

(No Model.)

H. B. SARGENT & A. A. PAGE.
CYLINDER LOCK.

No. 446,192.

Patented Feb. 10, 1891.

Fig. 1

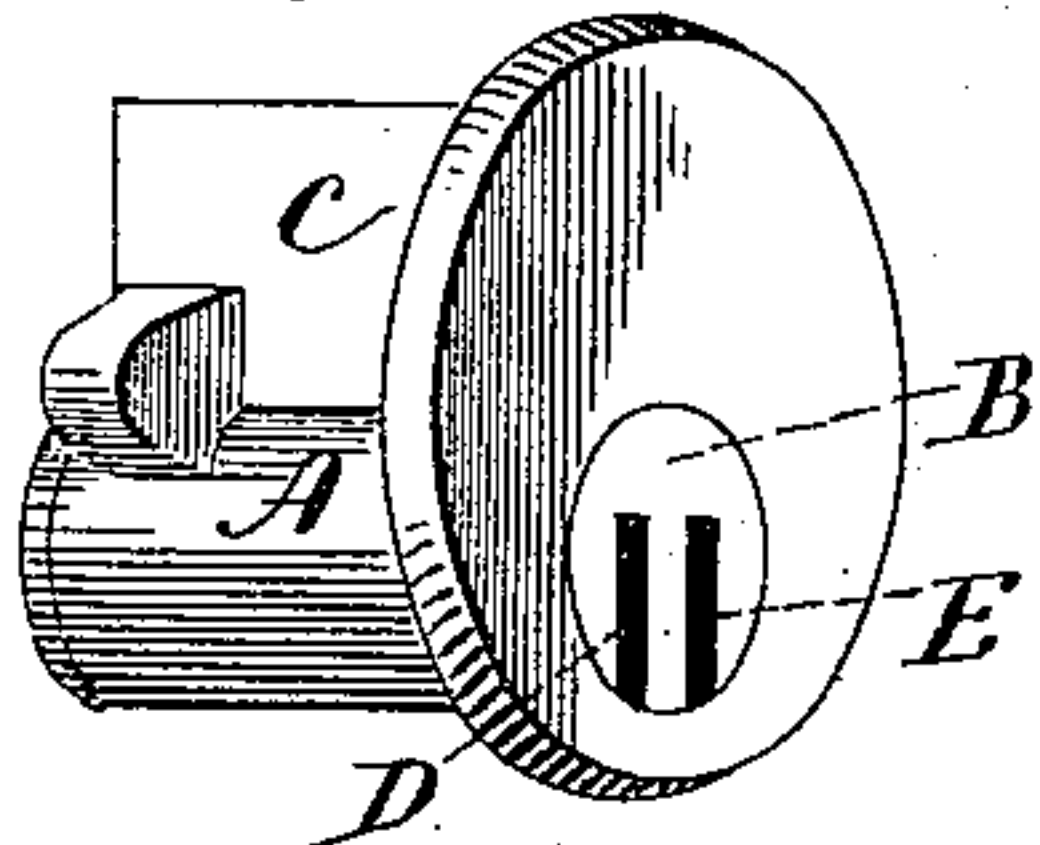


Fig. 2

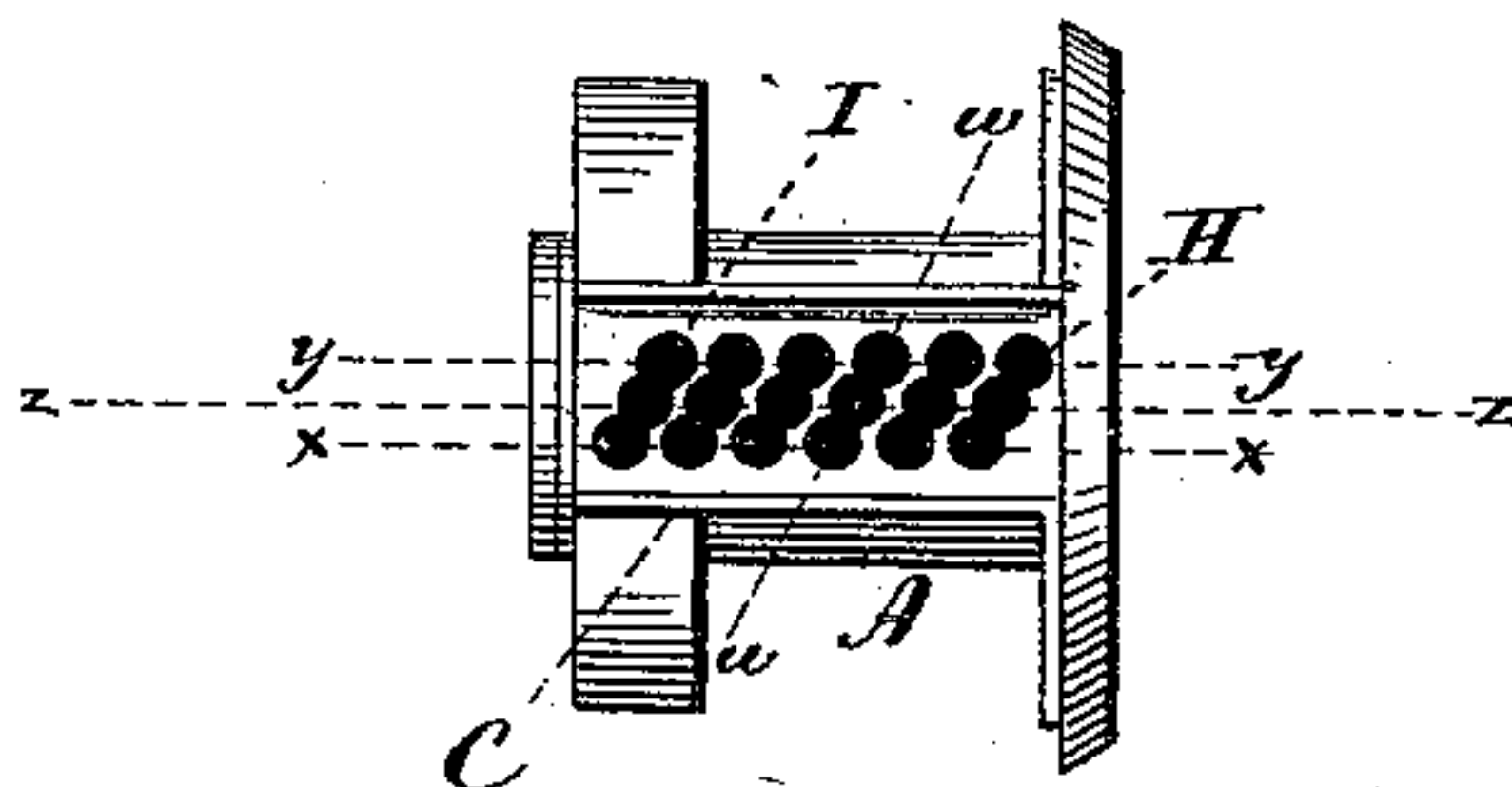


Fig. 3

