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DOOR LOCK.

APPLICATION FILED APR. 6, 1912. RENEWED AUG. 3, 1914.

1,114.368.

Patented Oct. 20, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

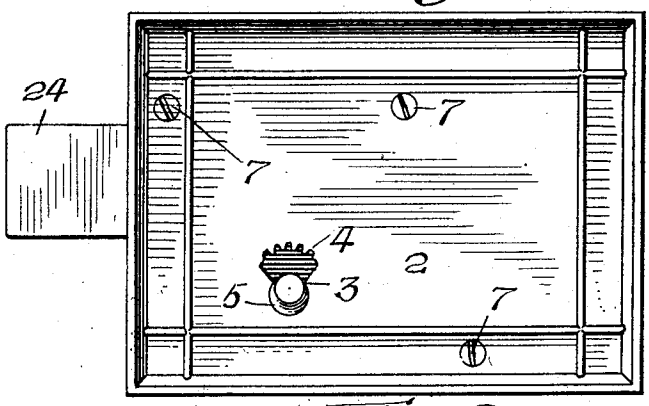


Fig. 4.

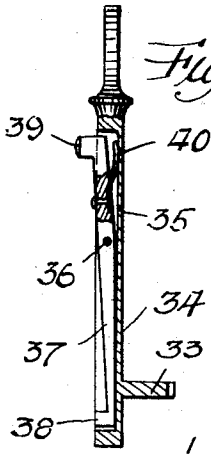


Fig. 2

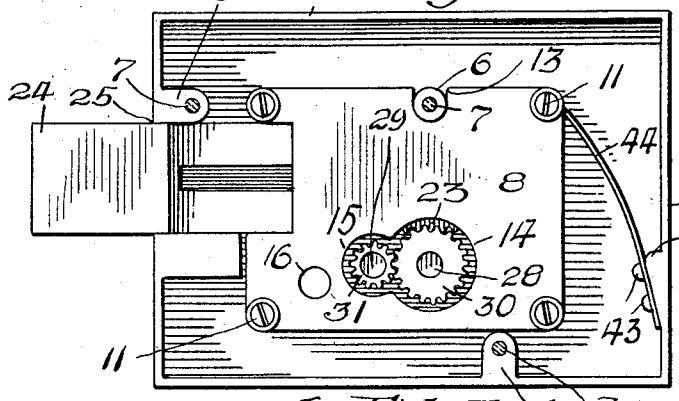


Fig. 5.

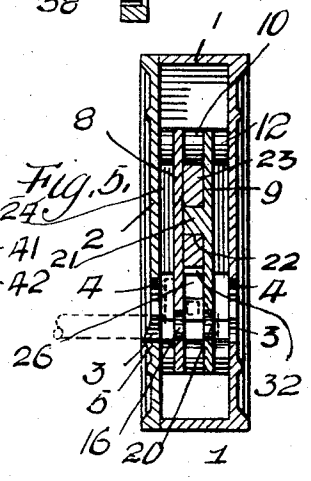


Fig. 3.

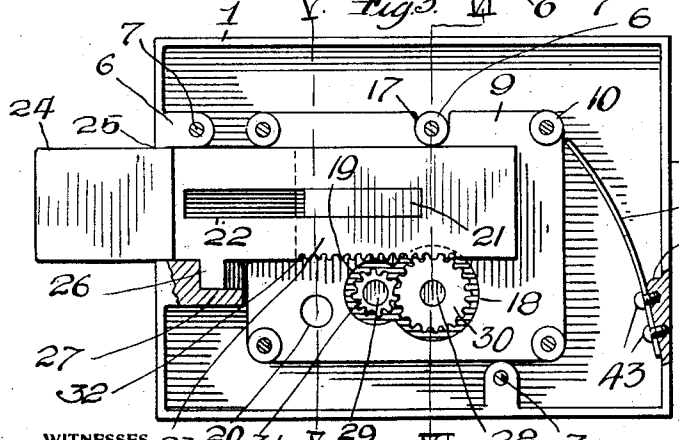
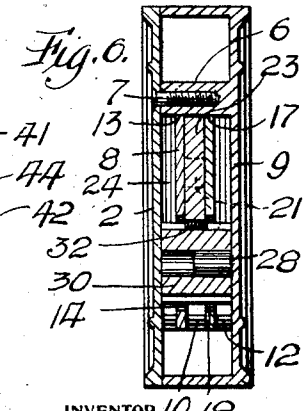


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

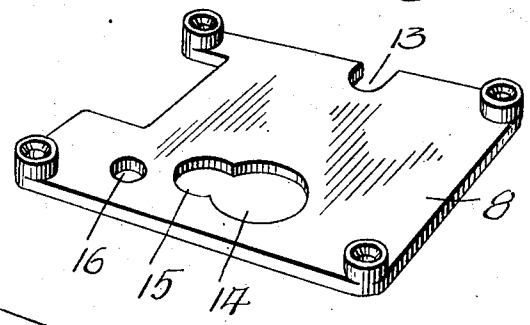


Fig. 8.

