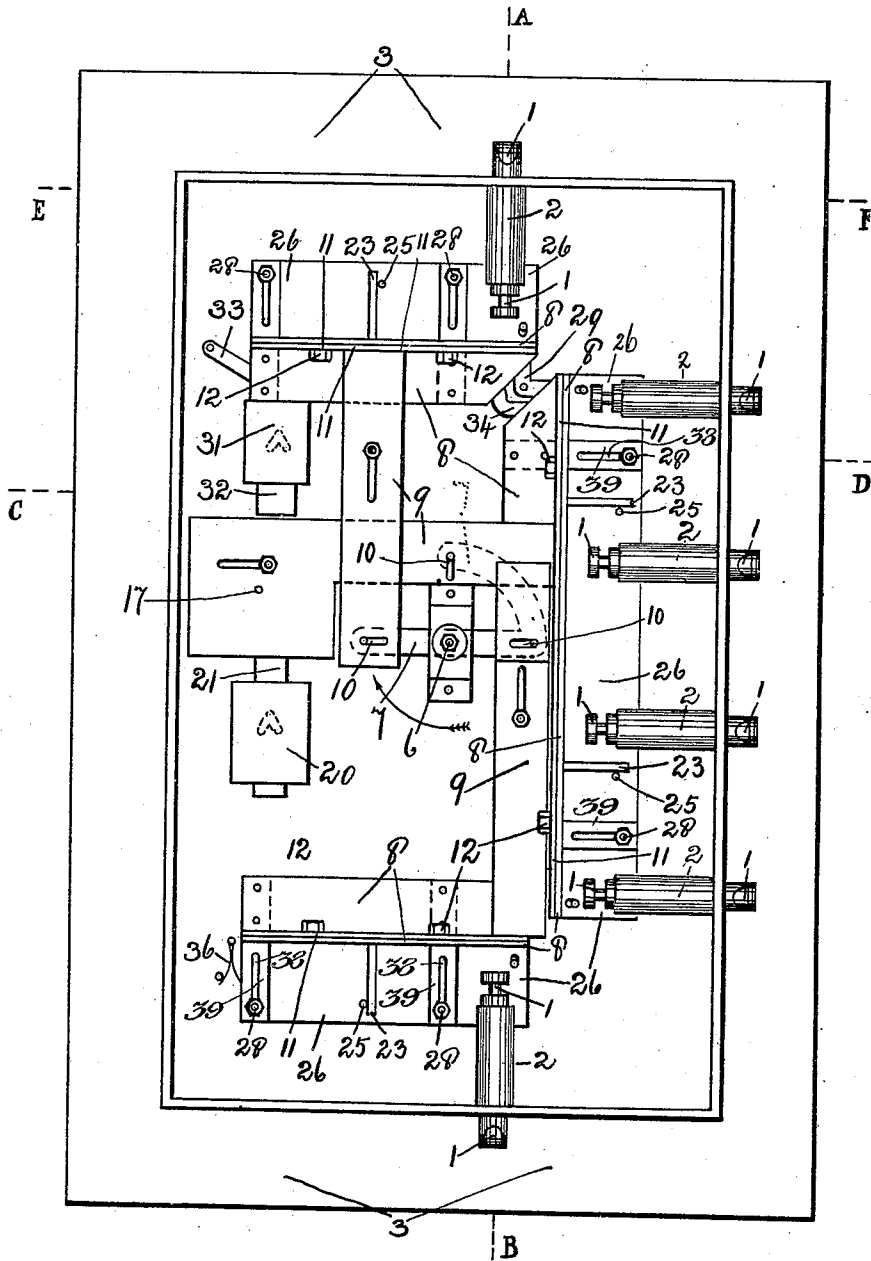


F. TITTERTON.
 LOCKING MECHANISM FOR SAFES, STRONG ROOMS, AND THE LIKE.
 APPLICATION FILED JAN. 21, 1910.

992,296.

Patented May 16, 1911.

