(No Model.) 2 Sheets—Sheet 1.

M. VON KOPPELOW.

SAFETY LOCK.

No. 550,003. Patented Nov. 19, 1895.

Fig. 1.

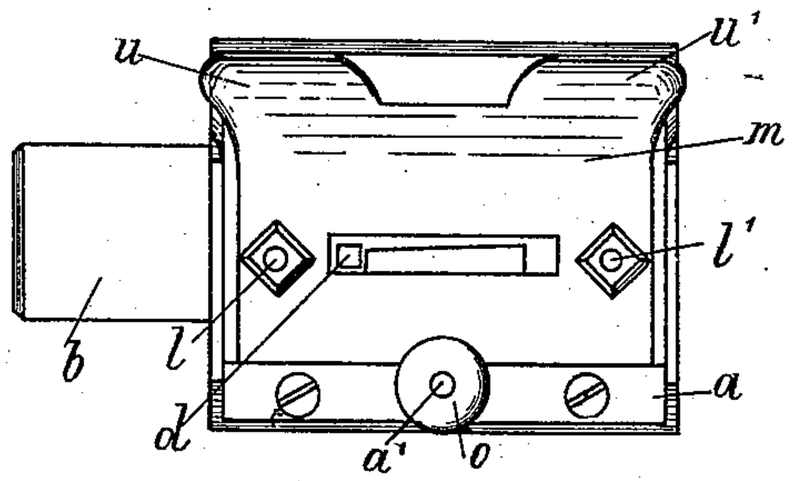


Fig. 2.

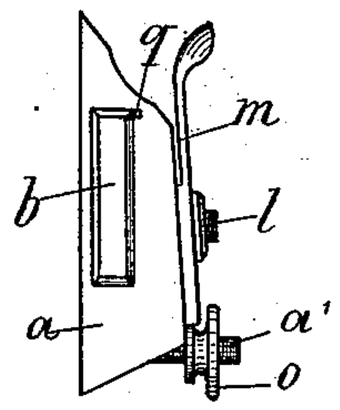


Fig. 3.

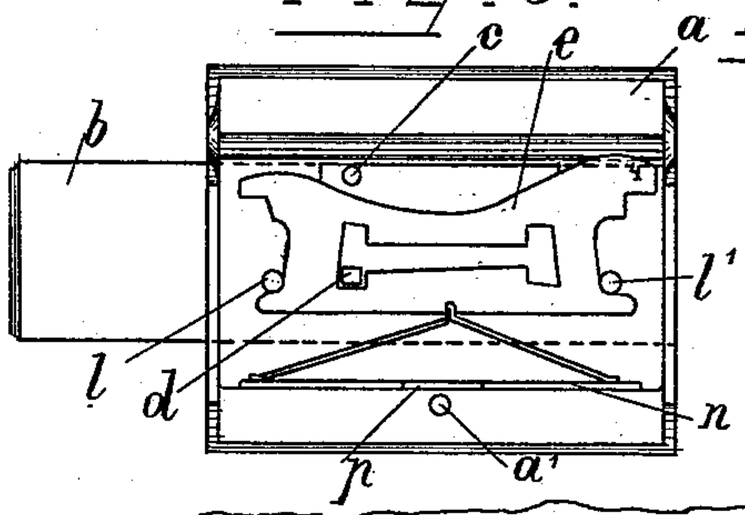


Fig. 4.

