(No Model.) 2 Sheets—Sheet 1.

J. H. WARNER.

COMBINATION LOCK.

No. 594,447. Patented Nov. 30, 1897.

Fig. 1.

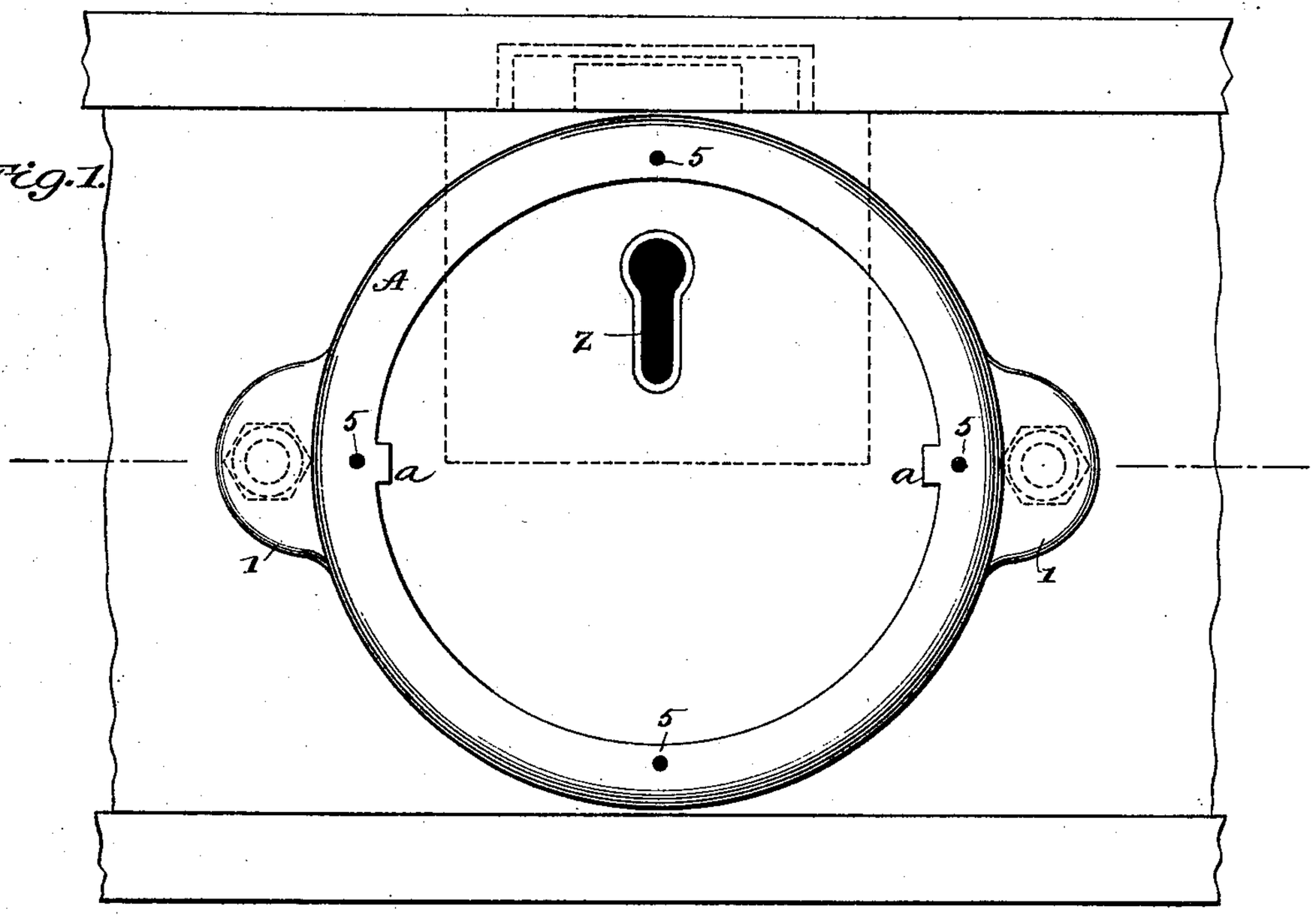


Fig. 2.

