

N. SILVERSON.
DOOR LOCK AND SIGNAL.
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1,037,674.

Patented Sept. 3, 1912.

Fig. 1.

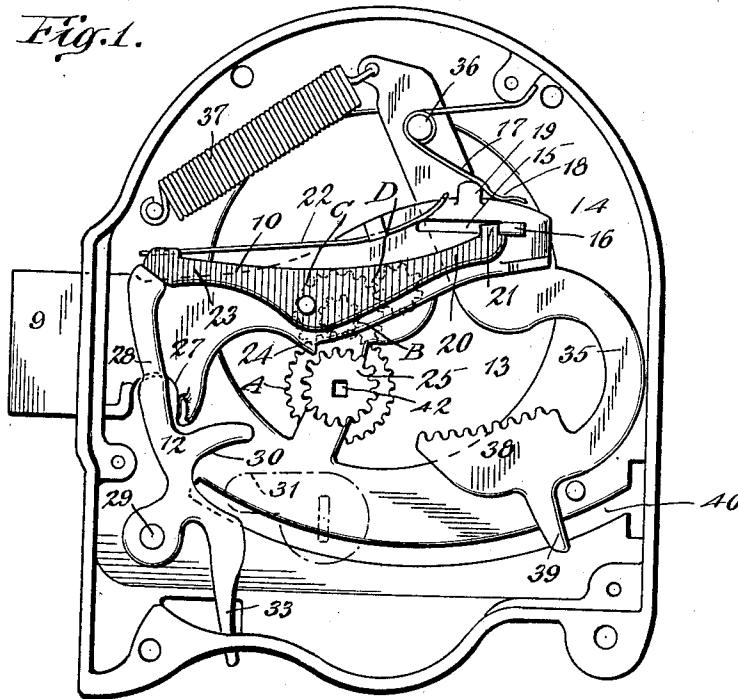


Fig. 2.

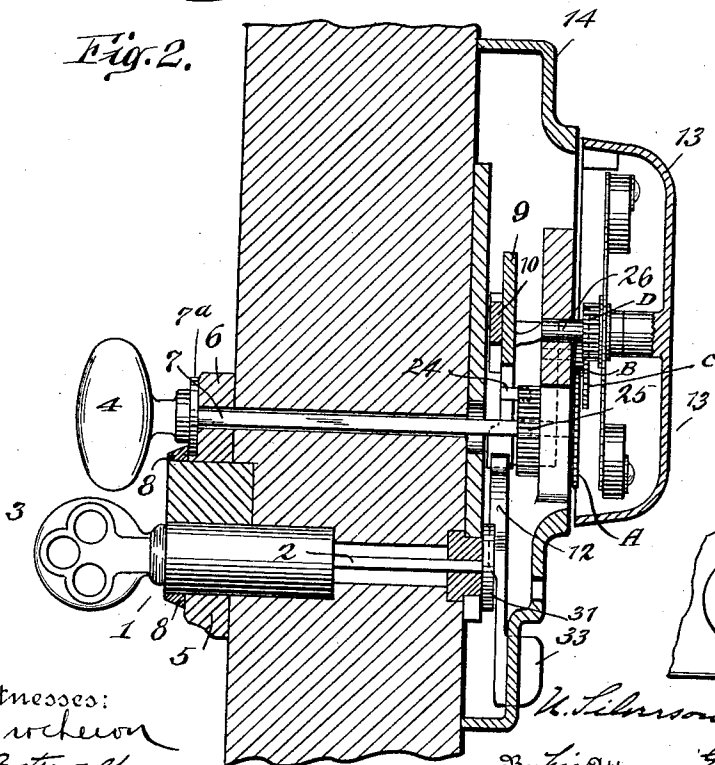
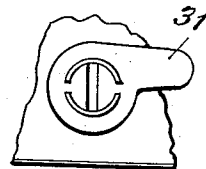


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

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DOOR LOCK AND SIGNAL.

1,037,674.

Specification of Letters Patent.

Patented Sept. 3, 1912.

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To all whom it may concern:

Be it known that I, NATHAN SILVERSON, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Door Locks and Signals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates the provision of a combined lock and signal primarily designed for doors.

In the accompanying drawing, Figure 1 shows the lock case removed and in side elevation. Fig. 2 is a vertical transverse sectional view showing the door attachment, the lock and signal. Fig. 3 is a fragmentary view showing the inner side of the face plate.

