(No Model.) 2 Sheets—Sheet 1.

J. BAUM.

PERMUTATION LOCK.

No. 446,657. Patented Feb. 17, 1891.

FIG. 1.

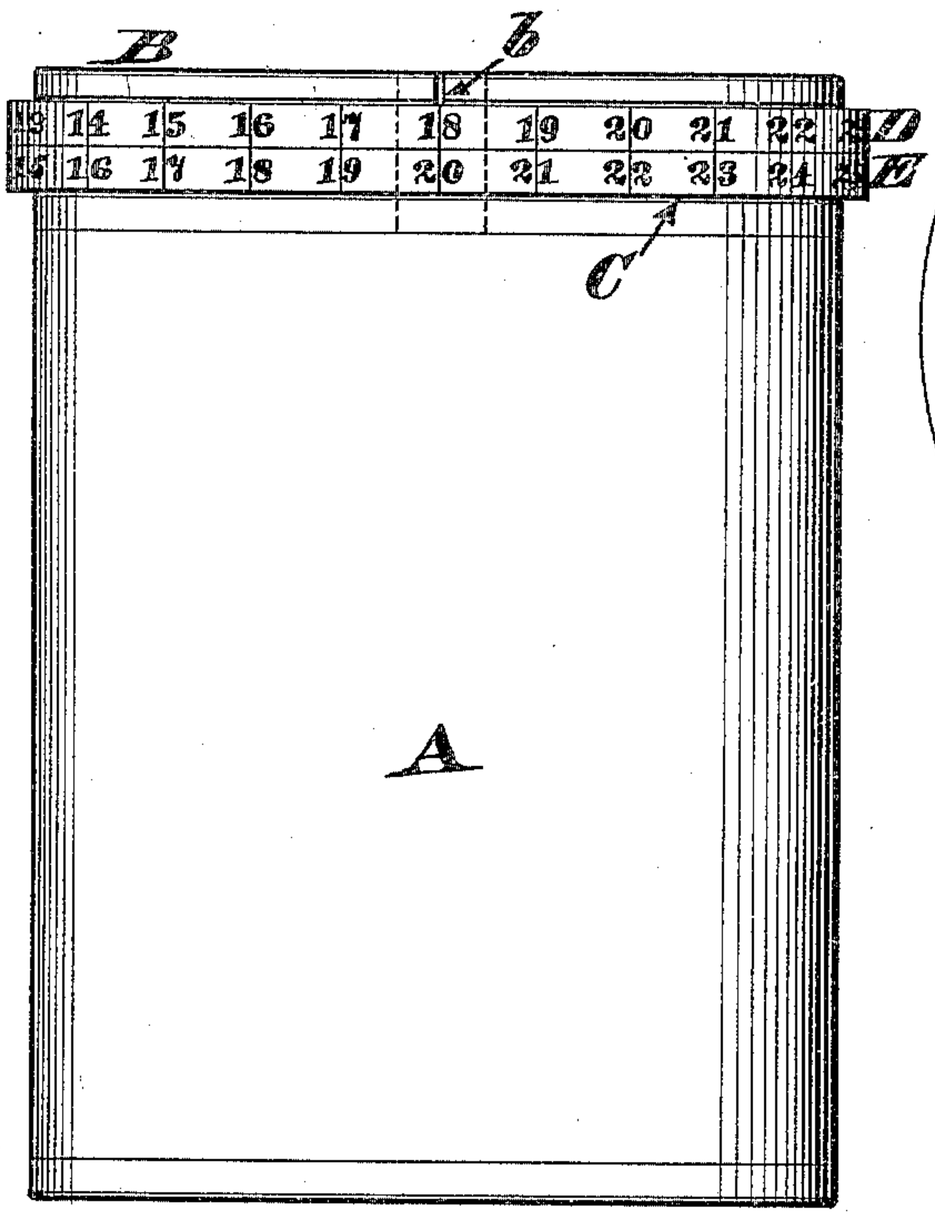


FIG. 2.

