

C. E. LOWE.

LOCK.

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946,240.

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Fig. 1.

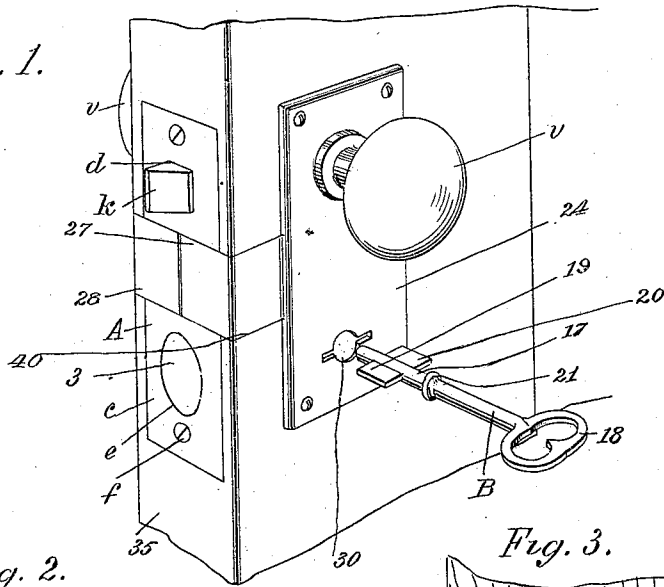


Fig. 2.

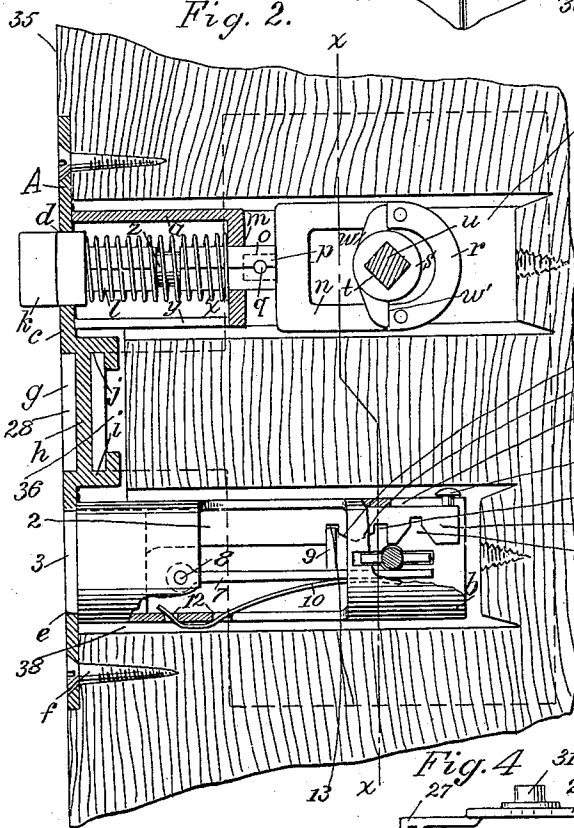
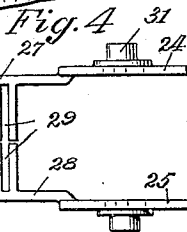
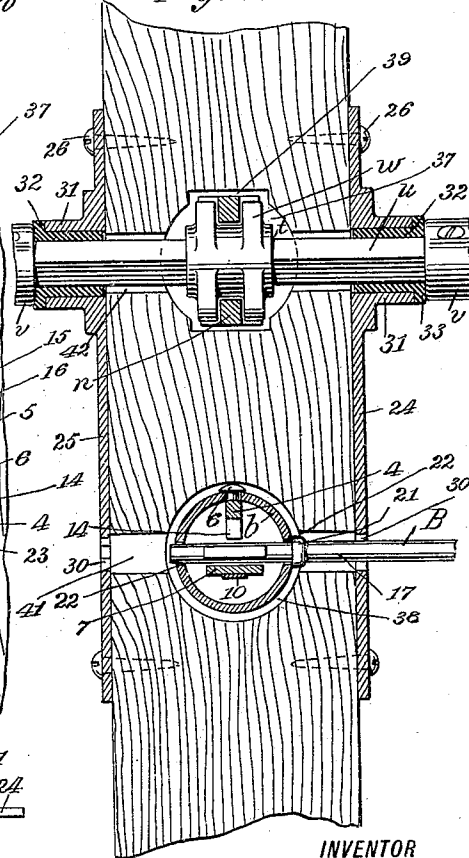


Fig. 3.