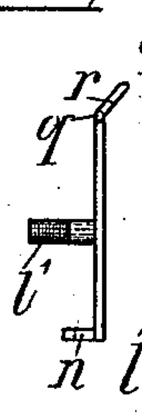


Fig. 5

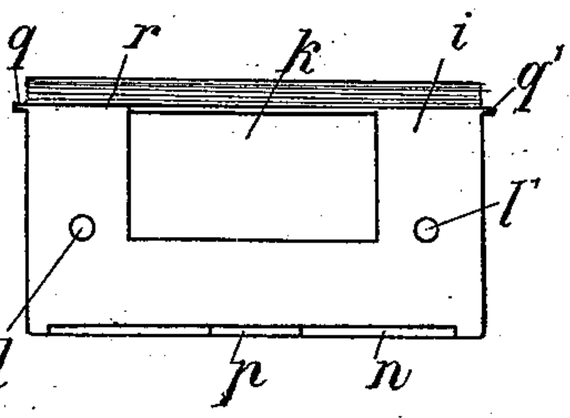
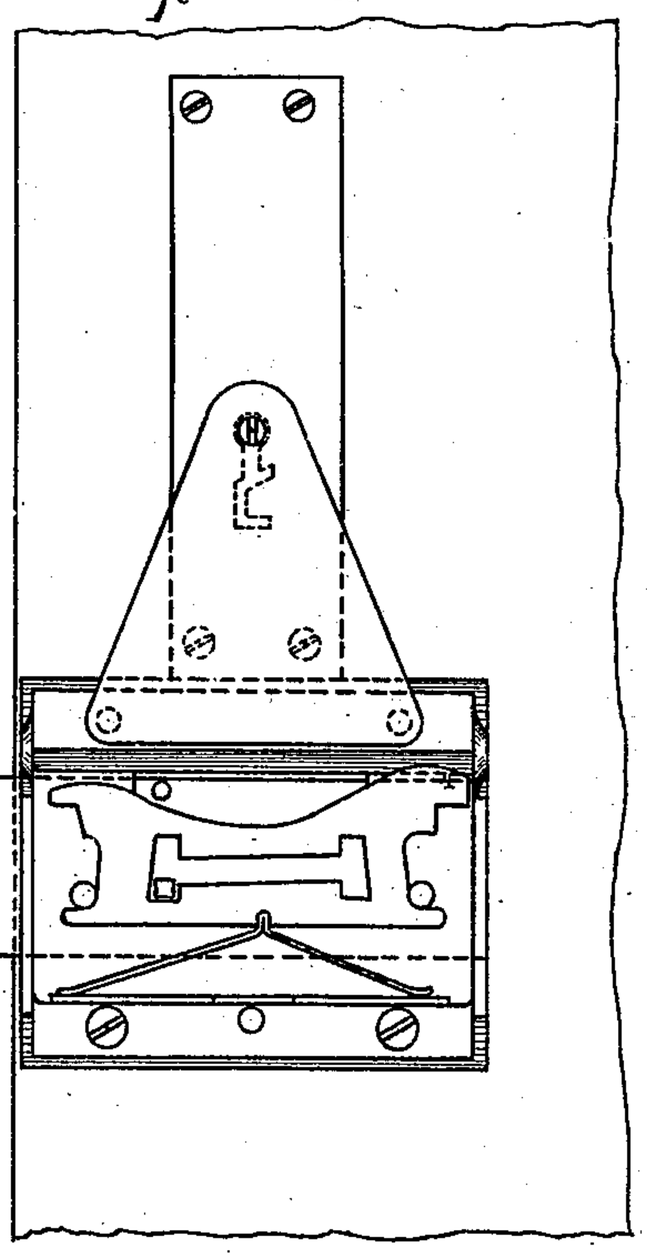


Fig. 12.



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Attorneys.

(No Model.) 2 Sheets—Sheet 2.

M. VON KOPPELOW.

SAFETY LOCK.

No. 550,003. Patented Nov. 19, 1895.

Fig. 6.

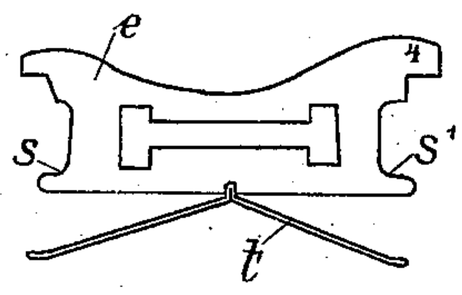


Fig. 7.

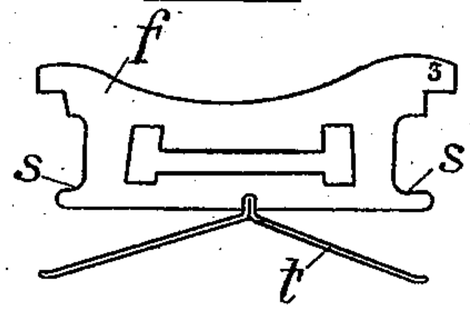


Fig. 10.