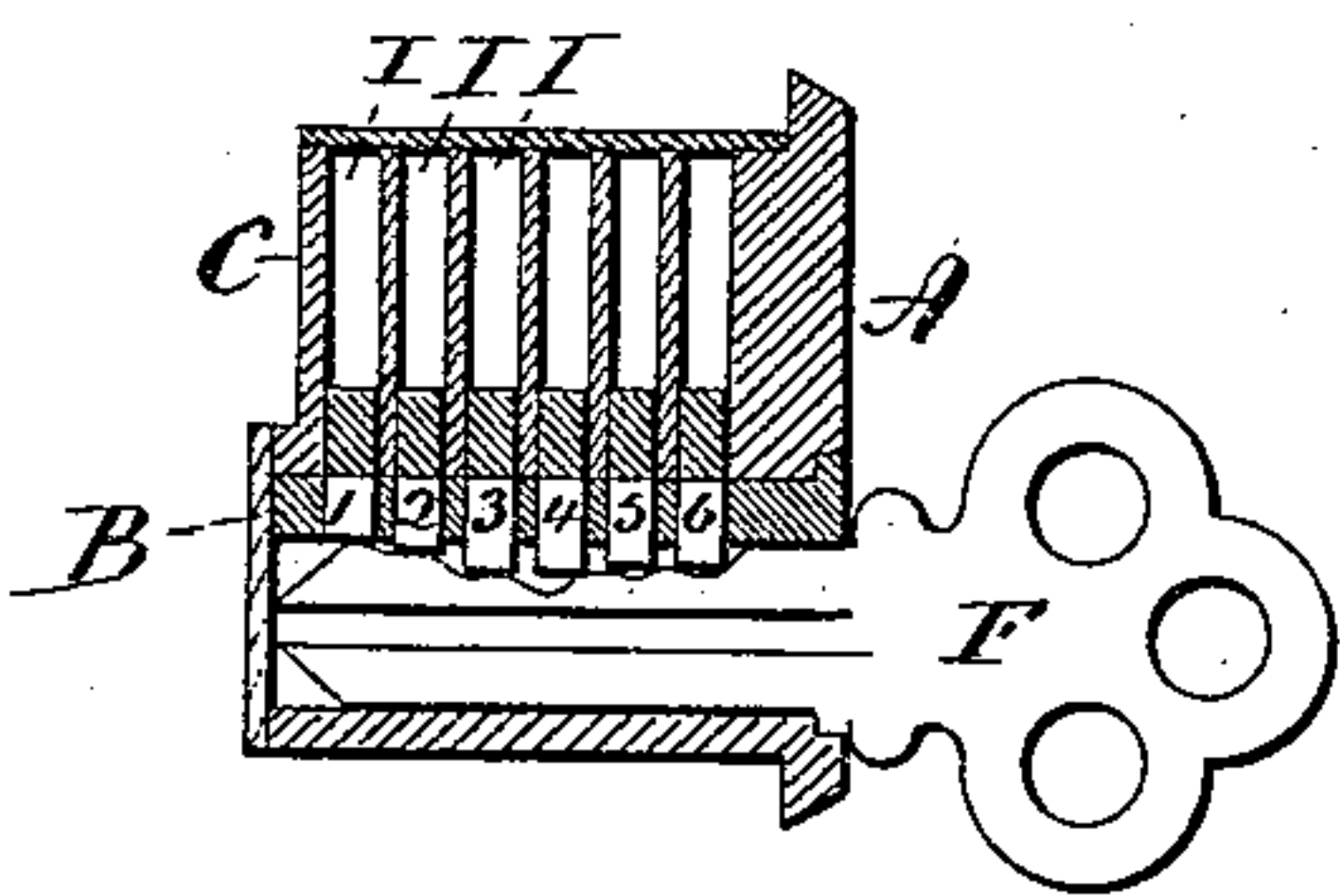


Fig. 4

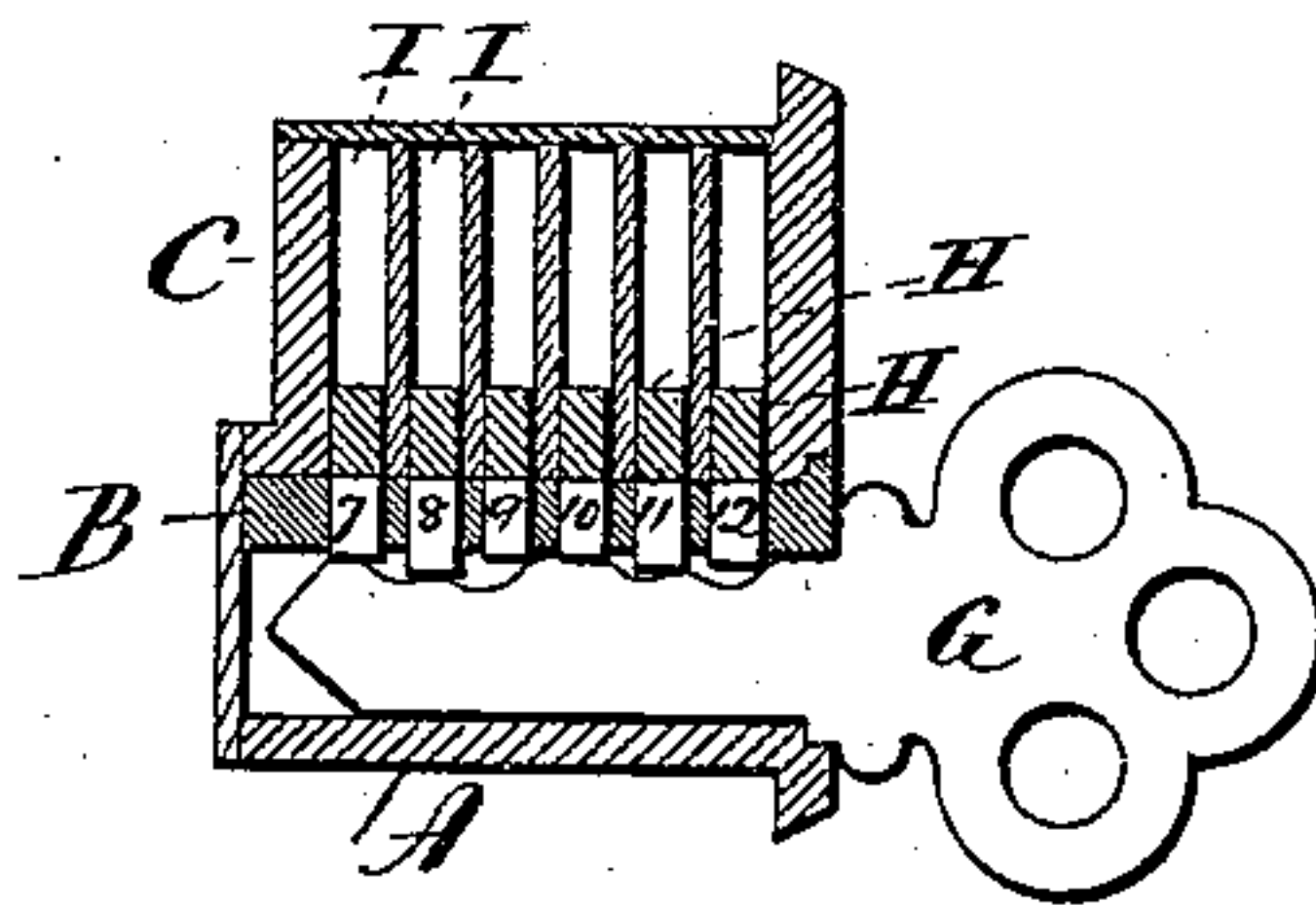


Fig. 7



Fig. 5

