

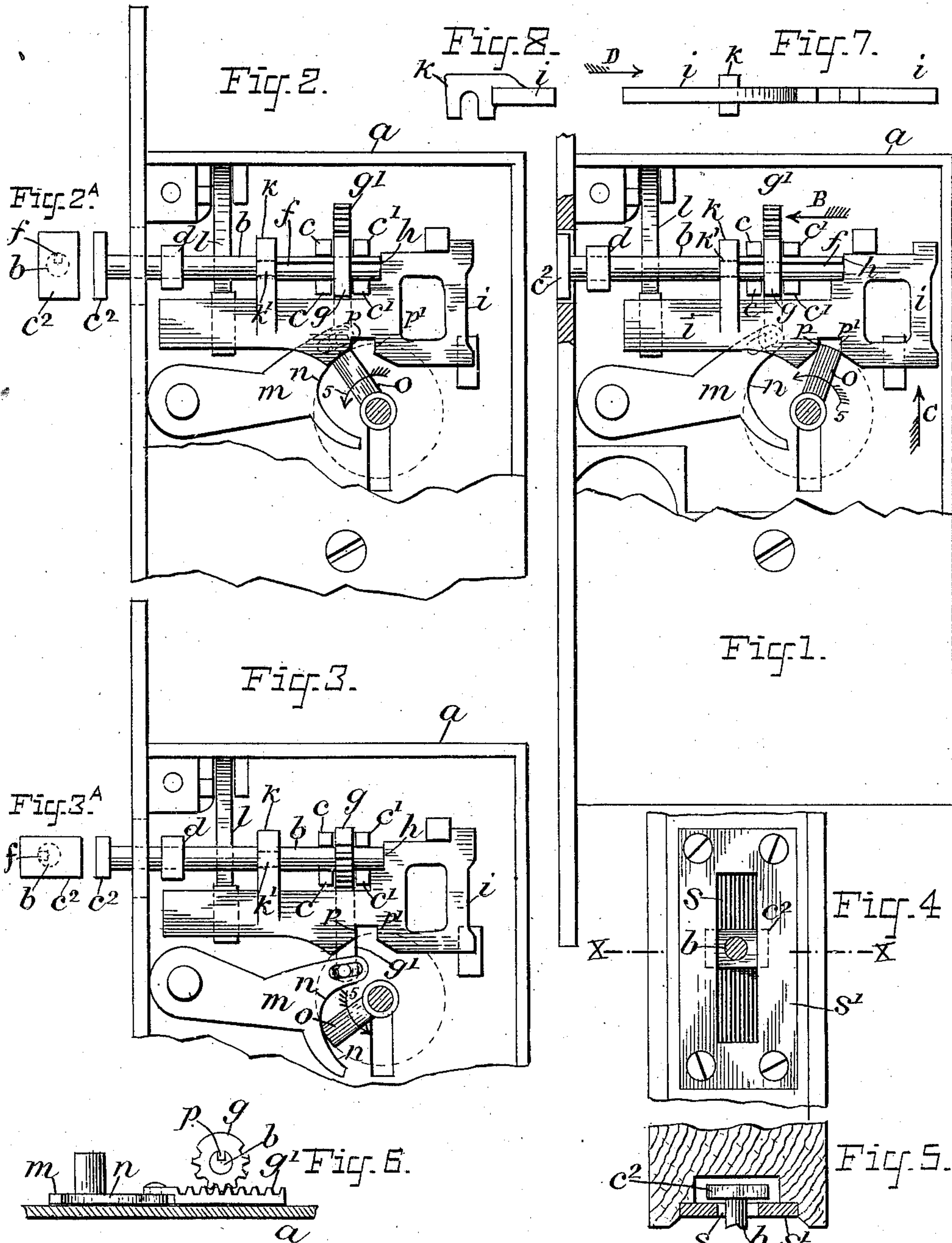
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LOCK.

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To all whom it may concern:

Be it known that we, GEORGE W. DURYEA and CHRISTIAN E. KERN, citizens of the United States, and residents of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification.

The invention relates to an improvement in locks having a rotatable and slidable bolt and mechanism for operating the same, all of which will be fully described hereinafter.

The invention consists of a slidable and rotatable bolt, and suitable mechanism for operating the same by means of a key, all of which will be fully described hereinafter, and pointed out in the claims.