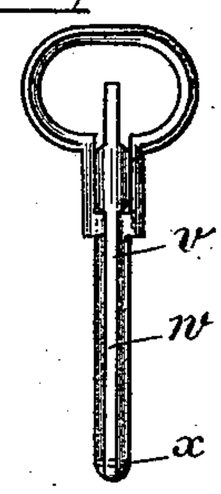


Fig. 11.

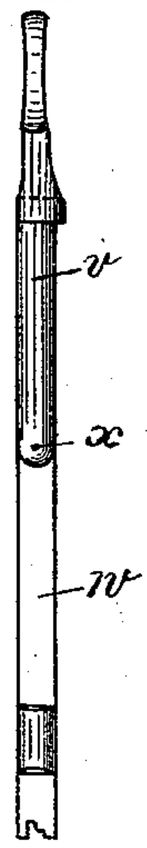


Fig. 8.

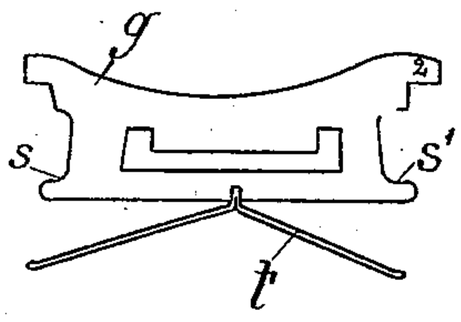


Fig. 9.

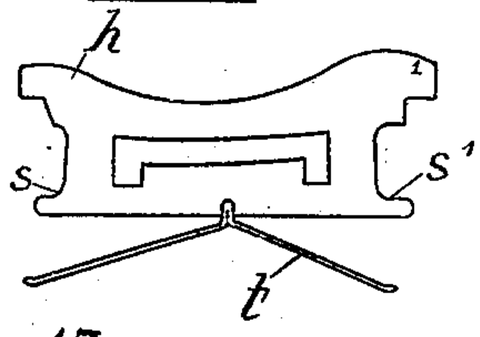
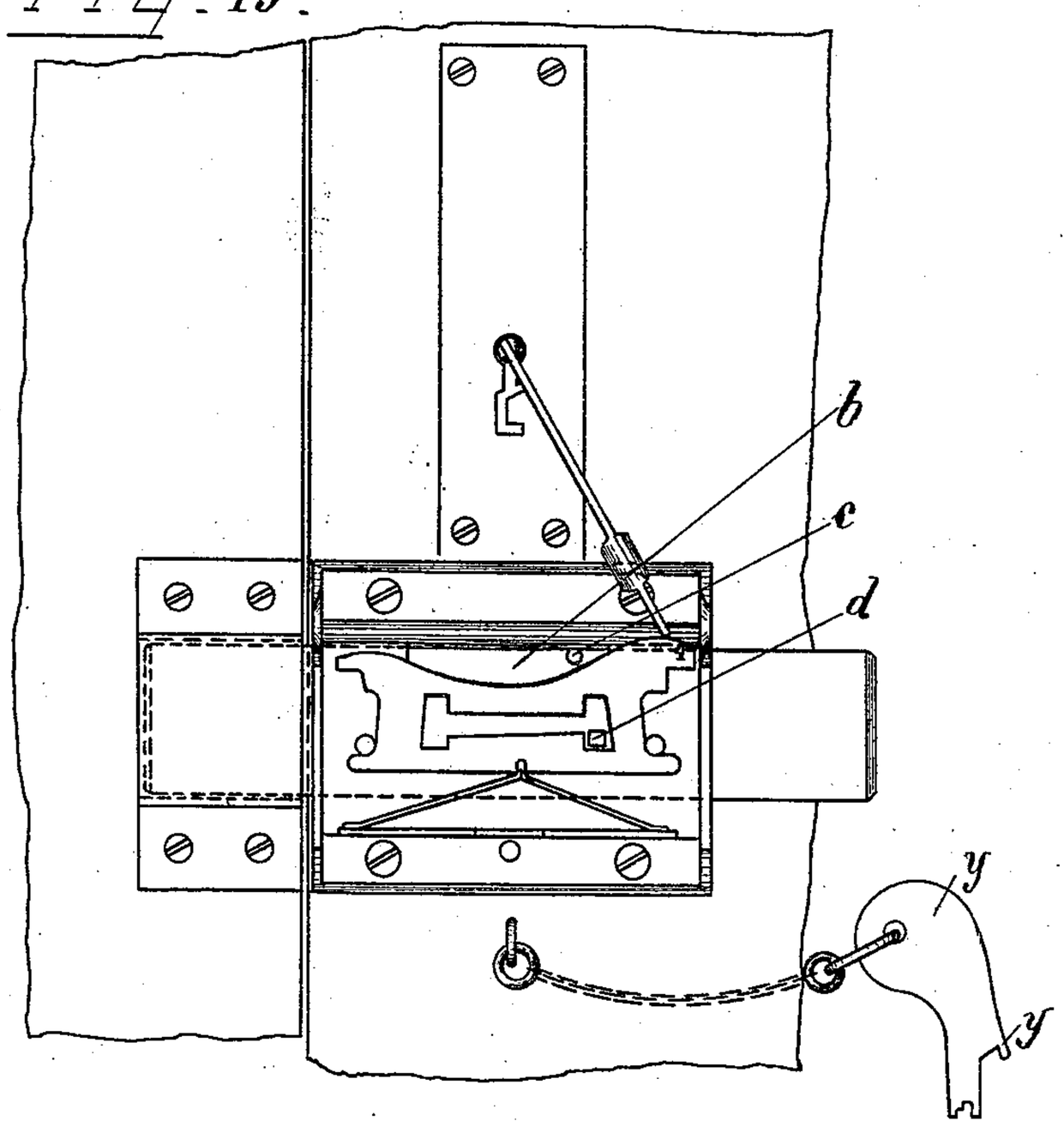