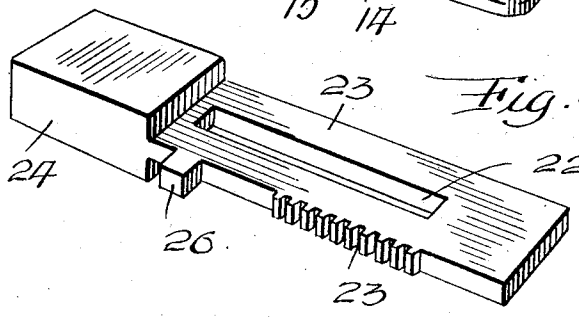


Fig. 9.

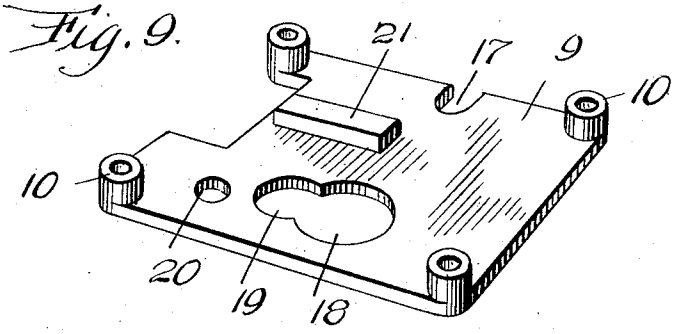
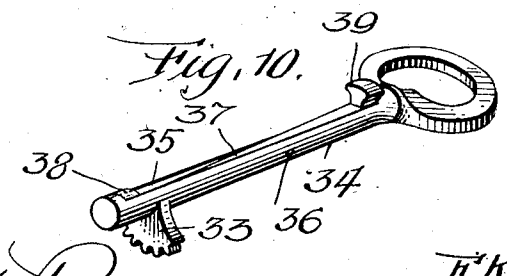


Fig. 10.



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UNITED STATES PATENT OFFICE.

FRANCISZEK KRAMARCZYK, OF NEW HAVEN, CONNECTICUT.

DOOR-LOCK.

1,114,368. Specification of Letters Patent. Patented Oct. 20, 1914.

Application filed April 6, 1912, Serial No. 688,920. Renewed August 3, 1914. Serial No. 854,851.

To all whom it may concern:

Be it known that I, FRANCISZEK KRAMARCZYK, a subject of the Emperor of Austria-Hungary, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Door-Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to door locks, and more particularly to that type wherein a rack, pinions and a segment gear are utilized for shifting the bolt of the lock and has for its object to provide a lock of such class in a manner as hereinafter set forth which is comparatively simple in its construction and arrangement, durable, inexpensive to manufacture, not liable to injury by ordinary use, easy to manipulate, and highly efficient for the purpose for which it is intended.

My invention will be hereinafter specifically described and then claimed, and reference will now be had to the drawings, wherein like numerals denote corresponding parts throughout the several views, in which—

Figure 1 is a front elevation of the lock. Fig. 2 is a similar view with the face plate thereof removed. Fig. 3 is a similar view with one of the lock plates thereof removed. Fig. 4 is a longitudinal sectional view of a key designed for the lock. Fig. 5 is a cross sectional view of a lock taken on the line V—V of Fig. 3. Fig. 6 is a similar view taken on the line VI—VI of Fig. 3. Fig. 7 is a perspective view of the detached lock plate. Fig. 8 is a similar view of the detached lock bolt. Fig. 9 is a similar view of another detached lock plate, and Fig. 10 is a similar view of the key.

