

(No Model.)

G. F. ABBOTT,
LOCK.

No. 486,420.

Patented Nov. 22, 1892.

Fig. 1

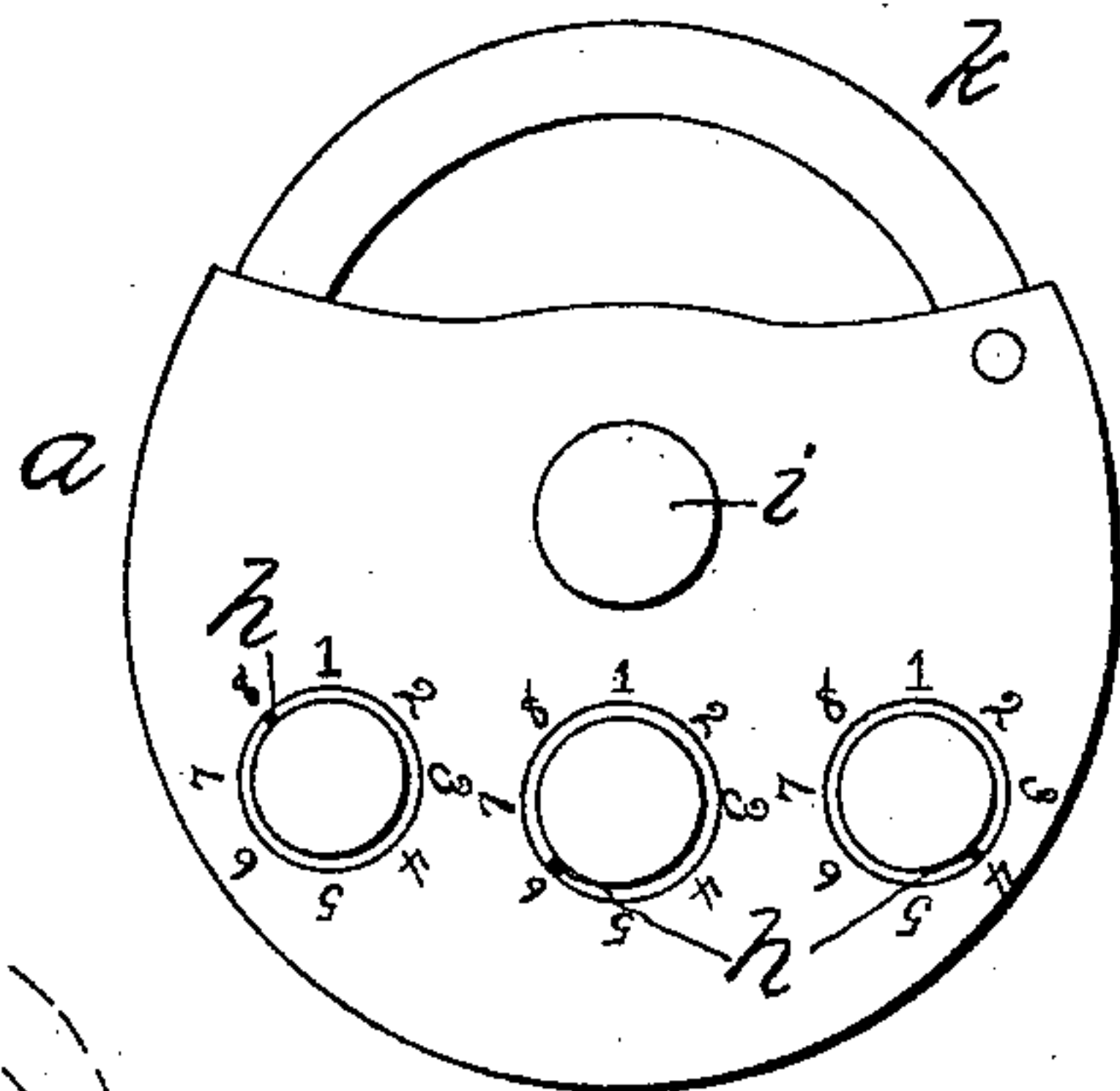


Fig. 2

