P. S. FELTER.

Locking-Latch.

No. 167,088. Patented Aug. 24, 1875.

Fig. 1.

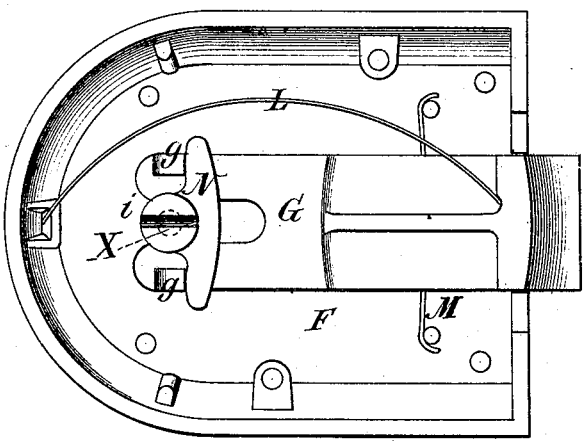


Fig. 4.

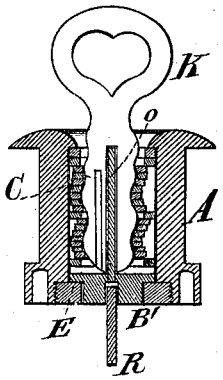


Fig. 2.

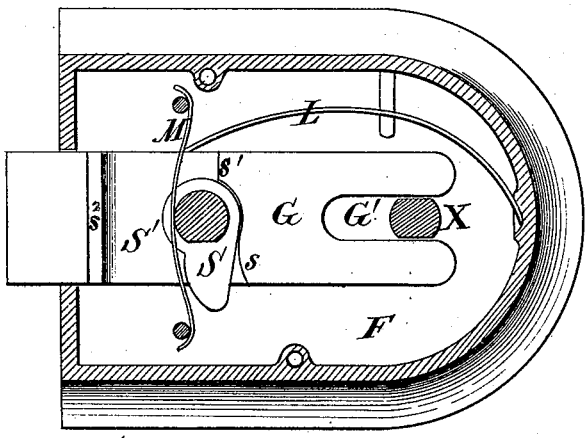


Fig. 3.

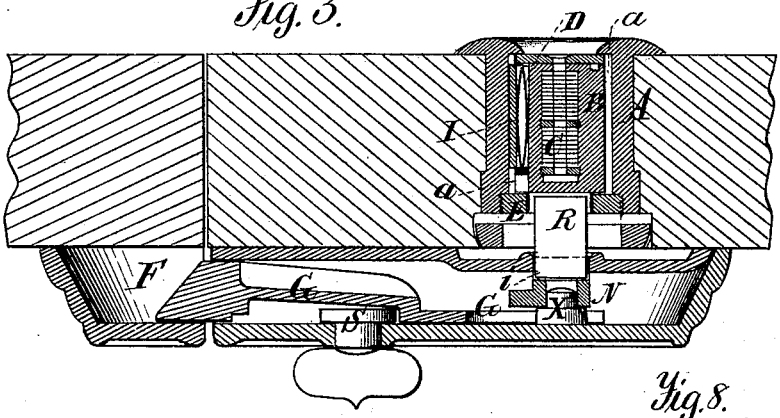


Fig. 7.

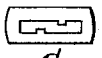


Fig. 5.

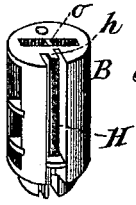
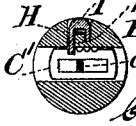


Fig. 6.

Fig. 8.



Witnesses.
A. Ruppert.
D. P. Cowl

P. S. Felter
Inventor.
by Edw. J. Gils
Atty

UNITED STATES PATENT OFFICE.

PHILO S. FELTER, OF CAZENOVIA, NEW YORK.

IMPROVEMENT IN LOCKING-LATCHES.

Specification forming part of Letters Patent No. **167,088**, dated August 24, 1875; application filed June 18, 1875.

To all whom it may concern:

Be it known that I, PHILO S. FELTER, of Cazenovia, Madison county, in the State of New York, have invented an Improvement in Locks, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan of the case and bolt. Fig. 2 is a sectional view thereof, showing the other side. Fig. 3 is a longitudinal section of the lock, showing it applied to a door. Fig. 4 is an axial section of the thimble, arbor, and tumblers, with the key inserted. Figs. 5, 6, 7, and 8 are detail views hereinafter specifically referred to.

The same letters of reference are used in all the figures in the designation of identical parts.

The thimble A is about one and one-fourth inch in diameter, and of about the same length, and has two internal longitudinal grooves, *a a*, opposite each other, which run its entire length. The arbor B is about one inch in length, and in it is inserted a series of tumblers, C. The arbor is, in turn, inserted in the thimble A, and has an external groove, H, extending its entire length, except that it is cut off by a cross-piece near one end of the groove, the office of which cross-piece is to prevent the fence-bar I from working endwise in that direction. Near the base of said groove is a rib or projection, *h*, in its center, by means of which two grooves are formed, one of which is deeper than the other, and each extends the entire length of the arbor. The fence-bar I operates in these grooves. In the end of the arbor is inserted an irregular-edged key, K, which key is slotted longitudinally for the purpose of straddling the center-piece *o*, on which center-piece are strung the tumblers C. The center-piece extends the entire length of the arbor B, which arbor is mortised crosswise, except at each end, which mortise is just wide enough to receive the tumblers C edgewise, and is at right angles with the slots on either side of center-piece *o*, in which slots the key is inserted. The tumbler C′, Fig. 8, has notches on one of its edges, and when it is strung on the center-piece O, as above explained, the notched edge is placed next to the groove H. The tumblers are separated at one or more places by one or more cross-pieces, to suit the builder, which cross-pieces are (lengthwise with the arbor B) slotted in various styles and shapes to prevent the insertion of false keys. The notches in the tumblers, except one in each, are false, for the purpose of deception, and will be hereinafter explained.

