

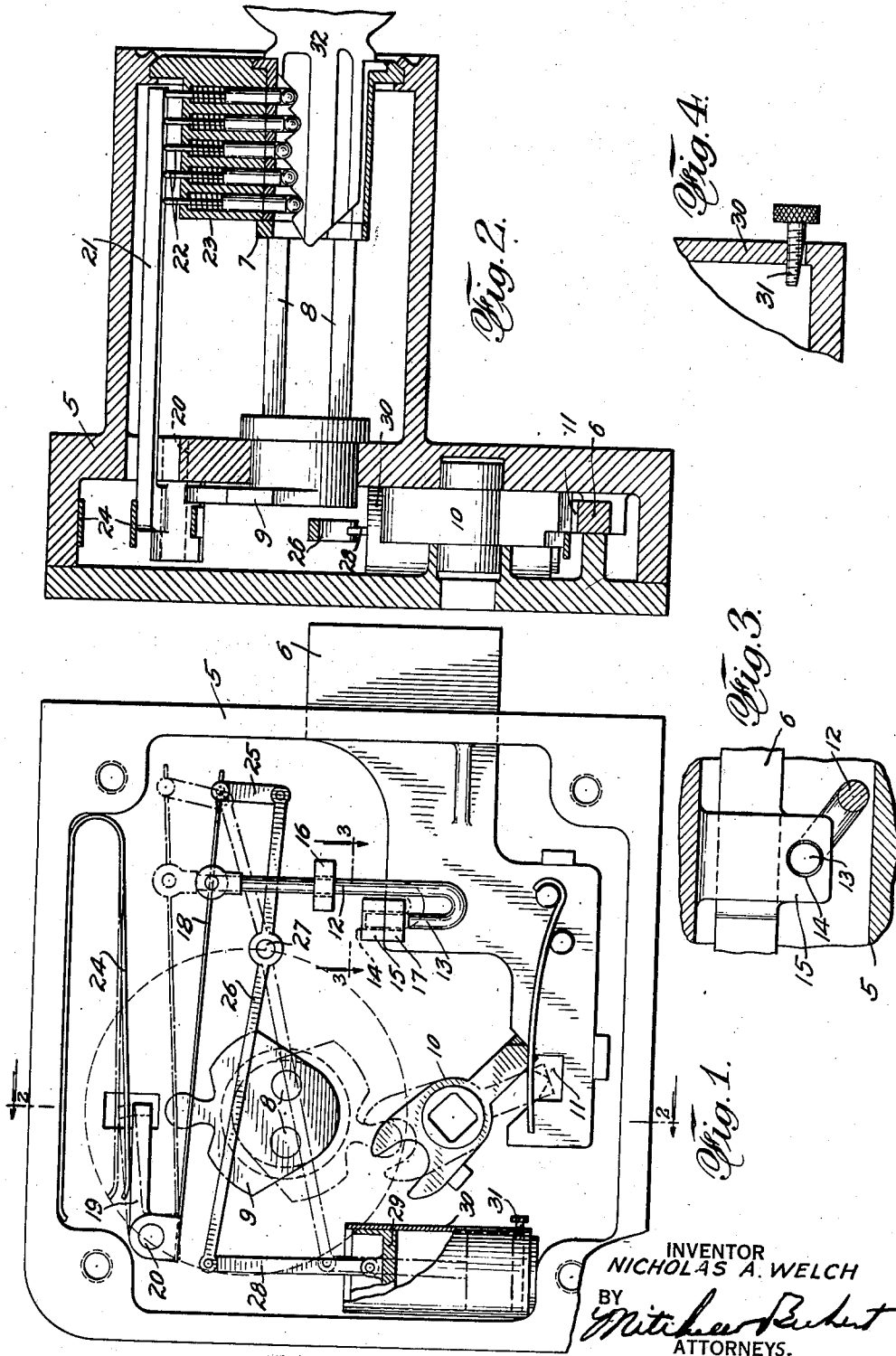
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LOCK

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LOCK

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My invention relates to a lock and more particularly to means for preventing unauthorized actuation of the lock mechanism by a pick.

Heretofore it has been stated that any lock which can be opened by means of a key can be opened by means of a pick. The conventional lock pick consists of a single blade or a series of tumbler actuators which operate on the various tumblers until finally all of the parting lines (in a cylinder lock) are lined up with the exterior of the plug, after which the plug may be rotated the same as by a key. However, the opening of a lock by means of known picks takes an appreciable amount of time. My invention is based upon the fact and I have devised means for dogging or otherwise rendering locking means ineffective after the lapse of a certain time after attempted picking of the lock has begun.

It is the general object of my invention to provide a substantially non-pickable lock.