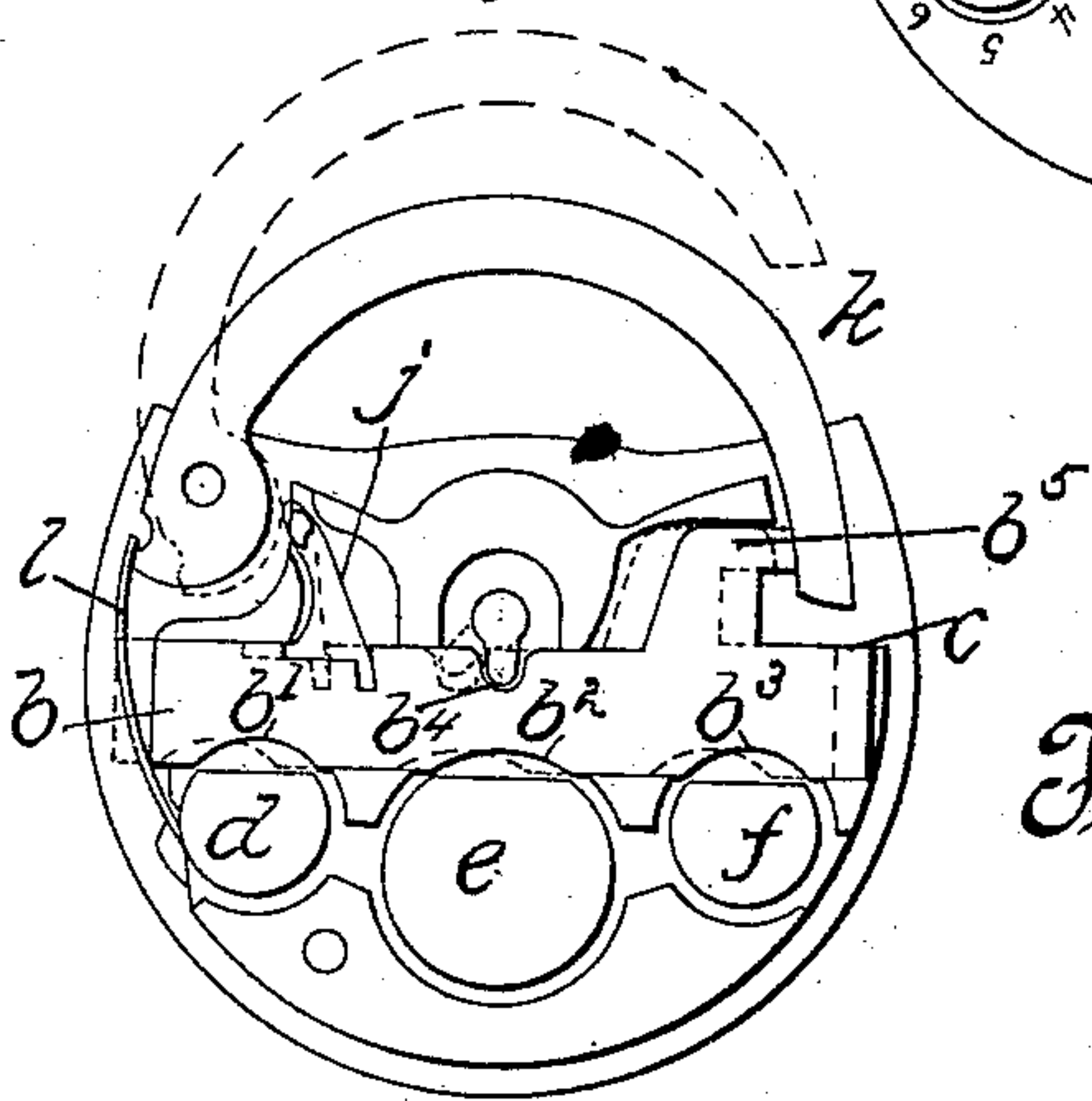


Fig. 3

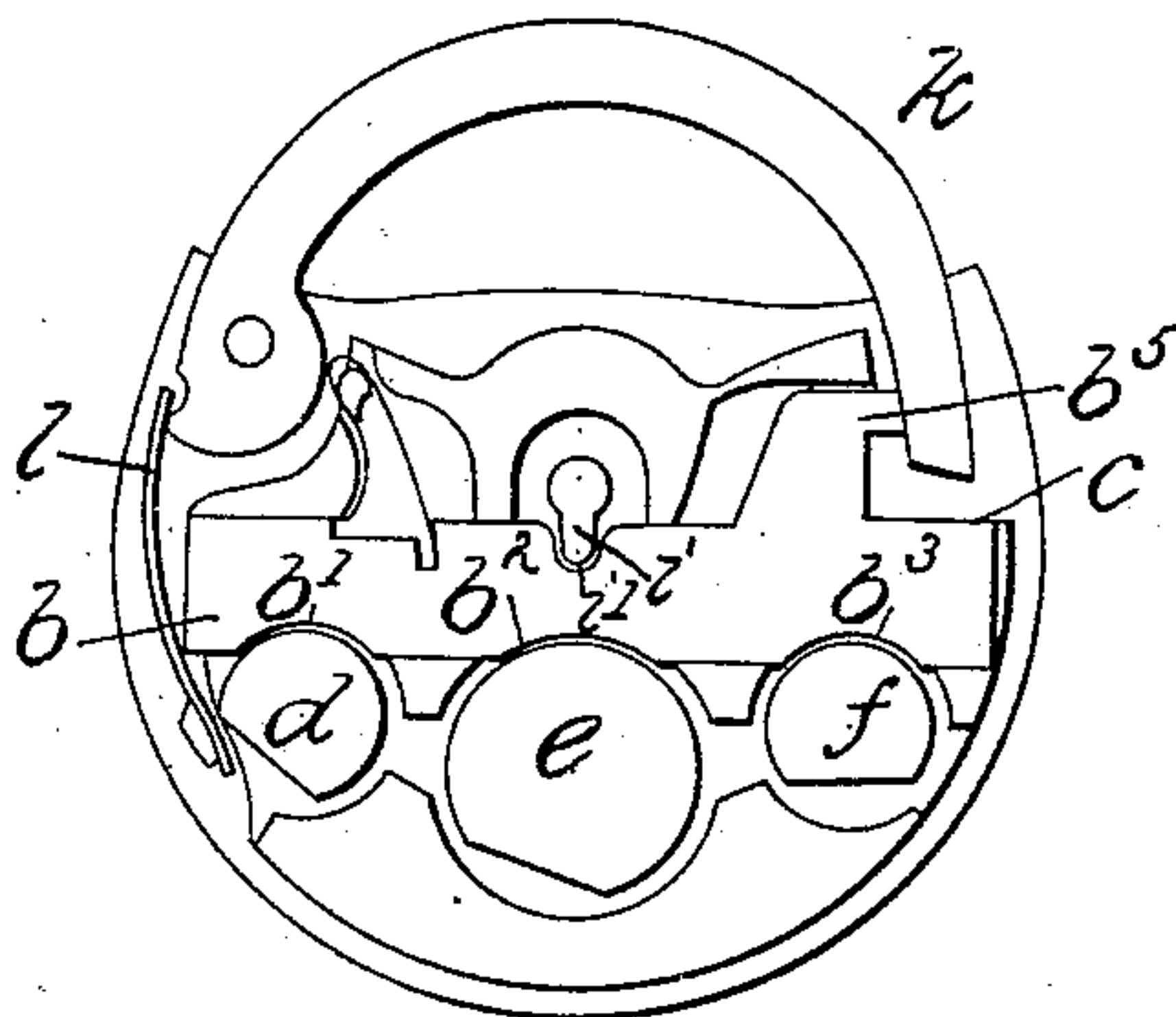


