

A. FREDERIKSEN.
SAFETY LOCK.

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1,000,504.

Patented Aug. 15, 1911.

Fig. 1

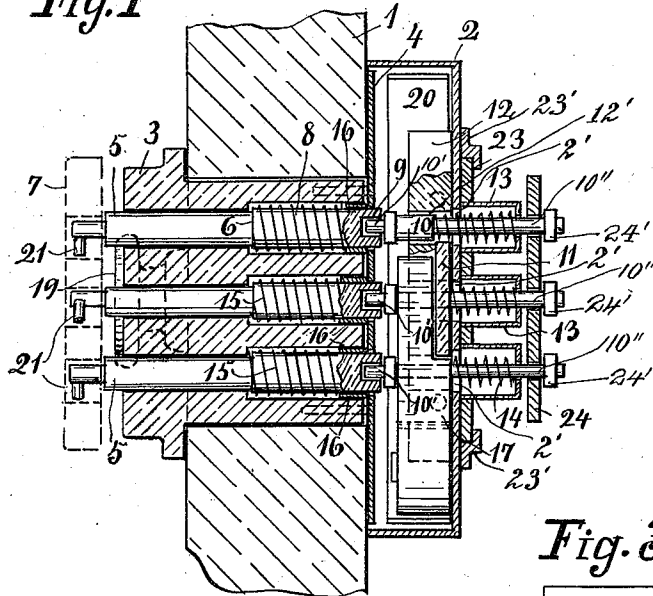


Fig. 3

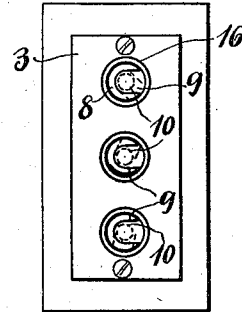


Fig. 2

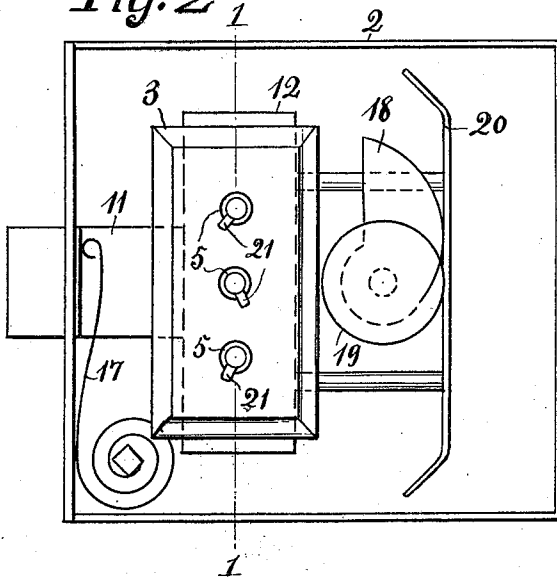
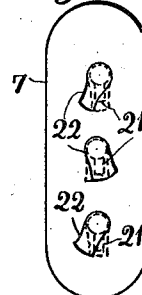


Fig. 4



Witnesses
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SAFETY-LOCK.

1,000,504.

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To all whom it may concern:

Be it known that I, ANTON FREDERIKSEN, a citizen of Denmark, and residing at Frederiksberg, near Copenhagen, Denmark, have invented new and useful Improvements in Safety-Locks, of which the following is a specification.

My present invention relates to safety locks and a class in which the detent pin or pins carried by the bolt are held or freed by a pin tumbler or pin tumblers rotatable and longitudinally carried by a tumbler casing.

The objects of my invention are to provide a lock, the bolt of which may be actuated from the outside of the object to which it is secured by a suitable key, or by some one familiar with the arrangement of parts of the lock without the use of a key. I attain these objects by the mechanism shown in the accompanying drawing, in which,—

Figure 1 is a vertical sectional view of a lock embodying my invention, taken on substantially the line 1—1 of Fig. 2, some parts being shown in elevation to more clearly bring out the construction and arrangement of parts, the lock being shown secured to the outer stile of a door. Fig. 2 is an elevation of a lock, embodying my invention, as seen from the inner side of the lock casing. Fig. 3 is an elevation of a pin tumbler casing, as seen from the inner side of the lock. Fig. 4 is a front elevation of a key used in connection with the lock.

Throughout the several views, like reference characters refer to similar parts.

