

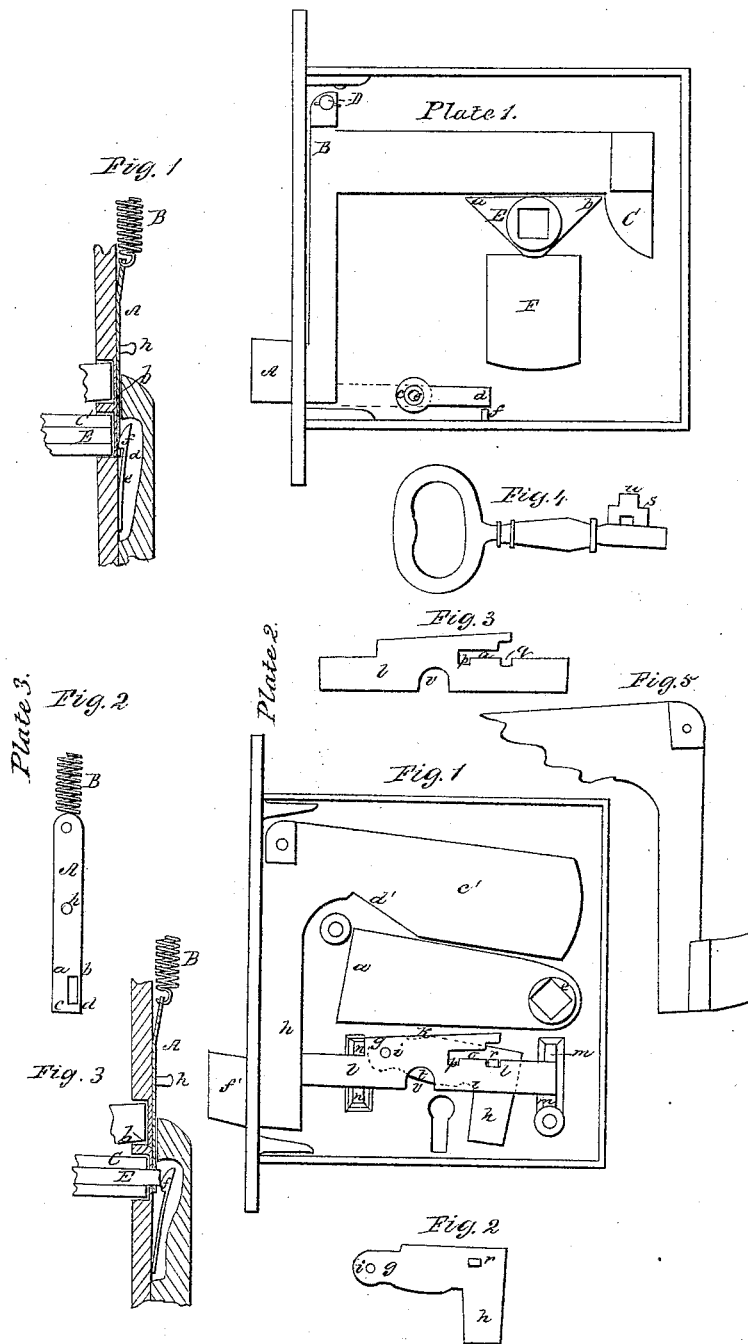
2 Sheets - Sheet 1.

G. W. Wilson,

Alarm Lock.

N^o 2,423.

Patented June 11, 1841.



