C. A. ROSHON.

SAFE LOCK.

APPLICATION FILED NOV. 9, 1918.

1,317,221.

Patented Sept. 30, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

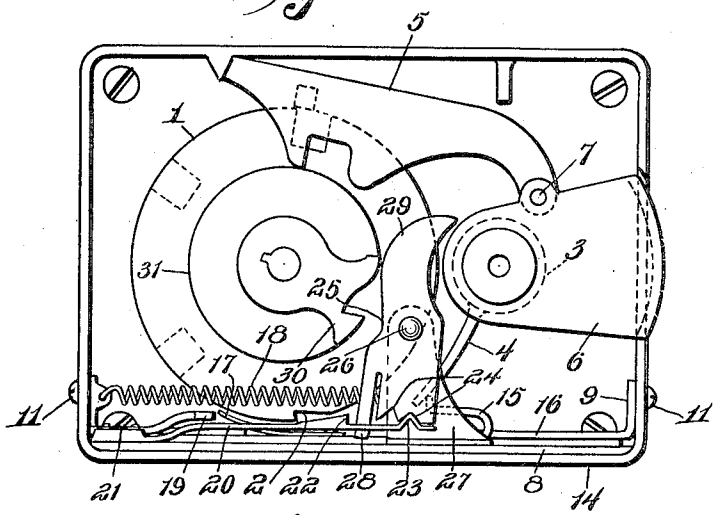


Fig. 2.

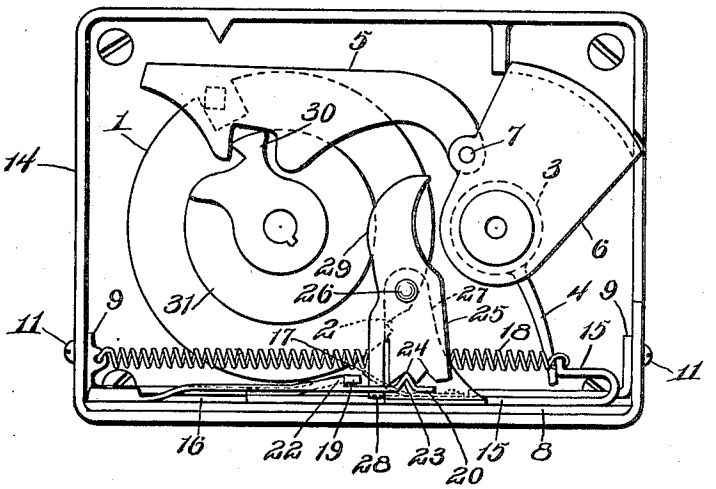
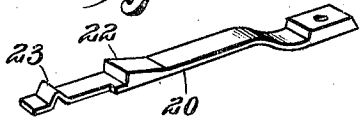


Fig. 8.



Witness

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2 SHEETS—SHEET 2.

Fig. 3.

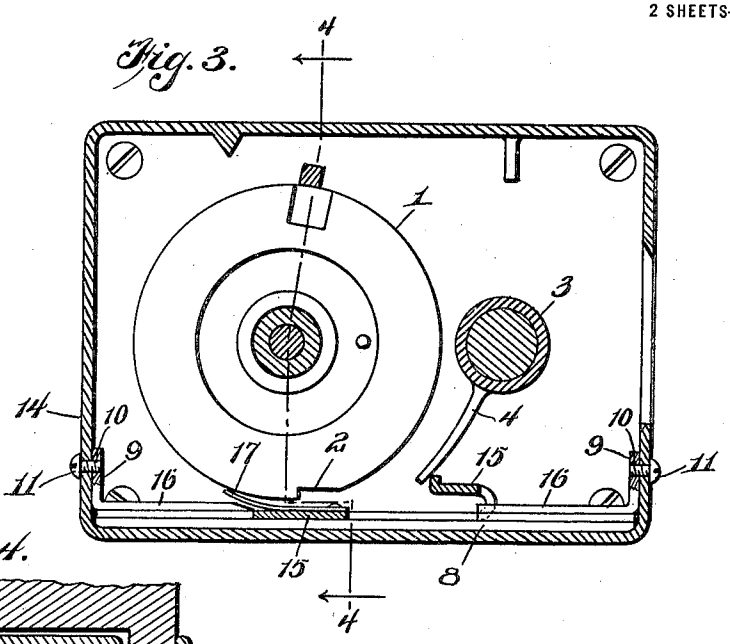


Fig. 4.