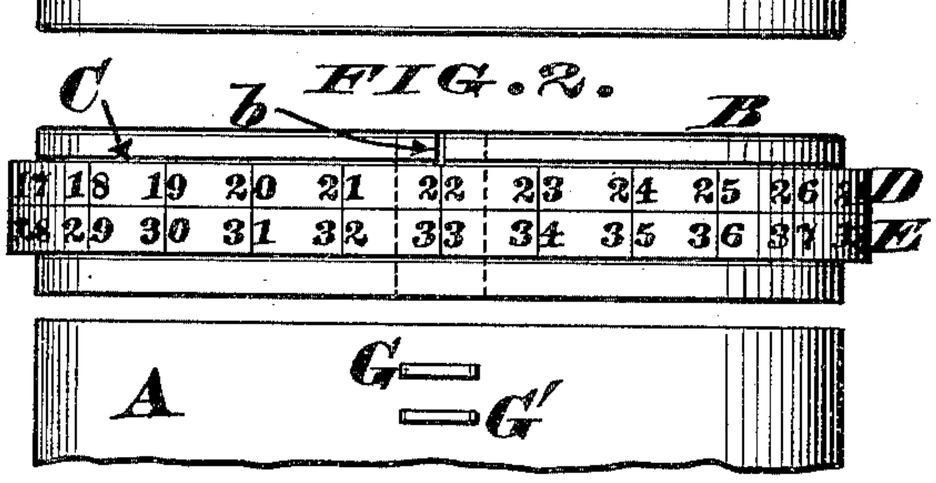


FIG. 3.

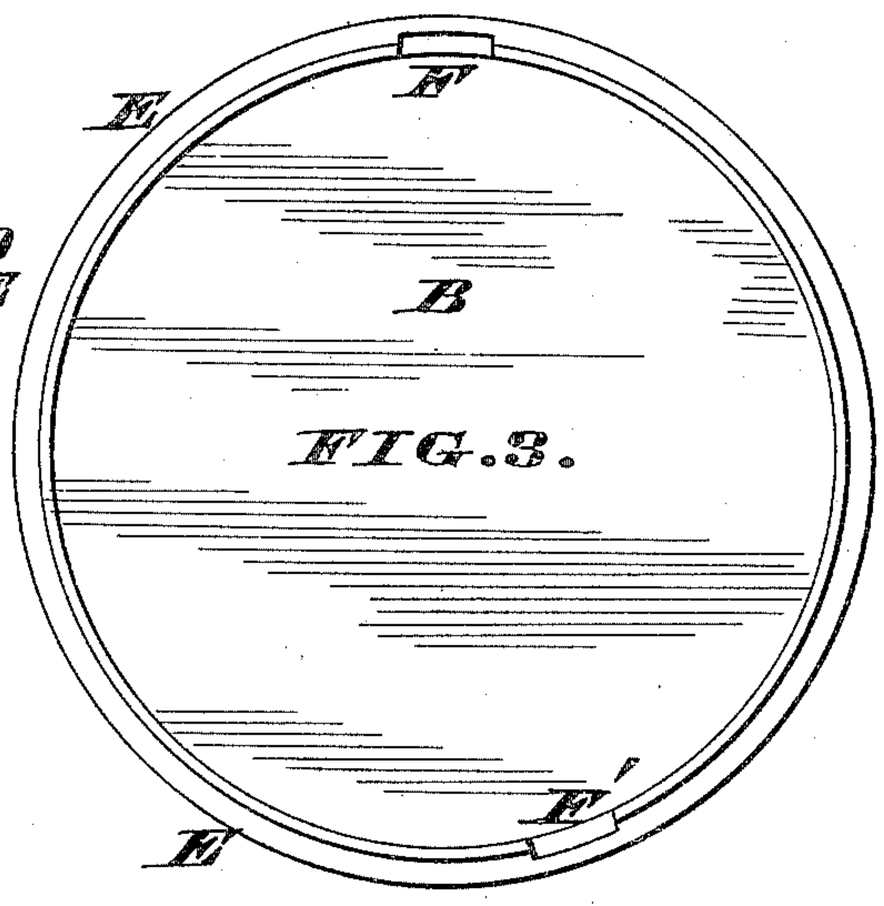


FIG. 4.

