M. SCHRADER.

LOCK.

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967,843. Patented Aug. 16, 1910.

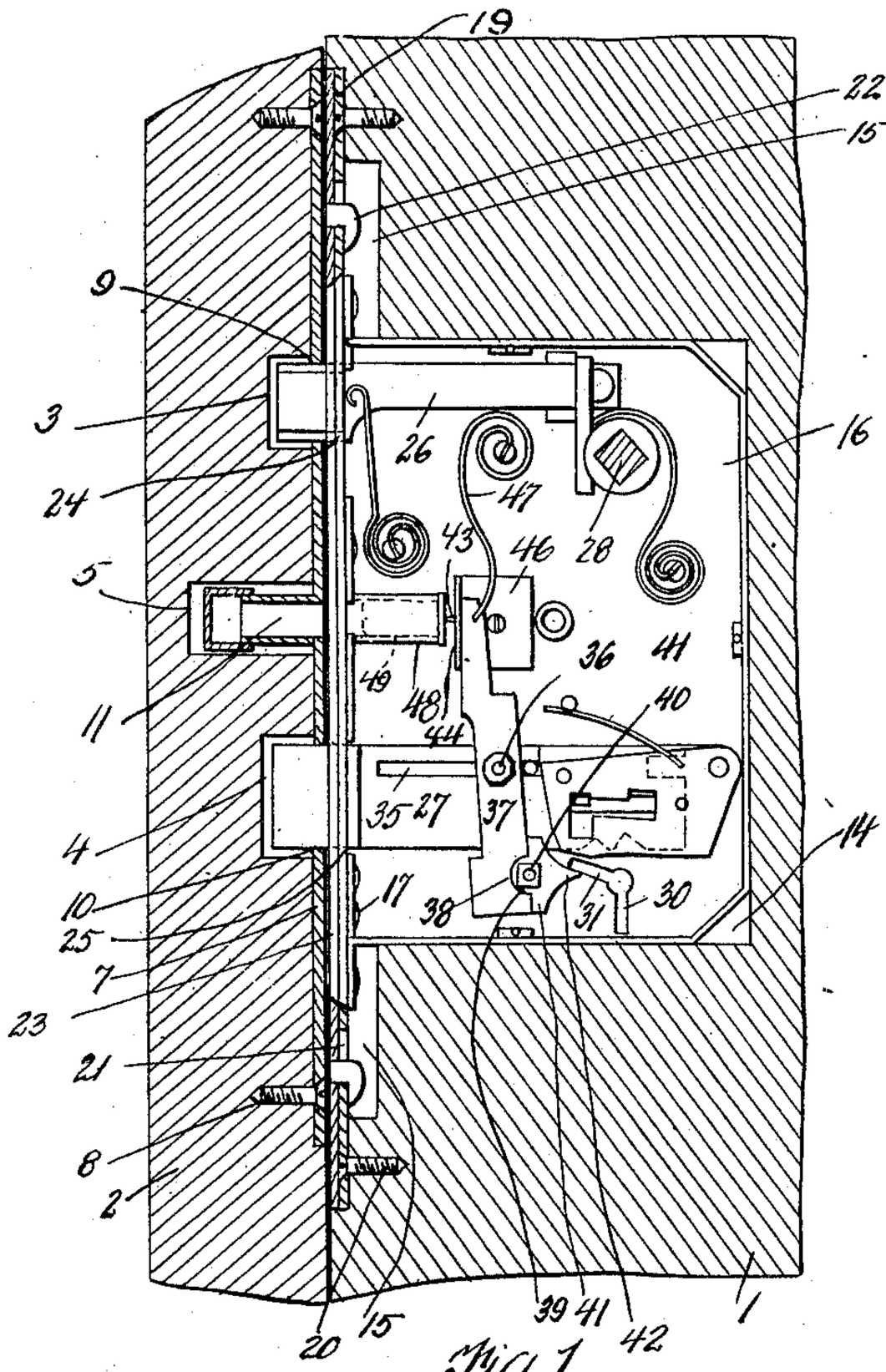

Fig. 1.