Fig. 4

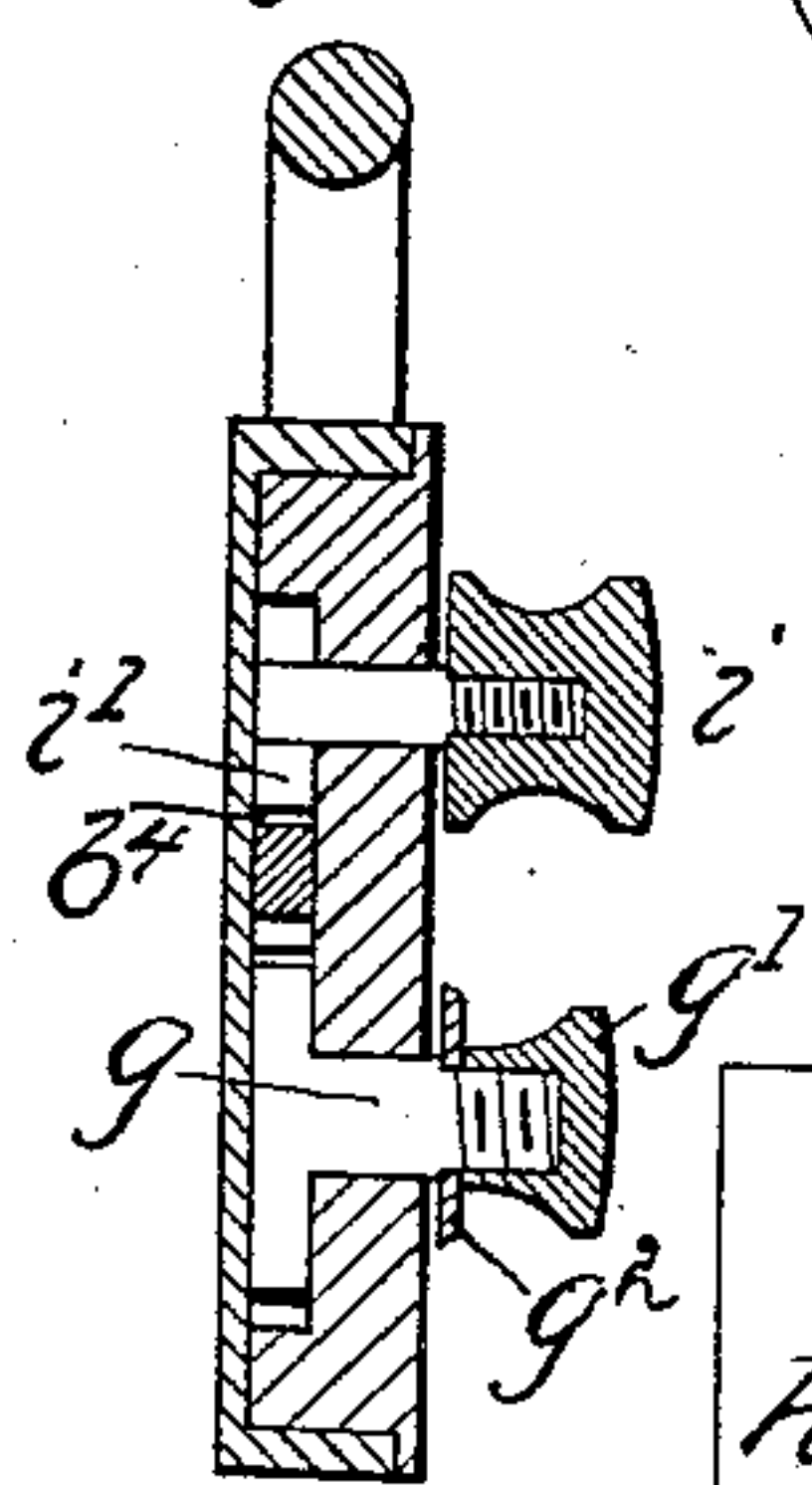


Fig. 5