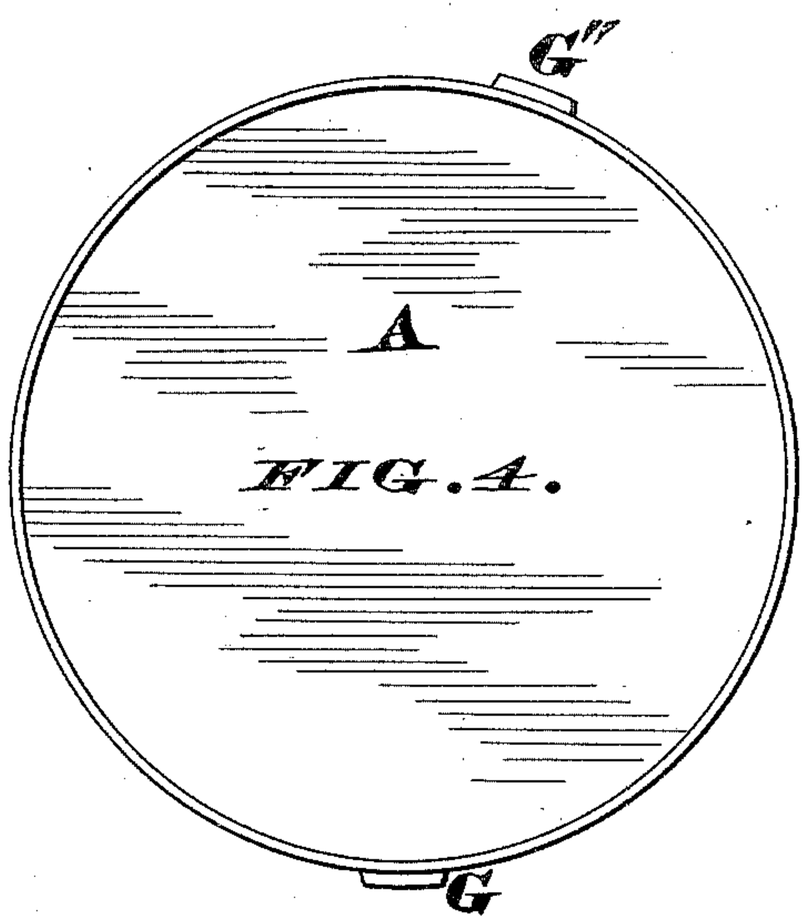


FIG. 5.

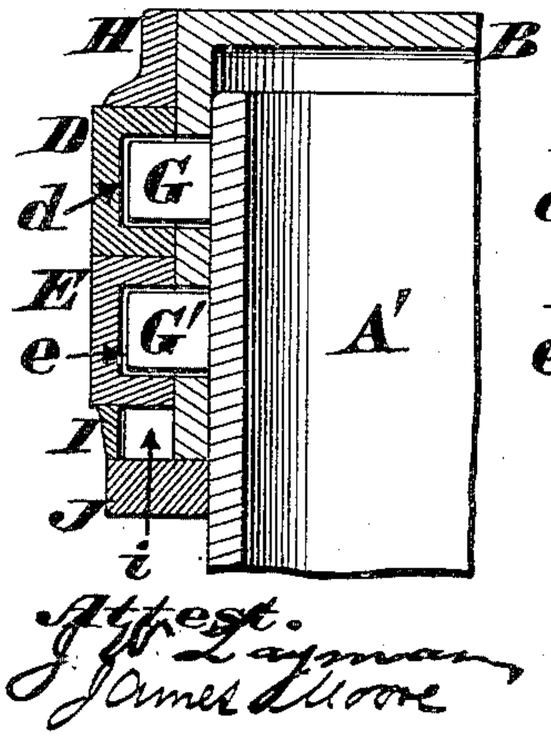


FIG. 6.

