

(No Model.)

2 Sheets—Sheet 1.

C. L. LINCOLN.
PADLOCK.

No. 540,795.

Patented June 11, 1895.

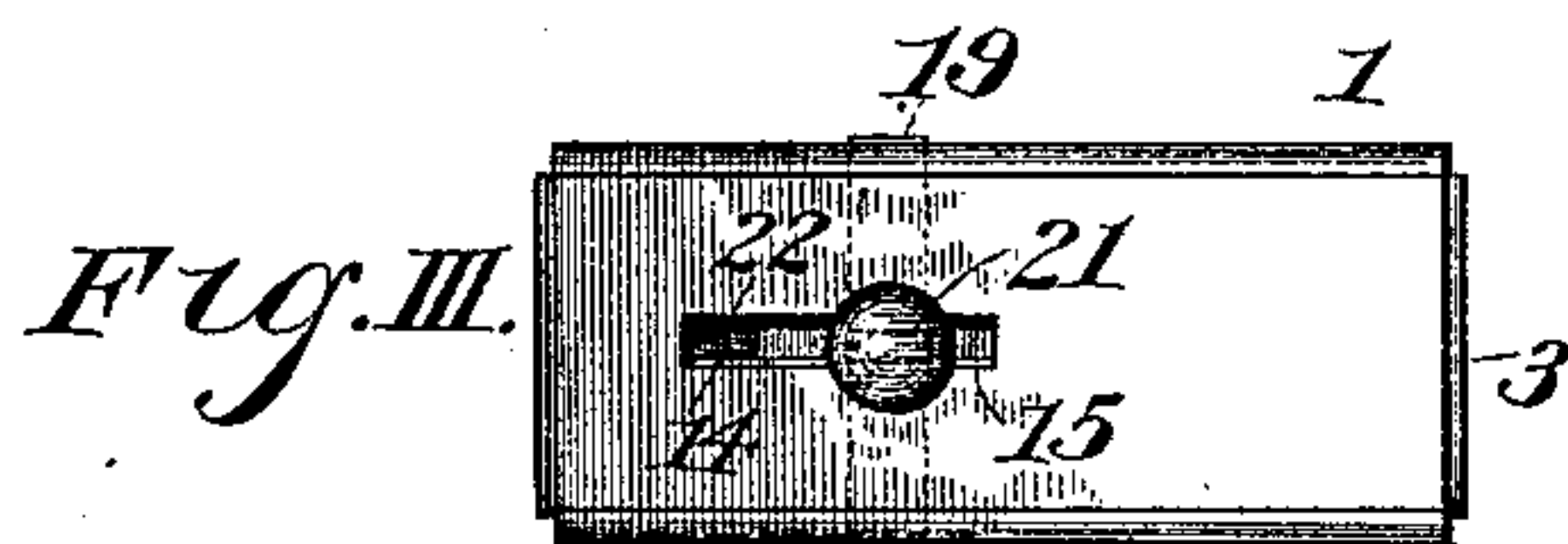
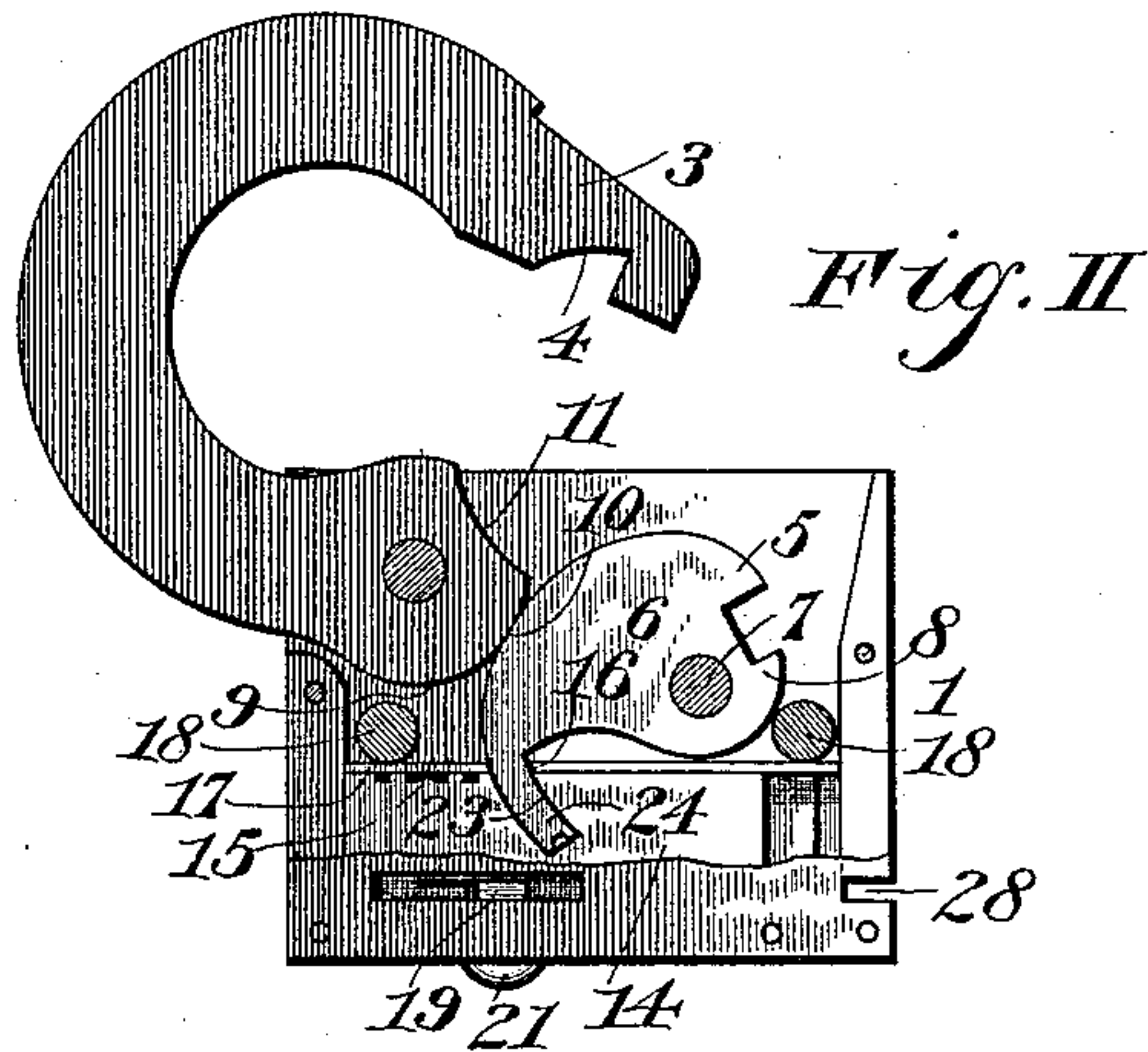
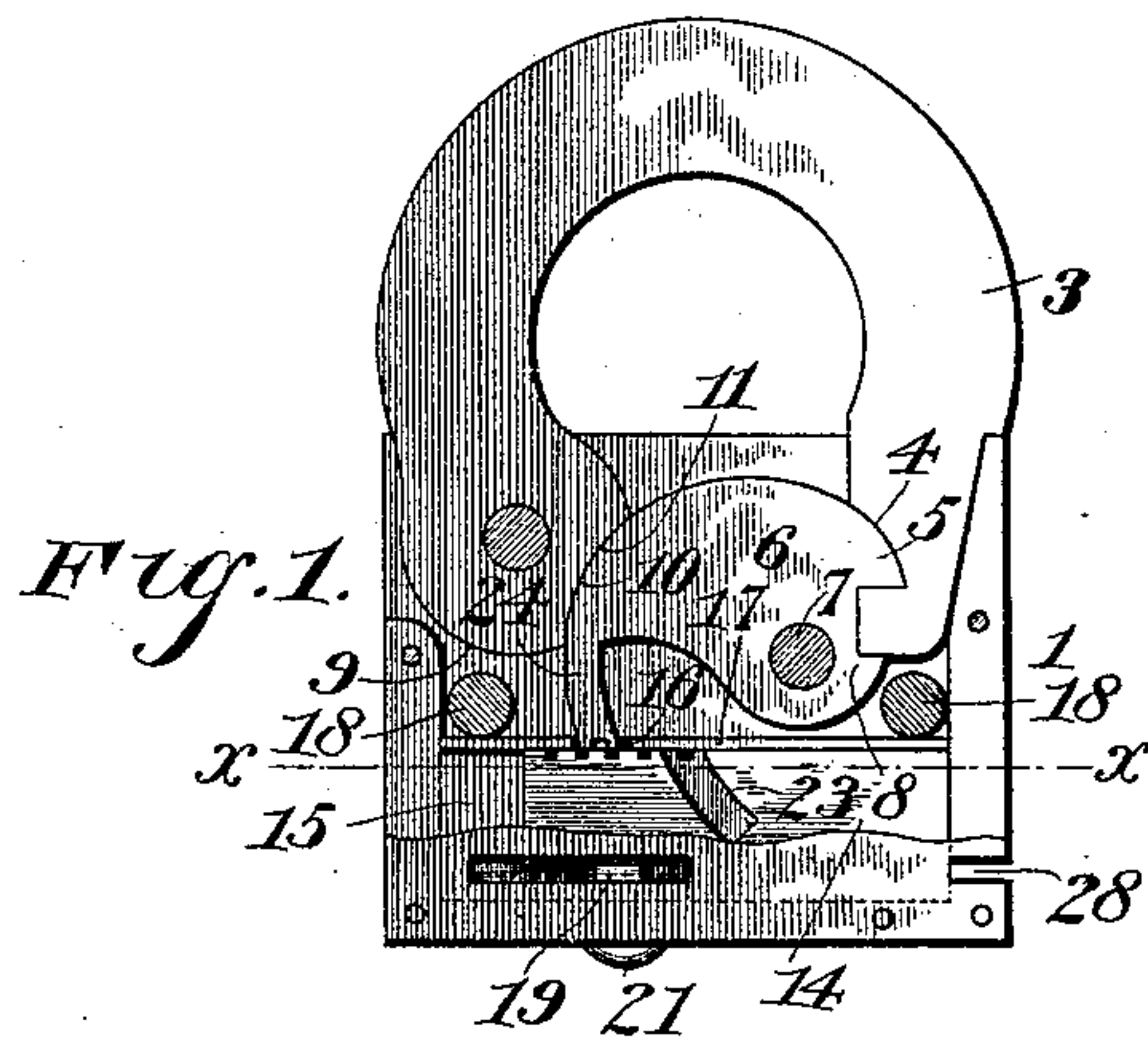


Fig. IV.

