No. 722,619. PATENTED MAR. 10, 1903.

B. PHELPS.

LOCK.

APPLICATION FILED SEPT. 23, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

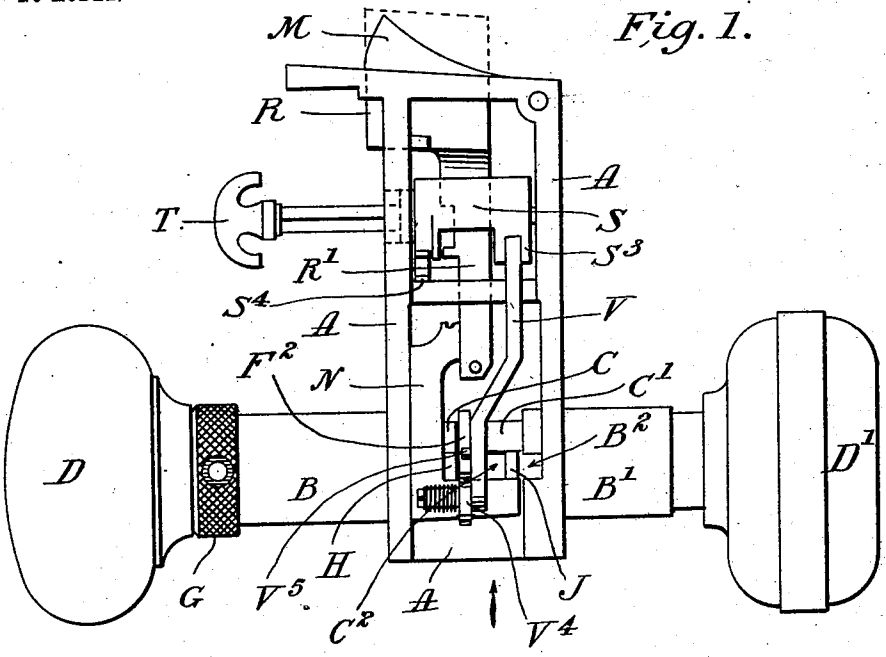
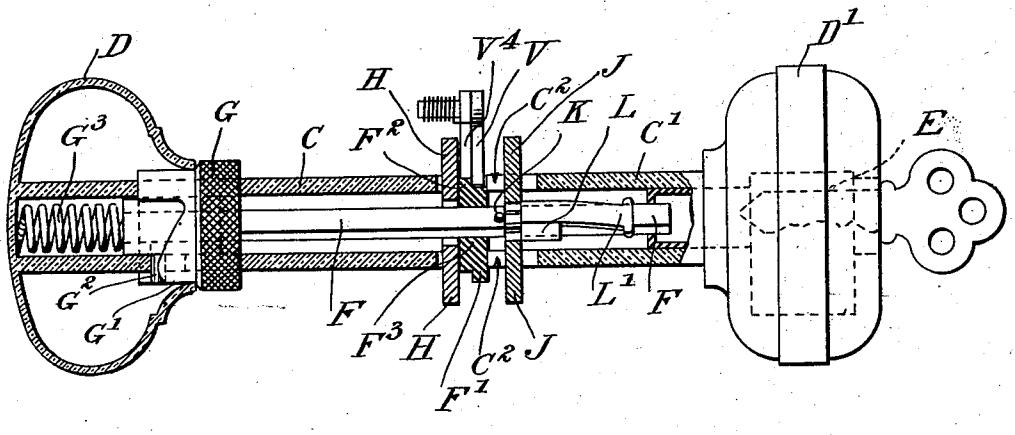


Fig. 2.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

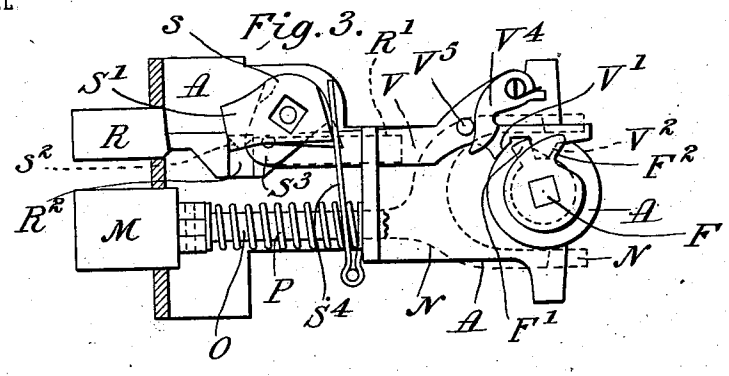


Fig. 4.