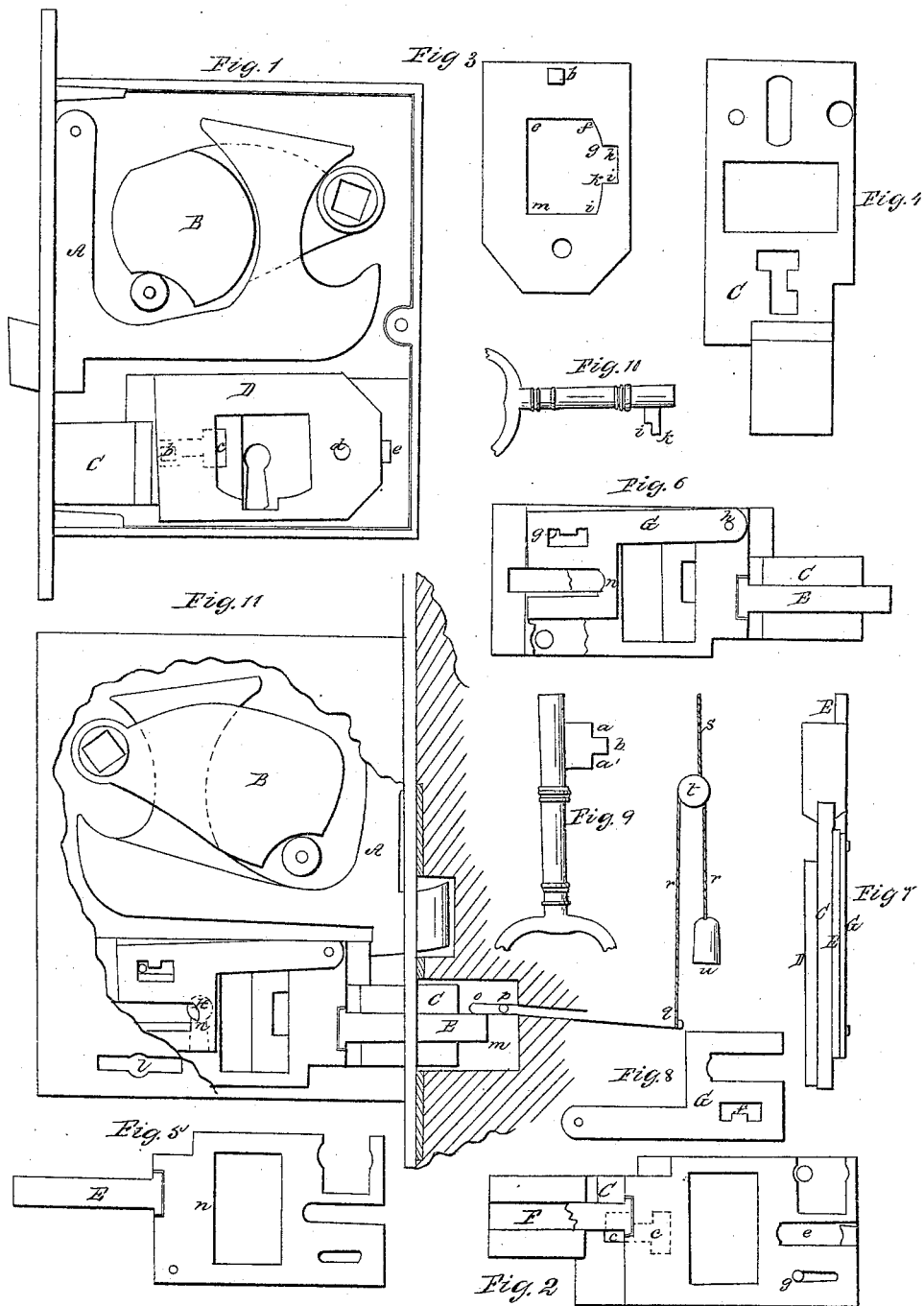
2 Sheets-Sheet 2.

G. W. Wilson,

Alarm Lock.

N^o 2,123.

Patented June 11, 1841.



UNITED STATES PATENT OFFICE.

GEORGE W. WILSON, OF NASHUA, NEW HAMPSHIRE.

IMPROVEMENT IN DOOR LOCKS AND LATCHES.

Specification forming part of Letters Patent No. 2,123, dated April 11, 1841.

To all whom it may concern:

Be it known that I, GEORGE W. WILSON, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented new and useful Improvements in Door Locks and Latches, of which the following is a specification.

The said improvements, the principles thereof, and manner in which I have contemplated the application of the same by which they may be distinguished from other inventions of a like character, together with such parts or combinations as I claim to be my invention and consider original and new, and for which I solicit Letters Patent, I have herein set forth in the following description and exhibited in the accompanying drawings, hereinafter referred to, which, taken in connection, form my specification.