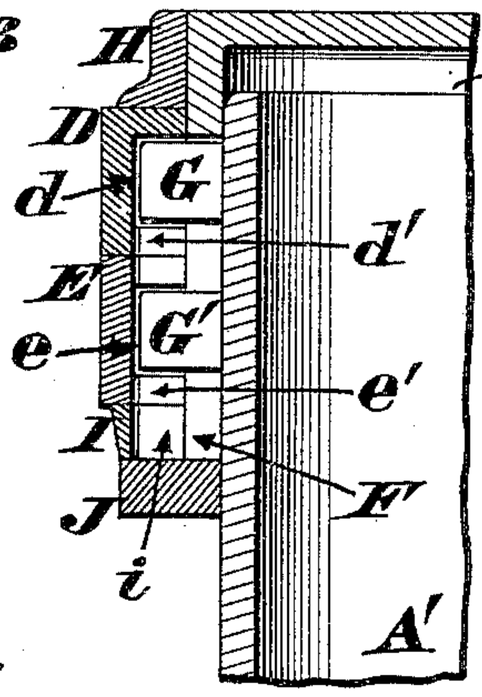
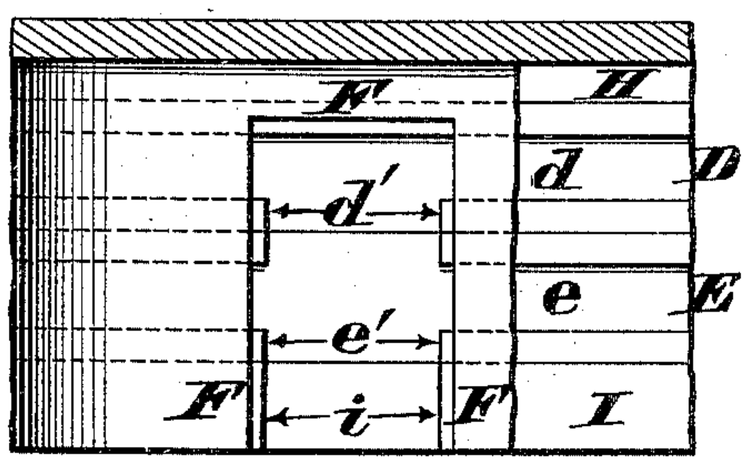


FIG. 7.



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(No Model.) 2 Sheets—Sheet 2.

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FIG. 8.

