

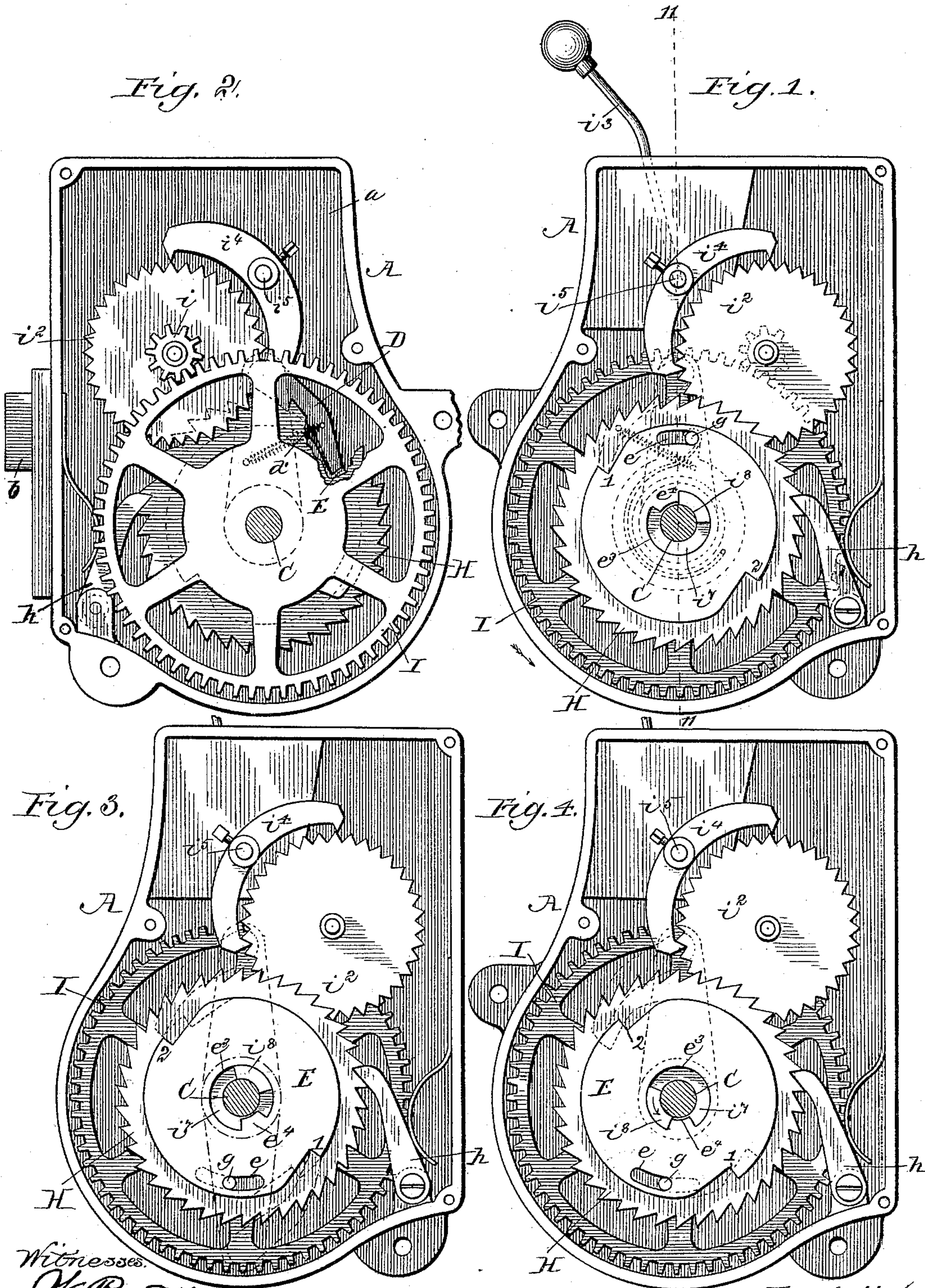
(No Model.)

3 Sheets—Sheet 1.

J. ASHWORTH.
ALARM LOCK.

No. 433,640.