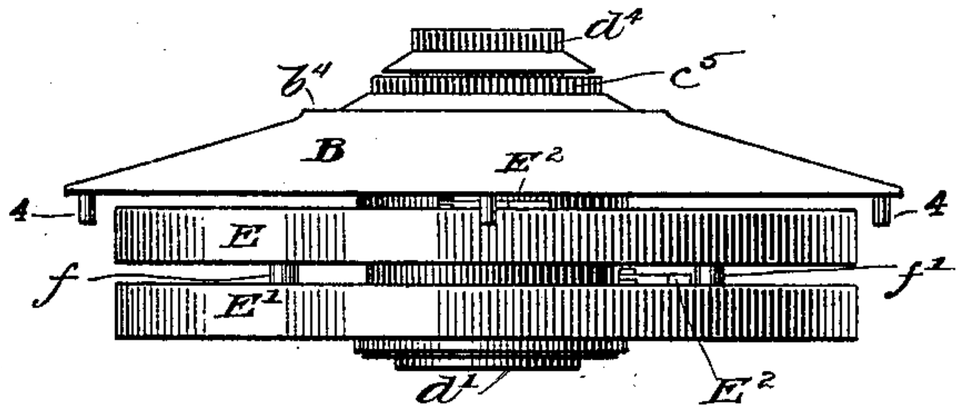
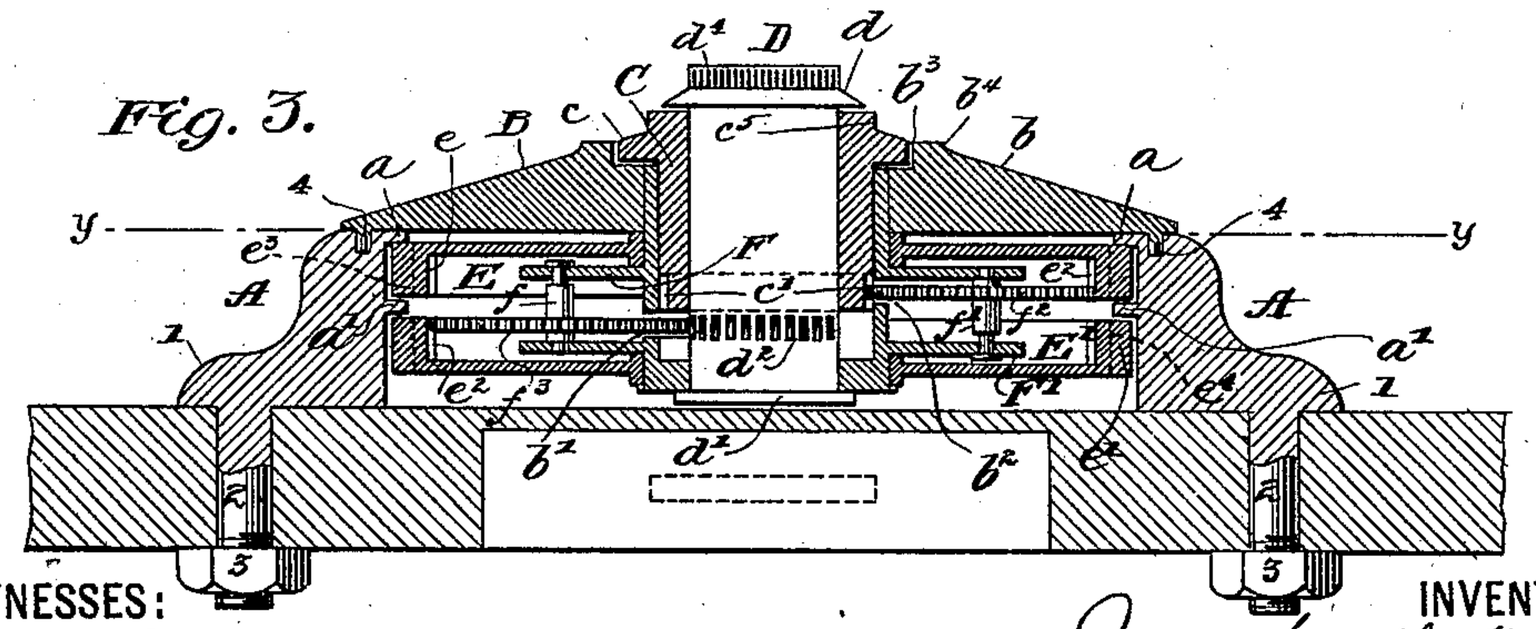