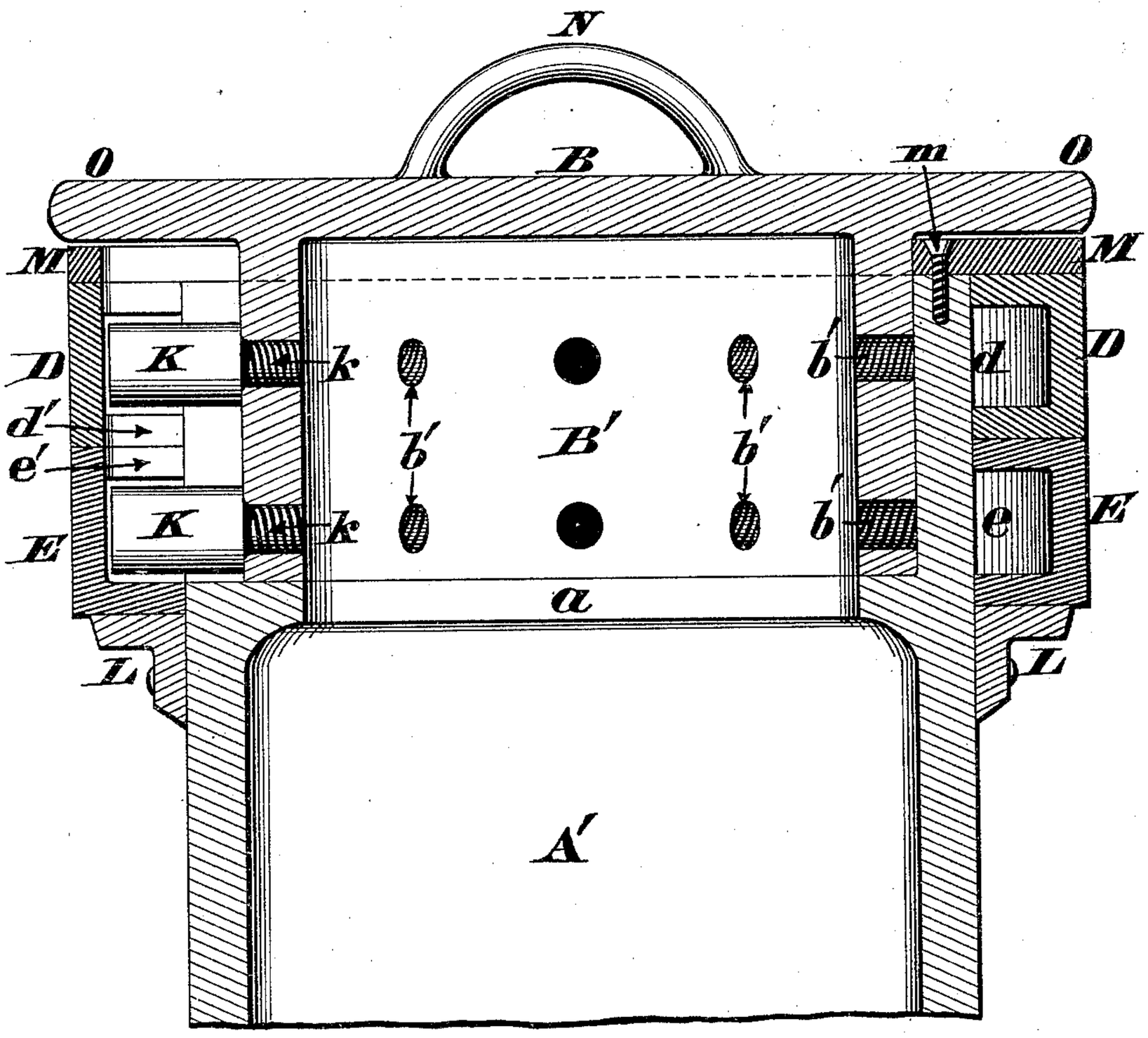


FIG. 9.