Patented Aug. 5, 1890



Witnesses.
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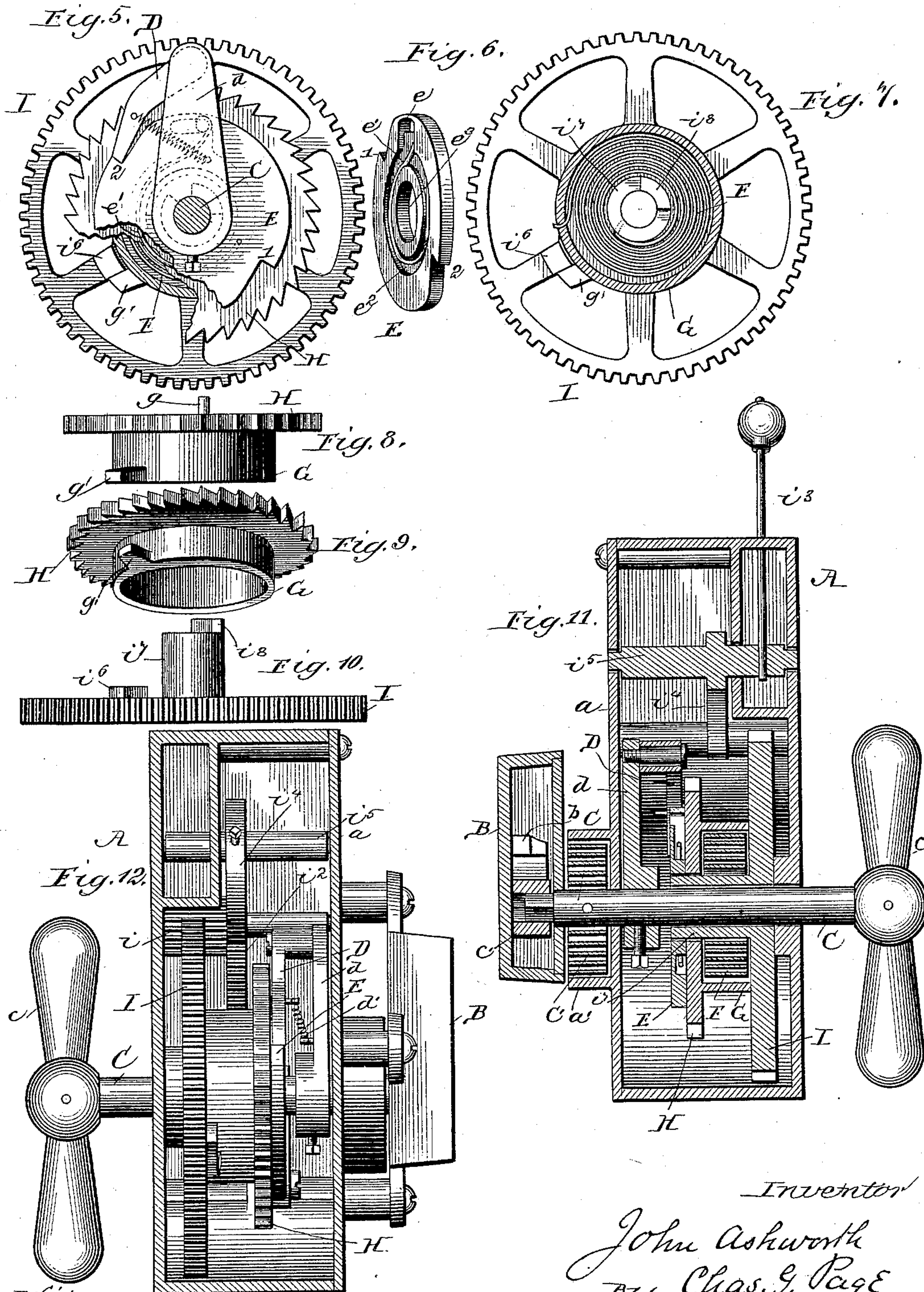
(No Model.)

3 Sheets—Sheet 2.

J. ASHWORTH.
ALARM LOCK.

No. 433,640.

Patented Aug. 5, 1890.