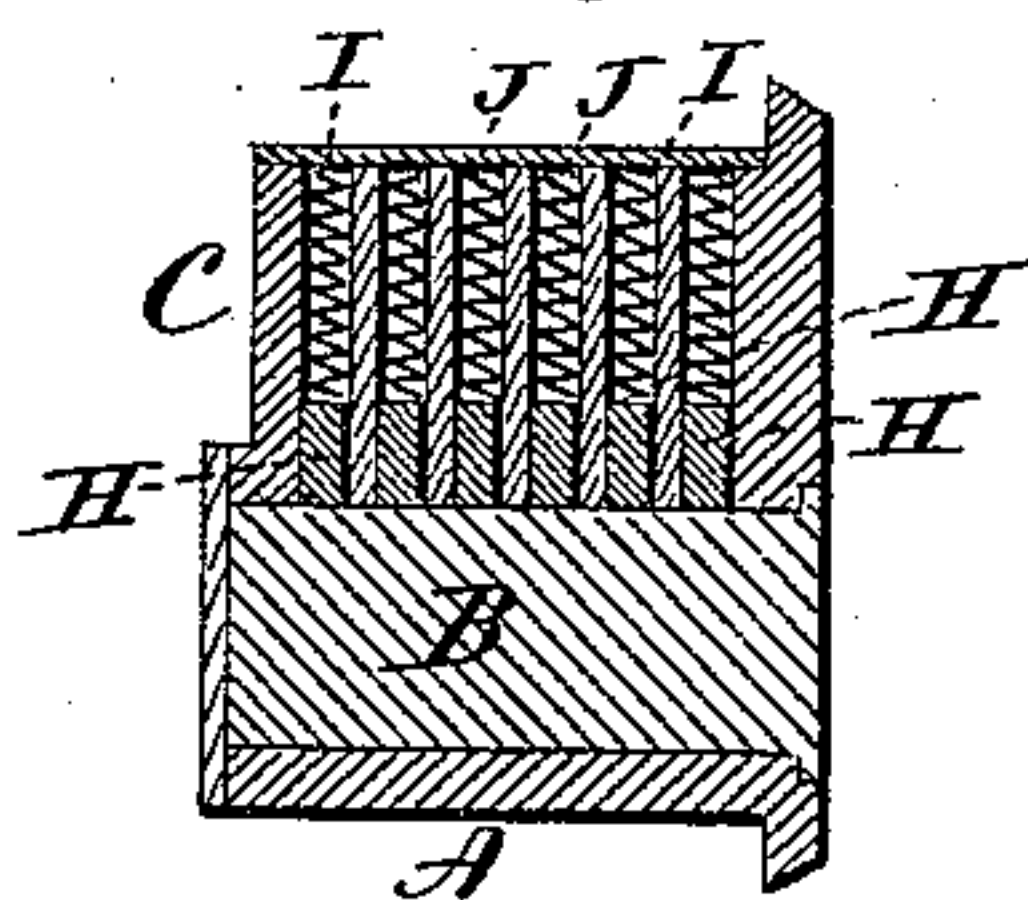


Fig. 6

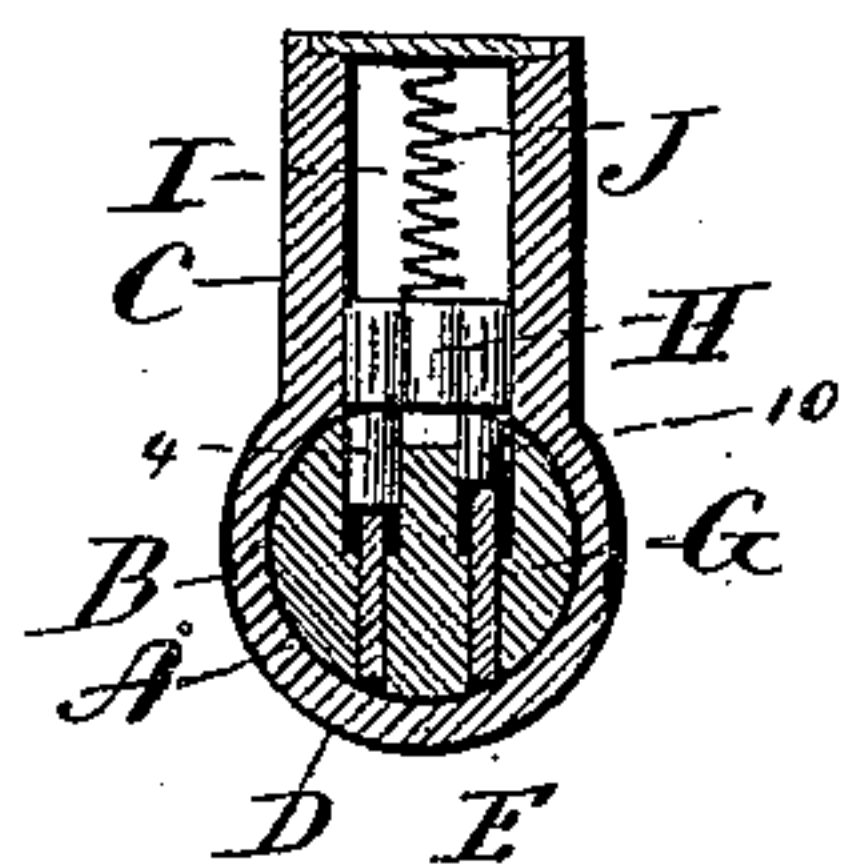


Fig. 8