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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COMBINATION LOCK.

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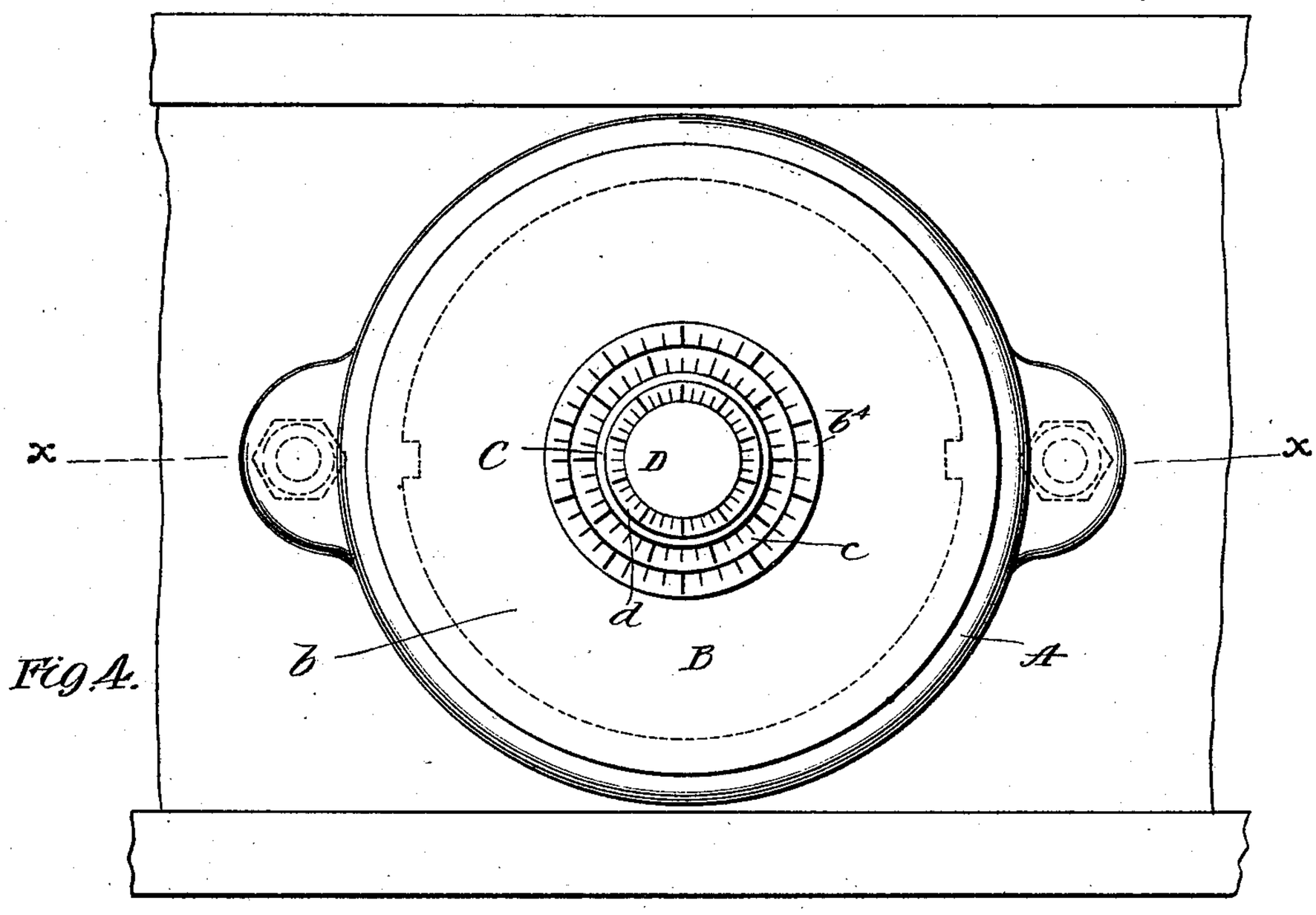