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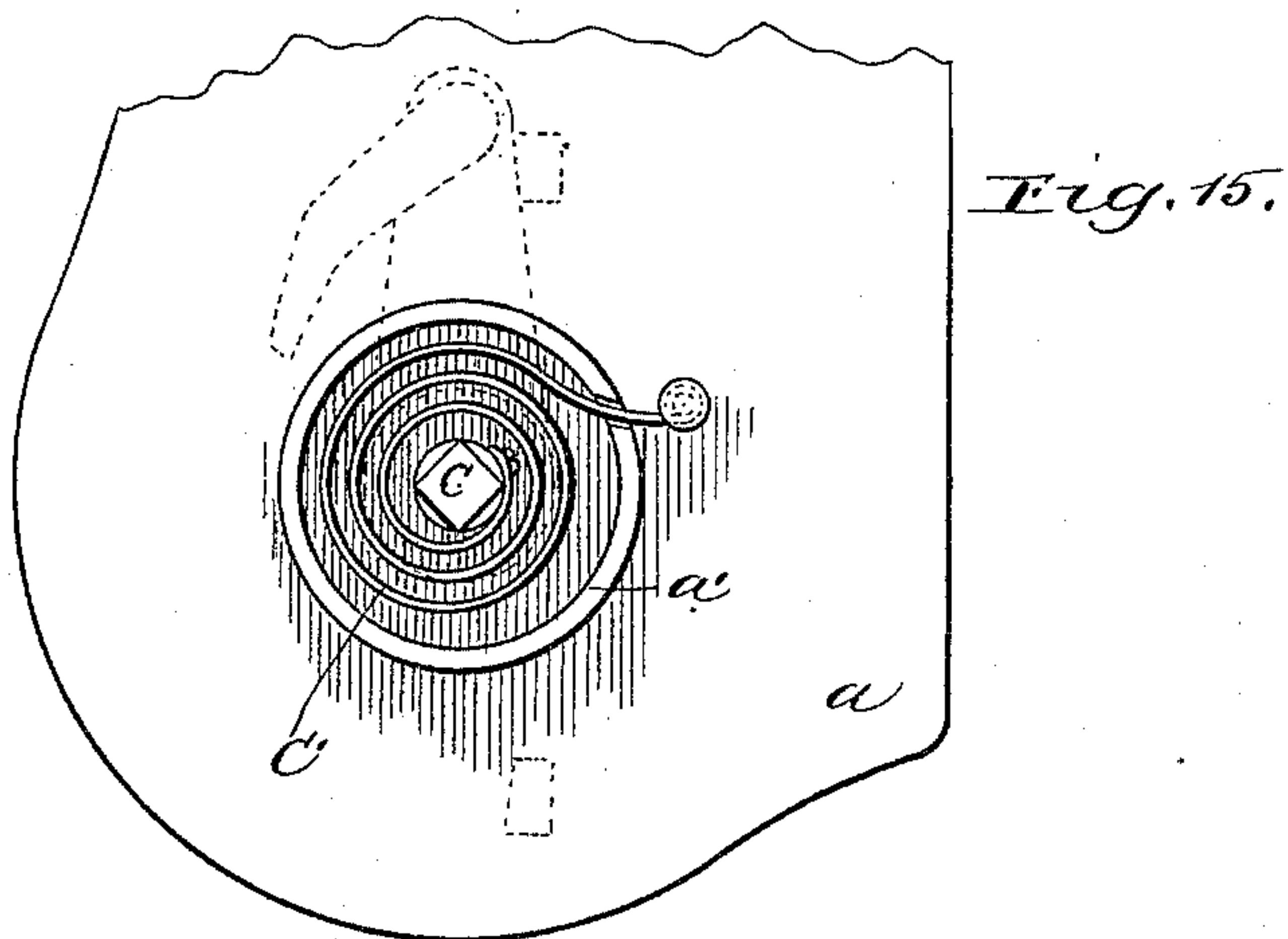
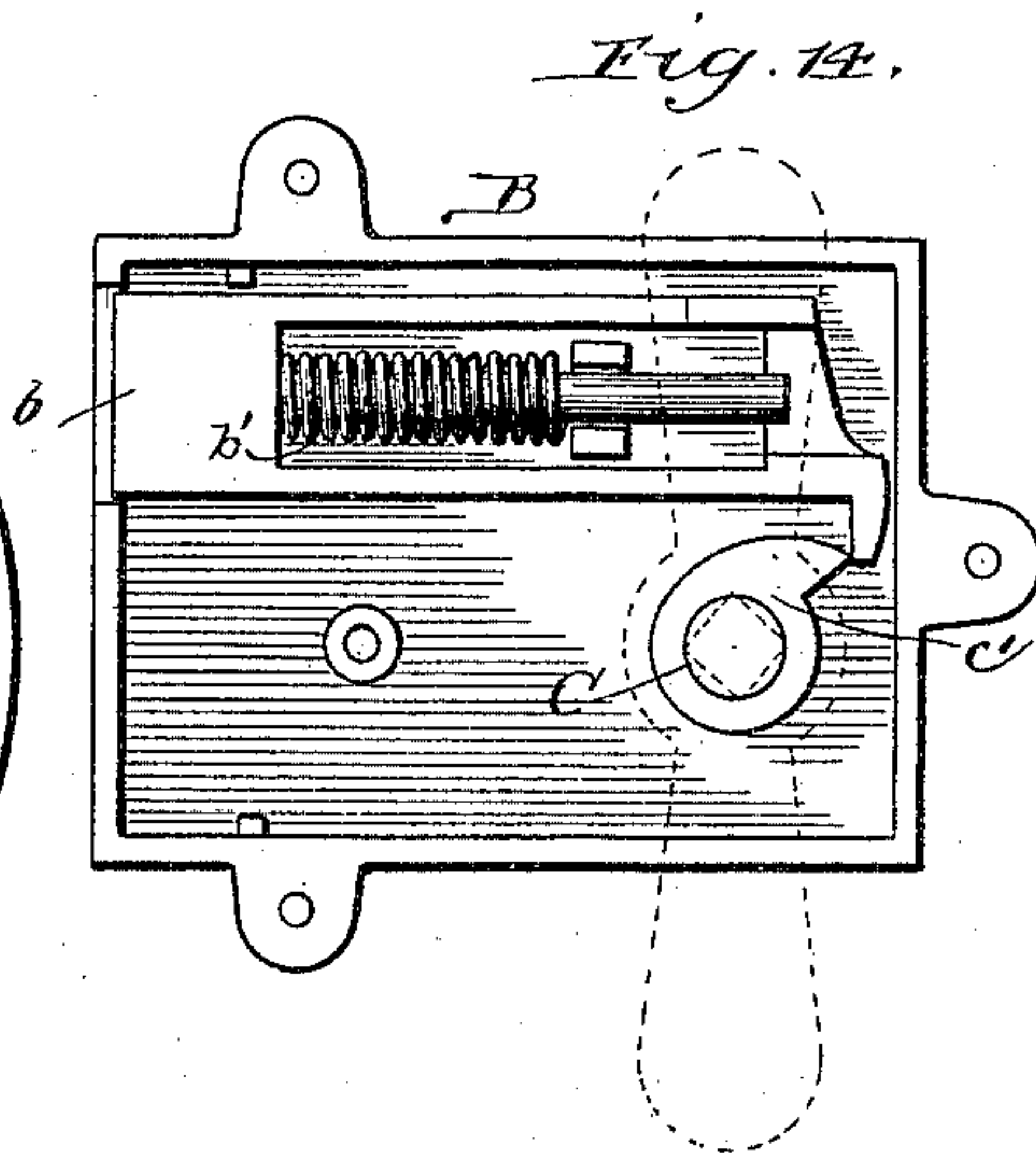
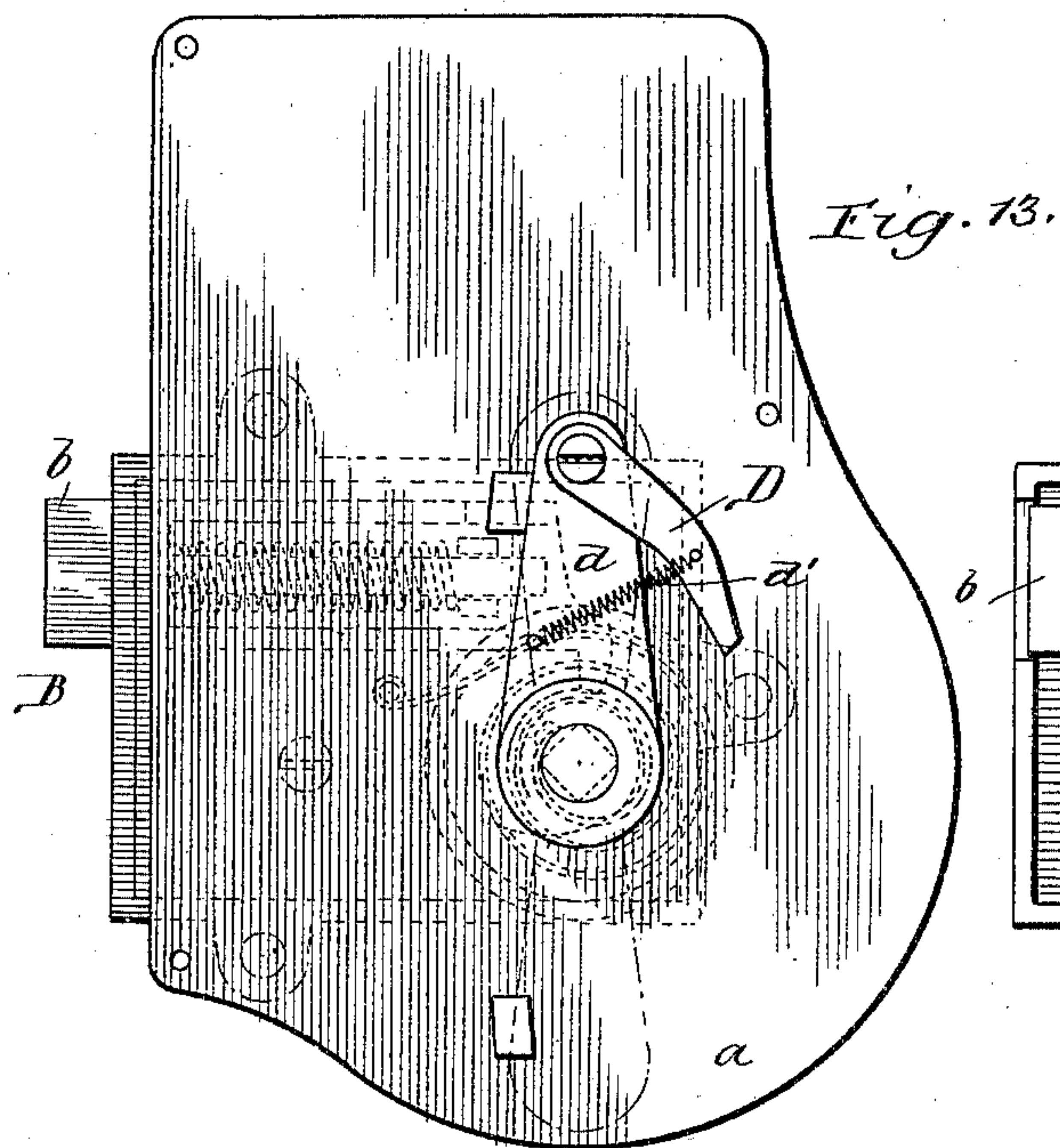
(No Model.)