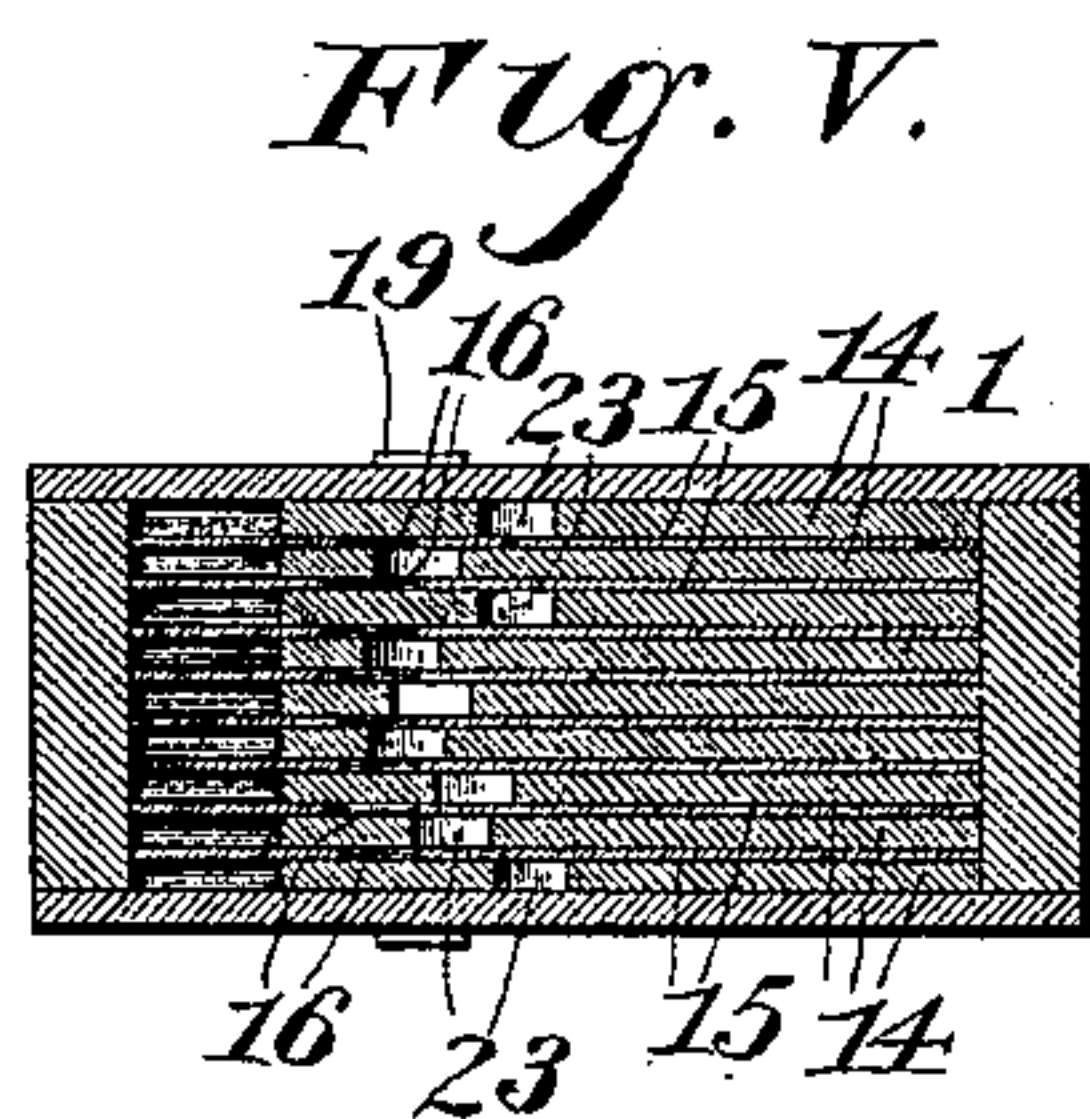
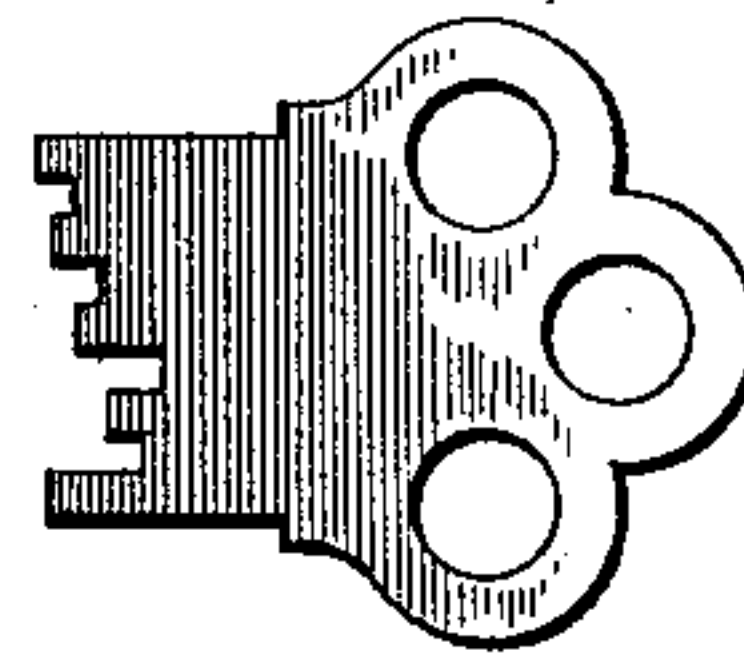
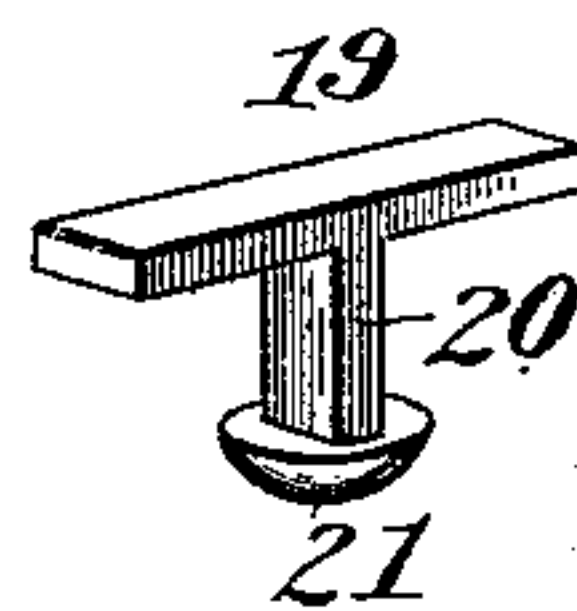