A further object is to provide a lock which may be readily actuated by authorized persons possessed of a key so arranged that the lock may be actuated only within a reasonable time after the insertion of a key in the lock.

A more specific object is to provide a lock provided with means for rendering lock actuating means ineffective after a reasonable time after an attempt to open the lock has started.

Other minor objects and various features of novelty and invention will be hereinafter pointed out or will become apparent to those skilled in the art.

Briefly stated in a preferred form of the invention I employ a lock having a locking member which may be actuated in a suitable fashion, as by means of the key-controlled plug of a cylinder lock. Some part of the lock is so arranged that within a certain time after an attempt is made to pick the lock the locking means or actuating means will be rendered ineffective, either by dogging a part of the mechanism against actuation or by other means. In other words, the lock is so arranged that it may be actuated in the usual manner by means of a key, knob, or otherwise within a reasonable time after insertion of, say, a key, but when an attempt is made to pick the lock, if the picking cannot be accomplished within a short period of time (too short for picking) the lock mechanism may not be actuated.

In the drawing which shows, for illustrative purposes only, a preferred form of the invention—

Fig. 1 is an interior view in side elevation of

a more or less conventional type of lock embodying my invention;

Fig. 2 is a sectional view taken substantially in the plane of the line 2—2 in Fig. 1;

Fig. 3 is an enlarged sectional view taken substantially in the plane of the line 3—3 of Fig. 1; and Fig. 4 is an enlarged fragmentary detail of time-lag adjusting means.

In the particular lock shown there is the usual lock case 5 and a locking member, which may be in the form of a latch, lock bolt, or other locking member 6. The locking member 6 may be actuated by key-controlled means, such as the rotatable plug 7 of a cylinder lock, connected, as by means of connectors 8, to a cylinder lock roll-back member 9, which serves to actuate the lock member 6. In the form shown the cylinder lock roll-back 9 is engageable when rotated with a knob roll-back 10, which in turn is engageable with the usual notch 11 in the tail of the lock bolt 6. The usual operation, as will be understood, involves merely the insertion of a key and rotation thereof to rotate the plug, roll-back 9 and roll-back 10 and reciprocation of the lock bolt 6, for locking and unlocking the door.

My invention involves the application of means to render a part of the locking means ineffective after the lapse of a reasonable time after cylinder lock actuation or lock picking is started.

The particular means for rendering the locking means ineffective is herein disclosed by way of illustration as a dogging member 12, which may be raised from the inoperative position shown in full lines in Fig. 1 to an upper or dot-dash line position where the end 13 may engage within an aperture 14 in or behind a stump or other abutment 15 in the lock case. In the form illustrated the dogging member 12 is suitably guided in a guide stump 16 in the lock case and the bolt 6 may have an apertured lug 17 thereon, for the passage of the end 13 of the dogging means. The dogging member 12 is moved from and to its upper or dogging position by means preferably in the form of resilient means, such as a flat plate spring 18, to which the upper end of the dogging member 12 may be pivotally secured. As illustrated, the spring 18 is fixedly carried by a lever 19, pivoted at 20 in the lock case. The lever 19 has a transversely projecting arm 21 which, in the form shown, extends over some or all of the pin tumbler extensions 22 of the cylinder lock 23, which carries the plug 7 heretofore referred to. Normally the dogging member 12 is held in its inoperative or downward position as viewed in Fig. 1 by means, such as a

hairpin spring 24 in the lock case, which is engageable with a part of the lever 19, so as to tend to rock the latter in a clockwise direction as viewed in Fig. 1.

When one or more of the tumbler extensions 22 are elevated, as when a pick is inserted in an attempt to successively line up the parting lines of the tumblers, the lever extension 21 is raised so as to rock the lever 19 about its pivot 20 and thus bow the spring 18 and tend to raise the dogging member 12 toward its dot-and-dash line position of Fig. 1. Without some restraining or time-lag influence, the dogging member would be practically instantaneously raised upon the insertion of a key in the cylinder lock and thus make it impossible to subsequently actuate the locking member 6. Such action would, of course, be satisfactory to avoid unauthorized opening of the lock as by means of a pick, but would render the lock useless for its normal use. I therefore provide time-lag mechanism, so as to permit ample time for normal key actuation of the lock. Such time-lag mechanism may be in the form of a "clock" mechanism or other timing mechanism, such as the dashpot shown for illustration.

In the particular form shown a braking action or timing action is impressed upon the dogging member 12, as by connecting a part, such as the end of the spring 18, by means of a link 25 to one end of a lever 26, pivoted at 27 in the lock case. The lever 26 at its opposite end is connected by means of a link 28 to a piston 29, operable in a cylinder 30, and forming a dashpot. The speed of action of the dashpot may be controlled by means of an adjustable screw 31, which limits to the desired degree the rate of escape of the air from the cylinder beneath the piston.