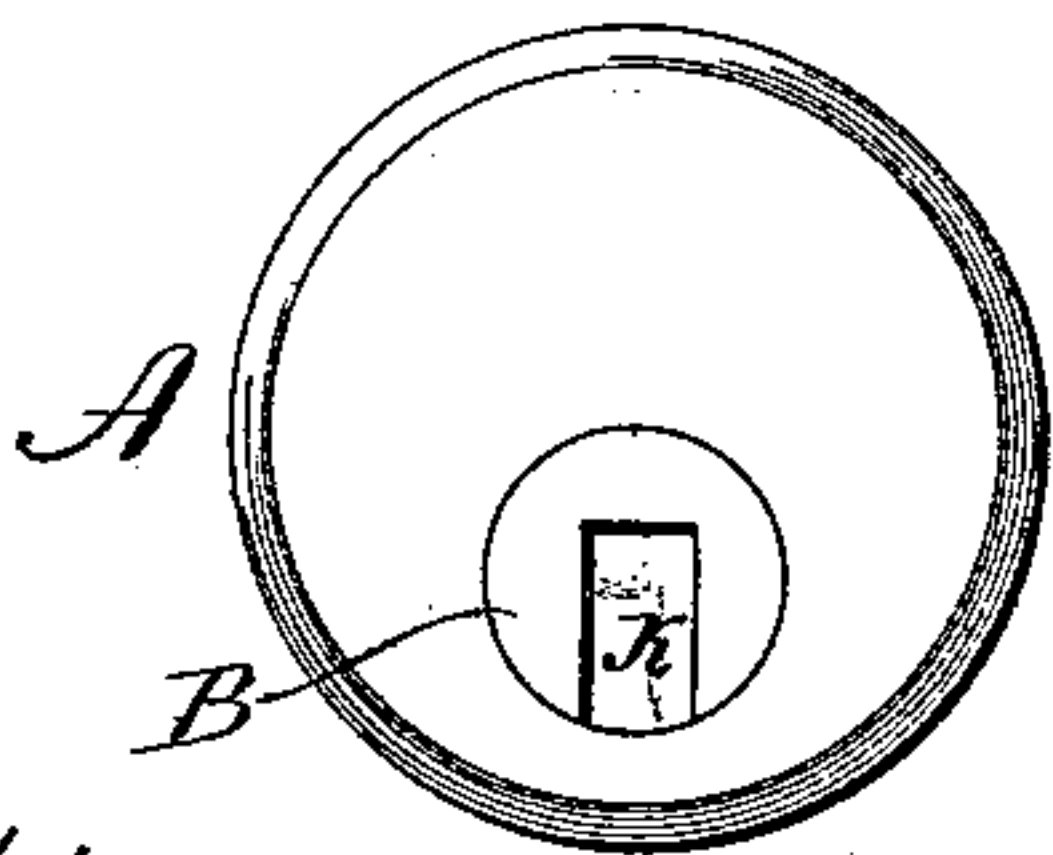


Fig. 9



Fig. 10



Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY B. SARGENT AND ALBERT A. PAGE, OF NEW HAVEN, CONNECTICUT,
ASSIGNORS TO THE SARGENT & COMPANY, OF SAME PLACE.