Plate 1 of the accompanying drawings exhibits the interior of a mortise-lock, one of its sides or the front being removed. A B represent a latch having an arm B C projecting therefrom at right angles, or thereabout, as seen in the figure, the whole being cast in one piece. The lower end at A is chamfered or beveled off similar to the common door-latch, so that when the said part is pushed against or is in contact with the side of the casing the force exerted on the inclined plane presses back the latch until the door is entirely closed, when the latch, being relieved, falls into the cavity or space or catch usually formed in the side of the casing, and thus confines the door in its place. The latch A B is suspended and vibrates on a pin at D, and the end C or arm B C is made somewhat thicker and heavier than the end A or latch A B, so that when left free it shall always fall into the position denoted in the drawing. E is the tumbler which raises the latch, and in which the shank of the knob is inserted. This tumbler is formed and supported in the plates or sides of the lock in the usual manner. It has attached to it a weight F, which, acting like a pendulum, overcomes the friction of the bearings of the tumbler and weight of the knobs, so that when the hand is removed from the knob the weight F will always cause the tumbler to fall into the position denoted in the drawing, or in such manner as that the top *a b* of the same shall be

horizontal. Thus it will be seen that the operations of the tumbler and latch are entirely independent of each other, inasmuch as it does not require the weight of the arm B C of the latch to cause the tumbler to fall into its perpendicular position, this being effected by the weight F, attached to the same. At the same time the arm B C will fall down upon the top of the tumbler by the force of gravity and assist in bringing the top of the tumbler horizontal. No spring is required to operate the latch, as its weighted end C causes it to always fall upon the tumbler when the force exerted on the beveled part A' of the latch is removed; but nevertheless a small spring can be used on the latch, if desirable and necessary.

It will be perceived that the above description embraces that part of the arrangement in my apparatus which serves to latch the door, and, inasmuch as it is intended to supersede the use of springs of any description, which are commonly, if not invariably, introduced into locks and latches, its advantages will be very apparent, as springs frequently get out of repair and become unfit for their intended purpose, whereas the machinery above described would seldom, if ever, become deranged or damaged, and, compared with common locks, would last an extraordinary length of time. In order to cause the latch to operate as a bolt to fasten or lock the door, a guard or button *c d* is arranged behind the said latch in the position represented in the drawings. This guard has journals at one end *c*, playing loosely in suitable bearings in the plates of the lock in the usual manner, by which it is kept in position, and by inserting any of the various kinds of keys in corresponding sockets formed in either of the journals of the guard, as represented at *e* in the figure, the guard *c d* may be turned from its position (resting on the block *f*, which serves to keep it horizontal, and the end *d* describing a semicircle) into that denoted by dotted lines in the drawing. The guard *c d* being in this position, it will be very apparent that the latch A B will be kept stationary and operate as a bolt, and that any attempt to move it inward by turning the knob would be entirely ineffectual, inasmuch as the turning guard would be on a "dead-point," so

called. The guard, it should likewise be observed, is operated without the assistance of any species of spring, the use of which in a lock, as has been before suggested, is very objectionable, and by avoiding which the lock is rendered much more useful and durable.

Plate 2, Figures 1, 2, 3, and 4, represents some of my other improvements in locks and latches, where, instead of a vertical, I use a horizontal tumbler beneath the latch, as shown at *a'*, Fig. 1, which exhibits the interior of the lock, Figs. 2, 3, and 4 being detailed views of some of the parts, Fig. 5 being a detailed view showing the chamfer or bevel of the catch of the latch. The latch *b' c'* differs but little from that before described and represented in Plate 1, the only variation being in the shape of the arm *c'* and the angle it makes with the arm *b'*, which, in lieu of being a right angle, is somewhat acute, the arm being beveled a little at the angle, as shown at *d'*. The tumbler *a'* has suitable shoulders at the end *e'*, which rest and turn in suitable bearings in the plates or sides of the lock. Proper handles may be connected to the end *e'* of the tumbler on both sides of the door, by turning which in a direction from the casing the tumbler will gradually raise the arm *c'* until the upper side of said tumbler is in close contact with the beveled part *d'* of the arm, and when this is the case the catch *f'* is entirely disengaged from the mortise in the side of the casing and the door may be opened at pleasure. When the door is closed, it will readily be perceived that the weight of the tumbler will cause it and the knobs to return to their original stationary positions, while the weight of the arm *c'* will cause the catch *f'* to pass into or re-engage with the mortise in the casing.