Fig. VI.



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2 Sheets—Sheet 2.

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Fig. VII.

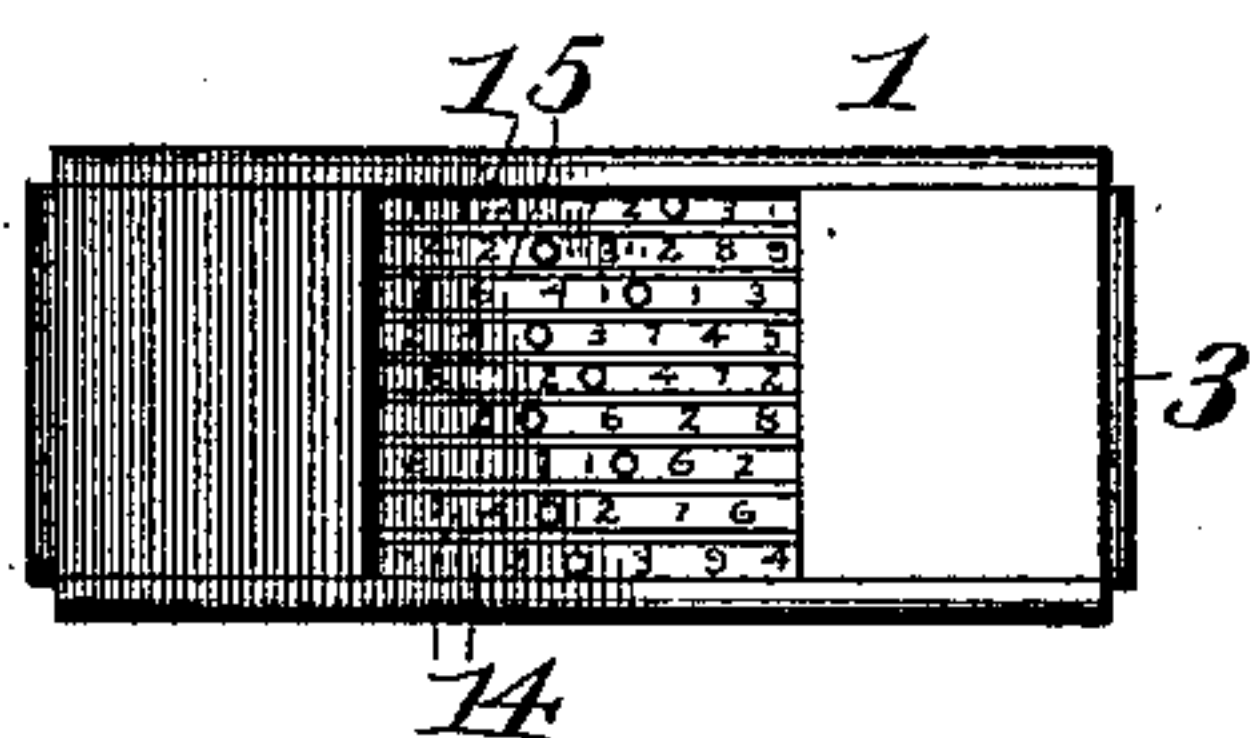


Fig. VIII.