3 Sheets—Sheet 3.

J. ASHWORTH.
ALARM LOCK.

No. 433,640.

Patented Aug. 5, 1890.



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UNITED STATES PATENT OFFICE.

JOHN ASHWORTH, OF CHICAGO, ILLINOIS.

ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 433,640, dated August 5, 1890.

Application filed November 6, 1888. Serial No. 290,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN ASHWORTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Alarm-Locks, of which the following is a specification.

My invention relates to fire-alarm-signal boxes wherein as a result of unlocking the door to permit access to be had to the interior of the box a local alarm is sounded and publicity thereby given to such act.

In Letters Patent of the United States, No. 353,475, granted to me November 30, 1886, I provide means whereby, should the local-alarm mechanism from any cause whatsoever become inoperative, the latch-operating device can be operated so as to open the door of the fire-alarm box regardless of the condition of the alarm mechanism; and to the attainment of such end I provide in said patent a yielding spring-resistance, which, while serving to transmit power from the bolt or latch actuating device to the alarm mechanism, will, when caught or otherwise prevented from acting, present simply a yielding resistance to the action of the latch-actuating device, and thereby allow the door to be unlocked and opened. Under such arrangement, however, the spring is at each operation of the latch-operating device wound up to a certain extent, and hence, should the alarm mechanism fail to operate and permit the spring to run down after such winding, several successive operations of the latch-operating device will result in a winding up of the spring to the extreme limit, and thereby prevent further operation of the latch-operating device. In such case, therefore, should the alarm mechanism under the aforesaid arrangement get out of order and refuse to work two or more non-official persons may chance open the box to give the regular fire-department alarm without noticing or reporting the condition of the local alarm, whereby at the last of a certain number of such operations the spring will become so tightly wound up that further attempt to open the box by operating the latch-actuating device will be futile.

The more prominent object of my invention is to avoid all possibility of the occurrence of the aforesaid undesirable condition

and to permit the door of the box to be unlocked and opened indefinitely under any and all circumstances and regardless of the condition of the local-alarm mechanism.