The above, it will be observed, describes only a variation in the latching apparatus; but in connection with this I use, instead of a common guard or button, as before described and represented in Plate 1, a different arrangement for fastening the door or causing the latch to operate as a bolt. This arrangement is similar to that of the ordinary lever-lock, the end of the bolt pressing against the back of the latch *b'* instead of passing into a mortise in the side of the casing. It consists of a bent lever *g h*. (Shown by dotted lines in Fig. 1 and in detail in Fig. 2.) This lever turns loosely on a pin *i* at one end, and has resting on its top at the notch *k* the tumbler *a'*, (when in its stationary position,) and above this latter the arm *c'* of the latch, the joint weight of which, together with that of the arm *h* of the lever, serves to keep it down or cause it to descend when raised. A bolt *l* rests and moves in guides *m m n n* and has a slot *o* and two square notches *p q*, Figs. 1 and 3, in the former or latter of which a stud or projection *r* on the lever *g h* rests, respectively, as the bolt is forward or back, in the former of which positions it bolts the door or confines the latch, and vice versa when in

the latter. In order to fasten or unfasten the latch, I use a key constructed as shown in Fig. 4, or in any other proper manner, so that when the key is turned either way the lower part *s* first comes in contact with the lever *g h* at *t* and raises said lever when the projection *u* comes into or engages with the notch *v* in the bolt *l* and presses it forward or back, as occasion may require, in either of which extreme situations the stud *r* falls into the corresponding notch *p* or *q* and confines the bolt in position.

Figs. 1 to 11, inclusive, Plate 3, exhibit the interior of a lock with other improvements. A is the gravitating latch, and B the weighted tumbler, both somewhat varied in position and shape from those heretofore described. C is the main bolt, which is formed, as represented, detached from the other parts in Figs. 2 and 4, the latter being a front elevation, while the former is a rear view, of the same. Fig. 7 represents a top view, of the main bolt and other parts connected thereto. The "lever" D, (technically understood by this cognomen among locksmiths,) which is raised by one of the shoulders *a a'* of the key, Fig. 9, as the main bolt C is thrown forward or drawn back, is represented in Figs. 1, 3, and 7 as applied to the front of the bolt C, with its projecting stud *b* operating in a suitable slot *c*, Figs. 1 and 2, and as turning or moving up and down on a center pin *d*, Fig. 1, projecting from the box of the lock through a slot *e* in the bolt. Instead of this lever being formed like the bent lever *g h*, Plate 2, Fig. 2, it will be perceived that it is a rectangular plate of metal with a space *e f g h i k l m* cut out of the same, so that whenever the key is inserted in the lock at the time the lever is down in its lowest position the projecting part *b*, Fig. 9, of it will just pass by or over the lower portion *h i* of the space *e f g h i k l m*, Fig. 3. Therefore in attempting to withdraw the key from the lock, if the lever D is is not down, the side of the projecting part *b*, Fig. 9, of the key will come in contact with the rear side of the lever D below the lower part *h i* of the space *e f g h i k l* in Fig. 3 and prevent the removal of the key from the lock until the lever D falls low enough. Consequently the lowering of the lever and security of the bolt when thrown forward or drawn back are rendered certain by the withdrawal of the key. The slot *c* is similar in character and purpose to the slot *o*, Fig. 1, Plate 2, with its square notches *p q*, as before described.