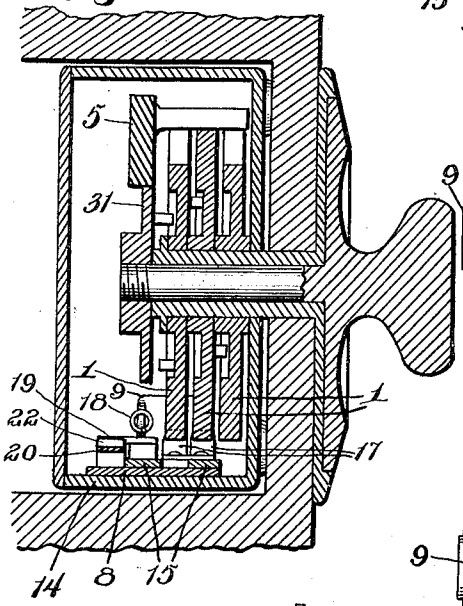


Fig. 5.

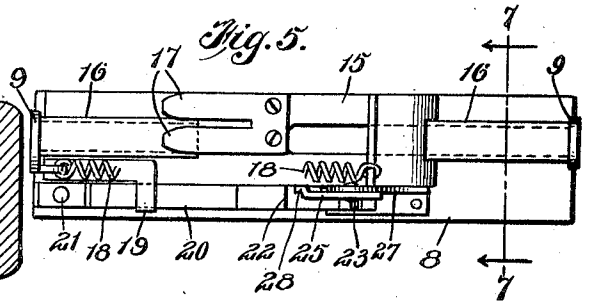


Fig. 6.

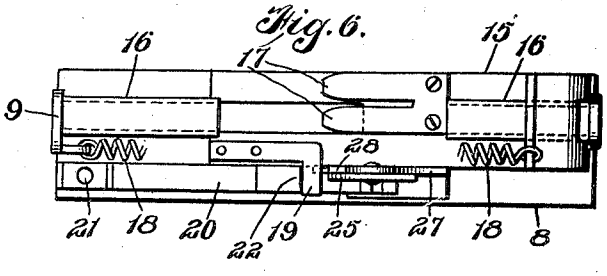
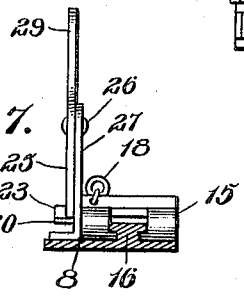


Fig. 7.



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SAFE-LOCK.

1,317,221. Specification of Letters Patent. Patented Sept. 30, 1919.

Application filed November 9, 1918. Serial No. 261,757.

To all whom it may concern:

Be it known that I, CHARLES A. ROSHON, a citizen of the United States, residing at Blairsville, in the county of Indiana and State of Pennsylvania, have invented new and useful Improvements in Safe-Locks, of which the following is a specification.

This invention relates to safe locks and is in the nature of a protective device for locks, the object and purpose of the invention being to produce a protecting device for use in conjunction with a combination or permutation safe lock, to prevent persons from learning or obtaining the combination or numbers or figures required to operate the lock and open the safe.