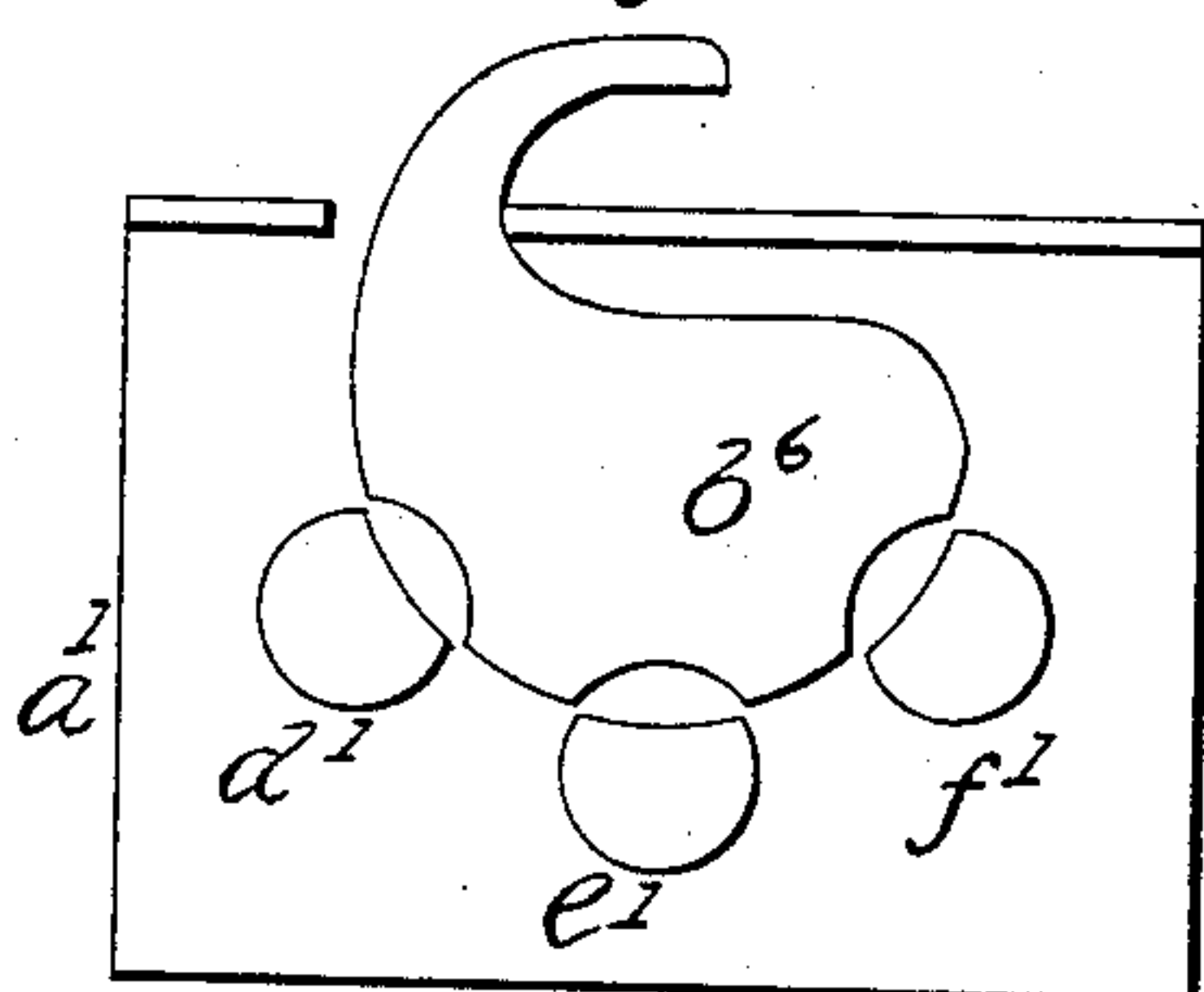
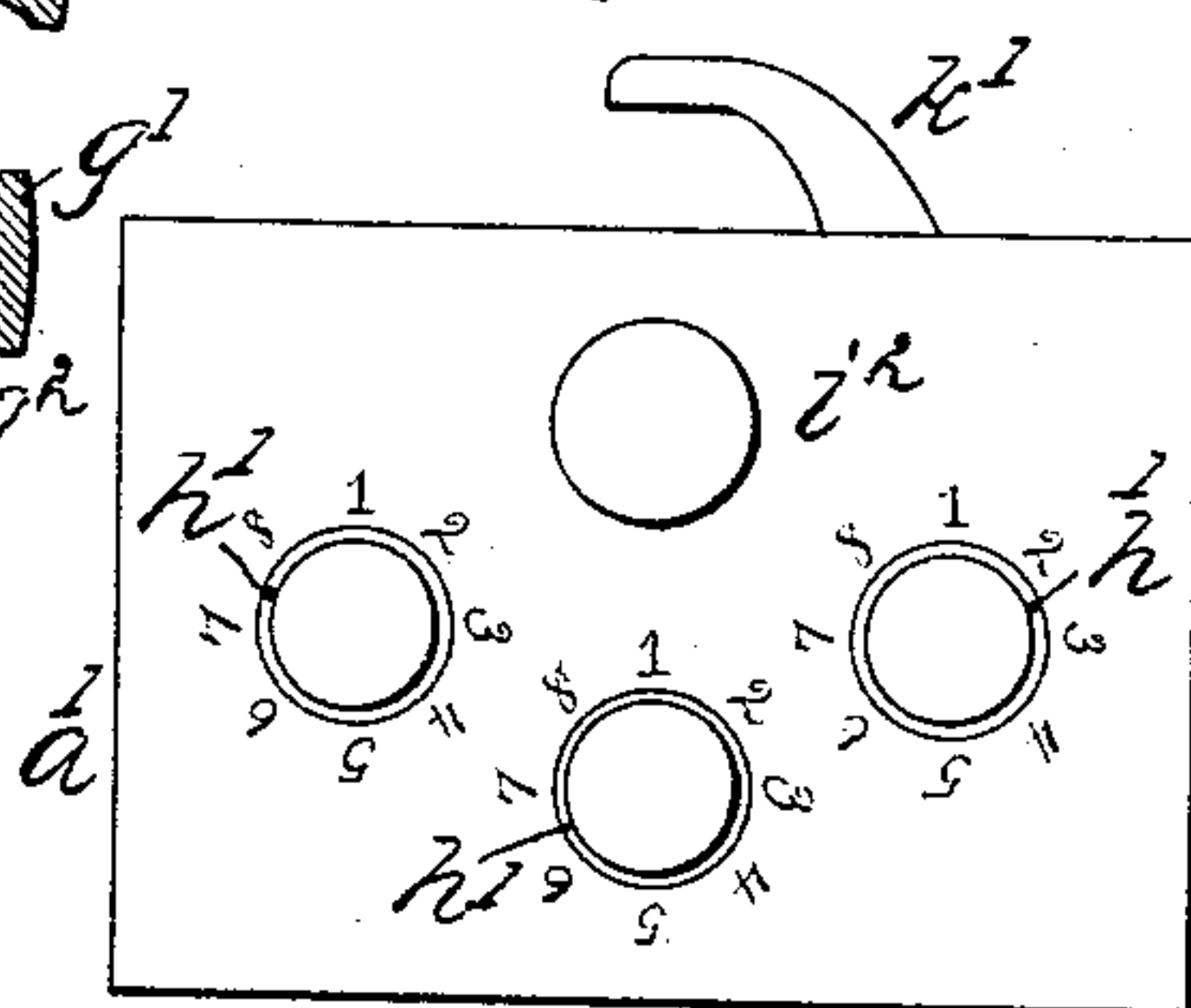


