

(Model.)

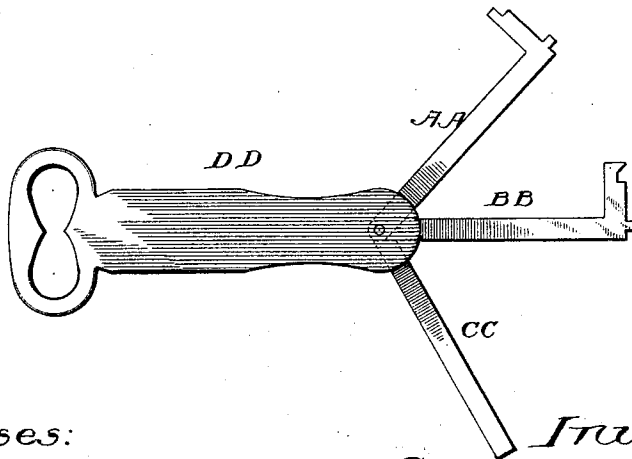
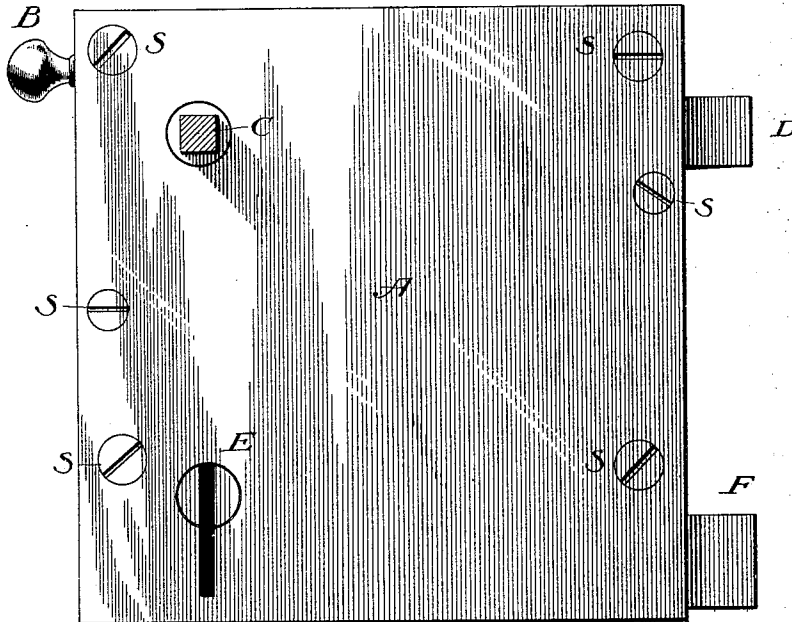
2 Sheets—Sheet 1.

R. M. METCALF.
ALARM LOCK.

No. 480,237.

Patented Aug. 2, 1892.

Fig. 1.



Witnesses:
H. C. Gardiner.
W. H. Hayt

Inventor:
Ralph M. Metcalf
by O. Middlekauff atty.

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Fig. 2.