Fig. 4.

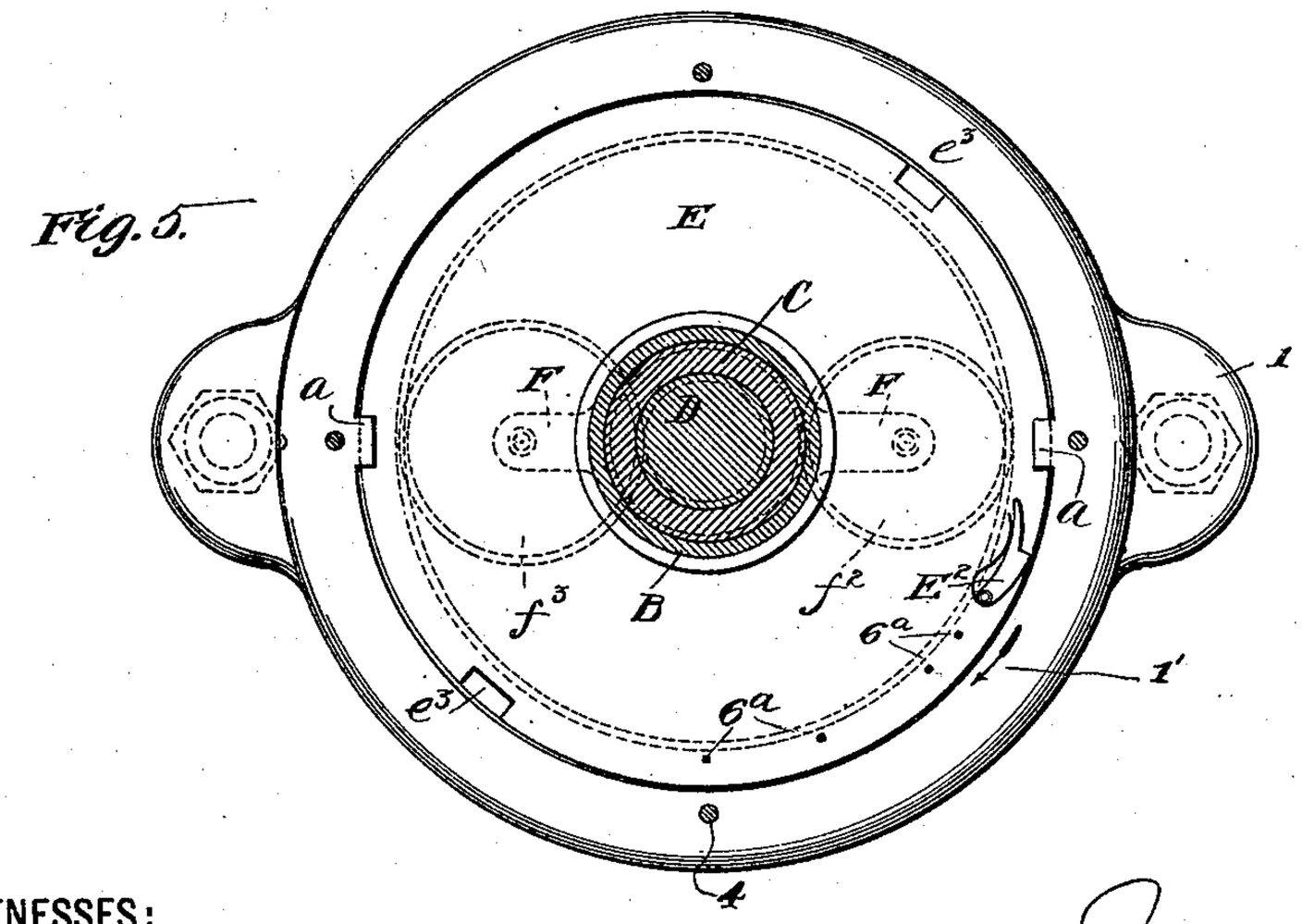

Fig. 5.

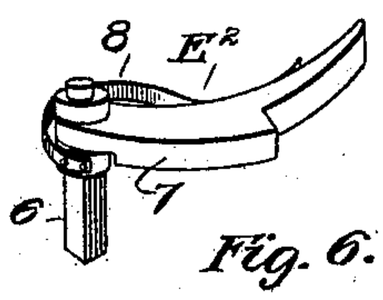

Fig. 6.

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UNITED STATES PATENT OFFICE.

JAMES HAROLD WARNER, OF NEW YORK, N. Y.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 594,447, dated November 30, 1897.

Application filed July 17, 1893. Serial No. 480,752. (No model.)

To all whom it may concern:

Be it known that I, JAMES HAROLD WARNER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Combination-Locks, of which the following is a description, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

My invention relates to combination-locks which may be applied to various devices and used in many connections, and particularly in connection with registers or indicators of coin-operated apparatus.

The object of the invention is to provide a combination-lock which will be simple, cheap of construction, positive of operation, and free from tampering and which can be opened only by one understanding the combination.

Heretofore many and various combination-locks have been produced in which all the moving parts of the mechanism have been controlled by one knob and in which bolts or bars forming part of such lock have been actuated and thrown by the mechanism of the lock. In my invention, however, the function of the lock is to conceal and shelter the lock or catch of the apparatus to which it is connected, which catch or lock is ordinarily of a simple character, easily opened, and having no inherent security. My invention therefore is in effect a guard or safety device for the locks or catches