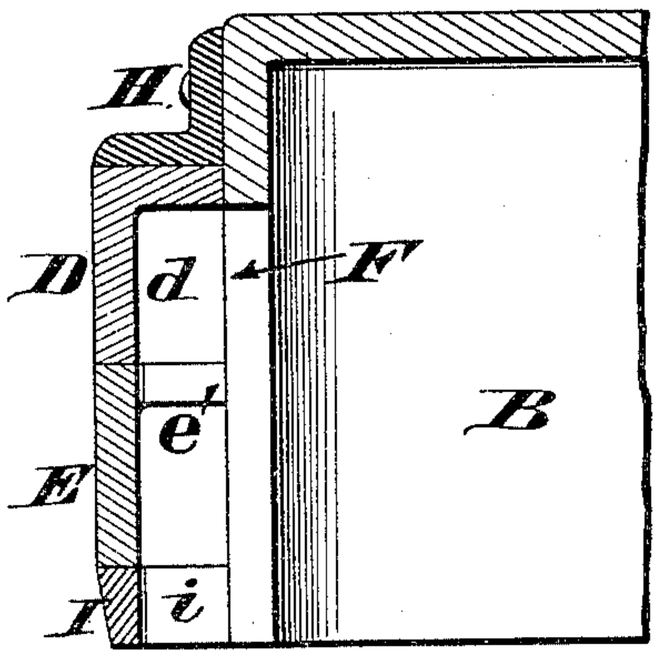
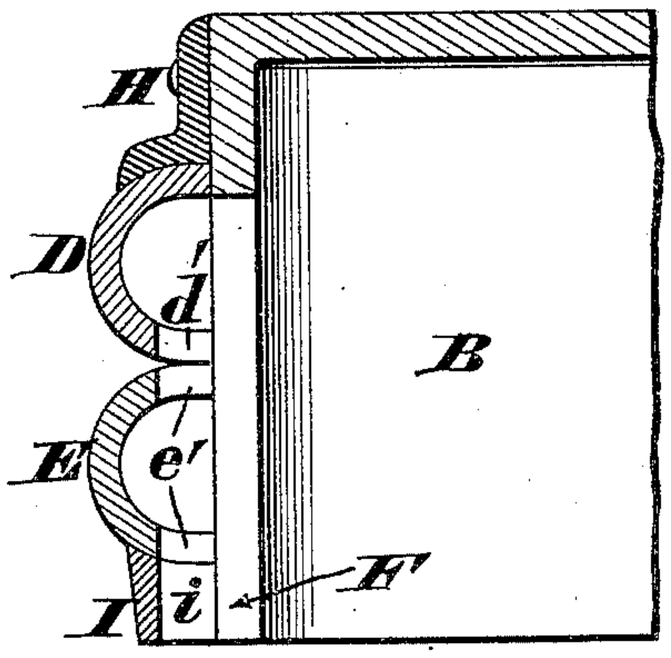


FIG. 10.



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UNITED STATES PATENT OFFICE.

JACOB BAUM, OF CINCINNATI, OHIO.

PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 446,657, dated February 17, 1891.

Application filed September 15, 1890. Serial No. 364,935. (No model.)

To all whom it may concern:

Be it known that I, JACOB BAUM, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Permutation-Locks; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form a part of this specification.

My invention comprises a cheap and simple permutation-lock, which has been designed, principally, for application to toy money-boxes, although the device may be so elaborated as to be useful for other and more important purposes. This lock, whether made in its simple or complex form, necessitates the box or safe being composed of two separate cylindrical sections, one of which is provided with a set of ring-tumblers, while the other section is furnished with lugs or pins or other projections wherewith said tumblers are engaged when the box or safe is locked. It is preferred, however, to apply said tumblers to the cap or cover of the box or to the door of the safe, and when they are so revolved around said cap or door as to restore the combination said tumblers are disengaged from the retaining-lugs or projections of the box or safe, as hereinafter more fully described.

In the annexed drawings, Figure 1 is an elevation of a toy money-box embodying my invention, the tumblers being arranged to lock the cap or cover. Fig. 2 is an elevation showing the tumblers set to restore the combination and the cap or cover detached from said box. Fig. 3 is a plan of the under side of a said cap or cover. Fig. 4 is a plan of the upper end of the money-box. Fig. 5 is an enlarged vertical section through the locking devices, the ring-tumblers being engaged with the retaining-lugs of the box or safe. Fig. 6 is a similar section, but showing the ring-tumblers shifted around to a position that liberates them from the aforesaid lugs and permits the cap to be detached. Fig. 7 is an enlarged sectionized elevation of a portion of the cap and its accessories. Figs. 8, 9, and 10 are modifications of the invention.

When the lock is to be applied to a toy money-box, I make the latter in the shape of a sheet-metal cylinder A and fit thereon a sliding cylindrical cap or cover B, as seen in Fig. 1, which cover is provided with a suitable index *b* and an annular or circumferential groove C, within which latter the ring-tumblers can be readily turned. As many of these tumblers may be used as desired; but for ordinary purposes two will be sufficient, as represented at D and E, the outer edge or periphery of each tumbler being suitably numbered or lettered or otherwise provided with such characters as will enable a combination to be set up. *d* and *e* are annular grooves on the inner surface of these ring-tumblers, and *d' e'* are breaks or interruptions in said grooves, as seen in Fig. 7.