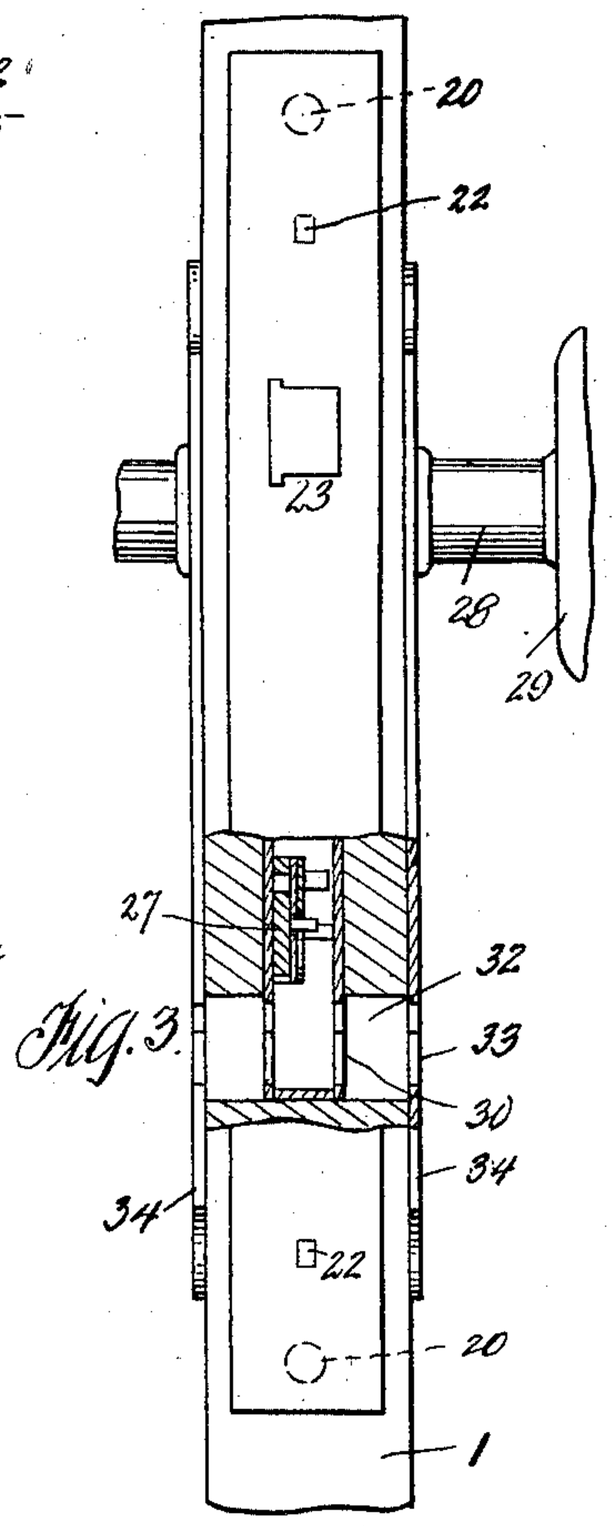

Fig. 3.

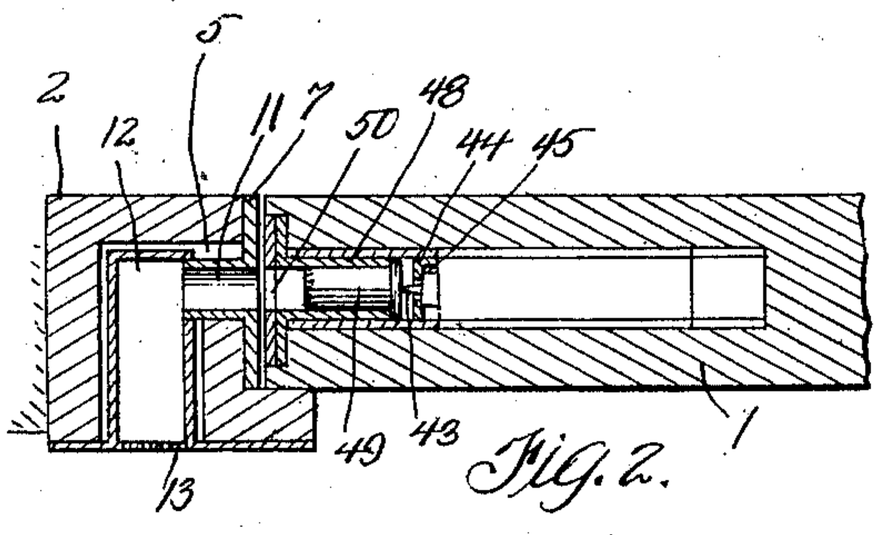

Fig. 2.