In the drawings, 1 represents the outer stile of a door, to the inner side of which is secured a lock case 2 having a base portion 4. Extending from the outer side of the door, and detachably secured to the plate 4, is a tumbler case 3 designed to hold the plurality of pin tumblers 5.

The pin tumblers 5 extend through the tumbler case 3 and are longitudinally movable therein, their outward movement being limited by an enlarged portion 8, encircling which, and operatively secured thereto, is a spring 15 resting against collar 16, which normally forces the pin tumblers to their outward limited position.

The pin tumblers are each provided at their inner end with a radial slot 9 extending from the center of the pin to the periphery thereof, and at their outer end with an L-

shaped extension 21, the purposes of which are to be subsequently described.

Slidably mounted within the case 2, is a bolt 11, normally forced outwardly by the action of a spring 17, having a tail piece 12 and a bearing strip 20 rigidly spaced from, and carried by the tail piece 12. A suitable cam 18, carried by a knob 19, is adapted to actuate the bolt 11, by bearing against the bearing strip 20, when the bolt is free to move in an unlocking position.

The tail piece 12 carries a plurality of detent pins 10, longitudinally movable in openings 12' and arranged to coact with the pin tumblers 5, a detent pin for each pin tumbler. The detent pins are provided with an end portion 10', slightly reduced in diameter with relation to the width of the slots 9, and a reduced portion 10'' which extend through slots 2' in the casing 2, the slots being covered by a plate 23 movable with respect to the casing through guide members 23', and having spring receiving casings 13 each adapted to confine a compression spring 14 which normally forces the detent pins in the direction of the pin tumblers 5. The detent pins are further provided, at the outer end of their reduced portions 10'', with collars 24' interposed between which and the plate 23, is a pull plate 24 by which all of the detent pins may be drawn outwardly from the case.

With reference to Figs. 1 and 3 it will be seen that, when all the slots are extending in the same direction and parallel with the line of movement of the bolt 11, the detent pins are free to move with the bolt 11 to an unlocking position as soon as they are forced against the springs 14 and thus freed from the base plate 4.

To accomplish the arranging of the slots as above mentioned, L-shaped projections being arranged independently of the direction of the slots and differently in any or all locks, I provide a key 7 having slotted guide openings 22 arranged to bring all of the projections 21 in such a position that the slots are arranged, allowing movement of the bolt 11 to an unlocking position, upon forcing the detent pins inwardly as described, by pressure on the pin tumblers 5. It will be seen, however, that any one familiar with the location of the slots with respect to the projections 21, in any particular lock, may, without a key, arrange the

pins for the purpose of drawing the bolt. It will further be seen that the bolt may be unlocked from the inside of the door by merely drawing forward on the plate 24, 5 and manually pushing it to one side in an unlocking direction, which movement carries with it the plate 23 and associated parts.

It is of course understood that I may provide a lock with one pin tumbler and a co- 10 acting detent pin; a plurality of pin tumblers with coacting detent pins; or that the arrangement may be such that the pin tumblers with their coacting detent pin are in staggered relation to each other, all without 15 detracting from the spirit of my invention.

I claim:—

1. A safety lock comprising in combination, a suitable casing, a bolt movable therein, means for actuating said bolt, a detent 20 pin arranged transversely with respect to and carried by said bolt, a tumbler case, and a pin tumbler therein having a radial slot at its inner end in operative relation to hold or free said detent pin.

2. A safety lock comprising in combination, a suitable casing, a bolt movable therein, means for actuating said bolt, a plurality 25 of detent pins arranged transversely and carried by said bolt, a tumbler case and a plurality of pin tumblers therein each having a radial slot at its inner end in operative relation to hold or free said detent pins.

3. A safety lock comprising in combination, a suitable casing, a bolt movable therein, means for actuating said bolt, a longitudinally movable detent pin arranged 30 transversely with respect to and carried by said bolt, a tumbler case, a pin tumbler longitudinally movable therein and having a radial slot at its inner end in operative relation to hold or free said detent pin, and means actuating said pin tumbler to a position with the said radial slot in parallel 40 relation to the line of movement of said bolt.

4. A safety lock comprising in combination, a suitable casing, a bolt movable therein, means for actuating said bolt, a plurality 50 of longitudinally movable detent pins arranged transversely with respect to and carried by said bolt, a tumbler case, a plurality of pin tumblers longitudinally movable therein, each having a radial slot at its inner end in operative relation to hold or free 55 said detent pins, and means actuating said pin tumblers to a position with the said radial slots in parallel relation to each other and to the line of movement of said bolt.

