaft 7 has a pin 19 which when the shaft is pushed inwardly engages a suitable slot in the sleeve 14.

The end of the sleeve 14 is provided with a key way 20 and the inner end of the shaft

7 is longitudinally slotted as shown at 21 and a flat key 22 is adapted to pass through the key way 20, and through the sleeve 14 and into said slot 21.

To afford further protection the key 22 has its inner end bifurcated and a loosely rotatable cap 24 placed against the inner end of the shaft 7 and is provided with openings 25 through which the key must pass in order to enter the slot 21.

It will be noted therefore that the sleeve 14 is normally disengaged from the shaft 7, but said shaft can be turned by means of a proper key, or the shaft 7 can be pushed into engagement with the sleeve 14 from the inside. In order to lock the shaft in engaged position so that the door can be unlocked from the outside without the use of a key, I employ the following described parts.

Knobs 26 are fitted upon the sleeves, and fitting within the shank 26^a of the inner knob is a thimble 27 the inner end of which is notched as shown at 28.

A shaft or pin 29 carries a button 30 at its outer end and works loosely in the thimble 27. The pin 29 carries at its inner end a collar 31 fixed to the pin and slidable in the thimble and said collar is provided with laterally extending tongues 32. Normally these tongues will rest in the notches 28 and the button 30 will occupy the position shown in dotted lines in Fig. 6, and when the button is in such position the spring 14^a will hold the shaft 7 out of engagement with the sleeve 14. When it is desired to lock the pin 19 of the shaft 7 in engagement with a slot of the sleeve 14 the button 30 is pressed inwardly. This moves the shaft and also carries the tongues 32 out of the slots 28, and by giving the button a quarter turn the tongues will be moved out of alinement with the notches 28 thereby preventing the spring 14^a from forcing the shaft back until the button has again turned so that the tongues 32 can enter said notches.

By the construction so shown the outer knob and sleeve 14 can turn loosely or can be locked to the shaft 7 from the inside, and will remain locked until disengaged by turning the button 30. And when so disengaged the door may still be opened from the outside by inserting a proper key through the keyhole 20 and into engagement through the cap 24 with the bifurcation 21 of the shaft 7. I therefore provide a lock which can be employed in three different ways, and which contains a minimum number of operating parts, and which can be readily applied to a seven eighth inch door.

What I claim is:

1. In a lock of the kind described a slidable bolt, pins carried by said bolt, a rotatable shaft, a disk fixed upon said shaft, said disk having a curved slot receiving the bolt pins, and means for turning said shaft.

2. In a door lock, a spring pressed bolt having a longitudinal slot, pins carried by the bolt, upon opposite sides of said slot, a shaft passing loosely through the slot, and a disk fixed upon said shaft and having a slot into which said pins project, said pins being adapted for engagement with the ends of the slot of the disk.

3. In a door lock a rotatable shaft, a spring pressed bolt movable at a right angle to said shaft, means carried by the shaft for engaging and retracting said bolt, said shaft being movable longitudinally, inner and outer sleeves, knobs upon said sleeves, one of said sleeves being keyed to said shaft and the other one being adapted to turn loosely, the inner end of the shaft being bifurcated, a cap carried by the inner end of the shaft and provided with two openings adapted to register with the bifurcation of the shaft, and a key adapted to be passed through the loose sleeve and having prongs adapted to pass through the openings of the cap and into the bifurcation of the shaft, as and for the purpose set forth.

4. In a lock of the kind described, a slidable bolt, a rotatable shaft, means carried by the shaft for actuating said bolt, said shaft being slidable longitudinally, an inner knob-carrying sleeve keyed to the shaft, an outer sleeve normally loose, means for locking said sleeve to said shaft upon inward movement of the shaft, a spring for normally holding said shaft out of locking engagement with said outer sleeve, a notched thimble fitting in the first mentioned inner sleeve, a pin working therethrough, a collar carried by said pin, said collar bearing upon said slidable shaft, and tongues carried by said collar and normally resting in the notches of the thimble, as and for the purpose set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

SAMUEL E. REUTTER.

Witnesses:

L. W. EDWARDS,

W. C. MILLER.