F is a vertical slot in the cap, which slot must clear the lugs G G' when said cap is fitted on the box or safe. These lugs project laterally from the safe and are so located as to engage with the grooves of the tumblers when the cap is locked to the box, as seen in Fig. 5. To lock this cap or cover to the box or safe, it is necessary only to turn the rings D E around until the interruptions *d' e'* are opposite the slot F of said cap, as seen in Fig. 7. The cap is then placed upon the box, care being taken, however, to have said interruptions and slot accurately in line with the lateral lugs G G', and then said cap is forced down as far as may be necessary and brought to a proper bearing. When the cap is thus arrested, the grooves *d e* are horizontally in line with the retaining-lugs G G', and by turning the rings D E indiscriminately to the right and left said grooves are caused to engage with said lugs, and thereby securely lock the cover to the box or case A. Evidently the cover cannot now be detached until the combination has been properly restored, and, presuming the interruption *d'* of the upper ring D is directly in rear of 22 on said ring, while the interruption *e'* of the lower ring E is directly in rear of 33 of the latter ring, it is apparent said rings must be turned around to the position seen in Fig. 2 to form this combination. Therefore as soon as the combination 22 33 is produced the cap or cover B can be pulled directly off the box or safe A. In case the cap is comparatively short it may be

necessary to provide the box with a second set of lugs G″, adapted to traverse an extra slot F′ of said cap; but care must be taken not to locate said lugs G″ diametrically opposite the other set of lugs G G′. Care must also be taken in constructing this cheap form of lock to make the groove C so deep as to prevent exposure of the breaks *d′ e′* of the tumbler-grooves.

A more secure form of lock is seen in Figs. 5 and 6, where A′ represents a cylindrical neck or extension of a bank-safe, and H I are rings riveted to the door B of the same, the lower ring I being cut away at *i* to clear the lugs G G′ when said door is pulled open, which break *i* must be in line with the index *b*. J is a ring riveted to the neck A′ and serving to conceal the break *i* and interruptions *d′ e′*. This complex construction of lock is operated in precisely the same manner as the more simple form previously described; but in the modification seen in Fig. 8 the cap B has a cylindrical portion B′, adapted to fit within the open end of the safe or safe extension A′, an annular shoulder *a* of the latter limiting the insertion of said portion B′. Furthermore, this portion B′ of the cap or door or cover has a series of screw-threaded holes or sockets *b′* to admit the screw-threaded shanks *k* of pins K, which pins take the place of the studs G G′ seen in the preceding illustrations, and by inserting said pins in new holes the combinations will be changed accordingly. The ring-tumblers D E revolve around the safe extension A′, to which they are coupled by rings L M, the latter being secured to the end of said extension by screws *m*. N is a pull or handle for the cap B, and O is an annular flange projecting from said cap and serving to conceal the breaks in the tumblers.

Another modification is seen in Fig. 9, where the tumblers take the shape of an inverted L, while in Fig. 10 they are semicircular in transverse section.

From the above description it is apparent that the exact shape of the tumblers is immaterial, and that they can be applied either to the stationary or detachable part of the box or safe.

I claim as my invention—

1. The combination, in a permutation-lock, of a cylindrical box or safe A, having a series of projecting lugs G G′, and a separable cover B, having a longitudinal slot F and a seat C for a set of ring-tumblers D E, which tumblers have annular grooves *d e* on their inner surfaces, said grooves being interrupted at *d′ e′* to clear said lugs G G′ when said tumblers are turned and the combination restored, substantially as herein described.

2. In combination with a money box or safe composed of two separable cylindrical sections, a series of ring-tumblers having interrupted grooves on their inner surfaces, which grooved tumblers revolve around one of said cylindrical sections and engage with lugs or pins adjustably secured to the other section and projecting outwardly therefrom, for the purpose described.

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

JACOB BAUM.

Witnesses:
JAMES H. LAYMAN,
SAMUEL M. QUINN.