No. 701,850. Patented June 10, 1902.

A. CRAMOND.

EXTENSION CYLINDER FOR PIN LOCKS.

(Application filed Jan. 14, 1902.)

(No Model.)

Fig. 1.

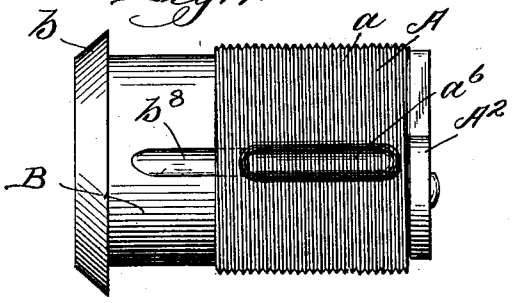


Fig. 2.

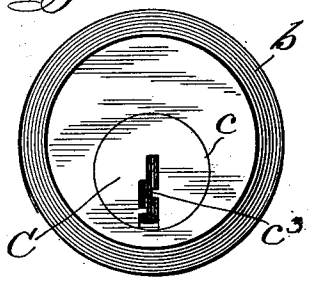


Fig. 3.

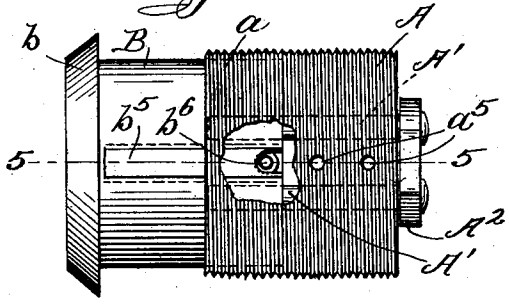


Fig. 4.

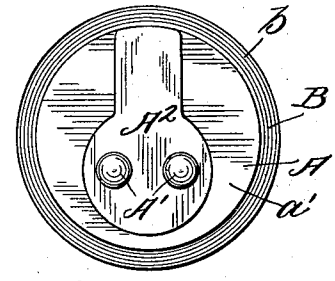


Fig. 5.

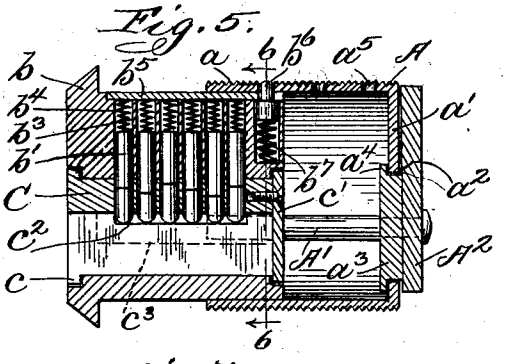


Fig. 6.

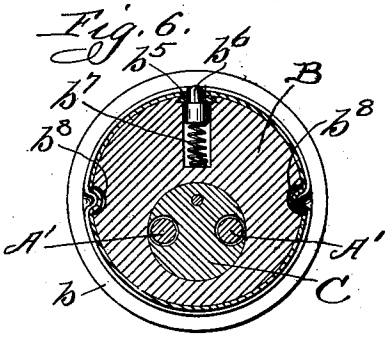


Fig. 7.

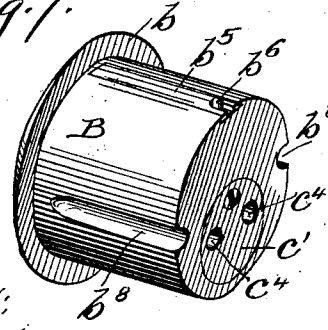
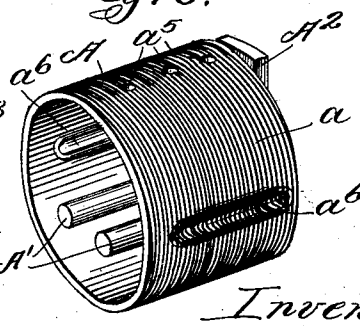


Fig. 8.