Fig. 13.



Witnesses:

Inventor
Max von Koppelow
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Attorneys.

UNITED STATES PATENT OFFICE.

MAX VON KOPPELOW, OF BERLIN, GERMANY.

SAFETY-LOCK.

SPECIFICATION forming part of Letters Patent No. 550,003, dated November 19, 1895.

Application filed July 12, 1894. Serial No. 517,386. (No model.)

To all whom it may concern:

Be it known that I, MAX VON KOPPELOW, engineer, a subject of the King of Prussia, German Emperor, and a resident of Friedrichstrasse 110, Berlin, Germany, have invented a new and useful Improvement in Safety-Locks, of which the following is a specification.

The present invention relates to improvements in safety-locks; and it consists of a lock having no keyhole and having mounted within it a sliding bolt operated by a series of tumblers to which access is had from the top of the lock, a key having a drop lever being employed to operate said tumblers on insertion through a keyhole arranged in the door above and independent of the lock; and in order to make the present invention more easily intelligible reference is had to the accompanying drawings, in which similar letters denote similar parts throughout the several views.

Figure 1 is a front elevation; Fig. 2, a side elevation; Fig. 3, a front view with the lock-cover removed. Figs. 4 to 9 are details. Figs. 10 and 11 show different forms of the outside key. Fig. 12 shows the attachment of the lock to the door; and Fig. 13 the lock with cover removed, the outside key being in operative position and the inside key suspended on a chain.

Referring to Figs. 1 to 5, the casing *a* is provided at each end with slots for the bolt *b*, and also with slots for pivots or pins *q q'* and with screw-holes. The bolt *b* is provided with the catch *c* and lock-pin *d*. The rear plate *i* has a rectangular orifice *k*, to enable free movement of the catch *c* and lock-pin *d*, and screws *l l'* serve to retain the cover *m*, while a ledge *n*, Figs. 4 and 5, is formed along the bottom of plate *i*, on which springs *t* rest and in which a recess *p* is provided for the set-screw *o*. The inclined guide-piece *r*, as also two lateral pins or pivots *q* and *q'*, are provided at the upper end of the plate *i*, the tumbler-plates *e f g h*, Figs. 6 to 9, serving to free or retain the bolt. A spring *t* engages under the tumblers, said spring being arranged to allow an angular reciprocatory elastic movement of the tumblers.