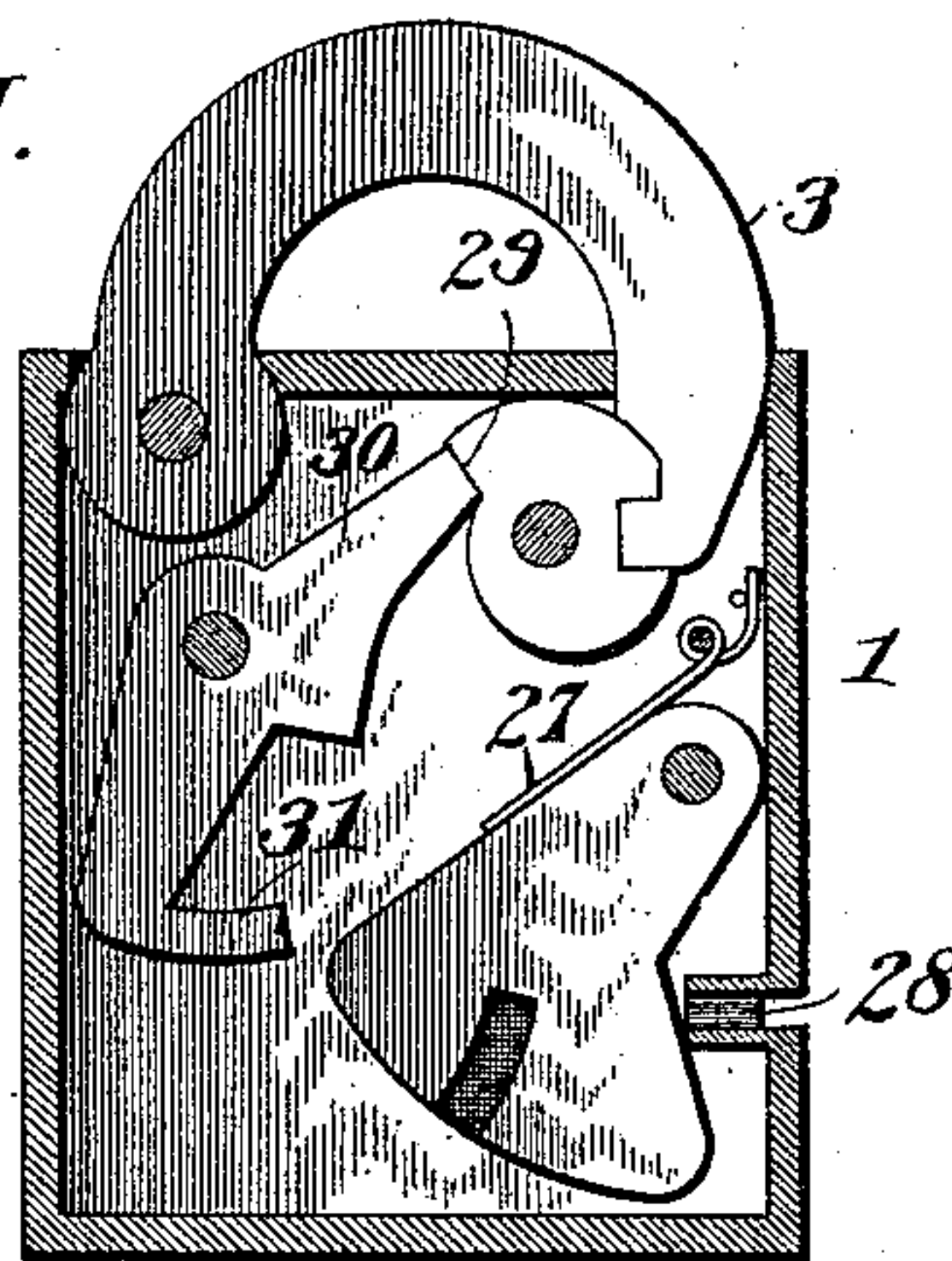


Fig. IX.