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LOCK.

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To all whom it may concern:

Be it known that I, CHARLES EDWARD LOWE, a citizen of the United States, and a resident of McAlester, county of Pittsburg, State of Oklahoma, have invented new and useful Improvements in Locks, of which the following is a full, clear, and exact specification.

My invention relates to locks and particularly to that style of lock adapted to fit within a chamber formed in the door.

Instead of the case or body of the lock being made rectangular as is ordinarily seen in the common door-locks, where latch and bolt are used together, I incase the mechanism of each separately, preferably in cylinders, and it is only necessary when using my lock to bore two holes in the door to receive the cylinders instead of mortising a rectangular chamber as is ordinarily done.

Referring to the drawings—Figure 1 is a perspective view of a portion of a door containing my lock. Fig. 2 is a sectional view taken through a portion of the door and lock. Fig. 3 is a sectional view of Fig. 2 taken through the plane $x-x$, and Fig. 4 is an end view of a pair of escutcheon plates forming part of my lock.

The body or casement A for the lock is preferably cast and comprises casings a and b for containing the latch and lock bolt respectively and a face plate c connecting the two casings. The casings are preferably cylindrical having circular cross-sections although other forms may be used when desired, such as a square or elliptical cross-section. The plate c is provided with the usual holes d and e . They open into the cylinders a and b respectively to permit the latch and lock bolt to protrude. The plate has holes at either end for admitting screws f when screwing the lock in the door. The center of the plate is thickened and extends rearward leaving the transverse niche b backed by the rib h behind which extend flanged portions $i-i$ forming the grooves $j-j$.

Within the cylinder a and extending through the hole d is the latch k . This may be of any of the shapes commonly used and should be free to slide through the hole d . From this latch extends the stem l preferably square in cross-section for at least a portion of the length near its end. This end extends through a square hole m formed

in the head of the cylinder to keep the latch from turning yet allowing it to move to and fro.

A U-shaped member n is joined to the end of stem l . The end of the stem is provided with a bore o to engage a short stem p extending from the U-shaped member, which snugly fits within the bore to make the joint, the two being pinned together by pin q . A circular piece or yoke r is riveted to the ends of the U-shaped piece at its ends. If desired two such pieces may be used, one on each side of the U-shaped member, or separate pieces (blocks) can be pinned to the ends. The circular piece however is best as it strengthens the free ends of the U-shaped piece, and it is preferable to use one circular piece for this purpose with a groove in the center of each end to receive the respective ends of the U-shaped member. Within the closure thus formed is the latch turning member s . This has a square hole t through which passes the bar u connecting the door handles $v-v$, thus enabling the handles to turn the member s to operate the latch. This piece is provided with four lugs w having faces w' coacting with the ends of the yoke r . Two of the lugs being on either side of the U-shaped piece retain the part s in place and only permit of a turning motion. When the lugs are turned in either direction out of the vertical the latch will be forced backward to effect an opening of the door. The upper lugs are effective when the turning is right handed and the lower ones are effective if the turning is left handed. To force the latch out again, a spring x is mounted on the latch stem, bearing at one end against the latch k and at the other against the head of the cylinder. This spring reacts in the usual way to always keep the latch out when the twisting force is removed from the door knobs. An opening y may be made in the bottom of the cylinder if desired to prevent dust from collecting and to enable the interior to be seen.