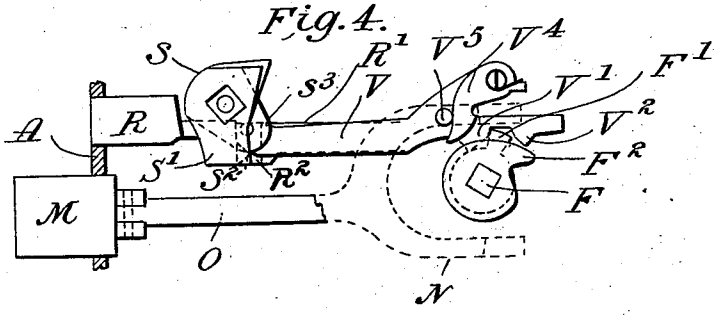


Fig. 5.

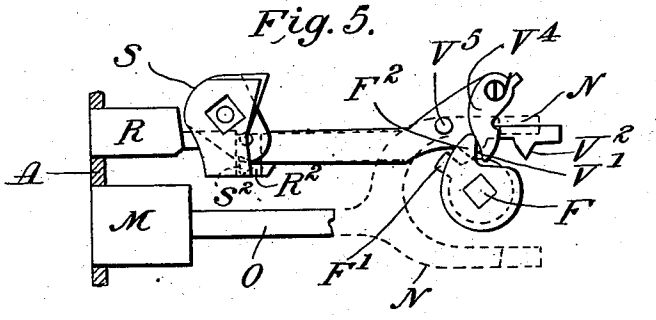


Fig. 6.

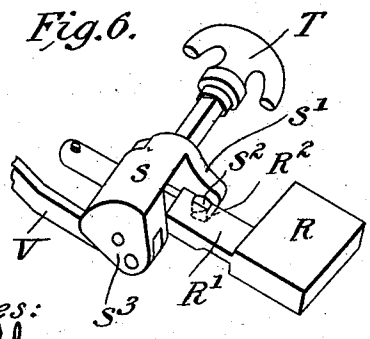
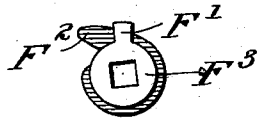


Fig. 7.



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UNITED STATES PATENT OFFICE.

BYRON PHELPS, OF SEATTLE, WASHINGTON.

LOCK.

SPECIFICATION forming part of Letters Patent No. 722,619, dated March 10, 1903.

Application filed September 23, 1901. Serial No. 76,310. (No model.)

To all whom it may concern:

Be it known that I, BYRON PHELPS, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a new and useful Lock, of which the following is a specification.

My invention relates to locks, and particularly to a class of locks wherein the mechanism is contained within a single frame and adapted to be inserted in a notch in the stile of a door; and the object of my invention is to improve the construction of the same.

Simplicity of construction and effectiveness of operation are among the advantages attained in the present invention.

Figure 1 is a plan view. Fig. 2 is a side view of Fig. 1, partly in section, looking in the direction of the arrow. Fig. 3 is a detail of a portion of the mechanism in one position. Fig. 4 is a detail showing the mechanism in another position. Fig. 5 is a detail showing the mechanism in still another position. Fig. 6 is a detail of detached portions. Fig. 7 is a detail.

Referring to the drawings, A is a frame formed, preferably, of one piece and of a construction substantially as shown and described in a former patent of mine, No. 631,432.

B B′ are extensions from the frame A, and journaled therein are hollow rotatable spindles C C′, which are provided with suitable knobs D D′, respectively. These knobs are preferably hollow, and in one of them, D′, is contained a key mechanism E. (Shown in dotted outline in Fig. 2.) This key mechanism may be of the pin-tumbler type well known in the art and will not, therefore, be further described.

F is a draw-rod, one end of which is slidably connected with the key mechanism E. Closely adjacent the knob D is a knurled collar G, having a cam-face G′.

G^2 is a pin carried by the rod F and in engagement with the cam-face G′. G^3 is a spring which forces the rod F in a direction to cause the pin G^2 to bear against the cam-face G′. It will be seen from the foregoing that the rod F may partake of a longitudinal movement when the collar G is rotated, and it may also partake of a rotary movement when the key mechanism F is operated.