In the drawings Figure 1 represents a side elevation of a lock frame having a portion of the frame broken away, and showing the main features of our invention at rest, with the key in position to start the bolt forward. Fig. 2 is a similar view showing the bolt thrown forward by the key. Fig. 3 is also a similar view showing the key in the throat of the swinging lever after it shall have turned the sliding bolt in the proper position. Fig. 4 is a face view of the strike plate in which is shown the position of the T head of the sliding rotatable bolt after it shall have been moved into the position, as shown in Fig. 3. Fig. 5 is a transverse section of Fig. 4 taken on line *x. x.* Fig. 6 is a detached detail view of the toothed segment and rack bar looking in the direction of the arrow B. Fig. 7 is a detailed sectional view of the straight direct sliding plate looking in the direction of the arrow C. Fig. 8 is an end view of Fig. 7 looking in the direction of the arrow D. Fig. 2^A is a face view of the T head, and Fig. 3^A is also a face view of the T head in its final position.

Similar letters refer to similar parts throughout the drawings in which the lock frame *a* is shown containing the features of the invention. The slidable and rotatable bolt *b* is guided by the studs *c c* and *c¹ c¹* and guide *d*. The forward end of the said slidable and rotatable bolt *b* is provided with the T head *e²* and its body, beginning from the axially arranged rearward end, is provided with the groove *f*, said groove being adapted to receive the depending lug *p* of the toothed segment *g*, located between the guiding studs *c* and *c¹*. The shoulder *h*

of the straight direct sliding plate *i* abuts against the rearward end of the slidable and rotatable bolt at all times. The sliding plate *i* is also provided with the carrying arm *k* which fits within the annular groove *k¹*, thus being kept in contact at all times with the slidable and rotatable bolt *b*. The slidable and rotatable bolt *b* is held in position when at rest by means of the tension spring *l*. It will be obvious that the toothed segment *g* engages with the rack bar *g¹*, the lower end of which connects with the swinging lever *m* whose throat *n* formed by two prongs is adapted to engage with the key *o* when locking and unlocking the device. The sliding plate *i* is provided with abutting surfaces *p. p¹* for the key *o* for the purpose of operating the bolt.

Mode of operation.—In Fig. 1 of the drawings the key *o* is in position to throw the sliding plate *i* forward. The carrying arm *k* fitting in the annular groove *k¹* as it does, will carry the slidable and rotatable bolt forward as shown in Fig. 2. It will be observed in this view that the key will have assumed a forward position when moved in the direction indicated by the arrow 5. When the key *o* shall have been turned farther forward it will have assumed the position shown in Fig. 3. In this view is shown how the key, playing within the throat of the swinging lever *m*, carries with it the rack bar *g¹*, the latter in turn rotating the toothed segment *g* whose depending lug *p*, engaging as it does with the axially arranged groove *f*, causes the slidable and rotatable bolt to turn to a suitable position as shown. It will be obvious that when the slidable and rotatable bolt is pressed forward it will have entered the slot *s* of the strike plate *s¹*, then when the key is turned as shown in Fig. 3, it will have turned the T head of the bolt as shown in Figs. 3, 4 and 5, thus forming a perfect lock with the strike plate.

Heretofore, locks for hanging doors were provided with a hook adapted to be raised and lowered by means of a key. This style of lock has met with many objections, the principal one of which is that the slightest sag in either door, the hook would become inoperative. Then, again, where the hook locks are used it is a very easy matter to lift either of the doors and release the hook. These objections are obviated by our invention herein described.

We are aware that a slidable and rotatable bolt has heretofore been used in connection with locks but the nicety of construction was such that it would soon become inoperative from the fact that a positive and accurate distance in movement would be required to have one portion to interlock with the other before it could perform its function. This feature is objectionable and is obviated by our invention whose operative parts are interlocked at all times, thus assuring a certainty in its operation at all times.

Having thus described the invention what we claim as new and desire to secure by Letters Patent, is—

1. In a lock the combination, consisting of the slidable and rotatable bolt having a T shaped head on one end thereof, the body of said bolt provided with an axially arranged groove and an annular groove, the direct sliding plate for moving the bolt longitudinally the toothed segment arranged between guides and loosely mounted upon

said slidable and rotatable bolt, the depending lug of said toothed segment adapted to engage with the said axially arranged groove aforesaid, the whole adapted to be operated by a key.

2. In a lock, the combination, consisting of the rack bar arranged between guides, the double pronged swinging lever connected with one end of said rack bar, the slidable and rotatable bolt, the toothed segment mounted upon the latter and adapted to engage with said rack bar, and the direct sliding plate for moving the said slidable and rotatable bolt longitudinally when operated by a key.

Signed at the city of Brooklyn in the county of Kings and State of New York this 10 day of January A. D. 1910.

GEORGE W. DURYEA.
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Witnesses:

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