of any kind of apparatus or mechanism, and by reason of its shape and structure is practically a safety-plug for locks and latches, which upon being removed exposes to view the fastening device of the apparatus in connection with which it is used.

To attain the above ends, I have constructed the device and combination of parts as hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a bureau-drawer, for example, having in position thereon over the ordinary lock the casing or frame of my device ready to receive the removable lock. Fig. 2 is a side elevation of the removable lock. Fig. 3 is a vertical section taken on the line *x x* of Fig. 4, showing one of the bolts in elevation. Fig. 4 is a plan similar to that of Fig. 1, but showing the lock of Fig. 2 in place. Fig. 5 is a transverse section taken on the line *y y* of Fig. 3, and Fig. 6 is a perspective of the spring-actuated detent.

A indicates the frame or casing, forming a housing for the lock proper. This casing may be secured in any suitable manner to the apparatus, chest, drawer, &c., to which my lock is to be applied, in the instance shown said casing being secured to the outside of an ordinary bureau-drawer and over the lock thereof. The means shown for securing the casing in place consists of the ears 1, integral with or otherwise secured to the casing A, provided with bolts 2, screw-threaded at the inner ends and having nuts 3 screwed thereon. The casing is provided with two sets of lugs *a a* and *a' a'*, which are disposed at diametrically opposite points and in pairs, the lugs of each pair being one above the other, as shown in Fig. 3.