H is a roll-back rigidly mounted in the end of the spindle C.

J is a roll-back slidably mounted in the spindle C′. The roll-backs H and J both have central openings, through which the rod F passes, so that the latter may partake of its rotary movement without actuating the roll-backs.

Fastened in the rod F is a pin K, which sweeps against one side of the roll-back J.

L is a collar on the rod F, bearing against the opposite side of the roll-back J. The collar L has a curved tongue L′, which takes into a notch in the rod F and which holds the collar from slipping on the rod F.

C^2 is a notch in the end of the spindle C′, in which the roll-back J may slide.

B^2 is a notch in the frame A, which registers with the notch C^2 in the spindle C′ when the spindle is in normal position.

M is a latch-bolt.

N is a yoke having a shank O, which latter is pivoted to the latch-bolt M.

P is a spring which holds the latch normally, as shown in Fig. 3.

The roll-back H may normally engage the yoke N. Therefore the latch may be retracted by turning the inner knob D. When the collar G is rotated upon the spindle, the rod F is moved longitudinally and carries the roll-back J into the notch B^2 in the frame. This locks the outer knob D′ from rotation.

R is a bolt having a shank R′, which is slidably mounted in the frame A. The shank R′ has a groove R^2.

S is a rock-shaft pivoted to the frame A. S′ is an arm projecting from said rock-shaft which carries a pin S^2, which pin engages the groove R^2. When the shaft S is rocked, the pin S^2 bears against one side of the groove R^2 and moves the bolt R.

T is a finger-piece for rotating the shaft S. The bolt may also be thrown by the key mechanism about to be described, but as will be seen it may be thrown by finger-piece T at any time independently of the said key mechanism.

F′ and F² are actuating-dogs, Fig. 7, mounted on a hub F³. The hub F³ has a square opening through which rod F freely slides. When rod F is rotated, the hub F³ is also rotated and with it the dogs F′ and F².

V is a reach-rod having projections V′ and V², adapted to be acted upon by the dog F′. One end of the reach-rod V is pivoted to an arm S³ of the rock-shaft S. Carried by the reach-rod V is a dog V⁴, which is spring-pressed against a pin V⁵. The projections V′ and V² are in the path of movement of the dog F′, while the dog V⁴ is in the path of movement of the dog F².

S⁴ is a flat spring bearing against faces of the rock-shaft S, and serves to hold the latter in its extreme positions.

Assume that knob D′ is locked and that bolt R has been thrown out by finger-piece T. In order to throw the bolt in, a key is inserted in the key mechanism and turned until the dog F′ is moved into contact with projection V². Continuing the rotation of the key the dog F′ bears against the projection V² and throws the bolt R into the position shown in Fig. 4. Still continuing the rotation of the key the dog F² presently comes into contact with the dog V⁴ and moves the same, and as dog V⁴ bears against yoke N the latter is moved, thereby compressing spring P and retracting the latch M. The parts now have the position shown in Fig. 5.

It will be seen that locking may be effected by throwing the bolt R or by turning collar G and locking knob D′, or by both. When only the knob D′ is locked, the mechanism is in position, as shown in Fig. 4, and the key mechanism is free to turn the hub F³ until dog F² operates the yoke N through dog V⁴. When the bolt R is thrown and the knob D′ not locked, the key mechanism throws back the bolt R, at which time the latch may then be retracted by further turning of the key or by rotating knob D′ by hand.

By making the arm s^3 shorter than the arm s^2 I secure a sufficiently long movement of the bolt R with a minimum rotation of the key.

It will be observed that when the bolt R is out and the rock-shaft in position shown in Fig. 3 the pin S² is about on a line with the bolt R and the axis of rotation of the shaft S. This prevents any movement being given to the shaft S from bolt R and holds the latter locked.

Obviously many changes may be made in the particular construction herein shown without departing from the spirit of my invention.

What I claim is—

1. In a lock, a frame, an outer and an inner spindle, a latch-bolt, a locking-bolt, said latch-bolt being operated independently of said locking-bolt and key mechanism having a connection through said outer spindle with means connected to said locking-bolt.

