No. 712,166. Patented Oct. 28, 1902.

E. W. WOODRUFF.

ROD LOCK FOR CARD INDEXES.

(Application filed Jan. 28, 1902.)

(No Model.)

Fig. 1.

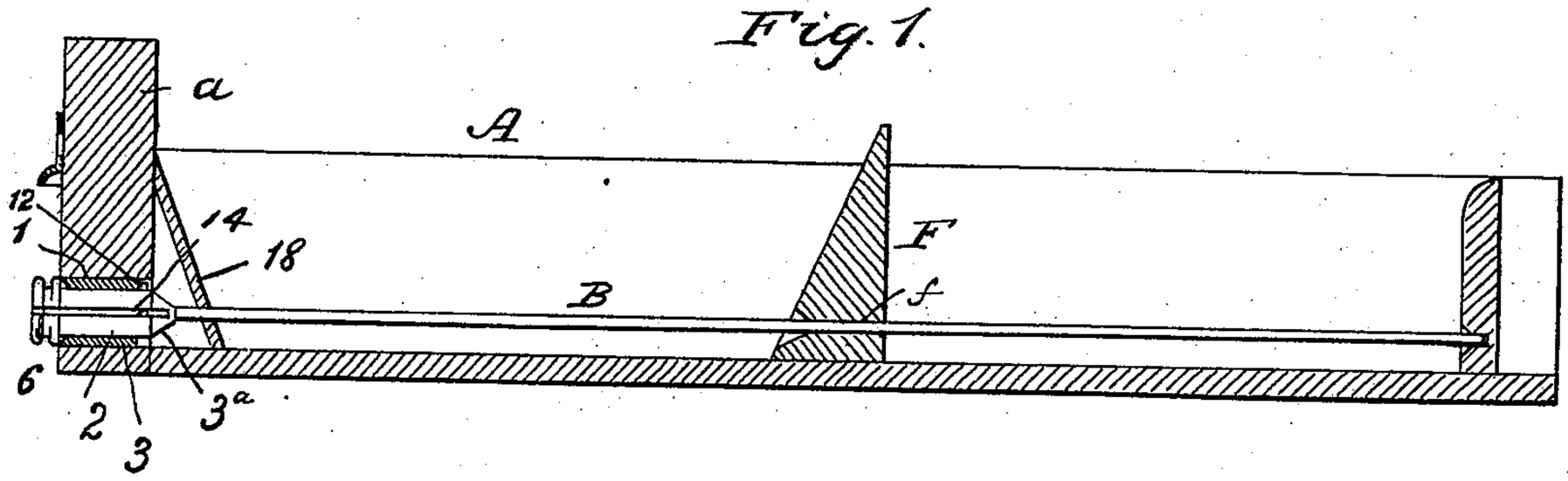


Fig. 2.