The lock comprises three bolts B, C, and D, nesting one within the other, the outer one B forming a covering or cap *b*, which overlaps the edge and rests upon the upper surface of the casing A, to which it is removably secured by the dowels 4, entering sockets 5, and by which means said bolt is held from rotation. The bolt B is also provided with two short circumferential slots b' b^2, arranged in different planes and on opposite sides thereof. At the outer end the bolt B is provided with a countersink or flange b^3, in which rests the flange *c* at the outer end of bolt C, which latter is also provided at its inner end with a pinion *c'*, which is operated through slot b^2 of bolt B. The bolt C extends only to the inner wall of slot b^2 and at its outer end is overlapped by the flange *d* at the outer end of the bolt D, which latter extends through bolts C and B and has its inner end flanged at *d'*, so as to support and retain the other bolts B and C. Near its inner end and beyond the inner end of bolt C the bolt D is provided with a pinion d^2, which is operated through slot b' in bolt B. Surrounding the bolt B below its cap *b* are two rings or circular plates E E', each provided with a flange, the one *e* on ring E extending inwardly and the one *e'* on ring E' extending outwardly. Each of said flanges *e e'* is provided with internal cogs or teeth e^2. On the bolt B are suitably supported two

plates F F′, of any suitable shape, having at opposite points shafts $f f'$, carrying pinions $f^2 f^3$, the one f^2 gearing with the pinion c' on the bolt C and also with the teeth or cogs of the ring E and the other, f^3, gearing with the pinion d^2 of the bolt D and with the teeth or cogs of the ring E′. The ring E is also provided with notches e^3 and the ring E′ with notches e^4, which are let into the flanges $e e'$, respectively, of said rings and are so arranged as to enable said rings to pass the lugs or projections $a a'$ to permit the withdrawal of the lock. The flanges $c d$ of the bolts C D are provided with beveled surfaces and with milled flanges $c^5 d^4$, respectively. The bolt B is also provided with a beveled flange b^4. On the several beveled surfaces of bolts B, C, and D numbers, figures, scales, &c., are placed. Each of the rings E E′ is also provided with a spring-actuated detent E^2, the spring thereof normally pressing said detent toward the outside of the ring in the direction of the frame A.

As shown in Fig. 6, the shaft 6 of the detent is squared or made angular in cross-section, so as to fit corresponding sockets 6^a in the surface of the rings E E′, (see Fig. 5,) and the detent 7 is swiveled to the upper end of said shank 6, which is rounded, so as to allow of the swivel movement of the detent under the control of the spring 8. The sockets 6^a are arranged at varying distances apart, and the arrangement of the detent in the different sockets will effect a different combination for opening the lock, and the knowledge of the position of such detent would give the key to the combination and enable the lock to be opened. The arrangement of the sockets 6^a is in accordance with a given scale, which is made to correspond operatively with the scale of the several bolts.

The operation of the device thus described is as follows: The parts reach the position shown in Fig. 5 by passing the notches $e^3 e^4$ of the respective rings E E′ over the lugs or projections $a a$ of the casing A and then rotating said rings to prevent withdrawal thereof. It will be understood that the part or casing A is secured to some article, device, or apparatus having a mere latch or common lock to secure it closed, which may be represented at Z, and that the object of this invention is to protect or cover such lock or latch by being disposed in the manner shown and described. Now in order to get at the lock or latch fastening the device it is necessary to cause the notches in the rings to register with the lugs on the casing, so as to pull the combination-lock by the lugs and thus expose the lock or fastening. To accomplish this, the bolts C and D are rotated from position where detent E^2 rests against one of the lugs on casing A to cause predetermined numbers, &c., constituting the combination on the three bolts to register with each other. The rotation of the bolts C and D causes the rotation of the pinions $f^2 f^3$, which in turn rotate the rings E E′, and when the combination has been properly manipulated the notches e^3 e^4 will register with the lugs $a a'$, thus enabling the removal of the lock. The arrow l, Fig. 5, indicates the proper direction of rotation of the rings, and a reverse movement will render futile any attempt to operate the lock because of the action of the spring-detent upon the lugs of the casing.