4 SHEETS—SHEET 1.



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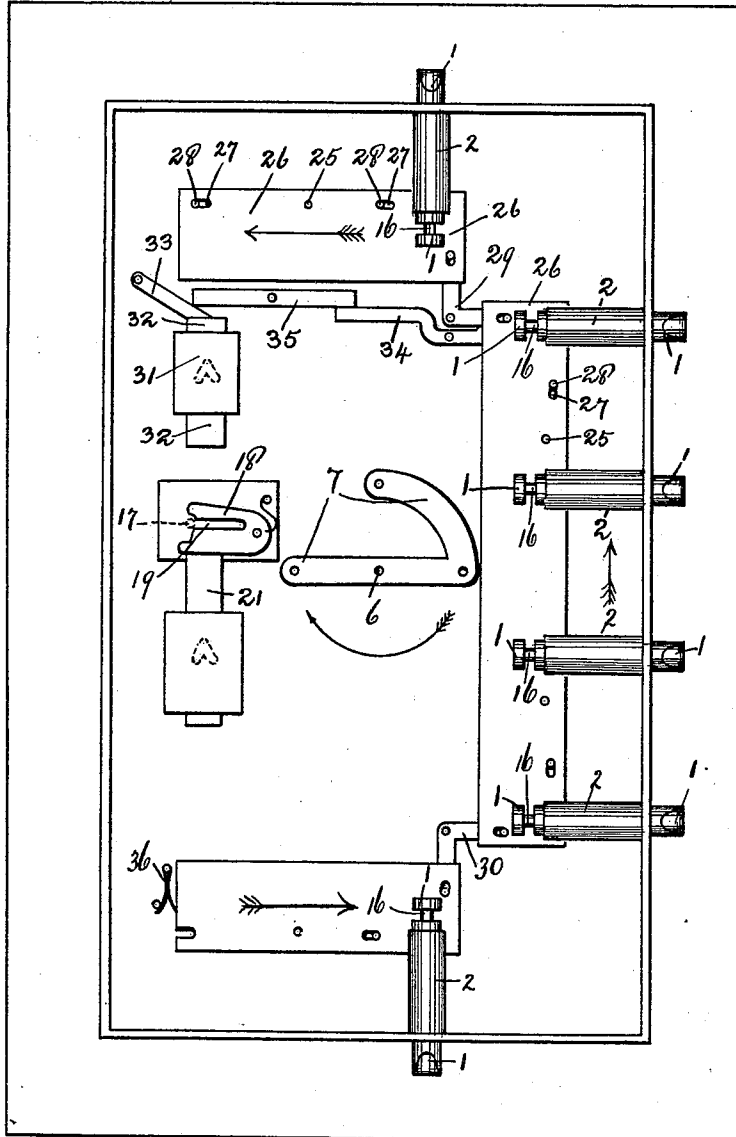


Fig 2

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4 SHEETS--SHEET 3.



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4 SHEETS—SHEET 4.

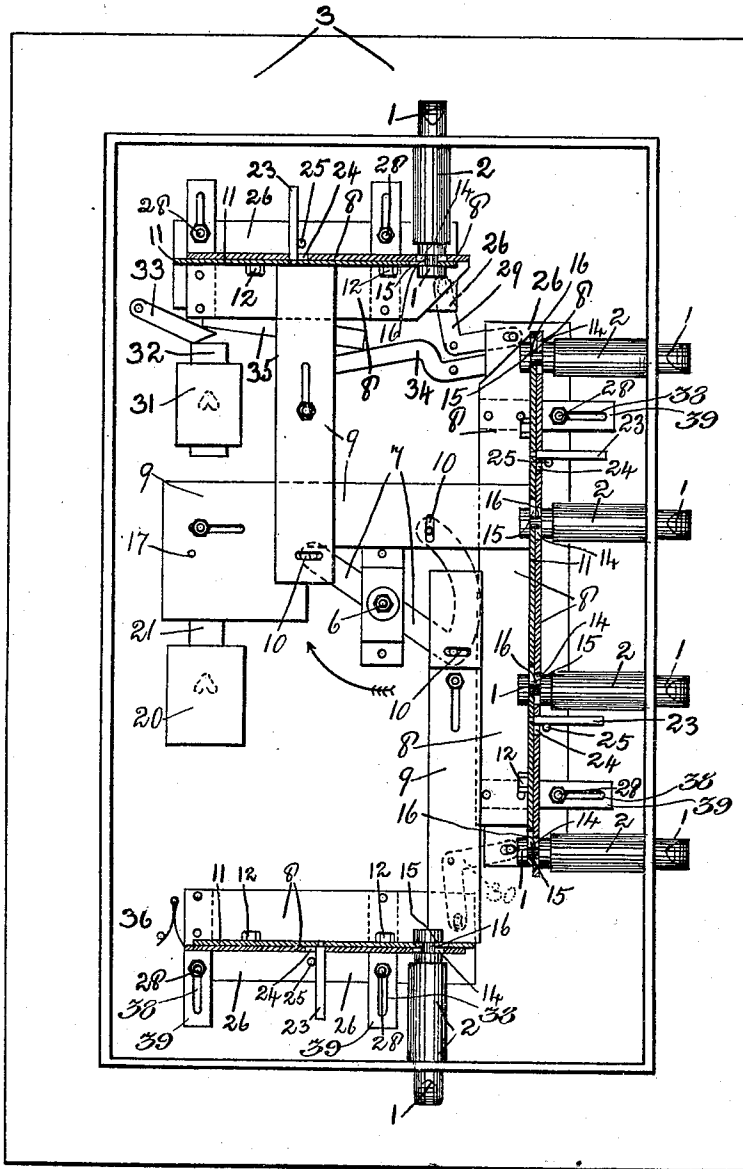


Fig 6

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UNITED STATES PATENT OFFICE.