The fence-bar I has two projections to correspond with the depths and sizes of the grooves in the arbor, in which they operate. One edge of the fence-bar is oval in shape, to correspond with the internal grooves *a a* in the thimble, in and out of which grooves the fence-bar passes, being locked when in, and unlocked when out. The elliptic springs D are placed in the position shown in the drawings, beneath and in the groove of the fence-bar I, and are supported by the projection *h* between the grooves. (See Figs. 5 and 8.) Their office is to press the oval part of the fence-bar in the grooves in the thimble, when the arbor B is turned by the key in the right position. The tumblers C can then move laterally upon center-piece O. The key K, above explained, is inserted in the arbor B before the notches are made in the tumbler C′, Fig. 8, when the tumblers conform to its shape. When the true notches are made in the several tumblers directly in line with the base of the deepest groove in the arbor, the groove being thus formed by the true notches so made in the several tumblers allows the edge of the fence-bar I to enter it, when the key cannot be withdrawn, for the reason that the fence-bar, being in the groove formed by the true notches aforesaid, prevents the tumblers from moving; but by turning the arbor with the key until the fence-bar passes into one of the internal grooves *a a* in the thimble by the aid of the elliptic springs D, the key can be withdrawn, the tumblers being allowed to move laterally by the fence-bar, thus leaving the groove formed by the true notches in the tumblers.

The withdrawal of the key will move the tumblers laterally, according to the irregular edges of it, and the true notches in the several tumblers will be out of line, so that the fence-bar cannot pass out of the internal grooves *a a* until the key is again inserted, which will line the true notches.

It will be observed that the lock is fitted to the key, and not the key to the lock. The

false notches above referred to are made for the purpose of deceiving the burglar, who, in endeavoring to pick the lock, will not know when the tumblers are properly placed.

The thimble-head E holds the arbor in its place in the thimble, through which thimble-head projects the end B′ of the arbor, which end is slotted, like the head of a screw, for the purpose of receiving the piece R, which connects the arbor with the door-bolt hereinafter explained. The case F contains the bolt G and its concomitants, which are the springs L and M, stop S, and piece N. The spring L is for the purpose of crowding the bolt in a locked position, and operates upon the case at one end, and the bolt at the opposite end, as shown in drawing. The case and bolt contain recesses for the reception of either end of the spring, which spring is held in its position by an ordinary cap for the case, fastened with screws or rivets. The spring M is for the purpose of preventing casual movement of the stop S, which stop is attached to a cam-like stud, against which the spring M presses. The stud passes through the case to its outside, where and to which is attached an ordinary thumb-piece, by means of which the stop may be regulated at pleasure, for the purposes hereinafter described. The piece N is placed upon the stud-piece *x*, which stud-piece is cast with the case. The hub of piece N extends through the cap of the case, and is slotted like an ordinary screw-head at *i*, like the one in the end of the arbor above described, and is for the same purpose. A flat piece, R, of metal connects the two, the length of which is governed by the thickness of the door. The bolt G is represented in the same position in Figs. 2 and 3 as in Fig. 1, and is provided with a slot, G′, for the purpose of allowing the bolt to straddle the stud-pin *x* on each side of this slot, and near the end of the bolt are projections *g*, against which the piece N operates when the bolt is being withdrawn. The side of the bolt not shown in Fig. 1 is represented in Fig. 2, and has a recess, S′, in which the stop S operates. The edge $s\ s^1$ of this recess is irregular in form, so that when the stop is turned to the left the bolt will be moved and held unlocked, and when it is turned to the right the bolt will be moved, but not so held. The other edge s^2 of this recess is, as represented, straight, and when the stop S is turned against it the bolt will be held locked, thereby operating as a night-latch. By leaving the stop in a perpendicular position the bolt will not be affected by it.

This invention is general in its application, not being confined to door-locks alone, is very simple and of great utility, and is, in many respects, similar to the improvement in door-locks for which Letters Patent of the United States were issued, March 31, 1868, No. 76,066, to P. S. Felter, the present applicant, to which Letters Patent reference is made.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The fence-bar I, in combination with the arbor B and tumblers C, substantially as represented and set forth.

2. The tumblers C, having a series of notches, in combination with the fence-bar I, arbor B, and thimble A, having grooves *a a*, substantially as described.

3. The elliptic springs D, in combination with the arbor B and fence-bar I, substantially as and for the purposes set forth.

4. The bolt G, having a recess, S′ which is bounded on one side by the irregular edge $s\ s^1$, and on the other side by the straight edge s^2, in combination with the cam and stop S, and the springs L and M, substantially as and for the purposes specified.

PHILO S. FELTER.

Witnesses:

J. GRIFFITH,

W. H. SHEPHERD.