2. In a lock, a frame, an outer and an inner spindle, a latch-bolt, a locking-bolt, said latch-bolt being operated independently of said locking-bolt, means to lock said outer spindle, key mechanism having a connection through said outer spindle with means connected to said locking-bolt.

3. In a lock, a frame, an outer and an inner spindle, a locking-bolt, a latch-bolt, said locking-bolt being operative independently of said latch-bolt, and a key mechanism having a connection through said outer spindle with means connected to said latch-bolt.

4. In a lock, a frame, an outer and an inner spindle, means to lock said outer spindle, a latch-bolt, a locking-bolt and means operated by a single key mechanism for actuating said latch-bolt and said locking-bolt.

5. In a lock, a frame, an outer and an inner spindle, a latch-bolt, a locking-bolt, and key mechanism having a connection through said outer spindle with a means engaging said latch-bolt and a means engaging said locking-bolt.

6. In a lock, a frame, an outer and an inner spindle, means to lock said outer spindle, a latch-bolt, a locking-bolt, and key mechanism having a connection through said outer spindle with a means engaging said latch and a means engaging said locking-bolt.

7. In a lock, a frame, an outer and an inner spindle, a locking-bolt, a latch-bolt, mechanism to operate the same, key mechanism having a connection through said outer spindle with means connected to said locking-bolt, means engaging said locking-bolt for operating the same independently of said key mechanism and said latch-bolt and its mechanism.

8. In a lock, a frame, an outer and an inner spindle, a latch-bolt, a locking-bolt, mechanism to operate the same, and key mechanism having a connection through said outer spindle with means connected to said latch-bolt, means engaging said latch-bolt for operating the same independently of said key mechanism and said locking-bolt and its mechanism.

9. In a lock, a frame, an inner spindle having a knob, an outer spindle having a knob, a locking-bolt, a latch-bolt, a rod lying in one of said spindles, a key mechanism in said outer knob engaging said rod, a roll-back carried by said rod, and engaging a yoke connected to said latch-bolt, an actuating-dog carried by said rod, and a connection between said locking-bolt and said actuating-dog.

10. In a lock, a frame, an inner spindle having a knob, an outer spindle having a knob, a locking-bolt, a latch-bolt, a rod lying in one of said spindles, a key mechanism in said outer knob engaging said rod, actuating-dogs carried by said rod, a connection between said latch-bolt and one of said actuating-dogs, and a connection between said locking-bolt and another of said actuating-dogs.

11. In a lock, a frame, an inner spindle having a knob, an outer spindle having a knob, a locking-bolt, a latch-bolt, a rod lying in one of said spindles, a key mechanism in said outer knob engaging said rod, actuating-dogs carried by said rod, a reach-rod connected to said locking-bolt and having a projection which engages with one of said actuating-dogs, said latch-bolt having a yoke and said yoke having a projection which engages with another actuating-dog.

12. In a lock, a frame, an inner spindle having a knob, an outer spindle having a knob, a locking-bolt, a rod lying in one of said spindles, a key mechanism in said outer knob engaging said rod, an actuating-dog carried by said rod and operatively connected to said locking-bolt and said latch-bolt.

13. In a lock, a frame, a locking bolt carried by said frame, a key mechanism carried by said knob and a reach-rod connecting said locking-bolt with said mechanism, a latch-bolt, and means to operate said latch-bolt.

14. In a lock, a locking-bolt, a latch-bolt, a spindle, a connection between said latch-bolt and said spindle, a key mechanism therein, means connecting said locking-bolt and key mechanism, and a frame, carrying all of said named elements.

15. In a lock, a locking-bolt, a reach-rod, means for operating said reach-rod, a rock-shaft having a plurality of arms, one of said arms being longer than the other, said reach-rod being connected to one of said arms, said locking-bolt being connected to another arm.

16. A bolt having a shank, a groove therein, a rock-shaft having an arm, a pin on said arm projecting into said groove, one position of said parts having said pin substantially on a line between said bolt and said shaft, and means for actuating said rock-shaft and bolt.

17. In a lock, a frame, an outer and an inner spindle, a latch-bolt, a locking-bolt, means to lock said outer spindle, and key mechanism having a connection through said outer spindle, with means for first moving said locking-bolt and then moving said latch-bolt.

Signed at New Britain, Connecticut, this 23d day of August, 1901.

BYRON PHELPS.

Witnesses:
C. A. BLAIR,
G. E. ROOT.