Fig. 6



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LOCK.

SPECIFICATION forming part of Letters Patent No. 486,420, dated November 22, 1892.

Application filed February 29, 1892. Serial No. 423,145. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. ABBOTT, of New Haven, in the county of New Haven and State of Connecticut, have invented certain
5 new and useful Improvements in Locks, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a
10 simple, strong, and comparatively-inexpensive form of lock in which the movement of the bolt will depend upon the position of certain tumblers that may be set in proper position to control such movement by the use of
15 index-marks borne on the outer surface of the lock-plate and in view of the operator.

The device broadly pertains to the class of permutation-locks; and to the ends stated my invention consists in the details of these several
20 parts making up the lock as a whole and in their combination, as more particularly hereinafter described, and pointed out in the claim.

Referring to the drawings, Figure 1 is a detail front view of a padlock embodying my
25 invention. Fig. 2 is a detail view of the back plate of the padlock, showing the mechanism, the tumblers being shown in position to allow the bolt to be thrown back, so as to open the lock. Fig. 3 is a detail view of the back plate,
30 showing the mechanism in position to secure the bolt against any movement. Fig. 4 is a detail view in cross-section through the padlock when closed and with the parts in position, as shown in Fig. 2 of the drawings in
35 full lines. Fig. 5 is a detail view of the face-plate of a modified form of the lock. Fig. 6 is a view of the outer surface of the face-plate of this modified form.