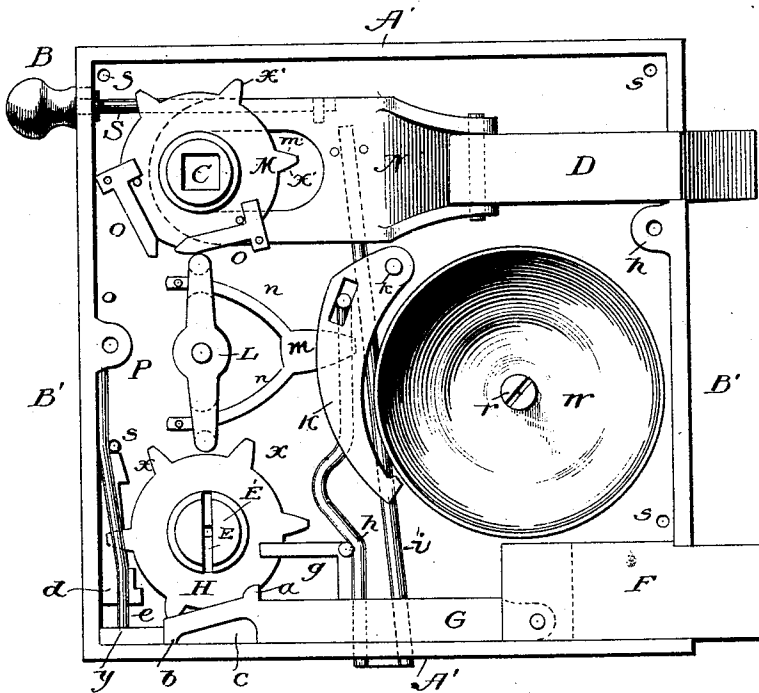


Fig. 3.

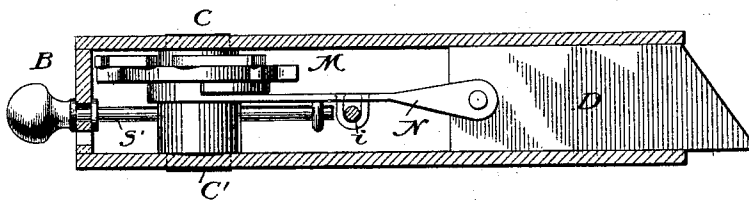
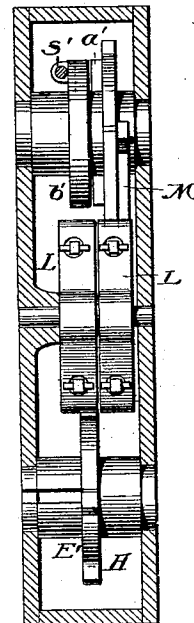


Fig. 4.



Witnesses:

H. C. Gardner
W. H. Hayt.

Inventor:

Ralph M. Metcalf
by Ovid A. Kambly Atty.

UNITED STATES PATENT OFFICE.

RALPH M. METCALF, OF LUTON, ASSIGNOR OF ONE-HALF TO GREENBURY
E. ADAMS, OF HOLLY SPRINGS, IOWA.

ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 480,237, dated August 2, 1892.

Application filed May 4, 1891, Serial No. 391,594. (Model.)

To all whom it may concern:

Be it known that I, RALPH M. METCALF, a citizen of the United States, residing at Luton, in the county of Woodbury and State of Iowa, have invented certain new and useful Improvements in Locks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention has relation to locks; and the object is to provide a lock that can be readily used as a common lock, night-lock, alarm-lock, call-bell, and combination lock and alarm.

My invention therefore consists in the novel construction and arrangement of the parts and the combination thereof, as will be hereinafter fully described, and specifically set forth in the claims.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a view showing the upper surface of the lock-case provided with suitable openings for knob and key, also showing end of bolts and finger-knob. Fig. 2 is a plan view of the lock, showing the inside of the case with working parts and the arrangement of the parts in the case. Fig. 3 is a sectional view showing the latch-bolt and parts connected therewith that are operated by the finger-knob. Fig. 4 is a sectional view looking into the back of the lock, the back side of the case being removed, showing the latch out of gear and disconnected from the knob, also showing the two levers which operate to ring the bell.

Referring now to these illustrations, wherein like parts are designated by similar letters of reference, in Fig. 1 A designates the top plate of the case; D, the latch-bolt; F, the lock-bolt; B, the finger-knob used to operate the latch-bolt D for a night-lock.

C designates the opening to receive a door-knob.

E designates the key-hole opening, the

screws used to fasten said plate onto the case being designated by the letter s.

In Fig. 2, A' A', designate the sides of the case, and B' B' the ends of the case.

D designates the latch-bolt, an opening being provided in the side of the case to allow it to pass freely in and out.

N designates a plate attachment provided with a semicircular opening *m'* and connected by suitable rivets to the latch-bolt D.