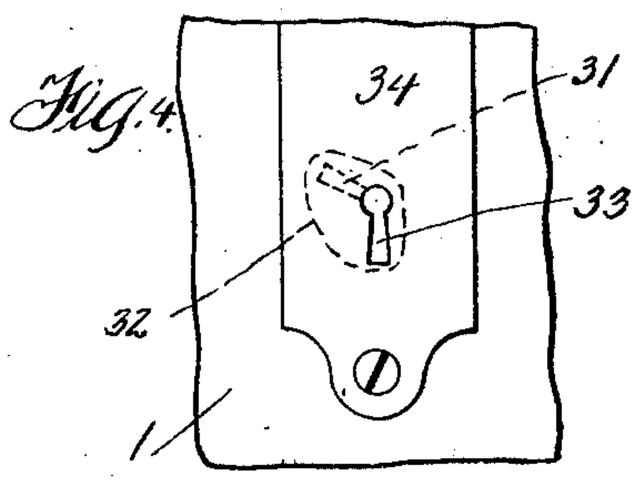

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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LOCK.

967,843. Specification of Letters Patent. **Patented Aug. 16, 1910.**

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To all whom it may concern:

Be it known that I, MORITZ SCHRADER, a subject of the Czar of Russia, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to locks, and the primary object of the invention is to provide a lock with a burglar alarm adapted to produce an audible signal when the lock is tampered with by burglars or unauthorized persons.

Another object of this invention is to provide a burglar alarm that can be embodied in the present types of locks without interfering with the movement of the latch or lock bolt.

The above objects are attained by a novel device that will be hereinafter described in detail and claimed, and reference will now be had to the drawing forming a part of this application wherein there is illustrated the preferred embodiments of my invention, but I would have it understood that the detail construction thereof can be varied or changed without departing from the spirit of the invention.

Referring to the drawings:—Figure 1 is a vertical sectional view of a portion of a door and frame equipped with my improved lock, Fig. 2 is a horizontal sectional view of the same, Fig. 3 is an edge view of the door partly broken away and partly in section, and Fig. 4 is an elevation of a portion of the door illustrating the key hole.

In the accompanying drawings, 1 designates a portion of a door adapted to be locked in engagement with a frame 2. The frame 2 is provided with a latch socket 3 and a bolt socket 4, also with an angularly disposed exhaust opening 5, said opening being in a horizontal plane between the sockets 3 and 4.

7 designates an escutcheon plate secured to the frame 2 by screws 8 or similar fastening means, said plate having openings 9 and 10 registering with the sockets 3 and 4 respectively, and also having a sleeve 11 projecting into the opening 5. The sleeve 11 is inclosed with a metallic casing 12 located in the opening 5 and extending to the outer edge of the frame, where said casing is closed by a perforated plate 13 suitably secured to the frame 2.

The door 1 is provided with a mortise 14 which is approximately one-third the thickness of the door, and said door at the outer edges of the mortise 14 is recessed, as at 15, for a purpose that will presently appear.

In the mortise 14 is located a lock casing 16, which is suitably secured, as at 17, to a lock plate 19, said plate being secured to the door 1 over the recesses 15 by screws 20 or similar fastening means. The plate 19 at each recess 15 is provided with a vertical slot 21 and adapted to engage in the slots 21 are hooks 22 carried by an additional lock plate 23. The plates 19 and 23 are provided with suitable openings 24 and 25 for a latch 26 and a bolt 27 located in the casing 16 and adapted to extend through said plates into the sockets of the frame 2.

The latch 26 is of an ordinary form actuated by the shank 28 of a door knob 29, while the bolt 27 is of a type operated through the medium of a key inserted in the locks.

The lock casing 16 in proximity to the bolt 27 is provided with intersecting key openings 30 and 31, and the door 1 is provided with a transverse opening 32, communicating with the openings 30 and 31, the opening 32 being shaped to provide sufficient clearance for the movement of a key to enter either one of the openings 30 or 31. The opening 32 also communicates with key openings 33 formed in face plates 34 mounted upon the door 1, the key openings 33 alining with the openings 30, while the distance between the face plates 34 and the sides of the lock casing 16 is sufficient to permit of the key being manipulated in the opening 32.

The lock bolt 27 is slotted, as at 35, and extending through said slot is a bolt 36 carried by the casing 16, said bolt serving functionally as a pivot pin for a hammer 37. The lower end of the hammer 37 is provided with a semi-circular recess 38 to receive a trigger 39, said trigger being pivotally mounted upon a bolt 40 carried by the casing 16. The trigger is provided with two hammer contacting points 41 and with a key contacting point 42, the former being arranged to engage the hammer 37, while

the latter is arranged within the path of the key inserted in either of the openings 30 or 31.

The upper end of the hammer is provided with a firing pin 43 extending through an opening 44 formed in an angle plate 46, secured to the side of the casing 16. The end of the hammer 37 is also engaged by a spring 47 arranged within the casing 16 for normally holding the upper end of the hammer in engagement with the angle plate 46.