In the accompanying drawings, the letter *a*
40 denotes the lock-case as a whole; *b*, the bolt that in the padlock has a rectilinear movement in a supporting-socket formed in the case. This socket *c* is located transversely of the lock-case in the form of a padlock
45 shown, and rotary tumblers *d*, *e*, and *f* are pivoted to the case and so arranged that the edges of these tumblers will project into the socket when turned into certain positions. In

the lower edge of the bolt *b* there is formed a number of recesses *b'* *b*² *b*³, so located and
50 shaped that the edge of the tumbler will fit into the recess when the bolt is in a closed position, the rotation of the tumbler carrying a solid edge thereof into such recess. The
55 tumbler is slabbed off at a certain part of its edge to an extent sufficient to enable the bolt to slide freely across the top of the tumbler when this slabbed-off portion is arranged parallel to the lower edge or in the line of the
60 lower edge of the bolt, it being understood that in my improved lock the tumblers and the bolt are both arranged in substantially the same plane. Each of these tumblers is supported on a shaft *g*, that extends through
65 the case, with the tumbler arranged on the inner side and a knob *g'* fast to it on the outer side, the latter being preferably secured by the threaded end of the shaft entering a threaded socket in the knob, the inner
70 edge of the latter coming into contact with a shoulder, so as to enable it to be fastened to the shaft without clamping upon the face of the case. The flange *g*² of the knob bears an index-mark *h* in each case, and about
75 the base of this knob there is arranged a series of numbers or letters, the knob being secured to the shaft in such position that when the slabbed-off portion of the tumbler is in line with the edge of the bolt this index-mark
80 will register with one of the numbers or letters that is marked on the face of the lock. This knob *g'* is adjustable on the shaft—that is, it may be set so that the index-mark will register with any one of the numbers that may
85 be desired when the tumbler is in the unlocked position—and thus provision is made for a great many changes in the combinations possible that may be made, so as to control the movements of the bolt.

The bolt is moved by any convenient means
90 that may be either a handle secured to the bolt and located on the outside of the lock in convenient position to be used, or, as in the case of the padlock shown in Figs. 1 to 4, the handle *i* may be pivoted in the bolt-case
95 with a finger *i'* projecting from the stem of

the handle into a socket b^4 in the edge of the bolt, so that by a rocking movement of the handle the bolt b may be thrown back. A bolt-spring j is held in a suitable position in the case with one end arranged to thrust against a shoulder on the bolt and tend to hold it in the locked position. On the bolt shown in the drawings a projecting hook b^5 is arranged to engage a socket in the end of the hasp k , the latter being pivoted in the usual manner at one side of the case and arching over from side to side, so as to afford a means for attaching the padlock to a staple or like part. A spring l may be arranged in proper position to thrust against the heel of the hasp, as shown in Figs. 2 and 3 of the drawings, so as to tend to hold it normally in an opened position.

When the padlock has the bolt in the locked position, as shown in full lines in Fig. 2 of the drawings, and the tumblers are arranged with the slabbed-off portions presented to the edge of the bolt, as shown in the same figure, the bolt may be thrown back, so as to unlock the hasp by simply turning the knob i ; but when the tumblers are turned, so that a solid portion of the edge will project into the recesses in the edge of the bolt, the latter cannot be thrown back, but will be held secure, and until all of the several tumblers in the lock are thrown into the proper position the bolt is still retained in the locked position. It is evident that one or more of these tumblers

may be used, as may be desired, and that the larger the number the greater will be the security afforded by the device.

In the form of lock shown in Figs. 5 and 6 the bolt b^6 is a rotary disk, the several tumblers $d' e' f'$ being made with a segment cut from the edge in the same manner as in the case where a reciprocating bolt is used. The same method of setting the tumblers is employed in this form of disk-lock as in the form where a reciprocating bolt is used, the principle of constructing being the same in both cases. In Fig. 5 the tumblers are shown in position, leaving the bolt free to turn.

I claim as my invention—

In combination, in a lock, a movable bolt having a number of recesses in the edge thereof, a series of rotary tumblers arranged adjacent to the recesses in the bolt with one edge of each tumbler adapted to project into the respective recesses in the bolt and having a segment of the tumblers cut away to an extent corresponding to the recesses, a handle secured to each tumbler and located on the outer surface of the lock and bearing an index-mark, a series of index-marks on the surface of the lock adjacent to the edge of the handle, and means for throwing the bolt, all substantially as described.

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Witnesses:

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