CYLINDER-LOCK.

SPECIFICATION forming part of Letters Patent No. 446,192, dated February 10, 1891.

Application filed December 8, 1890. Serial No. 373,947. (No model.)

To all whom it may concern:

Be it known that we, HENRY B. SARGENT and ALBERT A. PAGE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Cylinder-Locks; and we do hereby declare the following, when taken in connection with accompanying drawings and the letters and figures of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of the lock; Fig. 2, a top view of the lock, the covering-plate of the pin-recesses removed; Fig. 3, a longitudinal section on line *x x* of Fig. 2, showing the principal key in place ready for operation; Fig. 4, a longitudinal section on line *y y* of Fig. 2, showing the master-key in place for operation; Fig. 5, a longitudinal section on line *z z* of Fig. 2, showing the parts in the normal position; Fig. 6, a transverse section on line *w w* of Fig. 2; Fig. 7, a perspective view of one of the pins removed; Figs. 8, 9, and 10, modifications.

This invention relates to an improvement in that class of cylinder-locks in which a flat longitudinal key-hole is formed in the cylinder to receive a corresponding flat key and a cylinder provided with a series of radial tumblers adapted to operate upon corresponding radial pins in the case, which pins will engage the cylinder when in the normal position and so as to hold it in that position, but be disengaged therefrom under the radial movement of the pins produced by the introduction of the key, and so that when the cylinder is thus disengaged it may be rotated by the key—a well-known class of locks.

The object of the invention is to construct the lock so that in a series of locks each lock may be operated by its own principal key, which key is not adapted to operate any of the other locks of the series, but yet so that all the locks may be operated by a single master-key; and the invention consists in the arrangement in the cylinder of two parallel series of radial tumblers, the tumblers of the two series of different lengths, the tumblers of one series adapted to be operated by one key and the tumblers of the other series

adapted to be operated by a second key, combined with a corresponding series of radial spring-pins, each of the pins standing in the path of one of the tumblers in each of the said two series of tumblers and so that each pin will be operated upon by one of the tumblers of either series with two keys, one of which is adapted to operate one of the series of tumblers and the other key adapted to operate the other series of tumblers, and as more fully hereinafter described.

A represents the case; B, the cylinder arranged therein; C, the radial projection on the case in which the spring-pins are arranged—a common construction of locks.

The cylinder is constructed with two longitudinal flat key-holes D and E, into which corresponding flat keys F and G may be introduced, the key-holes being equidistant from the central plane of the cylinder, as seen in Fig. 6. In the cylinder in the plane with the key-hole D a series of tumblers 1 2 3 4, &c., more or less, are arranged in the usual manner of arranging the tumblers for this class of locks, except as to their positions in the cylinder at one side of the center. In the plane with the other key-hole E a like series of tumblers 7, 8, 9, and 10, &c., more or less, are arranged, as seen in Figs. 3, 4, and 6. The tumblers of the two series are of varying lengths, as shown, and normally they stand with the periphery of the cylinder, as usual in this class of cylinder-locks. The key F of one series is adapted to bring the tumblers of that series to the periphery of the cylinder, as seen in Fig. 3, while the other key G is adapted to bring its series of tumblers to the periphery of the cylinder, as seen in Fig. 4. The length of the tumblers of the two series varying, the key F will not operate the tumblers of the second series, nor will the key G operate the tumblers of the first series.