The plate 19 is provided with a cartridge socket 48 for a cartridge 49, said cartridge socket being retained within the plate 19 by the plate 23, said plate 23 having a small opening 50 adapted to aline with the cartridge socket and with the sleeve 11 of the plate 7.

Assuming that a suitable key is employed for shifting the bolt 27, the manner of manipulating the lock is as follows: A person familiar with the operation of the lock inserts the key in one of the openings 33 and turns the same in the opening 32 until the key registers with the opening 31. The key is then pushed inwardly into the casing 16 and by turning the key to the right, (Fig. 1) the bolt 27, which is shown in a locked or closed position in Fig. 1 of the drawings, will be unlocked or opened and the key can then be withdrawn from the door through the openings 30, 32 and 33. If inserted through openings 33, 32 and 30 and turned to the left (Fig. 1), the bolt 27 will be moved to a locked position, and the key is withdrawn through the opening 31, into the opening 32 and turned in the latter until brought into registry with opening 33 through which it is withdrawn from the lock.

A burglar or person not familiar with the operation of the lock would naturally insert the key through the openings 33, 32 and 30 and upon turning the key to the left to shift the bolt 27, the key would contact with the point 42 of the trigger 39, and cause the point 41 of the trigger to swing the lower end of the hammer 37 to the left and the upper end of the hammer to the right, placing the spring 47 under tension. Immediately upon the key releasing the point 42, the spring 47 would return the hammer and the trigger to their normal position, causing the firing pin of the hammer to strike the cartridge 49 and fire the same, the fumes from said cartridge escaping through the opening 50, sleeve 11, casing 12 and perforated plate 13.

The hammer 37 would also be actuated by a person unfamiliar with the lock when locking the door, as the key turning to the left would contact with the trigger, unless the key was withdrawn through the opening 31.

By providing the door-frame 2 with an exhaust opening for the fumes of the cartridge 49, it is impossible for the wood work of a door or frame to be scorched, and since each and every part of my device is constructed of strong and durable metal, the lock will not be injured by a detonation of the cartridge.

Having now described my invention what I claim as new, is:—

1. In a lock, the combination with a door-frame having an exhaust opening formed therein, a door, and a lock casing located in said door, a lock bolt within said casing for engaging said frame and adapted to be manipulated by a key, of a cartridge socket carried by said lock casing and adapted to communicate with the exhaust opening of said frame, a spring-pressed hammer pivotally mounted in said casing for firing a cartridge located in said socket, and extending across the lock bolt, a pivot for the hammer extending through the lock bolt and upon which the lock bolt is shifted, a trigger pivotally mounted in said casing and seated in one end of and adapted to move said hammer, said trigger having a contact point within the path of the key employed for actuating the lock bolt, and means in connection with said door and said lock casing for providing clearance for the key relative to said trigger.

2. In a lock, the combination with a door-frame having an exhaust opening formed therein, a door, and a lock casing located in said door, a lock bolt within said casing for engaging said frame and adapted to be manipulated by a key, of a cartridge socket carried by said lock casing and adapted to communicate with the exhaust opening of said frame, a hammer pivotally mounted in said casing for firing a cartridge in said socket, and extending across the lock bolt, a pivot for said hammer extending through the lock bolt and upon which said bolt shifts, and a trigger pivotally mounted in said casing and seated in one end of and adapted to move said hammer and adapted for actuation by the key employed for operating said bolt, said door and said lock casing having openings formed therein providing clearance for the bolt actuating key relative to said trigger.

3. In a lock, the combination with a door-frame having an exhaust opening formed therein, a door, and a lock casing located in said door and having a key actuated bolt, of means for supporting a cartridge within said casing and in communication with the exhaust opening of said frame, a hammer pivotally mounted in said casing for firing a cartridge located in said casing and extending across the lock bolt, a pivot for said hammer extending through said bolt and upon which the bolt shifts, and a hammer operating trigger adapted for actuation by

the key employed for moving said bolt, said door and said casing having openings formed therein providing clearance for movement of the key without moving said trigger.

4. In a lock, the combination with a door, a lock casing, and a key actuated bolt located in said casing, of means for supporting a cartridge and detonating the same within said casing, said means including a socket, a hammer extending across the bolt, a pivot for the hammer, said pivot extending through the bolt and upon which the bolt shifts, and a trigger seated in one end of the hammer and adapted to be actuated by the key employed for moving said bolt.

In testimony whereof I affix my signature in the presence of two witnesses.

his
MORITZ × SCHRADER.
mark

Witnesses:
CLYDE N. SHAW,
LAURA E. FERREE.