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UNITED STATES PATENT OFFICE.

ALEXANDER CRAMOND, OF LYONS, IOWA.

EXTENSION-CYLINDER FOR PIN-LOCKS.

SPECIFICATION forming part of Letters Patent No. 701,850, dated June 10, 1902.

Application filed January 14, 1902. Serial No. 89,655. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER CRAMOND, a citizen of the United States, residing at Lyons, in the county of Clinton and State of Iowa, have invented certain new and useful Improvements in Extension-Cylinders for Pin-Locks, of which the following is a specification.

My invention pertains to that class of locks for doors known as "cylinder-locks," and especially has relation to cylinders that are capable of being extended or shortened, so that they may be fitted to and used upon doors of different thicknesses.

The object of my invention is to provide a novel lock of this general type having means for easy and ready adjustment for the purposes set forth and involving certain features of construction which provide a simple, compact, and efficient device of the class described.

In the accompanying drawings, which omit the usual lock-case and latch, Figure 1 is a side view of the parts constituting my improved cylinder adapted to be assembled in a lock-case of any suitable type and showing the block containing the pin-chamber and key-plug drawn partially out of the cam-chamber to dispose the parts to fit a thick door. Fig. 2 is a front view of the cylinder. Fig. 3 is a top plan view of the parts of Fig. 1 with a portion of the shell broken away to show the adjusting-pin in the cylinder. Fig. 4 is a rear elevation of the parts shown in Fig. 2 and showing the rotating cam or disk by which the bolt or latch is operated. Fig. 5 is a central longitudinal section taken on the line 5 5 of Fig. 3. Fig. 6 is a transverse sectional view in the direction of the arrows on the line 6 6 of Fig. 5. Fig. 7 is a rear perspective view of the cylinder or block containing the pin-chamber and key-plug, and Fig. 8 is a perspective view looking into the interior of the shell and showing the connecting-rods located therein.

The lock-case with which my improvements are associated may be of any suitable type and may be secured to or mortised into a door, if desired, in any suitable manner and is provided with a hole or bore in one side to receive the case containing the matter of my invention. For the purpose of securing the case in the lock-case one part of the case, such as the shell A, is provided with a screw-thread a, extending over more or less of its outer surface and which engages a corresponding thread or tap in the hole of the lock-case.

The chamber A is in the form of a hollow shell, preferably cup-shaped and cylindrical in cross-section, as shown in the drawings, and is provided near the lower portion of its cap a' with a perforation a^2, which receives a circular washer a^3 of corresponding size, having a countersunk portion to form a flange a^4, adapted to bear against the wall of the cap. The washer or plate a^3 is provided, preferably on opposite sides of its median line, with perforations or holes to receive the connecting-rods A′, which extend forwardly approximately the length of the shell and are slightly reduced or shouldered where they pass through the washer and extend beyond the rear wall of the cap a', where they receive a cam A^2, to which they are suitably secured, as by being headed over. The cam is somewhat larger in diameter than the perforation in the cap, and by this organization the washer is retained and held against displacement within the hole or perforation a^2, in which it is, however, free to turn in either direction.

The cam A^2 connects with the bolt or latch of the lock-case by any suitable intermediate means, whereby the bolt or latch will be thrown in whichever direction the cam is turned, the latter being of any suitable form and construction.

The block B is preferably composed of a plug of metal adapted to fit within the shell A and having the usual front flange or escutcheons b, as shown. The block is provided with a longitudinal bore or channel throughout its length and located, preferably, at one side of the center thereof.