In a fire-alarm-signal box provided with a local-alarm mechanism and involving the principles of my invention the local-alarm mechanism, which may be of any known or suitable construction, is actuated by the unwinding of a spring which is to be wound up from the latch or lock spindle when said spindle is turned for the purpose of unlocking the door of the box. Between said spring and spindle I provide a winding mechanism, which is subject to the action of the spindle in unlocking the door only when thrown or placed in co-operative relationship with the spindle by the latter portion of the regular extent of running-down action on the part of said spring, in which way when the door is unlocked the spring will be wound up by the forward action of the spindle, which, by its back-return movement, releases itself from connection with the winding mechanism, and should the local-alarm mechanism be at such times in working condition the spring which operates the alarm mechanism will at a proper moment place the winding mechanism in condition to be again operated by the spindle. Should, however, the local-alarm mechanism fail to work, the spring, when once wound up, cannot run down to an extent to place the winding mechanism subject to the action of the spindle, whereby the spindle can be operated an indefinite number of times regardless of the condition of the spring and local-alarm mechanism.

In the drawings, Figure 1 represents in elevation the local-alarm and winding mechanisms viewed from the rear with the back plate of the inclosing-case A removed, the spindle being, however, shown in cross-section. In said figure the spindle is understood to be in its normal or back condition, and the winding mechanism is understood to have been placed in co-operative relation with or subject to the action of the spindle. Fig. 2 represents in elevation said local mechanism and winding mechanism as viewed from the front with the front plate of the case removed, the conditions of the spindle and said mechanisms being the same as in Fig. 1. Fig. 3 is a view

similar to Fig. 1, but shows in full lines the condition of the winding mechanism at a moment when the spindle has been operated to an extent to retract the latch or bolt and
 5 cause the winding mechanism to wind up the spring. Fig. 4 is a view similar to Fig. 3, but indicates that an automatic back slip or shift on the part of a member of the winding mechanism has taken place, and that the spring
 10 which operates the local-alarm mechanism has arrived at a point in its running-down action where it may by further action in such direction place the winding device or mechanism in condition to be again operated by
 15 the spindle. Fig. 5 is a detail representing portions of the winding and local-alarm mechanisms, a part of plate or tumbler E being, for convenience of illustration, broken away. Said figure also shows in cross-section the
 20 latch or lock spindle carrying a dog or pawl, which serves as a temporary connection between the spindle and the plate or tumbler E. Fig. 6 is a perspective view of the plate or tumbler, taken from the under side. Fig.
 25 7 is a detail view in elevation, showing part of the local-alarm mechanism and the main spring. Fig. 8 is a side view of the winding-drum provided with a ratchet, and Fig. 9 is a perspective view of the same. Fig. 10 shows
 30 in elevation a large gear employed in the alarm mechanism. Fig. 11 represents a vertical section through Fig. 1 on line 11-11, looking toward the gong-hammer \bar{v}^3 . Fig. 12 represents a section taken vertically through the
 35 case A, as in the preceding figure, but shows the devices therein in elevation, the gong-hammer being, for convenience of illustration, omitted. Fig. 13 represents in elevation the inner side of the back plate with a majority
 40 of the parts shown in Fig. 2 removed, so as to expose to view the pawl and an arm for supporting the same on the spindle. In this view the latching or locking devices are indicated in dotted lines. Fig. 14 represents the latch
 45 or lock with the face-plate removed. Fig. 15 represents a portion of the rear side of the back plate of case A, and shows thereon a spring for restoring the latch or lock spindle to its normal position.
 50 In said drawings, A indicates a case adapted to contain the local-alarm and winding mechanisms, said case being in practice secured to the inner side of the door of a fire-alarm-signal box which is understood to contain de-
 55 vices necessarily incident to the fire-alarm service. The lock B, which may be of any suitable construction, is conveniently attached to the back plate a of the case A, and is arranged for latching or locking the door
 60 of the fire-alarm-signal box when such door is closed. The spindle C, for operating the latch or locking bolt b of said lock so as to unlock the door, extends through the case A, and at its outer end is provided with a suit-
 65 able handle c or adapted to be engaged by a key or handle, as the case may be. The spindle may at its inner end be adapted in any

suitable way for engaging and operating such locking-bolt as may be employed for locking the door of the fire-alarm-signal box. As a
 70 simple and convenient arrangement, however, the spindle is at its inner end provided with a dog or cam c' , Fig. 14, which when the spindle is turned in one direction engages and draws back the latch or bolt in opposi-
 75 tion to the lock-spring b' , which is preferably provided in connection with the latch or locking-bolt of a fire-alarm-signal box. The spindle is also spring-controlled or subject to a
 80 spring which serves to restore the spindle to its normal condition after it has been turned for the purpose of unlocking the door and released. While the spindle could be thus
 85 controlled by or from the lock-spring I prefer providing for the spindle a separate spring C' , which, as shown in Figs. 11 and 15, is confined within a pocket a' on the back plate of
 90 the case and arranged to connect the same with the spindle. By such arrangement the spindle when turned in a direction (for ex-
 95 ample, to the right) to unlock the door will be turned against the resistance of the spring C' , which, as soon as the operator has released the spindle, will turn the same in a
 95 reverse direction and restore it to its normal condition.

As a means for permitting connection to be established between the spindle and the winding mechanism when the latter is in condi-
 100 tion to render it subject to the action of the spindle, the latter is provided with a spring-controlled pawl, dog, or catch D, (see particularly Figs. 5, 11, 12, and 13,) which can be
 105 hung upon any suitable bearing on the spindle—such, for example, as the arm d , herein shown fastened to the spindle at a point near the back plate a of the case. The catch D
 110 on the latch or lock spindle is arranged for engagement with a tumbler E of the winding mechanism at such times as the tumbler may have been brought into position to permit
 115 the catch to engage in one of its shoulders or notches 1 and 2. The tumbler E is adapted for connection with a drum or winding-barrel for the mainspring or motor F, so that
 120 when the tumbler is engaged by the catch on the spindle and the latter operated to retract the latch or bolt the rotary action of the tumbler will cause the winding-drum to
 125 turn so as to wind up the mainspring, which latter in running down serves to operate the local-alarm mechanism. The connection between the tumbler and the winding drum or
 130 barrel is such that the tumbler is capable of a limited rotary play or lost motion inde-
 135 pendently of the barrel and in both directions, and for a purpose hereinafter set forth.