M designates a spur-wheel provided with the spurs, as *x'*, said wheel being rigidly mounted horizontally on the core C', said core being vertically set in the case. Spur-wheel M is also provided with the dogs *o o*, which are adapted to engage the pointed end of the upper lever L to ring the bell W to secure a call-bell.

B designates a finger-knob attached to rod *s'*, said rod passing through an opening provided for it in the side of the case, and then passing through an eye provided on the under side of plate N to receive it. Knob B is used to disconnect the door-knob from the latch, thus turning the common lock into a night-lock when desired. Two notches are made in the side of the case to allow the knob to be adjusted for this purpose. When the knob B is thrown back to the back notch, as shown in Fig. 4, the knob is disengaged from the latch, so that when the knob is turned the only result is a continuous ringing of the bell W, constituting an alarm. When the knob B is thrown forward to the front notch, the plate N is raised up and strikes upon a shoulder of the spur-wheel to operate the common latch, the circular-shaped-shoulder-piece *a'* of said spur-wheel engaging a circular-shaped shoulder formed on the end of plate N for that purpose.

p and *f* are metallic studs provided with openings to receive screws to hold the top plate on the case. The screws (designated as *s*) are used to attach the lock to a door.

W designates a circular-shaped bell held in place in the case by a screw *r*.

K designates a hammer-head connected directly to the post *k* and spring *h*, said spring being connected by the plates *m m*, provided with extension-arms *n n*, which in turn are

connected to the levers L L, which are operated by either spur-wheel M or H to ring the bell W. There are two plates *m*, one lying above the other, each being provided with arms *n n*, connecting with a lever L. There are two levers L, lying one above the other, for this purpose.

F designates a lock-bolt, to which is riveted the slotted frame G, into which the ends of springs *i* and *h* rest.

H designates a spur-wheel similar to spur-wheel M. This spur-wheel is provided with suitable spurs, as *x*, and is horizontally mounted on the core E', which is vertically set in the case, the ends of said core being provided with a deep slot or groove to receive a flat key and adapted to be turned by said key to operate the lock-bolt F to lock or unlock the door.

The slotted frame G is provided with the ear *a*, against which the key strikes when inserted in the grooved core E'. A movement of the key toward the front of the lock throws the bolt out through the case for locking the door. A movement of the key toward the back of the case rings the bell W.

y designates a shoulder-plate on which the slotted frame G rests. When the key is turned toward the front of the lock, the slotted frame G throws the bolt F out through the case, and the slotted frame G then drops down in front of the shoulder-plate *y*, allowing the key to turn the core E' and spur-wheel H without the key catching the frame G, thereby causing the key to keep turning and constantly ringing the bell without unlocking the door. When the door is to be unlocked, the key must be dropped down until the extension part or flange of the key catches under the slotted frame G, and then drawn up to raise said frame up until it rests on the shoulder-plate *y*. Then the key must be drawn back and raised up to the center of the core E', then turned around until it catches the ear *a* of the slotted frame G, and continue turning back until it draws the bolt F back into the lock.

d designates a narrow plate of the shape shown in drawings and held in place by the spring-wire *e*. Said plate *d* prevents the bolt from being thrown back until said plate is first raised by the key, it otherwise dropping behind the end of the slotted frame G and preventing said frame from being drawn back by the key.

g designates a plate set just back of spring *h* for the following purpose, viz: When a very difficult combination is needed to secure perfect safety, plate *g* is thrown down by another key, as key B B, and prevents the slotted frame G from being raised until said plate *g* is raised.

Key A A is used to operate all other combinations of the lock, except the one just described, key B B being used for this purpose. Key C C is used for the following purpose, viz: When the door is locked from one side,

the groove in the core E' is left crosswise on the other side of the door. Key C C is used to turn the core straight, so that a key, as A A, may be inserted to unlock the door. The keys are shaped in construction, as shown in the drawings, and intended to be attached together, D D being a key-plate against which the keys lie when closed together, to keep the keys from getting bent.

The operations of my device are readily perceived from the foregoing description.