The key-plug C is located within the horizontal bore of the block and is held against displacement by suitable front and rear flanges c and c', it being free, however, to rotate therein. The positions of the washer a^3 and of the key-plug C are such that when the cylinder B is inserted within the shell A the key-cylinder and washer are in alinement. The key-plug C is provided with longitudinal bores c^4, extending nearly to the front wall

thereof and which receive the rods A′ when the parts are assembled, whereby the key-plug and washer are connected to move in unison, the bores and rods being of such lengths as to preserve this connection in any position of the cylinder B within the shell A, as shown in Figs. 3 and 5, where these parts are illustrated in their relation of greatest separation.

The block B is provided with a tumbler-chamber or pin-chamber above the key-plug, which is preferably of any suitable construction and receives a series of loose tumblers b', adapted to move therein and arranged in any suitable well-known manner. The tumblers or pins are preferably composed of upper and lower portions or parts, the lines of division of the several pins being staggered or irregular, and each pin is preferably located in a cell of the chamber formed by dividing walls or partitions b^3. In the most practical form the pins are associated with operating-springs b^4. The pin-chamber is closed at its top by means of a plate b^5 and communicates at its lower end with a channel or slot c^2 in the top of the key-plug, the channel normally standing in alinement with the pin-chamber and adapted to receive the lower ends of the tumblers, which normally rest therein upon a suitable ledge or shelf c^3, extending laterally within the key-opening of the key-plug, whereby the tumblers are exposed to the upper edge of the key, which is provided with a slot in its side to receive the ledge or rib in the well-known manner. The tumblers are of any suitable construction, whereby when the key is inserted in the key-cylinder it will cause the tumblers to be raised to aline their dividing-lines with the line of the key-plug to enable the plug to be turned to operate the cam A^2.

The shell A and the block B are connected together in their several adjustments by any suitable means, preferably by the arrangement shown, which consists in providing a series of holes or perforations a^5 in the shell A and arranged in suitable and predetermined distances apart to receive a spring-pressed pin b^6, carried in a recess in the rear portion of the block B and in line with the pin-chamber, the disposition of the parts being such that the length of the case composed of the shell A and the block B may be varied to correspond with the different thicknesses of the doors by adapting the pin b^6 to the appropriate hole in the shell. The pin passes through the plate b^5 and is shouldered at its top to prevent its spring b^7 from pushing it out of its recess or chamber, as shown in Figs. 5 and 6. The shell and block are provided with corresponding ribs and grooves a^6 and b^8, respectively, whereby the parts are locked together in a rigid manner to prevent rotation of the one with reference to the other and to take the strain off the pin b^6 when the shell is being screwed to its seat in the lock-case.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lock, the combination with a shell, a cam mounted thereon, and operating-rods secured to the cam, of a block having a key-plug adjustably engaging the rods, and an adjustable connection between the shell and block.

2. In a lock, the combination with a threaded shell provided with a series of holes, a cam mounted on the shell, and operating-rods secured to the cam, of a block having a key-plug adjustably engaging the rods, and a spring-pressed pin on the block adapted to enter the holes in the shell.

3. In a lock, the combination with a threaded shell provided with a series of perforations, a cam mounted thereon, and operating-rods secured to the cam, of a block adapted to the shell, a spring-pin on the block adapted to the perforations of the shell, and a key-plug in the block provided with longitudinal bores to receive the rods.

4. In a lock-cylinder the combination with a cup-shaped shell having interior ribs, and a cam mounted on the cap of the shell, of a block having grooves or channels adapted to receive the ribs, a key-plug within the block, extensible connections between the plug and cam, and extensible connections between the shell and block.

5. In a cylinder for locks, the combination with a shell having a series of holes in its wall and a perforation in its rear plate, a countersunk washer in the perforation, a cam in the rear of the plate, and shouldered connecting-rods in the shell passing through the washer and stem and being headed to secure the parts together, of a block having a pin-chamber, a rotating key-plug normally communicating therewith and having longitudinal bores to receive the rods, and a spring-pressed pin on the rear of the block adapted to the holes in the shell-wall.

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

ALEXANDER CRAMOND.

Witnesses:
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