Referring to the drawing, 1 designates the door attachment of well known design, such as a "Yale" or other form of cylinder lock, to which locking and signaling mechanism embodying my invention is appropriate. The bar 2 which is turned axially by the key 3 operates the lock in the usual manner and the only modification or alternation in the outer portion or key hole member which I have found advisable is for the purpose of mounting the bell knob 4. As shown, the ring 5 is formed with an apertured ear 6 of less thickness than the ring through which ear and the door the shaft or spindle 7 extends, the flange portion of the ring 5 being interrupted at the point of location of the ear. The shaft 7 carrying knob 4 at its outer end has a shoulder 7^a which contacts with ear 6 and extends into the opening in the flange of the ring caused by the interruption thereof. When the plate 8 is seated upon ring 5 it holds shoulder 7^a between itself and ear 6, thus providing simple means for preventing the withdrawal of the spindle 7.

In the form of locking mechanism illustrated in Fig. 1, 9 is the bolt, 10 the tumbler and 12 the lever. These parts, as well as the signal 13, are mounted in a lock case 14 designed to be secured to the inner face of the door. The bolt 9 is formed near its rear end with a longitudinal slot 15 through which projects a stud 16 cast in the lock case, thus providing a bearing for the bolt in its sliding movement. A spring 17 is shown bearing against the top edge of the bolt and

formed with a bent portion as at 18. When the bolt slides in either direction its projecting surface 19 contacting with the spring rides over the bent portion thereof and the spring thus tends to air the movement of the bolt and maintain it in a uniform plane.

The tumbler 10 is pivotally mounted upon, and movable with, the bolt. Its rearward arm 20 is formed at its extremity with a locking nib 21 projecting over slot 15 and designed to engage the stud 16 by the nib contacting with one or the other edge of the stud according as the bolt is shot or retracted. The tumbler is held in the position to perform this function by a plate spring 22 carried by the bolt and bearing upon the forward arm 23 of the tumbler. On its lower edge the bolt has a ratchet tooth 24 meshing with a pinion 25 forming part of the signal device, the pinion meshing with gearing mounted upon an axle 26 on which the bell clappers are carried. Near its forward end the lower edge of the bolt is formed with a recess 27 to receive the bifurcated extremity 28 of the lever 12. This lever is pivotally mounted as at 29 and is formed with a curved surface as at 30 with which contacts the cam 31 mounted on the face plate. (See Fig. 3.) This cam is movable by the bar 2 which turns axially with the key. The lever 12 has a finger piece 33 extending through the lock casing. This enables the lock to be thrown or retracted by hand from the inner side of the door.

From the foregoing it will be obvious that the reciprocation of the bolt causes the signal to sound through the medium of the tooth 24 and pinion 25, whether the bolt be shot or retracted by hand at 33 or by the key. When the bolt is to be retracted the arm 28 of the lever 12 contacts with the tumbler 10, tilting the latter against the tension of spring 22 and moving the nib 21 out of engagement with the stud 16. In its travel the bolt encounters the bent portion 18 of spring 17 and passes over the latter by the time it reaches the limit of travel, the spring tending to maintain the bolt in position to engage the pinion. The locking nib 21 will then have reached the other side of the stud 16 and upon the lever arm 28 releasing the tumbler the spring 22 will return the tumbler to its normal position and the nib 21 will again hold the bolt.

It is desirable that the door be capable of

standing slightly ajar, as for ventilating purposes, and yet held as against opening sufficiently to allow a person to enter. It is also desirable that the signal be sounded
5 in the event of an effort being made to fully open the door. I accomplish these purposes by means of an arm 35 pivotally mounted in the lock case as at 36 and held by a stout spring 37. I have shown the
10 arm curved to form a substantially horizontal portion 38 equipped with ratchet teeth designed to mesh with the pinion 25. A projection 39 on the portion 38 of this arm is designed to hold one end of a chain
15 passed through a slot 40 in the lock casing, the other end of the chain being connected to the door frame. The length of the chain may be such as to not allow the door to open sufficiently to admit a person and the
20 strength of the spring 37 may withstand ordinary pressure such as that created by a draft of air, but when the door is pushed sufficiently hard from without to overcome the resistance of the spring the arm 35 will
25 swing and its teeth engaging the ratchet 25 will turn the latter and sound the alarm. The signal may, of course, be operated as a door bell independently of the lock by means of knob 4 on shaft or spindle 7.

This shaft enters the square opening 42 in 30 the pinion 25 and rings the bell upon being turned axially.

I have illustrated my invention as applied to a lock which requires manipulation to move it in either direction, but obviously it is equally adapted to latches in 35 which the bolt is normally shot or extended.

I claim as my invention:—

In a lock and signal device, the combination with the lock case having a bell, an 40 axle, clappers mounted upon said axle and a pinion for rotating said axle, of a sliding bolt having a single tooth designed to engage and rotate said pinion in its sliding 45 movements, key controlled mechanism for extending and retracting said bolt, a shaft engaging said pinion and a knob carried by said shaft, whereby said bell may be sounded independently of said key controlled 50 mechanism.

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

NATHAN SILVERSON.

Witnesses:

W. A. TENNEY,
GRAFTON L. MCGILL.

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