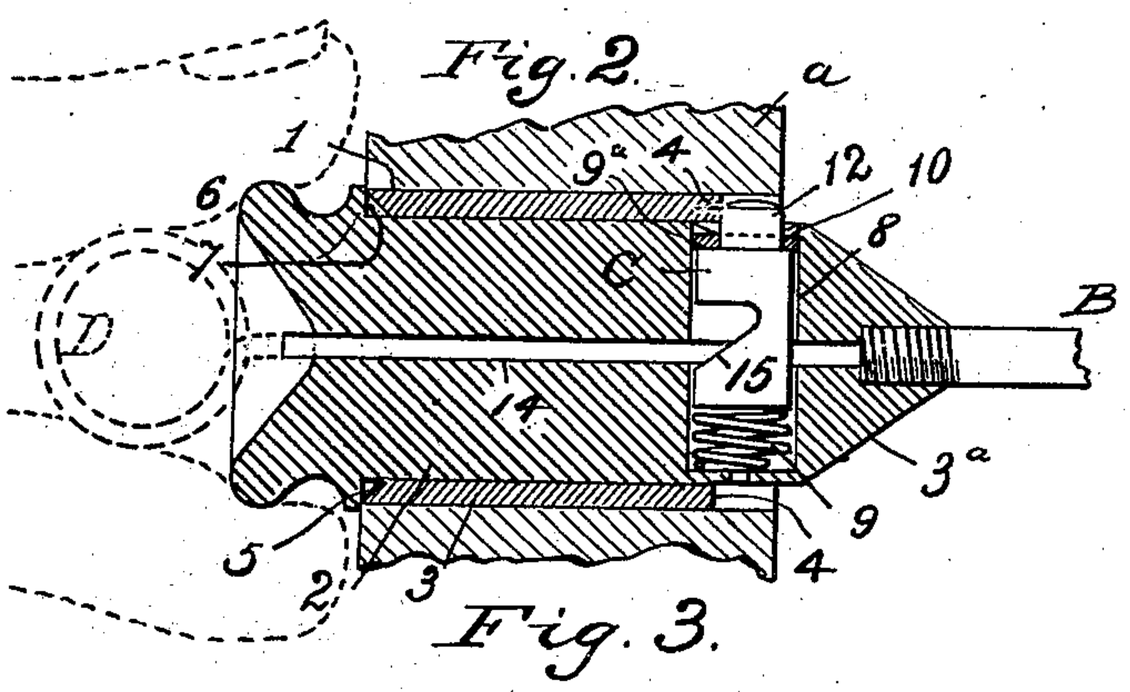


Fig. 3.

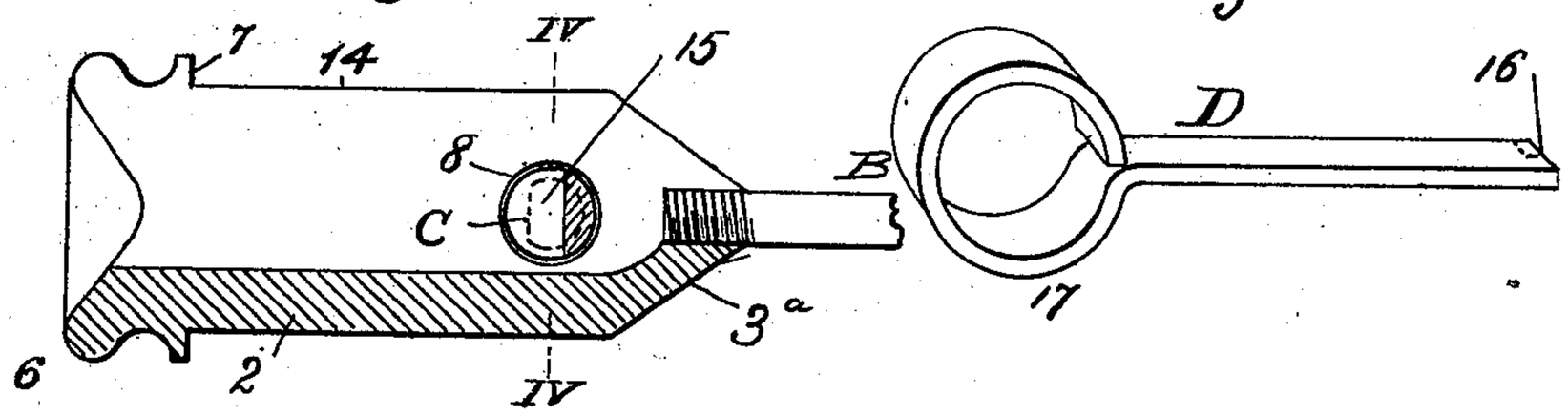


Fig. 4.

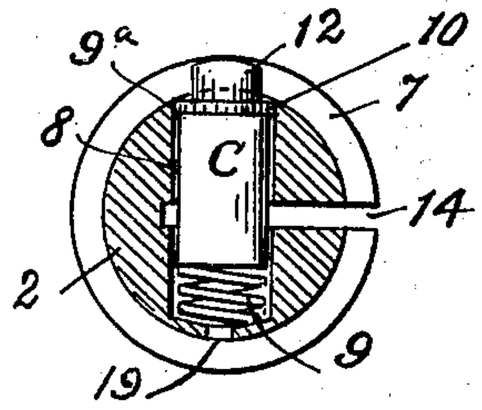


Fig. 5.

Fig. 6.

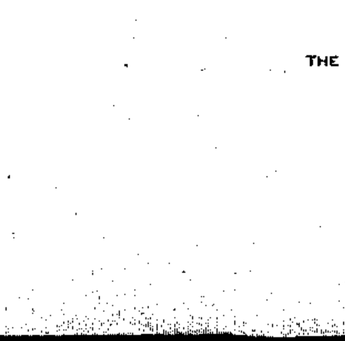
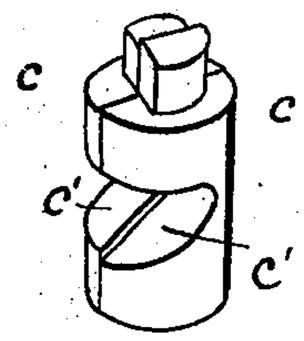


Fig. 7.

Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

EDMUND W. WOODRUFF, OF WASHINGTON, DISTRICT OF COLUMBIA.

ROD-LOCK FOR CARD-INDEXES.

SPECIFICATION forming part of Letters Patent No. 712,166, dated October 28, 1902.

Application filed January 28, 1902. Serial No. 91,549. (No model.)

To all whom it may concern:

Be it known that I, EDMUND W. WOODRUFF, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Rod-Locks for Card-Indexes, of which the following is a specification.

My invention relates to rod-locks especially adapted to use in card-indexes where it is desired to secure perforated cards in the index drawer or case, so that they cannot be carelessly displaced or removed.

The invention has for its objects to provide a rod-lock which is practically all contained within and is removable with the rod, so that the other member of the lock or part which is engaged to hold the rod in place may be simple in form and may be a simple tube or bushing, to generally simplify and cheapen the construction of the lock and render it easy of repair, to facilitate the unlocking and removal of the rod by making the manipulation of the key and the grasping of the rod practically one operation of the thumb and finger, and to enable the rod to be inserted with its head and lock in any position without having regard to what is the top or bottom of the same, enabling the rod to be inserted quickly and automatically locked without especial care or precision in such operation.

With these objects in view the invention consists in the parts and combinations thereof hereinafter set forth.

In order to make the invention more clearly understood, I have shown in the accompanying drawings a very simplified means for carrying my improvements into practical effect, it being understood that the lock can be made more secure, if necessary, by a duplication or multiplication of the locking-bolt and that the invention is not to be considered as limited in its useful applications to the particular construction which for the sake of illustration I have delineated.

In said drawings, Figure 1 is a vertical longitudinal sectional view, partly in elevation, of a card-index drawer, tray, or case having a card-securing rod and rod-lock embodying my invention. Fig. 2 is a longitudinal sectional view of the lock. Fig. 3 is a similar view in the plane of the key slot or hole. Fig. 4 is a cross-section on line IV, Fig. 3. Fig. 5 is a view of the key. Fig. 6 is a perspective view of the locking-bolt. Fig. 7 is an end view of the same. Fig. 8 is a similar view of the bolt-securing plate. Fig. 9 is a perspective view of what may be termed a "duplication" of the bolt for greater security, the bolt consisting of two parts, having different key-engaging surfaces and separately movable.

Referring to the drawings, A indicates the index-drawer having the front piece *a*, F the card-supporting follower, and B the card-securing rod, extending longitudinally of the drawer within and near its bottom in the usual position, passing through a perforation 1 in the front piece and through a perforation *f* in the follower.

2 is an enlarged boss or head of cylindrical form of tapered or conical form at its inner end 3^a, into which the rod B is inserted and rigidly secured by screwing, brazing, or other suitable means. The head 2 is preferably solid except as hereinafter pointed out and is adapted to fit closely in a hollow cylinder or bushing 3, which is driven tightly into the perforation 1 of the front piece. Said bushing may be considered as the stationary engaging member of the lock, its inner end constituting a peripheral bolt-engaging shoulder 4. The outer end of the bushing is beveled or flared, as indicated at 5. The outer end of the boss 2 terminates in a knob 6, adapted to be grasped by the thumb and finger and having a shoulder 7 opposing and adapted to abut the outer end of the bushing 3.

8 is a transverse bolt-chamber of cylindrical form, bored in the inner part of the head 2 and fitted with a transversely-movable bolt C, which is pressed outwardly by a spring 9, seated in the inner part of said chamber.

9^a is a shoulder near the outer end of the bolt, which is pressed against a circular securing-plate driven into or otherwise secured within the outer end of the chamber 8, flush with the outer surface of the head 2. Said plate is indicated at 10 (see Fig. 8) and has a perforation 11, through which passes the outer end 12 of the bolt. The end 12 has a flat side 13 or is otherwise shaped to be held by the plate 10 from rotation, the perforation

11 being shaped to correspond with the cross-section of the bolt end 12. The bolt is so situated that when the head 2 is inserted in the bushing 1 until the latter is abutted by the shoulder 7 the bolt end 12 will just escape under the pressure of the spring 9 past the inner end of the bushing, so that the side 13 will engage the shoulder 4. In such operation of inserting the rod the bolt end 12 will be forced back by the bevel 5.

The key slot or hole formed in the head 2 is shown at 14, extending from the outer face of the knob 6 to the chamber 8.