The cover-plate *m* retains the tumblers in position in the lock-casing, said plate having flared projections *u u'* at either side of the upper edge to prevent the bit from falling on the cover-plate, instead of on the tumblers, when inserted in the keyhole.

The folding outside key, Figs. 10 and 11, consists of two parts *v* and *w*, pivoted together.

The inside key *y* for opening and locking the door from the inside is illustrated in Fig. 13.

The tumblers, which have a double action, lie against the rear plate *i*, being supported against pins or studs *l l'* at *s s'* by the spring *t*.

The operation of the lock takes place in the following way: The outside key is unfolded and inserted in the keyhole of the door, which is situated above and independent of the lock, the flat side of said key being held horizontally to prevent the drop-lever from falling until the key-shaft is turned around. By turning the key the drop-lever falls, its end coming into contact with the tumblers, and on being further turned presses same down, releasing the lock-pin *d* and engaging the bolt-pin *c*, which is pushed forward and locks the door. On turning the key backward the bolt may be withdrawn.

In order to work the lock from inside, a second key *y* is employed to depress the tumblers and operate the bolt. The nose *y'*, which slides on the ledge *r*, serves as guide to insure the proper insertion of the key *y*.

In order to set the tumblers in a vertical position to the key in doors of different thickness, a set-screw *a'*, having nut *o*, with flange to engage a slot *p* of the casing, is provided. By means of this set-screw it is also possible for the person in the inside to so tip the lock that the outside key will not unlock it. If required, the position of the lock can be altered, either above or below the keyhole, so as to make said lock inaccessible to any key from the outside.

Any number of tumblers may be used in connection with the lock, the more tumblers used the greater security against unauthorized opening of the lock, since a more complicated form of bit is necessary.

The lock can also be arranged on doors without handles, either above or below the keyhole, without its action being influenced in any way.

I claim as my invention—

1. The combination of a lock casing, having no keyhole in the sides thereof, and a keyhole above and independent of said lock, a sliding bolt within said lock, a series of tumblers to release or fix said bolt, means of access to the said tumblers from the top of the lock and a key having a drop lever to actuate said tumblers from the top substantially as described.

2. The combination of a lock casing, a sliding bolt *b* having bolt pin *d*, a series of tumblers *e f g h* mounted behind said bolt, and having bolt pin projecting through slots in said tumblers, lateral guide pins to said tumblers, and a spring *t* to hold said tumblers up against said guide pins, a partition plate *i* between said bolt and tumblers, having its upper edge flared outwardly, at *r*, a rear plate *m* to said casing having outwardly flared upper edge, a keyhole above and independent of said lock, and a key having drop lever to enter the flared mouth of said tumbler casing after insertion through the key-hole and operate said tumblers substantially as described.

3. The combination of a lock having no keyhole, and a keyhole above and independent of said lock, a lock casing having open top, and horizontally sliding bolt, a tumbler casing comprising the flared rear plate *m* and a front plate *i* at the rear of the bolt, said plate *i* being flared outwardly at the top to form the guide flange *r*, and having at the upper corners horizontally extending pins *q q'* to engage the sides of the casing *a*, and means for swinging said tumbler casing on the said pivots *q q'* and a key having drop lever to engage the tumblers from above and an interior key *y* having recess *y'* to take over the guide plate *r* substantially as described.

4. The combination of a lock having no keyhole and a keyhole above and independent of said lock, a lock casing *a* having open top and horizontally sliding bolt, and a tumbler casing comprising the flared rear plate *m* and a front plate *i* at the rear of the bolt, said plate *i* being flared outwardly at the top to form the guide flange *r* and having at the upper corners horizontally extending pins *q q'* to engage the sides of the casing *a*, a slot at the bottom of the said tumbler casing, a screw stud *a'* in the base plate of the casing *a*, a nut *o* on said stud having a flange to project into the slot of the tumbler casing and swing the same when the nut is actuated along its stud, and a key having a drop lever to engage the tumblers from above and an interior key *y* having recess *y'* to take over the guide plate *r* in the manner and for the purpose substantially as described and shown.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 9th day of April, 1894.

MAX VON KOPPELOW.

Witnesses:
VICTOR FELS,
JOSEF VOGET.