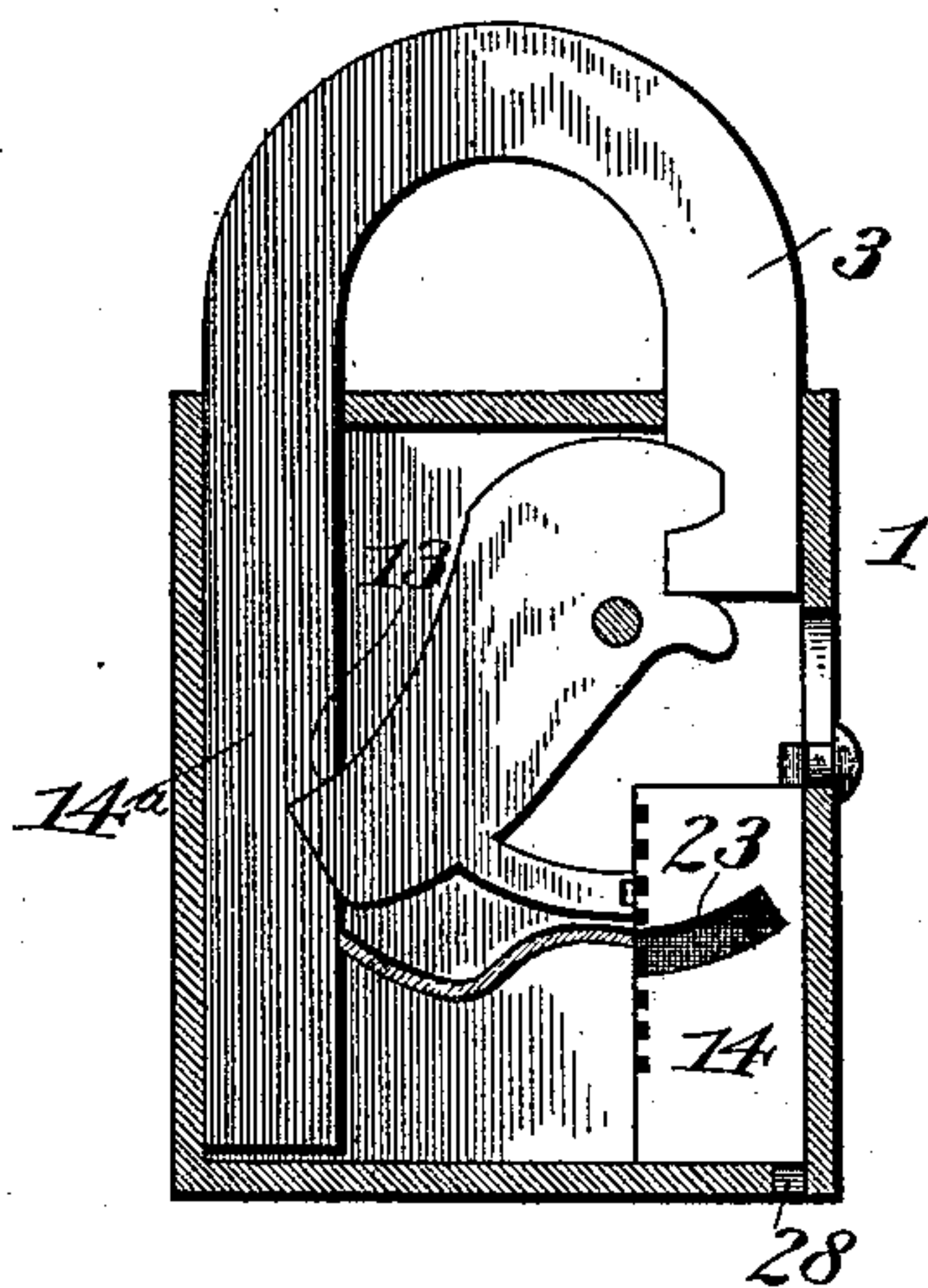
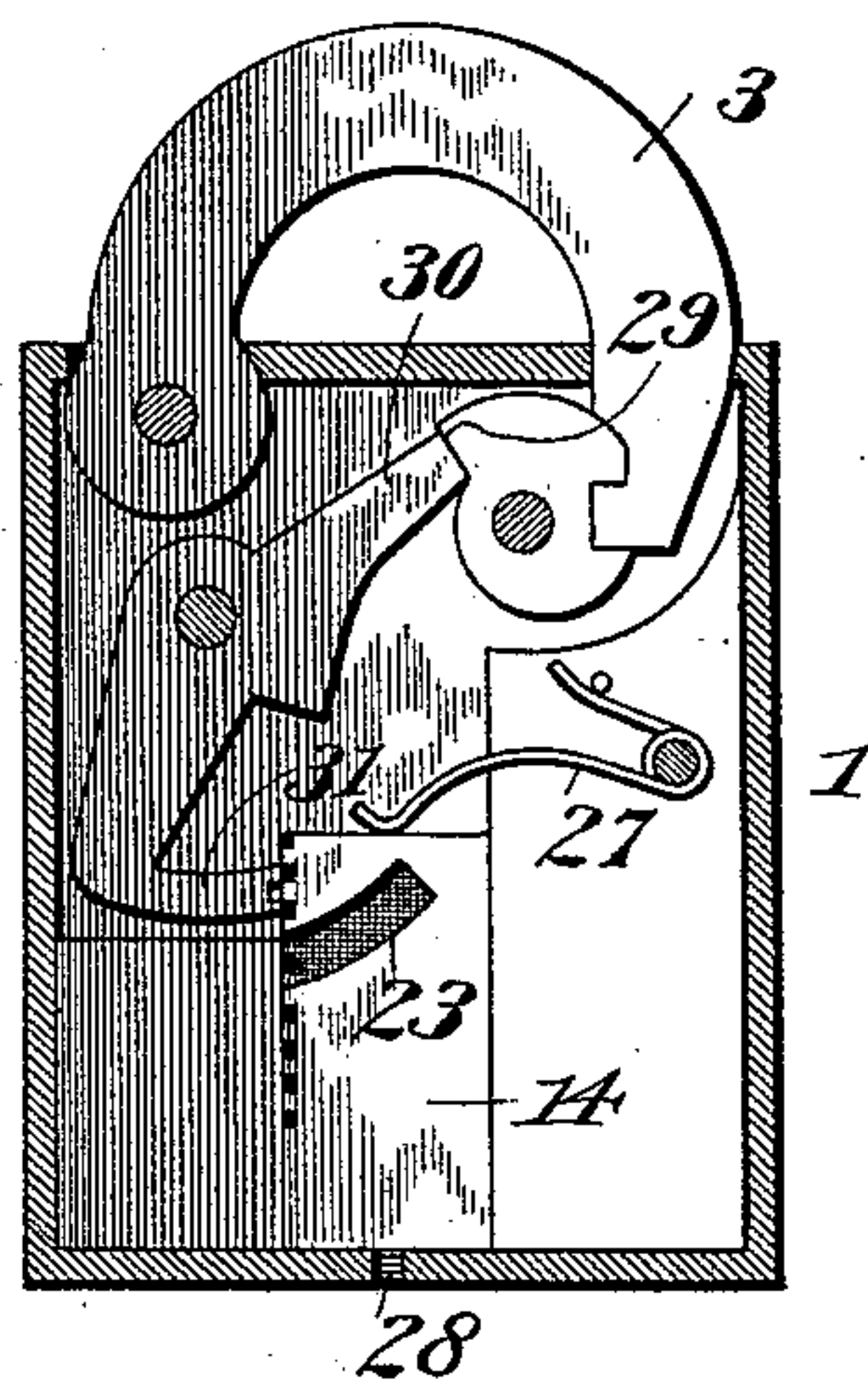