In the case a series of spring-pins H are arranged. These pins are preferably in the form of three connected parallel cylinders, as seen in Fig. 4, and so that the recesses in the projection C for the pins may be produced by boring three parallel holes I, the three holes running one into the other, corresponding to the connection between the parts of the pin. These holes for the pins are best made oblique

to the axis of the cylinder, as seen in Fig. 2; but this is not essential. The width of the pins is such as to extend over both series of tumblers, as seen in Fig. 6, and so that either of the two series of tumblers may operate upon the pins. Each of the pins is provided with a spring J, the tendency of which is to force the pins into engagement with the cylinder in the usual manner for engaging the cylinder in this class of locks, and as seen in Fig. 5.

By the insertion of the key F, which may be called the principal key, as seen in Fig. 3, its series of tumblers will force the pins out of engagement with the cylinder, and so that the cylinder may be rotated. When the cylinder is brought back to its normal position and the key withdrawn, the spring-pins will again come into engagement with the cylinder, so as to hold it in that normal position; or if the other key G, which may be called the "master-key," is introduced to operate upon its series of tumblers, as seen in Fig. 4, a like result will be produced.

In a series of locks each lock has its one series of tumblers 1 2 3 4, more or less, varying in length from those of all the other locks of the series, so that a different-shaped key will be required for each individual lock; but the second series of tumblers, as 7 8 9 10, &c., will be alike in all the locks of a series, and so that a single master-key G will operate each and all the locks. Thus different individuals may possess their own individual key for the lock, while another may possess a master-key which will operate all the locks.

We prefer to make the key-holes separate and the keys substantially flat, as described; but the two key-holes may be made into one opening K, as seen in Fig. 8, the width of the key-hole being substantially equal to the width of the two key-holes in the first illustration, and each of the keys F and G, Fig. 9, will be constructed so as to fit into its corresponding position in this single key-hole. This will be best done by making the keys of L shape in transverse section, the flange L of the key F extending to the right, and in width corresponding to the width of the key-hole, while the flange M of the key G will be of corresponding shape but extend to the left. These flanges will insure the proper position of the respective keys in the key-hole.

We have described the recesses or holes for the spring-pins as preferably formed oblique to the axis of the cylinder. This formation of the holes permits a greater width of pin than would be produced were the recesses at right angles to the axis.

It will be evident that the peculiar shape of the pins which we have described—that is, the three connected cylinders—is not essential to the invention, as they may be made of other shapes, as, for illustration, in the form of two connected pins, as seen in Fig. 10, making the pins of substantially U shape, the legs corresponding to the respective tumblers by which they are to be operated.

We claim—

1. In a cylinder-lock, the cylinder constructed with two independent series of tumblers, the said series being parallel with each other and longitudinal of the cylinder, the tumblers of one series varying in length from the tumblers of the other series, a single series of spring-pins arranged in the case and adapted to engage the cylinder when the keys are removed, each pin of the series extending transversely over corresponding tumblers of both the said series, and so that each pin may be operated by one tumbler of either series, combined with two independent keys, one key adapted to operate upon one series of tumblers and not upon the other and the other key adapted to operate upon the second series of tumblers and not upon the first, substantially as described.

2. In a cylinder-lock, the combination of the cylinder, two parallel series of tumblers arranged therein, the tumblers of one series varying in length from that of the tumblers of the other series, a series of pins arranged transversely across the case, each of said pins corresponding to one pin in both the said series, the said pins constructed as three connected cylinders and the recesses for the said pins made of a shape corresponding to said three connected cylinders, and springs arranged upon said pins, the tendency of which is to force said pins into engagement with the cylinder, combined with two keys, one of which is adapted to operate upon one series of tumblers and not upon the other and the other key adapted to operate upon the said other series of tumblers and not upon the one, but both series of tumblers arranged to operate alike upon the said pins, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HENRY B. SARGENT.
ALBERT A. PAGE.

Witnesses:

WILLIAM S. HASTINGS,
AUKER S. LYHUE.