My next improvement consists in applying to the rear side of the main bolt C another and smaller bolt E, shaped as seen in Figs. 5, 6, and 7. The front part of this bolt is embedded and moves in the space F, Fig. 2, of the main bolt, so that their outer surfaces, or those in opposition with the side of the base, may be in the same plane. When this bolt is thrown forward, its end projects beyond the main bolt, as represented in Figs. 6, 7, and 11. It has a locking-lever G, Figs. 6, 7, and 8, (having a slot

f, moving over a pin *g*, projecting from the side of the main bolt,) arranged so as to move or turn up and down upon a center pin *h*, Fig. 6, and raised by the notch *i* of the extra key, Fig. 10. This key is inserted in a small horizontal key-hole *l*, Fig. 11, after the main bolt has been thrown forward into the space *m* of the door-casing and the key, Fig. 9, extracted, and by means of it (the extra key) the bolt *E* is advanced, as seen in Fig. 11, and a part of it—viz., *n*, Figs. 5, 6, and 11—brought directly in rear of the key-hole *H*, Fig. 11, so as to prevent the introduction of the key which operates the main bolt. A lever *o p q*, turning on a fulcrum *p*, is suitably arranged within the door-casing and bearing upon the top of the bolt *E*, as seen in the drawings, and with the other arm *p q* on the exterior of the casing, or in such manner as to have one end of a cord *r r* attached thereto, which cord passes over a grooved pulley *t* and has a weight *u* hung on its other end. The lower end of a cord *s* is tied to the cord *r* just above the pulley, the cord *s* leading to a bell suitably arranged, or any kind of alarm, which shall operate whenever the bolt *E* is drawn back so far as to pass by the end *o* of the lever *o p q* and suffer the weight *u* to drop down and pull the string *s*. Therefore from the above it will be readily seen that if a person attempts to pick a lock of this description it will be necessary for him first to retract the bolt *E* before he can introduce a key or other instrument through the key-hole *H* to draw back the main bolt. The instant this is accomplished the weight *u* drops and springs the alarm, giving notice to persons in the building or in the street, as the case may be, that some burglarious attempt is being made to force the door of the building.

Plate 4, Figs. 1, 2, and 3, represents a peculiar apparatus for setting the alarm to be used instead of the lever *o p q*, Fig. 11, Plate 3, Figs. 1 and 3 being vertical sections of the same, and Fig. 2 a view of the slide. The slide *A*, formed as represented in Fig. 2, has the cord *r r*, before described, or a spirals pring *B*, connected to it, the same being attached to the alarm. A rectangular hole *a b c d*, Fig. 2, and *b d*, Figs. 1 and 3, is formed through the lower part of the slide *A*. Spring-catch *e*, having a shoulder *f* and otherwise formed and arranged, as seen in Figs. 1 and 2, is applied directly in front of a small bolt *K*, with its shoulder *f* a little below the lower side of the

bolt. Now when the slide is forced down by the finger applied to a knob *h* the bottom of it strikes upon the top of the spring-catch *c* and presses the same aside or outward, while it shoots by until the opening *a b c d* permits the catch to return over its lower part *c d* and confine the slide down, as represented in Fig. 1. This having been done, when the extra bolt *E* is thrown forward its end strikes against the top of the spring-catch, forcing it out the opening and permitting the slide *A* to rise a little until the bottom *c d* of its opening comes in contact with the lower side of the bolt, thus setting the alarm, as seen in Fig. 3, which is sprung by the withdrawal of the bolt *E*.

Having thus described my improvements, I shall now point out such parts or combinations therein as I claim to be my invention.

I claim—

1. A weighted or heavy tumbler, whether the same be arranged horizontally or vertically, constructed and disconnected from the latch, substantially as described, and so operating as to cause the tumbler and knob to return to a stationary position by the gravitating power of the former, and thereby whenever the door is closed permit the latch to recede and advance independently of said tumbler and knob.

2. The combination of said tumbler with the gravitating latch, as hereinabove set forth.

3. Combining with the main bolt of the lock another bolt to be operated by an extra key, the whole being constructed and arranged substantially in manner and for the purposes above set forth.

4. Constructing the holding-lever of the main bolt as represented in Fig. 3 of Plate 3 and as hereinbefore described, so as to render certain the fall of said holding-lever by the withdrawal of the key from the lock.

5. The peculiar apparatus for setting the alarm, as represented in Plate 4, consisting of the slide and spring-catch, to be used in connection with the extra bolt, and arranged and to operate substantially as above described.

In testimony that the foregoing is a true description of my said invention and improvements I have hereto set my signature this 7th day of May, 1841.

GEO. W. WILSON.

Witnesses:

R. H. EDDY,
EZRA LINCOLN, Jr.