FRANK TITTERTON, OF BIRMINGHAM, ENGLAND.

LOCKING MECHANISM FOR SAFES, STRONG-ROOMS, AND THE LIKE.

992,296.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed January 21, 1910. Serial No. 539,262.

To all whom it may concern:

Be it known that I, FRANK TITTERTON, a subject of the King of Great Britain, residing at 36 Ludgate Hill, Birmingham, in the
5 county of Warwick, England, manufacturer, have invented a new and useful Improvement in Locking Mechanism for Safes, Strong-Rooms, and the Like; and I do hereby declare the following to be a full, clear,
10 and exact description of the same.

My invention comprises improvements in locking mechanism for safes, strong rooms, and the like; and has for its object to provide
15 stronger and more effective locking means than those heretofore employed.

It has hitherto been the practice in safes to so arrange the lock in relation to the main bolts that said lock engages the rear of the said bolt and thus prevents its retraction,
20 but obviously to open such a safe it is only necessary to destroy the lock to enable the bolts to be withdrawn by their handle. Now by my invention I so arrange and actuate the bolts that they are normally retained in
25 their locking position while to unlock the safe it is necessary to first advance the lock bolt or bolts. If the locks are destroyed it is then impossible to withdraw the bolts to open the safe.

According to my invention I employ in combination a series of spring advanced locking bolts and means for collectively retracting such bolts, such retracting means
30 embodying one or more locks for establishing an operating connection between the safe handle and said bolts.

Referring to the drawings. Figure 1 is an elevation of the interior of a safe door fitted with my locking mechanism. Fig. 2
40 is a similar view with part of the mechanism removed. Fig. 3 is a vertical section at A—B in Fig. 1. Fig. 4 is an inverted horizontal section at C—D in Fig. 1. Fig. 5 is a horizontal section at E—F in Fig. 1. Fig. 6
45 is a similar view to Fig. 1 but with the retracting slides advanced, and the connecting slides in engagement with the bolts ready to withdraw same with the retracting and connecting slides in section.

50 In constructing locking mechanism for safes, according to my invention as shown upon the accompanying drawings, I employ a series of spring actuated bolts 1, pressed outwardly to engage the safe frame, four
55 such bolts being shown at the side edge of

the door and one each at the top and base, in combination with bolt actuating mechanism and locks so arranged that when the lock bolts are advanced the actuating mechanism may be employed to retract the bolts; the
60 bolts when all the mechanism is in the securing positions being quite free of, and out of connection with, all retracting means. These bolts are mounted in or on suitable guides 2 on the safe door 3 and are ad-
65 vanced by springs 4 and have rounded noses, or rollers may be mounted in the ends of the bolts, and so arranged that when the door is slammed the bolts automatically lock into the door frame (not shown).
70

My invention consists of means for collectively engaging and withdrawing these independently locked bolts.

The safe door is preferably mounted on hinges provided with ball bearings and it
75 may be provided with spring or other closing means, so that after the door has been opened it is automatically closed and secured, the hinge side of the door being at the left hand of 1.
80

The bolts are retracted by the usual handle 5 carried on the spindle 6 to which is also connected the three armed lever 7 the arms of which are connected to the three slides 8 by the links or bars 9 and pin and slot con-
85 nectors 10. As seen in Figs. 1 and 2 the slides are in their receded positions but if the lever is moved in the direction indicated by the arrow the three slides 8 will be moved outwardly from the center of the door to surround and engage the tail ends of the bolts in manner hereinafter explained and as
90 seen in Fig. 6. These retracting slides 8 are made of angle iron and behind the part which upstands from the door are mounted
95 bolt connecting slides 11 by the screws 12 and slots 13, being so arranged that the slides 11 may now have a limited longitudinal movement relatively to the slides 8. In
100 line with each of the bolts the slides 8 and 11 are respectively provided with holes 14 and 15 and so arranged that when the slides are moved outwardly to the position shown by Fig. 6 the bolts pass into the said holes;
105 the amount of this outward movement being such that the slides 11 are brought just opposite the annular grooves 16 in the tail ends of the bolts when the slides 11 are shifted longitudinally in manner hereinafter explained that part of the said slides around
110

one side of the holes 15 will enter said grooves 16 and thereby establish a connection between the slides 8 and bolts 1 whereby the bolts may be retracted when the slides are
 5 receded by the handle in manner hereinbefore explained.

In Figs. 1 and 2 the bolts and all mechanism are shown as being in their securing position and before the bolts can be withdrawn the slides must be moved outwardly;
 10 but when the safe is fully locked it is impossible to advance the slides until the lock 20 is actuated as will be explained.