As a means for establishing connection between the tumbler E and the mainspring F
 135 when the spindle is in operative connection with said tumbler and turned in a direction to unlock the door of the fire-alarm-signal box, the mainspring is arranged within and
 140 attached to the winding drum or barrel G of

the winding mechanism, and this said drum or barrel is operated by a forward rotation of the tumbler E when the latter is thus actuated by the spindle.

5 In order to establish connection between the tumbler E and rotary barrel G when the spindle is in connection with the tumbler and operated to unlock the door of the box, the barrel is at one end provided with a stud *g*, (see Figs. 1, 3, and 4,) and the tumbler is arranged opposite said end of the barrel and provided with a short curved slot *e*, wherein the stud on the barrel is received. When, therefore, the spindle is turned forward to draw back the latch or bolt *b* (to the left, as viewed in Fig. 1, and to the right, as viewed in Fig. 2) and has its catch in engagement with a stud, tooth, or notch on or in the tumbler, the action of the spindle in giving a partial forward rotation to the tumbler will cause the latter to turn the barrel so as to wind up the spring G.

The foregoing operation will be understood by reference to Figs. 1 and 3, in the former of which the spindle C and the tumbler E are understood to be in their normal operative positions with the catch D (shown in dotted lines) in engagement with a notch 1 in the tumbler, while in Fig. 3 the spindle is understood to have been turned forward sufficiently to draw back the bolt *b*, and through the medium of its catch to have given about a one-half turn to the tumbler. The back rotation of the winding-barrel G is prevented by some conveniently-arranged pawl and ratchet, a simple arrangement being to provide the winding-barrel with a ratchet H, engaged by a spring-controlled pawl *h*, which is pivotally supported within the case A.

40 The mainspring F, which is arranged within and wound up by the rotation of the drum or barrel G, serves while unwinding or running down to operate a suitable alarm mechanism—as, for example, the spring is herein shown connected with a gear-wheel I, which engages a small cog *i* on the axle of a spur or escapement wheel *i*², which said escapement-wheel serves to control and cause the vibration of a gong-striking hammer *i*³ through the medium of an escapement *i*⁴, secured on the oscillatory spindle or pivot *i*⁵, which carries the gong-striking hammer. The gong is not herein shown, since its employment in a fire-alarm-signal box is well understood.

55 When the spindle is operated to unlock the door and wind up the mainspring F, said spring will operate to start up the local-alarm mechanism should such mechanism be in proper working order, in which case the gear I, which may be regarded as a part of the local-alarm mechanism, will be caused to turn in the direction of the arrow in Fig. 1. The release-ment of the spindle by the operator and the back turn of the spindle to its first or normal position will in no wise effect the local-alarm mechanism, which will continue to act until the spring F runs down to a limit which I

propose imposing upon its running-down action. As a means for determining the said limit or extent to which the spring may run 70 down, the barrel G is provided with a laterally-arranged lug or stop *g'*, (see particularly Figs. 5, 7, 8, and 9,) and the gear I is provided with a lug or stop *i*⁶, which before the spring F has entirely run down comes in engagement with the stop *g'* on the barrel, and thereby arrests the motion of the gear and checks further running down of the spring. By such arrangement the spring is normally held under tension or wound up to some extent, whereby from the commencement to the end of its running-down action it will have sufficient force to cause a vigorous operation of the striking device in place of becoming undesirably feeble toward the termination of its said action. By thus arranging one of the said stops upon the barrel it will at all times be in proper relationship to the stop on the gear I, whereby the arrestment of the gear will always occur at the proper moment. 90 When the spindle has been turned to an extent to unlock the door of the fire-alarm-signal box and the tumbler E has been turned by the spindle to an extent to wind up the mainspring and bring notch 2 of the tumbler from its position in Fig. 1 to its position shown 95 in Fig. 3, the releasement of the spindle by the operator will permit the spindle to turn back to its first position, and in so doing to release catch D from its engagement with notch 1. The catch when thus released from its engagement with the tumbler rides back over the smooth unnotched peripheral edge of said tumbler, which at such moment makes a quick partial back turn or slip before the catch has had time to fall back into notch 2. 105 The extent of said back slip on the part of the tumbler is determined by the length of the slot *e*, which should be of such length as to permit the back slip or turn of the tumbler to place its notch 2 back of the point where the pawl will normally rest when the spindle has reached its first or normal position. Said movement on the part of the tumbler E is illustrated by a comparison of Fig. 3 with 115 Fig. 4, in the former of which the extent of back turn or back slip of the tumbler is illustrated in dotted lines, while in Fig. 4 the extent of its back slip is shown in full lines. This back slip on the part of the tumbler E 120 is due to the action of a spring *e'*, Figs. 5 and 6, to which the tumbler is subject, the action of this spring being to normally hold the tumbler in such relation to the stop or stud *g* on the winding-barrel that said stud will be at that end of the slot *e* in the plate whereat it is shown in Fig. 4. The spring *e'* is conveniently confined within a recess *e*² in the tumbler E, and arranged whereby it can at one end connect with the tumbler and at its opposite end bear against the stop or stud *g*, that is on the barrel, as illustrated in dotted lines, Figs. 1 and 5. 130 The object of the aforesaid back turn or