It is well known by those familiar with combination locks that it is a very easy matter for a person to obtain the combination by merely turning the dial knob, when the safe is unlocked, in just the reverse operation used in unlocking the safe, all that is required being the sense of touch and sight, the tumblers being manipulated by means of the knob until the coöperating projections or shoulders of the tumblers come in contact with each other, at this time the numbers on the dial are noted. After these numbers are obtained the safe may be opened by again reversing the order of the numbers.

The object of the present invention is to produce simple mechanism whereby upon an attempt to obtain the numbers or figures of the combination as hereinabove outlined, the tumblers will be actuated or partially turned and thrown out of their previous relative positions thereby rotating the tumblers and rendering it impossible for such person to obtain the figures of the combination.

While I have here stated and will hereinafter describe one embodiment of the invention, I do not desire to be restricted to the particular construction and arrangement disclosed as it will become apparent as the description proceeds that the tumbler actuating mechanism may be greatly varied and will necessarily be modified to conform to the particular type of protective lock in conjunction with which the improved mechanism is used.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is an inside face view of permutation lock mechanism, showing the tumbler actuating mechanism of this invention in its applied relation thereto.

Fig. 2 is a similar view showing the tumbler actuating mechanism in set position.

Fig. 3 is a vertical longitudinal section through the same.

Fig. 4 is a cross section through the same taken on the line 4—4 of Fig. 3.

Fig. 5 is a plan view of the attachment in inactive position.

Fig. 6 is a similar view showing the position of the parts of the tumbler mechanism in set position.

Fig. 7 is a cross section on the line 7—7 of Fig. 5.

Fig. 8 is a detail of the spring lock.

Two or more of the tumblers 1 of the permutation lock are formed in the periphery thereof with notches 2 to be engaged by the actuating fingers of the tumbler actuating mechanism hereinafter described. The shank or shaft 3 of the locking bolt has projecting downwardly therefrom a slide setting arm 4 the relation of which to the tumbler actuating mechanism of this invention will hereinafter appear. 5 represents the bolt actuating link of the permutation lock mechanism which carries the usual projection that drops into the notches of the tumblers when they are properly positioned in relation to each other in order to open the safe, 6 designating the locking or oscillatory bolt to which said link is pivotally connected at 7.

The tumbler actuating mechanism, in the illustrated embodiment thereof, comprises a base plate 8 having at opposite ends thereof upstanding ears 9 formed with threaded openings 10 to receive screws 11 projecting inwardly through corresponding openings in the lock casing 14. Mounted for movement on the base 8 is a tumbler actuating slide 15 the same being guided in its back and forth movements by guiding strips 16 of dove-tail or under cut formation as shown, said guiding strips also serving as retaining means to prevent dislocation of said slide. The slide carries a plurality of tumbler actuating spring fingers 17 which are adapted at their free extremities to engage the notches 2 in the tumblers 1 when

said slide is actuated in the proper direction. The slide is actuated in one direction by means of a contractile spring 18 attached at one extremity to a rear curved end portion of the slide 15 and attached at its opposite extremity, for convenience, to one of the ears at the end of the base. The slide is shifted in opposition to the tension of said spring by the arm on the shaft of the locking bolt hereinafter described when the operating knob of the lock is turned to unlocking position.

In order to hold the slide at the set end of its throw, said slide has a laterally projecting finger 19 which rides upon a spring 20 secured by fastening means 21 at one end of the base. Said spring has on its upper surface a lip 22 behind which said finger 19 snaps when the slide reaches its set position. The spring also has adjacent to its free end a V-shaped cam projection 23 which is received in a corresponding notch 24 in the lower end of a two-arm trip 25, said trip being privotally mounted at 26 on an upstanding support 27 rising from the base. The lower arm of the trip also has a laterally offset portion or finger 28 with which the finger on the slide contacts just before the slide reaches its set position. The means just described serves to lock the pivoted trip into a position where the upper curved arm 29 of the trip is positioned in the path of a projection 30 on the link actuating hub or disk 31 of the locking mechanism. Therefore when an attempt is made to ascertain the numbers of the combination, such projection comes in contact with the upper arm of the trip and unlocks said trip on its pivot, causing the notch in the lower arm of the trip to cooperate with the cam projection on the slide holding spring, depressing the free end of said spring until it disengages the laterally projecting finger of the slide. This releases the slide which is then quickly actuated by the spring attached thereto, the result being that the tumbler actuating fingers on said slide will engage the notches in the tumblers and impart a partially rotative or whirling action thereto thus destroying the combinative release of said tumblers. In this manner an unauthorized person is prevented from ascertaining the numbers necessary to manipulate the combination lock.