Fig. X.



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UNITED STATES PATENT OFFICE.

CHARLES L. LINCOLN, OF STAMFORD, CONNECTICUT.

PADLOCK.

SPECIFICATION forming part of Letters Patent No. 540,795, dated June 11, 1895.

Application filed April 20, 1894. Serial No. 508,308. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. LINCOLN, of Stamford, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce improvements especially adapted for padlocks, whereby the shackle dog or detent may be automatically actuated in both directions, simply by pushing or pulling the shackle; by which the dog is locked by the shackle in the open position when the shackle is raised, and by which the use of springs for actuating the tumblers may be dispensed with, if preferred.

In the accompanying drawings, Figure I is a side elevation of one form of my lock with the side removed, showing the shackle in the locked position. Fig. II is a similar view showing the shackle released from the detent. Fig. III is a bottom view of the lock. Fig. IV is a view of a key. Fig. V is a section on the line $x\ x$ of Fig. I. Fig. VI is a perspective view of the collecting-bar. Fig. VII is a bottom view of my lock when operated by a combination. Fig. VIII shows my lock with a modified form of dog or detent and spring-actuated oscillating tumblers. Fig. IX is a similar view showing another modification with staple-shackle. Fig. X shows a component form of dog, as in Fig. VIII, with sliding tumblers.

Referring to the figures on the drawings, 1 indicates the case of my lock which may be made of suitable shape, size, and dimensions and which carries, in any usual manner, a shackle 3. The shackle is preferably provided with an inwardly opening notch 4 adapted to be engaged and held by the detent 5 of a movable dog 6, for example, pivoted upon a pin 7. The dog is also provided with a lower lip 8 which moves in the path of the end of the shackle. It will be perceived, therefore, that if the dog is free to move upon its pivot pin it will be operated by reason of the engagement of the detent 5 with the notch 4, by pulling the shackle in one direction and, by the end of the shackle striking the lip 8, it will be operated in the other direction by pushing the shackle. The dog is, therefore, positively and exclusively

actuated by the shackle in both the locking and unlocking operations.

It is essential to the practical operation of this class of locks that the dog should be locked in a fixed position when the shackle is out of engagement with the dog; that is, when the lock is unlocked. Without this the dog might be operated by other means than the shackle, and the operation of the lock in that way be interfered with so as to injure the mechanism or exclude the shackle. Heretofore a spring-actuated dog has been employed, but that means is ineffectual except as against accidents, and is only partially effectual in that direction. I, therefore, provide positive mechanism for locking the dog in the open position, when the shackle is unlocked. The pivoted end of the shackle may, for this purpose, be provided with a convex surface 9, which bears against the eccentric edge 10 of the dog, and positively locks it in place until the shackle is returned to the locked position. To release the dog when the shackle is returned to the locked position, I provide the concave recess 11 whose curve conforms to the sweep of the dog on its pivot. This curve may be struck from the center of the pin 7 by a radius a little greater than the distance between the center of the pin 7 and the outer curve or contour 12 of the dog.