back slip on the part of the tumbler at the moment the spindle has been released from its extreme forward position will be understood from the following: The notches 1 and 2 in the tumbler are diametrically opposite one another, and hence where the spindle has been turned forward so as to give a partial rotation to the tumbler and bring it from its position in Fig. 1 to its position in Fig. 3 the notch 1 will have been brought into the position previously occupied by notch 2 in Fig. 1, while on the other hand notch 2 will have been brought into the position previously occupied by notch 1. Should, now, the spindle, Fig. 3, be released, so that it may be turned to its first position by the action of spring C', the restoration of the spindle to its first or normal position would serve to allow its catch D to drop into the notch 2 were it not for the quick back slip of the tumbler, which the instant the spindle is released makes its back slip before the spindle and catch can move back to their first position, whereby when the spindle arrives at its said first or normal position notch 2 will, by reason of said back slip of the tumbler, be somewhat back of the catch D, as in dotted lines, Fig. 3, and full lines, Fig. 4, in which last-mentioned figure the tumbler is shown in full lines, while the catch is shown in dotted lines resting upon the smooth peripheral portion of the tumbler at a point beyond or in advance of notch 2. During the said back slip of the tumbler and automatic restoration of the spindle C and catch D to their first back positions the gear-wheel I will be turned forward by reason of the running down of the main or barrel spring, as hereinbefore set forth, said movement being also continued until the running down of the spring is arrested by the engagement of the stop on the gear-wheel with the stop on the winding-barrel, as hereinbefore described. During the last portion of the allotted unwinding action of the mainspring F and operation of the local-alarm mechanism the tumbler E of the winding mechanism is operated from the running-down action of said mainspring in a way to give to said tumbler a forward movement to an extent to bring its notch 2 into position to be engaged by the catch D, which latter will, by the action of its controlling-spring d', drop into notch 2, and hence be ready for the next forward turn of the spindle.

As a means for permitting the local-alarm mechanism or mainspring which operates the local alarm to set the tumbler, the gear I is provided with a hub i^7 , Fig. 11, having at one end a tooth or shoulder i^8 , Fig. 1 and other figures, and the tumbler is provided with a central opening e^3 , which is of sufficient area to permit the lock or latch spindle to extend through it and to provide about said spindle an annular space, which is adapted to receive the tooth or shoulder i^8 on the hub i^7 . The tumbler E has a shoulder or stop e^4 , extending into its central opening and arranged in

the path of the tooth or shoulder i^8 on the hub i^7 , so that at a proper time the said tooth or shoulder i^8 on the hub can engage the tooth or shoulder e^4 on tumbler E, and hence permit the hub to turn the said tumbler. The hub i^7 of the gear I is sleeved upon the spindle and extended through one end of the winding-barrel, as in Fig. 11, whereby the tooth or shoulder i^8 on said hub may enter the opening e^3 in the tumbler and at certain times engage the shoulder or tooth e^4 . The said shoulder i^8 on the hub of gear I engages the shoulder or tooth e^4 on plate E just prior to the arrestment of the running down of the barrel-spring, which is herein connected with said hub, whereby, during the last portion of the action of the spring and rotation of gear I the spring F will give the tumbler E a forward movement to an extent sufficient to permit the catch D, when in its back or first position, to again drop into a notch in the tumbler. Thus in Fig. 1 the tooth or shoulder i^8 is understood to have brought the tumbler into position to permit the catch D to drop into notch 1, as indicated in dotted lines. In Fig. 3 the tumbler E is understood to have been turned forward by a forward turn of the spindle, whereby the shoulder or tooth e^4 on the tumbler has left the shoulder i^8 of the hub i^7 . In Fig. 4, however, the rotation of the gear I has brought shoulder i^8 of its hub i^7 into engagement with the shoulder e^4 of the tumbler E, whereby a further forward movement of the gear and hub (due to the concluding portion of the running-down action of spring F) will turn the tumbler to an extent to allow catch D to drop into notch 2, as in Fig. 5. When the spindle is next operated to unlock the door of the fire-alarm-signal box, the foregoing operation will be repeated, the notched tumbler E being then so turned as to again reverse the positions of its notches.

So long as the striking or alarm mechanism is in order the foregoing operations can be repeated indefinitely, and with each operation the local alarm will be sounded. Should, however, the alarm mechanism become bent or caught or otherwise injured or disarranged, so that it will not work, its failure to act will in no wise prevent the turning of the spindle to unlock the door an indefinite number of times. This free action on the part of the spindle when the local-alarm mechanism fails to work is permitted by reason of the non-engagement of its catch D with either notch in the tumbler E, it being seen that this member or portion of the winding device is not subject to the action of the spindle until the local-alarm mechanism or mainspring has operated to an extent to cause one of the notches of the tumbler E to be brought into position to be engaged by catch D when the latter is in its back position. Thus, should the spindle be turned forward so as to unlock the door and bring the tumbler from its po-

sition in Fig. 1 to its position in Fig. 3, the back slip of the tumbler, when the spindle is allowed to turn back, will so adjust or set the tumbler that when the spindle has reached its normal position the catch D will simply rest upon the smooth periphery of tumbler, and should the local-alarm mechanism now fail to work, and hence fail to turn or fail to allow the mainspring to turn the tumbler forward to an extent sufficient to bring one of its notches under catch D, said catch will necessarily continue to rest upon the unnotched edge portion of the tumbler, whereby, no matter how many times the spindle may then be turned forward, so as to draw back the latch or bolt b, and thereby unlock the door of the fire-alarm-signal box, the catch D will, with each forward and back movement of the spindle, simply ride along the smooth unnotched peripheral portion of the tumbler E without engaging the same. The spindle will at such times also work freely, regardless of the condition of the barrel-spring F, and should the tumbler E, from any cause whatsoever, cease to work, the spindle can still be operated to open the door as often as may be desired.