The operation of the lock illustrated is as follows:

With the parts in the full line positions shown in Fig. 1, the locking member 6 is projected and the door is locked. A person with a key 32 may insert the same in the cylinder lock 23, so as to line up all of the parting lines in the tumbler means and permit key rotation of the plug with consequent rotation of the roll-backs and retraction of the lock member 6. It will be understood that after the key is inserted the tumbler extensions 22 serve to elevate the crank arm extension 21 and thus rock the lever 19, so as to start the dogging member 12 on its upward course for dogging the locking member 6, and it is therefore necessary to turn the key promptly and thus withdraw the locking member 6 before the dogging means reaches its dogging position. The control screw 31 is so set as to delay the final dogging action of the dogging member long enough to permit normal key operation for retracting the locking member 6. Now, if a person attempts to pick the cylinder lock with a pick it is presumed that the parting lines of the tumblers could eventually be lined up, but quite an appreciable length of time is required to line up the tumblers successively so as to permit rotation of the plug. But, as soon as a pick is inserted in the lock and the tumblers are raised so as to cause one or more of the extensions 22 to engage beneath the lever extension 21, the lever 19 will be rocked so as to bow the spring 18 and start the dogging member 12 on its upward or dogging course, and before all of the tumblers can be raised so as to align the parting lines the dashpot will have

permitted the dogging member 12 to be raised and thus dog the locking member 6. With the dogging member in its full up position, the end 13 engages in apertures through both of the lugs 15-17, but it will be understood that, with the particular construction shown, when the end 13 enters the aperture in the lug 17 the locking member 6 will also be dogged.

There are various refinements which might be incorporated in the embodiment shown and which will occur to those skilled in the art. For example, it may be desirable to omit the lug 17 altogether or to space the normal upper end 13 farther away from the lug 17, or it may be desirable to reposition the lugs or stumps 15-16 relatively to each other. Furthermore, it may be desirable to extend the abutment 17 or some equivalent stop member much farther to the right, so that it will always be beneath the end 13 when the locking member 6 is fully retracted. Otherwise, if a key be left in the lock after retraction of the locking member 6, the dogging member 12 would be raised completely and might stand forwardly of the lug 17, and thus prevent the locking member 6 from being again projected. However, all such details are believed to be within the realm of ordinary design. Under the term "locking member" as used in the claims, I mean to include not only a latch or lock bolt specifically, but also any member such as a roll-back, plug, or other part that may be dogged to prevent lock or latch operation.

While the invention has been described in considerable detail and a preferred form illustrated, it is to be understood that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

I claim:

1. In a lock, locking means, means for dogging said locking means, pick-controlled means for controlling said dogging means, and time-lag mechanism for controlling the time of effective operation of said dogging means.
2. In a lock, a locking member, key actuatable means for actuating said locking member, means for dogging the said locking member, pick actuatable means for controlling the operation of said dogging means, and time-lag mechanism for controlling the operation of said dogging means.
3. In a lock, a locking member, a dogging member therefor, resilient means for actuating said dogging member, pick-controlled means for stressing said resilient means, and time-lag means for controlling the time of actuation of said dogging means by said resilient means.
4. In a lock, a locking member, key-actuatable means for actuating said locking member, dogging means for said locking member, pick actuatable means for actuating said dogging means, and time-lag means for controlling the rate of actuation of said dogging means.
5. In a lock, a locking member, dogging means for said locking member, a cylinder lock including tumbler mechanism, means actuatable by a part of said tumbler mechanism for controlling the movement of said dogging means to dogging position, and time-lag means for controlling the rate of movement of said dogging means to dogging position.
6. In a lock, a locking member, a dogging member therefor, resilient means for moving said dogging member, tumbler actuated means for stressing said resilient means, and time-lag

mechanism for controlling the rate of actuation of said dogging means by said resilient means.

7. In a lock, a locking member, dogging means for said locking member, resilient means for urging said dogging means into dogging position, 5
tumbler mechanism for controlling said resilient means, and dashpot means for braking said resilient means to control the time of effective actuation of said dogging member by said resilient means.

8. In a lock, a locking member, key-controlled means for normally actuating said locking member, dogging means for said locking member, pin tumbler means, and means actuatable thereby for actuating said dogging means, and time-lag 10
means for braking the actuation of said dogging

means to control the time of effective actuation of said dogging means.

9. In a lock, key-controlled locking means, and means controlled by a key upon insertion and including time-lag means to render said key-controlled locking means inoperative only after the lapse of a short time interval.

10. In a lock, a locking member, key-controlled means for normally operating said locking member, dogging means for said locking member, time control means for said dogging means, and means operable as by a lock pick for controlling the operation of said time control means.

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