In the horizontal bar 9 is a transverse pin 17 and by the side of this pin are a series of tumblers 18 having horizontal slots 19; while beneath these tumblers is a lock 20 having a series of bolts 21 corresponding with the tumblers. If there are six bolts
 20 there are six bits to the key and six tumblers each tumbler being lifted by a separate bolt and so arranged that when the key is turned all the slots 19 are brought into line with the pin 17 as seen in Fig. 2 when the slides 8
 25 may be advanced the pin 17 passing into the slots 19. Thus the slides cannot be advanced until the lock 20 is actuated, and if the lock be destroyed it will then be impossible to advance the slides. The lock 20,
 30 being of any suitable form, is not illustrated in detail. There are a number of thin plates or bolts, 21 corresponding with the bits of the key, the top ends of these bolts being raised to various heights when the key is
 35 operated. There are a corresponding number of tumblers, 18, having slots, 19, in various positions. The amount of lift of each section of the bolt and the positions of the slot in each tumbler are so designed that
 40 when all, collectively are raised, all the slots are brought into line with the pin 17, which can only be done by a properly designed key.

On the outer faces of the slides 11 are projecting pegs 23 passing through slots 24 in the slides 8; these projections being engaged by projections 25 on the longitudinally moving control slides 26 which are secured to the safe door by slots 27 and pins 28, the said pins 28 also serving to secure the slides 8 by means of slots 38 in the projections 39 carried by said slides; all being so arranged that when the slides 11 are opposite the bolt grooves 16 and the control slides 26 shifted in the directions indicated by the arrows in
 45 Fig. 2 the slides 11 will be caused to engage the bolts. These slides 26 are connected together by bell crank levers 29 and 30 and when the horizontal arm of the bell crank lever 29 is raised it will be obvious that the three slides 26 will be moved. This movement of the control slides 26 and connecting slides 11 is effected by the lock 31 and when the bolt 32 is raised it lifts the pivoted member 33 which raises the right hand end of the lever 34, and bell crank lever 29 through the
 50 55 60 65

pivoted lever 35. When the lock bolt is retracted the slides are returned to their normal positions by the spring 36.

To open the safe, the lock 20 is actuated and the handle turned so as to advance the
 70 slides 8 ready for the locking slides 11 to engage the grooves 16 in the tail ends of the bolts. The lock 31 is then actuated to cause the connecting slides to engage the bolts as seen in Fig. 6 and the handle finally turned
 75 in the reverse direction thereby withdrawing the bolts.

To secure the safe the lock 31 is retracted, when the slides 26 and connecting slides 11 are returned to their normal positions by the
 80 spring 36, thus releasing the bolts which are automatically advanced by the springs. The lock bolts 21 are finally retracted making it impossible to advance the slides to engage the bolts until the lock 20 is actuated
 85 as previously explained. The lock bolts 21 are retracted when the key is rotated to its withdrawal position, *i. e.* to register with the key hole, after advancing the slides 8, the pin 17 being withdrawn from the slots 19
 90 when the handle is returned to its normal position; the tumblers being then depressed by a spring.

As will be obvious if either of the locks be destroyed as by a burglar it is impossible to establish a connection between the handle and the bolts, and it is then impossible to open the safe except by destroying each of the bolts separately.
 95

What I claim then is:—

1. In locking mechanism for safes, strong rooms, and the like, the combination of a series of independent spring advanced locking bolts, means normally disconnected from said bolts, for collectively retracting same, and key actuated locking mechanism for establishing a temporary connection between the retracting means and the locking bolts, so arranged that when the mechanism is in securing position, the bolts are disconnected from the actuating means, substantially as set forth.
 100 105 110

2. In locking mechanism for safes, strong rooms, and the like, the combination of a safe door, a series of independent spring advanced locking bolts, an actuating handle, bolt retracting slides operated by said handle, connecting slides for connecting said retracting slides to said locking bolts, key actuated mechanism for causing said connecting slides to engage said bolts, and key actuated mechanism for normally locking the retracting slides; substantially as set forth.
 115 120 125

3. In locking mechanism for safes, strong rooms, and the like, the combination of a safe door; a series of independent spring advanced locking bolts, an actuating handle, bolt retracting slides operated by said handle, means for establishing a connection
 130

between the retracting members and the locking bolts, and key actuated mechanism for normally locking the retracting slides; substantially as set forth.

- 5 4. In locking mechanism for safes, strong rooms, and the like, the combination of a safe door, a series of independent spring advanced locking bolts, an actuating handle, connecting slides for engaging said bolts,
10 and key actuated mechanism for shifting

said connecting slides into engagement with said bolts, substantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK TITTERTON.

Witnesses:

HAROLD J. C. FORRESTER,
NORMAN S. BARLOW.

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