5. A safety lock comprising in combination, a suitable casing, a bolt movable therein, means for actuating said bolt, a longitudinally movable detent pin arranged 60 transversely with respect to and carried by said bolt, a tumbler case, a pin tumbler longitudinally movable therein and having

a radial slot at its inner end in operative relation to hold or free said detent pin, means actuating said pin tumbler to a position with the said radial slot in parallel relation to the line of movement of said 70 bolt, and means located on the inner side of the lock to draw said detent pin independently of said pin tumbler.

6. A safety lock comprising in combination, a suitable casing, a bolt movable 75 therein, means for actuating said bolt, a plurality of longitudinally movable detent pins arranged transversely and carried by said bolt, a tumbler case, a plurality of pin tumblers longitudinally movable therein, 80 each having a radial slot at its inner end in operative relation to hold or free said detent pins, means actuating said pin tumblers to a position with the said radial slots in parallel relation to each other and to the 85 line of movement of said bolt, and means located on the inner side of the lock to draw said detent pins independently of said pin tumblers.

7. A safety lock comprising, a suitable 90 casing, a bolt movable therein, means normally forcing said bolt to a locking position, means for actuating said bolt, a longitudinally movable detent pin arranged transversely with respect to and carried by said 95 bolt, a tumbler casing, and a longitudinally movable pin tumbler carried thereby and having a radial slot at its end for holding or freeing said detent pin.

8. A safety lock comprising, a suitable 100 casing, a bolt movable therein, means normally forcing said bolt to a locking position, means for actuating said bolt, a plurality of detent pins longitudinally movable, transversely arranged with respect to and 105 carried by said bolt, a tumbler casing, and a plurality of longitudinally movable pin tumblers carried thereby, each having a radial slot at its end to hold or free said detent pins, combined substantially as described. 110

9. A safety lock comprising, a suitable casing, a bolt movable therein, means normally forcing said bolt to a locking position, means for actuating said bolt, a longitudinally movable detent pin arranged 115 transversely with respect to and carried by said bolt, a tumbler casing, a longitudinally movable pin tumbler carried thereby and having a radial slot at its inner end to hold 120 or free said detent pin, means actuating said pin tumbler to a position with the said radial slot in parallel relation to the line of movement of said bolt, and means located on the inner side of the lock to draw 125 said detent pin independently of said pin tumbler.

10. A safety lock comprising, a suitable casing, a bolt movable therein, means normally forcing said bolt to a locking posi- 130

tion, means for actuating said bolt, a plurality of longitudinally movable detent pins arranged transversely with respect to and carried by said bolt, a tumbler casing, a plurality of longitudinally movable pin tumblers carried thereby, each having a radial slot at its inner end to hold or free said detent pins, means actuating said pin tumblers to a position with the said radial slots in parallel relation to each other and to the line of movement of said bolt, and means located on the inner side of the lock to draw said detent pins independently of said pin tumblers, combined substantially as described.

11. A safety lock comprising, a suitable casing, a bolt movable therein, means for actuating said bolt, a longitudinally movable detent pin arranged transversely with respect to and carried by said bolt, a tumbler casing, a longitudinally movable pin tumbler carried thereby and having a radial slot at its inner end to hold or free said detent pin, a base plate having an aperture, means normally forcing said detent pin in engaging relation to the said aperture, and a key adapted to rotate said pin tumbler and force

the same inwardly with the said radial slot extending in parallel relation to the line of movement of said bolt, combined substantially as described.

12. A safety lock comprising, a suitable casing, a bolt movable therein, means for actuating said bolt, a plurality of longitudinally movable detent pins arranged transversely with respect to and carried by said bolt, a tumbler casing, a plurality of longitudinally movable pin tumblers carried thereby, each having a radial slot at its inner end to hold or free said detent pin, a base plate having a plurality of apertures, means normally forcing said detent pins in engaging relation to the said apertures, and a key adapted to rotate said pin tumblers and force the same inwardly with the said radial slots extending in parallel relation to each other and to the line of movement of said bolt.

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

ANTON FREDERIKSEN.

Witnesses:

HANS PEDERSEN,
PETER JACOBSEN.