To reverse the latch to adapt it for any door, I provide a sufficiently reduced portion z in the stem l to permit it being turned within the square hole m when brought to register therewith. It is then only necessary to pull the latch back, compress the spring x until the reduced portion z registers with the square hole m (at which position the latch k should be entirely within

the cylinder) and to give the latch a half turn. The latch will then spring out to its usual, but reversed, position.

The respective parts of the latch are so proportioned that when the latch is being turned back the U-shaped piece *n* strikes against the turning member *s* before the lugs *w* turn off the ends of the yoke *r*. This acts as a stop to prevent the latch from moving farther backward and occurs when the point of the latch *k* is flush with (or a little back of) the face plate *c*. By such an arrangement the turning member *s* cannot be removed from the inclosure. It is accordingly placed in position before the yoke *r* is riveted on. The latch is also inserted within the cylinder before the member *n* is pinned to the stem *l*.

The lock bolt mechanism is entirely incased within its cylinder which is somewhat longer than the cylinder for the latch. Like that cylinder it has an opening 2 for inspecting the parts and keeping the dust from collecting, the rear end may also be opened if desired. The bolt 3 passes through the opening *e* in the face plate in the usual way, and is similar to the ordinary door bolt, except that it is preferably oval in cross-section to conform more nearly to the shape of the cylindrical casing, in order to obtain the greatest strength possible for the size of casing. At the rear of the bolt and made integral therewith is the bar 4 having its upper face adjacent the top of the cylinder. To secure the bolt accurately in place and at the same time to allow the proper sliding motion a slit 5 is made in the top of the cylinder and a large headed pin 6 passed there-through and pinned into the bar 4.

A tumbler 7 is loosely pinned in the cylinder by pin 8 and extends in horizontal position rearwardly below the bar 4. At a suitable distance along its upper face is an upwardly projecting lug 9 which is kept in spring pressed engagement with the bottom of bar 4 by a spring 10. This is preferably a band spring having its free end pressing upwardly against the bottom of the tumbler and having its other end secured to the cylinder by passing it through the two holes 12—12 formed in the cylinder. Two notches 13—14 are made in the bar 4 in position to engage the lug 9, the notch 13 when the bolt is pushed back and the notch 14 when it is pushed forward.

It is obvious that the lock is secured in either of these positions and cannot be moved in either direction until the tumbler is forced down and the lug freed from the notch. The two notches are connected by the inclines 15—16 which causes the spring pressed lug to snap into the adjacent notch with but little manual force and denotes to the operator that the bolt is properly secured in one

of its extreme positions and that the key is in a position to be withdrawn.

The key B is a preferred type for operating my lock. It is a solid key having a plug or stem 17 terminating in the usual turning piece 18. There are two webs 19—20 made thinner than the stem 17 and one web 19 is preferably made shorter than the other. A stop collar 21 is formed on the stem to determine the distance that the key must be inserted in the lock in order to operate it. The cylinder *b* has two holes 22—22 oppositely disposed and of the proper size and shape for admitting the key from either side, and to permit it to be withdrawn after it has made half a turn. The holes are so positioned that the key enters the cylinder between the bar 4 and tumbler 7. A flaring notch 23 is formed in the bar which engages with the larger web 20 of the key as it is being turned. The shorter web at the same time strikes upon the tumbler and pushes it down freeing the lug 9 from engagement with the notch in the bar and permitting the larger web to push the bolt in either direction at the will of the operator. When the webs of the key resume their horizontal position the bolt will be in either of its extreme positions that the operator desires with the lug securely holding it in that position.

I have shown a blank key and a smooth faced tumbler to coact with it but any combination of wards may be formed on the face of the tumbler to prevent it from being so easily picked and the key blank will then be filed with the corresponding grooves to escape the wards.