In Figs. I, II and IX the shackle is shown as directly operating the lock and dog, but in Figs. VIII and X it is shown as locking it by intermediate mechanism.

In Fig. IX a modification of shackle is illustrated in which a recess 13, in its stem 14^a, acts substantially upon the above-explained principle to lock the dog.

To lock the closed dog and secure the shackle, suitable tumblers 14 are provided. They may consist of loose sliding plates, as shown for example in Figs. I, II and IX, or of spring-actuated sliding plates, as shown in Fig. X, or they may be oscillating tumblers, as shown in Fig. VIII. I prefer, however, to employ simply the sliding plates referred to in the first instance and to employ, in connection therewith, a locking button.

Where sliding tumblers are employed, I prefer to provide, as usual, ordinary stationary spacing plates 15 provided with gatings 16 to permit the free passage of the dog tail, 24, and

which, having flanges 17, act as guideways for the reciprocation of the tumblers and also to prevent interference of the tumblers one with another in their several respective movements. The spacing plates may be held in position by studs or pins 18 secured to the walls of the case, or by other suitable means.

The locking button includes preferably a collecting bar 19 which works within the case and is of sufficient length to actuate each of the tumblers simultaneously. The collecting bar is united by a shank 20 to an outside knob or button 21. The shank 20 works in a slot 22 in the case and is easily moved either by a key inserted against one end of the tumblers, or by the knob 21 when the key is withdrawn. The tumblers, of whatever description, are, as usual, provided with gatings 23, of a shape, size, and depth to receive the tail 24 of the dog, when the gatings of these several tumblers are in alignment and permit the dog, by pulling the shackle, to release the notch 4 in the end thereof. The gatings of the tumblers are, as usual, variously located in each of the tumblers, so that a specially bitted key, such for example as that illustrated in Fig. IV of the drawings, is necessary to bring the gatings into alignment and to unlock the shackle.

From this description it will be understood that when the tumblers are set by the key, and the shackle is released, the alignment of the gatings may be, after the shackle is again closed, destroyed and the dog locked out by the movement of the locking button. As above stated, I prefer to employ a locking button, because by this means the use of springs in locks of this description may be entirely dispensed with, and the liability of the lock to get out of order, which is incidental to the use of springs, avoided.

When oscillating tumblers, as shown in Fig. VIII, are employed, the usual springs 27 are preferably provided for holding the gatings of the tumblers normally out of alignment.

The sliding tumblers may move transversely across the axis of the pivot 7 of the dog, or they may move at right angles thereto, as variously illustrated in Figs. I, II, IX and X.

28 indicates a key hole through which the tumblers may be actuated by the insertion of a key, as for example, the broad flat one illustrated. Instead of a key the tumblers may be exposed, as shown in Fig. VII and be provided with any usual combination system by which the tumblers may be severally set manually.

In dispensing with springs in locks of this class it is not necessary that the dog should be directly controlled or operated upon by the tumblers. For example, the dog may be provided with an abutment face 29 against which one end of a pivoted lever 30 works to lock

the dog, while the other end of the lever may carry a tail piece 31 which is controlled by the tumblers in the same manner as the tail piece 24 is controlled in the other forms of locks. (See Figs. VIII and IX.)

I do not confine myself to the details of construction herein shown and described, but reserve the right to modify and vary my lock within the scope of my invention, as suggested by the various modifications, or in such other manner as may hereafter appear to be desirable.

What I claim is—

1. In a lock, the combination with a case and shackle, of a movable dog adapted to engage the shackle and actuated by the shackle in both the locking and unlocking operations, mechanism for locking the dog in the closed position and for positively locking the dog in the open or releasing position, said mechanism for locking the dog in the open position being operatively connected with the shackle, substantially as set forth.

2. In a lock, the combination with a case and shackle, of a movable dog adapted to engage the shackle and actuated by it in both the locking and unlocking operation, tumblers adapted to lock the dog in the closed position, manually actuated mechanism for throwing the tumblers out of alignment, and dog locking mechanism operatively connected with the shackle and adapted to be actuated by it to lock the dog in the open position, substantially as set forth.

3. In a lock constructed without springs, the combination with a case and shackle, of a movable dog adapted to be actuated by the shackle, tumblers controlling the movement of the dog, and mechanism for throwing the tumblers out of alignment, substantially as set forth.

4. The combination with a lock case, shackle and dog, of movable tumblers and gatings therein, a tail piece on the dog adapted to enter the gatings in the tumblers, and a collecting bar adapted to be actuated from the outside for destroying the alignment of the gatings of the tumblers, substantially as set forth.

5. The combination with a lock case, notched shackle, and freely movable, springless, pivoted dog, of a detent and a lip upon the dog adapted to be actuated in both directions by the shackle, and mechanism for controlling the movement of the dog, substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

CHARLES L. LINCOLN.

Witnesses:

WM. F. WATERBURY,
JNO. A. WATERS.