15 is an inclined key-engaging surface on the bolt C, arranged to be opposite the inner part of the key-slot.

The key is shown at D, (see Fig. 5,) shaped to fit closely in the slot 14, so that as it is inserted it will be held by the walls of the slot from any movement in directions longitudinal of the bolt. Therefore when the inner end 16 of the key encounters the surface 15 of the bolt the latter is forced inward against the spring 9, disengaging the side 13 of the bolt from the shoulder 4 of the bushing. The lock is then in position to allow the withdrawal of the rod B by pulling outward on the knob 6. At the instant of the unlocking operation it is desirable to have the thumb and finger in position to grasp the knob 6, and to this end the key is formed with an enlarged head 17, arranged to be close to the knob 6 at the instant when the key effects the unlocking, whereby the thumb and finger without releasing their pressure upon the key may slide on the head 17 of the key sufficiently far toward the knob 6 to grasp the latter and withdraw the rod while the bolt C is retracted.

My invention extends to and includes making the bolt C in a plurality of sections for the purpose of adding to the security of the lock. In Fig. 9 I have indicated such a bolt composed of sections *c*, each having a key-engaging surface *c'*. These surfaces differ slightly in position, and the end of the key is correspondingly shaped to cause said sections to be simultaneously disengaged from the shoulder 4. A key not properly shaped will not cause such simultaneous disengagement and will not operate the lock.

The engaging members 4 and 12 are inclosed by the inclined covering-plate 18, fixed within the case A, so that the lock can be operated only through the slot 14.

Provision is made for repairing the spring or bolt, enabling these parts to be readily removed from the chamber 8 by a small aperture 19 at the inner end of the chamber, through which a punch may be inserted to drive out the bolt and plate 10.

What I claim is—

1. In a card-index a rod-lock consisting of the combination of a card-securing rod having a head, an inwardly and outwardly movable bolt mounted in said head, said head having a key-slot in its outer end extending to the bolt, and a card-holding case having means for supporting the rod longitudinally therein and a shoulder adapted to be engaged by the bolt, said bolt having means whereby it may be retracted into said head by a key in said slot.

2. In a card-index the combination of a card-holding case having means for supporting a card-securing rod longitudinally therein, the said rod having an enlarged head and formed with a transverse bolt-chamber and a key-slot extending from the outer end of the head to said chamber, a transverse spring-operated bolt in said chamber and a shoulder on the case adapted to be engaged by the bolt.

3. In a card-index the combination of a card-holding case having means for supporting a card-securing rod longitudinally therein, the said rod having a head, an inwardly and outwardly movable bolt contained in said head, the bolt having an inclined key-engaging surface and the head having a key-slot extending from the outer end of the head to said inclined surface, and a key having at its end a bolt-operating surface, and a shoulder on the case adapted to be engaged by the bolt.

4. In a card-index the combination of a card-holding case having means for supporting a card-securing rod longitudinally therein and a peripheral locking-shoulder, the said rod having a cylindrical head adapted to be inserted in the case and a key-slot extending inward from the outer end of the head, a spring-operated bolt contained within the head at the inner end of the slot and adapted to be projected to engage any part of said peripheral shoulder, and a key for disengaging the bolt.

5. In a card-index the combination of the case, the rod mounted longitudinally therein and having a cylindrical head, the cylindrical bushing 3 in the case having a peripheral bolt-engaging shoulder 4, an inwardly and outwardly movable bolt mounted in said head and adapted to engage the shoulder 4, the head having a key-slot, and a key fitting the slot and adapted to operate the bolt.

6. In a card-index the combination of the case, the rod mounted longitudinally therein, the head on said rod having a key-slot, a rod-locking bolt in the head operable by the inward thrust of the key, and the said key having an enlarged head adapted to separate the thumb and finger of the operator, the rod-head having a knob adapted to be grasped by the thumb and finger while also holding the key-head.

7. In a card-index the combination of a card-holding case, a card-securing rod therein, the head on the rod having the chamber 8 and the key-slot, the bolt-spring 9, and the bolt C in said chamber, said bolt having the smaller outer end 12, and the plate 10 surrounding said end and fixed in the chamber 8, substantially as set forth.

8. In a card-index the combination of a card-holding case, the card-securing rod having an enlarged head terminating in a knob, and a locking-bolt in said head, said knob being formed with a concave front face and the head having a key-slot extending from said concave face to the bolt.

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

EDMUND W. WOODRUFF.

Witnesses:
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