Two escutcheon plates 24—25 are used with my lock similar in all respects except the parts are oppositely disposed. They have screw holes in them and are screwed to the door by screws 26. On their front edges are right angular extensions 27—28 directed toward each other and provided with the grooves 29 which engage the web *h* on the face plate *c*. A key hole 30 is made in each plate to correspond to the key hole in the cylinder, but large enough to allow the collar 21 on the key to pass through to permit it to come against the cylinder for the proper working of the key. Hubs 31 are formed on the plates to receive the thimble bearings 32 through which is passed the bar *u*. Each bearing 32 has a square hole for this purpose, and is provided with a flange or rim 33 to retain the bearing in place within the hub. On either end of the bar *u* is screwed a door knob *v* which may be of any desired style.

The joining of the face plate *c* and escutcheon plates by means of the right angular pieces 27—28 connects the entire frame work practically into one piece. This always insures a correct registering of the key holes

in the escutcheon plates with those in the cylinder, also the thimble bearings 32 with the turning member *s* permitting the bar *u* to be passed through to properly operate the latch. The manner of connecting the face plate *c* and the escutcheon plates as is obvious, also permits the lock to be used with doors of varying width.

To equip a door with my lock the end 35 is cut out leaving a recess 36 adapted to receive the face plate *c* and make a flush joint with the door. Two holes 37—38 are drilled out to receive the cylinders *a* and *b* respectively. These holes should be larger than the cylinders, so that if they are not drilled fair, the lock can still be inserted without any binding.

The U-shaped piece will usually be made wider than the diameter of the cylinder *a* and if the hole 37 is not drilled large enough to admit it, a little chiseling will be necessary to widen the hole forming the grooves 39 to allow the latch mechanism to be admitted. The edge and sides of the door are also cut away leaving the recesses 40 to receive the right angular pieces 27—28, which are offset from the escutcheon plates so that they will make a flush joint with the door while leaving the plates standing out upon the door. This is necessary to permit the door coming hard against the door stop, without cutting the stop away. The escutcheon plates may be temporarily placed in position and the positions marked for the holes 41 and 42 which are then drilled to admit the key and latch bar *u*. Any of the usual striking plates may be screwed to the doorpost having the proper holes to admit the latch and bolt, the doorpost being mortised out accordingly.

While I have described my lock in connection with a door it may be used wherever mortise locks are used and by changing the face plate *c* the lock portion may be used separately from the latch where latches are not required as on drawers and conversely the latch may be used separately where locks are not required.

Having thus described my invention I claim—

1. A door lock casing comprising a face plate, two cylinders extending from the back of the plate one above the other, a rear wall in the upper cylinder, an opening in the plate opening into the upper cylinder, and an opening in the rear wall of said cylinder to adapt the cylinder for latch mechanism, a second opening in the face plate opening into the lower cylinder and key holes in the sides of the cylinder to adapt it for lock bolt mechanism, a transverse recess in the face plate between the cylinders, an escutcheon plate on each side of the face plate, right angular pieces extending from the escutcheon plates having their free ends engaged in the recess of the face plate, holes in the escutcheon plates in alinement for reception of the door knob bolt, and key holes in the plates in alinement with the key holes in the lower cylinder for the reception of the key.

2. A door lock casing comprising a face plate, two cylinders extending from the back of the plate one above the other, a rear wall in the upper cylinder, an opening in the plate opening into the upper cylinder, and an opening in the rear wall of said cylinder to adapt the cylinder for latch mechanism, a second opening in the face plate opening into the lower cylinder and key holes in the sides of the cylinder to adapt it for lock bolt mechanism, a transverse offset in the face plate, right angular pieces projecting from the upper and lower rear edges of the offset, an escutcheon plate on each side of the face plate, right angular pieces extending from the escutcheon plates, slots in the free ends of the right angular pieces to engage the offset part of the face plate, the rear part of the said free ends fitting between the offset parts and right angular extensions of the face plate, holes in the escutcheon plates in alinement for reception of the door knob bolt, and key holes in the plates in alinement with the key holes in the lower cylinder for the reception of the key.

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Witnesses:

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