A lock in accordance with this invention comprises a rectangular metallic casing 1 having a detachable face plate 2 that has a segment-shaped key-opening 3 with the upper edge of said opening enlarged, as at 4, and the lower edge thereof beveled as at 5. The casing 1 is provided with inwardly projecting lugs 6 and the face plate 2 is secured to said lugs by screws 7, or other fastening means.

Arranged within the casing are lock plates 8 and 9 having spacing sleeves 10 to receive screws 11 or other fastening means. Arranged upon the screws 11 are washers 12 that space the plate 9 from a rear wall of the casing, said washers and said sleeves cooperating in equally spacing the plates 9 and 10 within the casing 1. The upper edges of the plates 8 and 9 are cut away, as at 13, to provide clearance for the lugs 6, and adjacent to the lower edge of the plate 8, there is a pinion opening 14, a gear wheel opening 15 and a key-opening 16.

The plate 9 has the upper edge thereof cut away as at 17 to provide clearance for the lugs 6, and adjacent to the lower edge of said plate there are openings 18, 19 and 20 similar to the openings 14, 15, and 16 respectively. The side of the plate 9 confronting the plate 8 has a longitudinal guide rib 21 engaging the plate 8, said guide rib extending through a longitudinal slot 22 provided therefor in the inner reduced end 23 of a locking bolt 24. The inner reduced end of the bolt is slidably mounted between the plates 8 and 9 and the outer end thereof is movable in an opening 25 provided therefor in the end wall of the casing 1. The lower edge of the bolt has a depending lug 26 that coöperates with the rib 21 in limiting the outward movement of said bolt, said lug riding against an enlargement 27 carried by the end wall of the casing 1.

The rear wall of the casing 1 is provided with pins 28 and 29 and revolubly mounted upon the pins 28 within the openings 14 and 18 is a pinion 30. Revolubly mounted upon the pin 29 within the openings 15 and 19 is a small gear wheel 31 that meshes with the pinion 30. The pinion 30 meshes with the rack 32 formed in the lower edge of the locking bolt.

The openings 3, 16, and 20 aline to receive a bit 33 carried by a key 34. The bit 33 is in the form of a sector gear and is adapted to mesh with the gear wheel 31. The key 34 has a longitudinal groove 35 and pivotally mounted in said groove by a transverse pin 36 is a pivoted arm 37 having a tooth 38 adjacent to the bit 33. The opposite end of the arm has a button 39 retained in an extended position by a flat spring 40 arranged within the groove 35 and secured to the arm 37.

The end wall 41 of the casing 1 has an enlargement 42 and secured to said enlargement by screws 43, or other fastening means is a flat compression spring 44 that is engaged by the inner end of the locking bolt 24.

The bit end of the key can be easily inserted in the opening 3 and after having been placed in mesh with the gear wheel 31, the button 39 can be pressed to swing the tooth 38 in between the plates 8 and 9, whereby the tooth 38 and the arm 37 will prevent displacement of the key while the same is being rotated to impart a similar movement to the gear wheel 31 and the pinion 30. When the pinion 30 is revolved, the bolt 24 is retracted from the position shown in Figs. 1 to 3 inclusive, and the spring 44 is placed under tension. This spring assists in extending the bolt and can be made of sufficient tension to extend or lock a bolt when the key 34 is removed from the locked casing.

Should the tooth 38 of the key extend from the groove 35 by reason of the finger holding the button 39, as the key is inserted in the opening 3, the beveled edge 5 of the opening will force the tooth 38 to closed position, thereby permitting of the key being inserted in the locked casing.

It is thought that the operation and utility of the lock will be apparent without further description, and while in the drawing there is illustrated a preferred embodiment of the invention, it is to be understood that the structural elements are susceptible to such variations as fall within the scope of the appended claims.

What I claim is:

In a door lock, a casing, equally spaced plates suspended and fixedly maintained within said casing, a guide rib of less length than and carried by one of the plates at one end thereof, a slotted locking bolt arranged between said plates and slidably supported upon said rib, said bolt having one edge thereof provided with a rack, said edge further provided with a lug spaced from the rack and associating with said rib for limiting the outward movement of the bolt, a pinion revolubly supported within said casing and meshing with said rack, a gear wheel revolubly supported within said casing and meshing with said pinion, and a key capable of being inserted in said casing and provided with a sector gear bit meshing with said gear wheel for actuating the latter thereby revolving the pinion to shift the bolt.

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

FRANCISZEK KRAMARCZYK.

Witnesses:
JOSEPH PULIT,
MICHAL KNOVMANZYK.

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