From the foregoing matters the following summary of distinctive features may be made, to wit: First, a local-alarm mechanism and a mainspring which is wound up from the action of the latch or lock spindle in unlocking the door, and which in unwinding serves to operate the local-alarm mechanism; second, the latch or lock spindle which is employed for unlocking the door, and which is independent both of the mainspring and the local-alarm mechanism, said spindle having, as hereinbefore set forth, no permanent connection with either the local-alarm mechanism or the spring by which the local-alarm mechanism is operated; third, a winding device or mechanism adapted for establishing connection between the latch-spindle and the mainspring, but normally out of position for connection with the spindle, said winding or connecting device being set for connection with the spindle only by the latter portion of the running-down action of the mainspring, which said action is permitted by the free and simultaneous operation of the local-alarm mechanism, but prevented in case the local-alarm mechanism should fail to work.

What I claim as my invention is—

1. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating the same, and a lock-operating spindle intermittingly connected with said spring or motor, substantially as set forth.

2. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating the same, a lock-operating spindle, and a winding device for intermittingly connecting the spring or motor and spindle, substantially as described.

3. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating

the same, a lock-operating spindle normally disconnected from said spring or motor, and movable parts located between said spring or motor and spindle and operated by the unwinding action of the spring or motor for connecting said spring or motor and spindle, substantially as described.

4. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating the same, a tumbler connected with said spring or motor, and a lock-operating spindle intermittingly connected with said tumbler, substantially as described.

5. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating the same, a tumbler connected with said spring or motor, a lock-operating spindle, and a catch upon said spindle for engagement with said tumbler, substantially as set forth.

6. An alarm-lock comprising a local-alarm mechanism, a spring for operating the same, a winding-barrel for said spring, a tumbler having connections with said barrel affording a lost motion, and a lock-operating spindle intermittingly connected with said tumbler, substantially as described.

7. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating the same, a tumbler connected with said spring or motor and provided with a notched portion, and a lock-operating spindle provided with a catch for engaging the notched portion of said tumbler, substantially as set forth.

8. An alarm-lock comprising a local-alarm mechanism, a spring for operating the same, a winding-barrel for said spring, a tumbler having connections with said barrel affording a lost motion and normally held at the limit of its movement in one direction, a lock-operating spindle for engagement with said tumbler when the latter is at the other limit of its movement, and connections between said spring and tumbler for moving the latter to the other limit of its lost movement, substantially as set forth.

9. An alarm-lock comprising a local-alarm mechanism, a spring for operating the same, a winding-barrel for said spring, a tumbler having connections with said barrel affording a lost motion and normally held at the limit of its movement in one direction, a stop or shoulder upon said tumbler, a lock-operating spindle for engagement with said tumbler when the latter is at the other limit of its movement, and a movable catch or shoulder operated by said spring and located for engagement with the stop or shoulder on the tumbler for moving said tumbler to the other limit of its movement, substantially as and for the purpose described.

10. An alarm-lock comprising a local-alarm mechanism, a mainspring for operating the same, a winding-barrel for said spring, a tumbler having connections with said barrel affording a lost motion, a spring for holding said tumbler at one limit of its movement, a lock-operating spindle for engagement with said

tumbler when at the other limit of its movement, and connections between said spring and tumbler for moving the latter to the other limit of its movement against the action of its spring, substantially as set forth.

11. An alarm-lock comprising a local-alarm mechanism, a spring for operating the same, a winding-barrel for said spring, a stud upon said winding-barrel, a tumbler located adjacent said winding-barrel and having a slot engaging the stud thereon, said tumbler being normally held with the stud at one end of said slot, a lock-operating spindle for engagement with said tumbler when the stud is located in the other end of said slot, and connections between said spring and tumbler for moving the latter so that said stud will stand at the other end of said slot, substantially as set forth.

12. An alarm-lock comprising a local-alarm mechanism, a spring for operating the same, a winding-barrel for the same, a tumbler having connections with said barrel affording a lost motion and normally held at the limit of its movement in one direction, a stop or shoulder upon said tumbler, a lock-operating spindle for engagement with the tumbler when the latter is at the other limit of its movement, and a rotary hub carried by a member of the local-alarm mechanism and located for engagement with said stop or shoulder on the tumbler for moving said tumbler to the other limit of its movement, substantially as set forth.

13. An alarm-lock comprising a local-alarm mechanism, a member of which is provided

with a hub having a catch or shoulder, a spring for operating said local-alarm mechanism, a winding-barrel for said spring, a tumbler having connections with said barrel affording a lost motion and normally held at the limit of its movement in one direction, said tumbler being provided with a central opening and located upon said hub, a stop or shoulder in said opening and located in the path of said catch or shoulder, and a lock-operating spindle for engagement with said tumbler when at the other limit of its movement, the said catch or shoulder upon the hub being adapted for engagement with the stop or shoulder upon the tumbler for moving the latter to the other limit of its movement, substantially as set forth.

14. An alarm-lock comprising a local-alarm mechanism, a spring or motor for operating the same, a stop located to arrest the unwinding of the spring or motor before it has completely run down, and a lock-operating spindle, substantially as set forth.

15. An alarm-lock comprising a local-alarm mechanism, a spring for operating the same, a winding-barrel for said spring, a stop upon said winding-barrel for limiting its movement, said stop being located to arrest the unwinding of the spring before it has completely run down, and a lock-operating spindle, substantially as described.

JOHN ASHWORTH.

Witnesses:

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