Manifestly many changes in the details of construction can be made without departing from the spirit of my invention—as, for example, one of the plates F F′ could be dispensed with, it being only necessary to firmly hold the shafts of the pinions $f^2 f^3$. Nor is it necessary that the inner ones of the pairs of lugs $a a$ be present, as the outer ring will prevent the inner one being withdrawn.

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

1. A masking device for locks and latches, consisting of a stationary casing and a withdrawable core; said core consisting of a central operating-bolt projecting from the casing and rotating bolts arranged circumferentially with respect to said operating-bolt and operatively connected with rotatable rings adapted to register with retaining-lugs upon said stationary casing; substantially as and for the purposes described.

2. A masking device for locks and latches consisting of a stationary casing provided with retaining-lugs, independently-rotatable retaining-rings adapted to register with said lugs to permit the withdrawal of said rings, a series of concentric bolts in operative connection with and retained within said casing by said rings, said series of bolts being adapted to be operated from without said stationary casing; substantially as and for the purposes described.

3. The combination with an open ring-casing provided with means for detachably securing it to a given object, of a combination-lock detachably secured within said casing and consisting of certain operatively-connected members all of which latter move in unison when the lock is removed from, or placed within, the casing.

4. The combination with a frame or casing provided with retaining-lugs, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, a plurality of rings, means for rotating the rings, and means on the rings coöperating with the lugs to permit the removal of the lock.

5. The combination with a casing, of a combination-lock, comprising a plurality of bolts and a plurality of rings, means for rotating the rings in one direction, means for preventing their complete rotation in a reverse direction, and means for detachably connecting the lock to the casing.

6. The combination with a frame or casing, of a combination-lock, comprising a plurality

of bolts nesting one within the other, a plurality of rings rotatably connected with one of the bolts, means for rotating the rings in one direction and means for impeding their rotation in a reverse direction, and means for retaining the lock within the casing permitting its removal.

7. The combination with a casing, of a combination-lock removably secured therein, a cap carried by, and removable from the casing with, said lock for masking the lock mechanism, and means for holding said cap stationary relative to said lock while the latter is being operated.

8. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, means for retaining the lock within the casing, permitting its removal, and a cap secured to one of the bolts masking the lock mechanism.

9. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, and each of said bolts having a beveled flange at its outer end and the outer bolt having a cap, and means for retaining the lock within the casing permitting its removal.

10. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, and each of said bolts having a beveled flange at its outer end, the inner bolt having a supporting-flange at its inner end and the outer bolt having a cap, means for retaining the lock within the casing permitting its removal.

11. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, the inner two of the bolts being provided with pinions, a plurality of rings rotatably connected with one of the bolts, means for coöperating with the pinions for rotating the rings, and means for retaining the lock within the casing permitting its removal.

12. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, two of the bolts being provided with pinions, a plurality of rings rotatably connected with one of the bolts, and cogs on each of the rings, gearing connecting the cogs of the rings with the pinions of the bolts, and means for retaining the lock within the casing permitting its removal.

13. The combination with a casing provided with retaining means of a combination-lock, comprising a plurality of rings, means for operating said rings, and means carried by said rings and adjustable thereon for coöperating with the said retaining means, whereby a change in the effective combination may be obtained; substantially as described.

14. The combination with a casing provided with retaining means, of a combination-lock comprising a plurality of rings, means for operating said rings, and spring-controlled devices carried by, and adjustable on, said rings; substantially as described.

15. The combination with a casing provided with retaining means, of a combination-lock comprising a plurality of rings, means for operating said rings, means carried by said rings coöperating with said retaining means whereby the lock may be removed from the casing, and means adjustably secured to said rings and also coöperating with said retaining means, the latter means performing the double function of determining the effective combination and of preventing the complete rotation of the rings in a reverse direction; substantially as described.

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

JAMES HAROLD WARNER.

Witnesses:
FLORENCE M. EGGLESTON,
ELLISON CRAWFORD.