Having thus fully described my invention, I claim:—

1. In a combination lock embodying rotatable tumblers, tumbler actuating mechanism comprising a tumbler actuating slide, a plurality of tumbler actuating fingers carried by said slide, means connected with and operable by an element of the combination lock for shifting said slide in one direction, means for automatically shifting said slide in the opposite direction, means for holding said slide in its set position, and tripping means for releasing said slide actuated by a part of the lock mechanism when the operating knob of the lock is turned.

2. The combination with the mechanism of a combination lock, of means for actuating the tumblers, the same comprising a tumbler actuating slide, an arm connected with a movable member of the lock mechanism for shifting said slide in one direction, yieldable means for actuating said slide in the opposite direction when tripped, a trip adapted to be actuated by a part of the lock mechanism, and means on said slide for setting said trip in position to be actuated by said part of the lock mechanism when the lock operating knob is turned.

3. The combination with the mechanism of a combination lock, of means for actuating the tumblers, the same comprising a tumbler actuating slide, an arm connected with a movable member of the lock mechanism for shifting said slide in one direction, yieldable means for actuating said slide in the opposite direction when tripped, a trip adapted to be actuated by a part of the lock mechanism, means on said slide for setting said trip in position to be actuated by said part of the lock mechanism when the lock operating knob is turned, and means for holding said trip in the last named position, said means embodying a member having a yieldable latch shoulder adapted to engage and hold a projecting part of the slide.

4. The combination with the mechanism of a combination lock, of means for actuating the tumblers, the same comprising a tumbler actuating slide, an arm connected with a movable member of the lock mechanism for shifting said slide in one direction, yieldable means for actuating said slide in the opposite direction when tripped, a trip adapted to be actuated by a part of the lock mechanism, means on said slide for setting said trip in position to be actuated by said part of the lock mechanism when the lock operating knob is turned, means for holding said trip in the last named position, said means embodying a member having a yieldable latch shoulder adapted to engage and hold a projecting part of the slide, and means operable by said trip for moving said member so as to retract said latch shoulder to release the slide.

5. The combination with the lock mechanism of a combination lock, of mechanism for actuating the tumblers, the last named mechanism comprising an arm extending from an oscillatory member of the lock mechanism, a slide having a part thereof arranged in the path of said arm, a return spring for actuating said slide in the opposite direction, means carried by said slide and adapted to engage and impart a rotative movement to two or more of the tum-

blers, a spring having a latch shoulder thereon, a finger projecting from the slide and adapted to engage said shoulder and be held thereby when the slide is in its set position, a projection on said spring, a pivoted trip adapted to engage the last named projection to deflect the spring and move the latch shoulder thereof out of engagement with said finger on the slide, the latter being arranged to contact with a part of said trip to set said trip in position to be actuated by a part of the lock mechanism.

6. In a combination lock embodying rotatable tumblers, tumbler actuating mechanism including a tumbler actuating slide, means connected with and operable by an element of the combination lock in the movement of the lock mechanism to lock releasing position for shifting said slide in one direction to set the same for action, means for automatically shifting said slide in the opposite direction, means for holding said slide in its set position, and tripping means for releasing said slide actuated by a part of the lock mechanism when the operating knob of the lock is turned.

In testimony whereof I affix my signature.

CHARLES ALLEN ROSHON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."