Having thus fully and clearly described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a lock, the combination, with the case, of a latch-bolt D, a plate attachment N, riveted to the inner end of said bolt, a spur-wheel M, provided with spurs, as *x'*, and the dogs *o o*, said spur-wheel being rigidly mounted horizontally on the core C', said core being vertically set in the case, the bell W, the hammer K, secured to post *k* and spring *h* and connected with the plates *m m*, said plates being placed one above the other and each being provided with extension-arms *n n*, which in turn connect with the levers L L, also placed one above the other, the finger-knob B, attached to rod *s'*, said rod passing through the side of the case, and an eye formed on the under side of plate N, the dogs *o o*, provided on the spur-wheel M, being adapted to engage the pointed end of the upper lever L to operate to ring the bell W, all substantially as set forth.

2. In a lock, the combination, with the case, of a latch-bolt D, a plate attachment N, secured to said bolt, a spur-wheel M, provided with spurs, as *x'*, and the dogs *o o*, said spur-wheel being rigidly mounted on the core C', which is vertically set in the case, the bell W, the hammer K, secured to the posts *k* and *l* and spring *h* and connected with plates *m m*, each of which is provided with extension-arms *n n*, said arms in turn connecting with the levers L L, and the rod *s'*, provided with knob B, said knob adapted to move backward into a notch provided in the side of the case to receive it to disengage the knob from the latch or to move forward into a second notch provided in the side of the case, causing the plate N to be raised, so that the shoulder-piece *a'*, formed on the under side of spur-wheel M, engages a shoulder formed on the end of plate N to operate the common latch, all substantially as set forth.

3. In a lock, the combination, with the case, of the lock-bolt F, the slotted frame G, provided with the ear *a*, and the spur-wheel H, provided with spurs, as *x*, said wheel being rigidly set on the core E', which is vertically set in the case, the ends of said core being provided with a deep groove or slot and adapted to receive a flat key, as key A A, and to be turned by said key to operate the lock-bolt F, all as set forth.

4. In a lock, the combination, with the case, of the lock-bolt F, the slotted frame G, pro-

vided with the ear *a*, the spur-wheel H, provided with spurs, as *x*, said wheel being rigidly set on the core E', which is set in a vertical position, the ends of said core being
 5 grooved to receive a key, the bell W, the hammer K, secured to post *k* and connected with spring *h*, and the plates *mm*, each provided with U-shaped arms *nn*, connected to the levers L L, the pointed ends of levers L L adapted
 10 to be engaged by the spurs of the wheel H to ring the bell W, all arranged and intended to operate substantially as set forth.

5. In a lock, the combination of the lock-bolt F, the slotted frame G, provided with the ear
 15 *a*, the spur-wheel H, rigidly set on the core E', which is vertically set in the case, the ends of said core being slotted to receive a key, the shoulder-plate *y*, formed in the corner of the case, and the plate *d*, held in place by the
 20 spring-wire *e*, all as set forth.

6. In a lock, the combination of the bolt F, the slotted frame G, provided with the ear *a*, the spur-wheel H, the core E', slotted at both ends, the shoulder-plate *y*, the plate *d*, held

in place by the spring-wire *e*, and the plate *g*, 25 all arranged as set forth.

7. In a lock, the combination, with the case, of the following parts, viz: the bolt D, the plate N, provided with the shoulder *a'*, the
 spur-wheel M, provided with spurs, as *x'*, and 30 dogs *oo*, and a shoulder on the under side, the core C', the rod *s'*, provided with knob B, the bell W, held in place by screw *r*, the hammer K, post *k*, springs *i* and *h*, plates *mm*, each provided with U-shaped arms *nn*, con- 35
 necting with the levers L L, the bolt F, slotted frame G, provided with the ear *a*, the plate *g*, spur-wheel H, provided with spurs, as *x*, the slotted core E', shoulder *y*, plate *d*, and spring-wire *e*, all arranged and intended 40
 to operate substantially as set forth.

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

RALPH M. METCALF.

Witnesses:

J. N. WARREN,
 E. B. MOYER.