

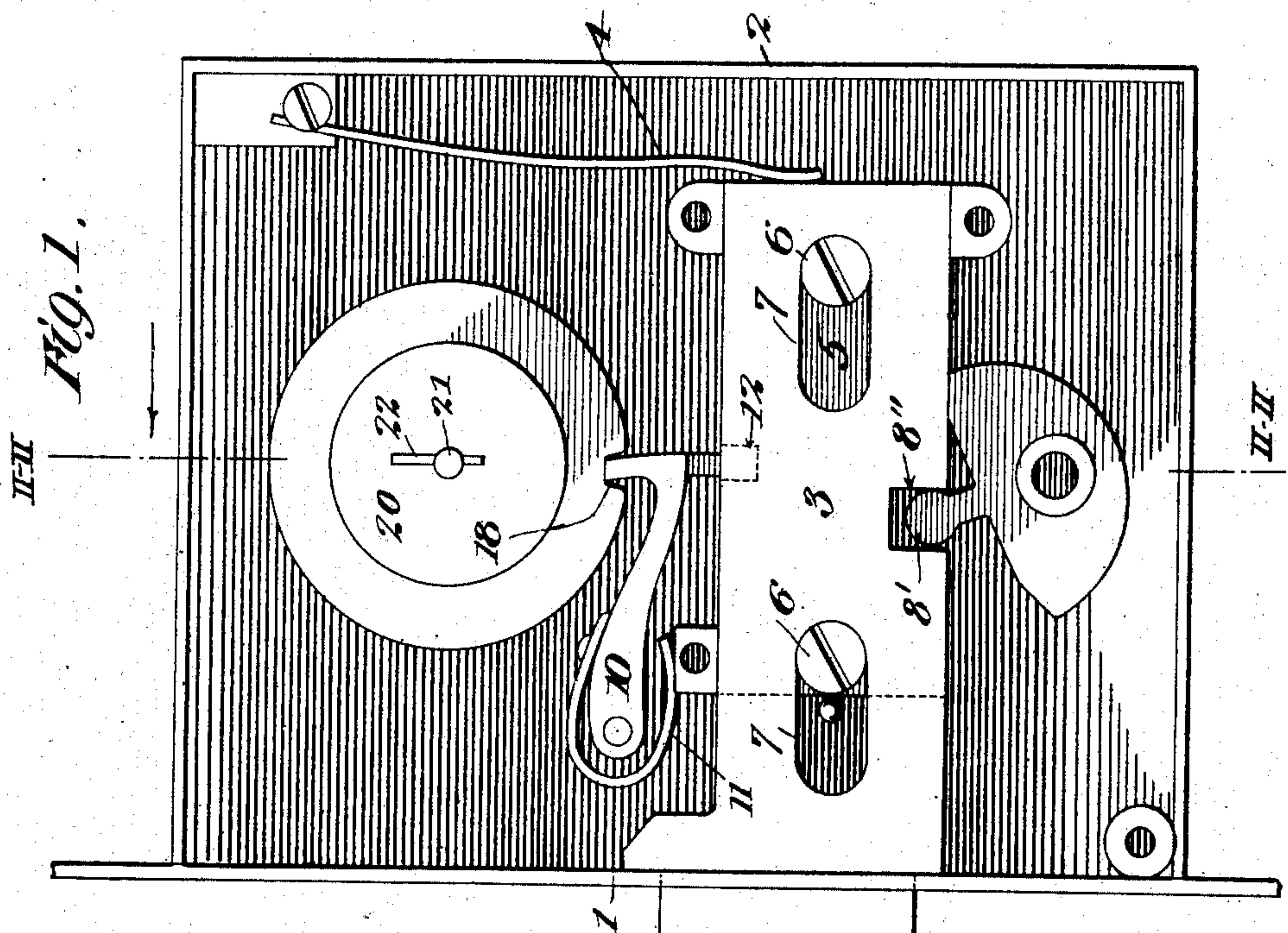
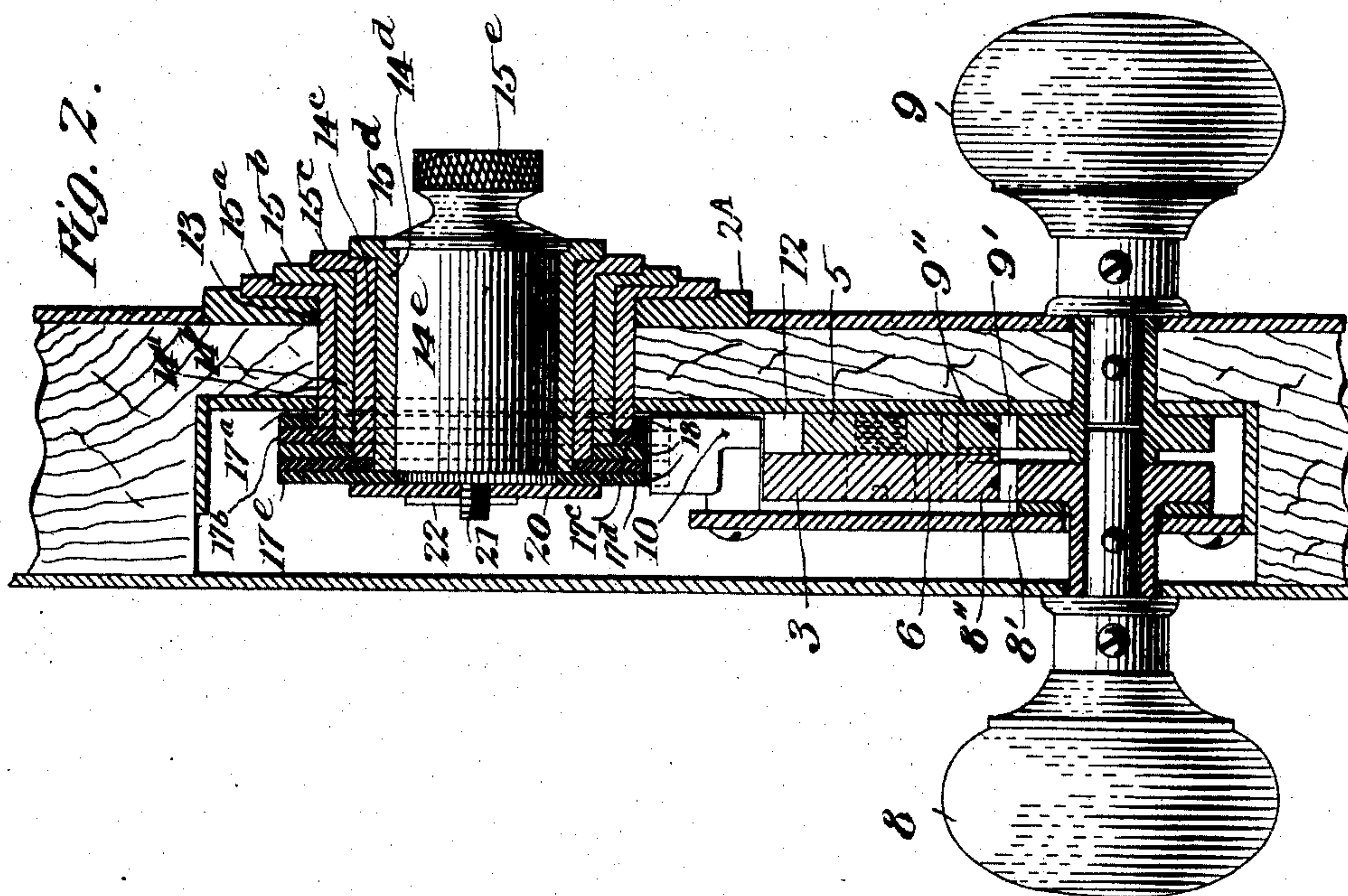
No. 864,395.

PATENTED AUG. 27, 1907.

N. TOBIAS.  
COMBINATION LOCK.

APPLICATION FILED SEPT. 20, 1906.

2 SHEETS—SHEET 1.



Witnesses  
James Ober  
Waldo M. Chapin

Inventor  
Nathan Tobias  
By his Attorneys  
Rosenbaum & Stockbridge

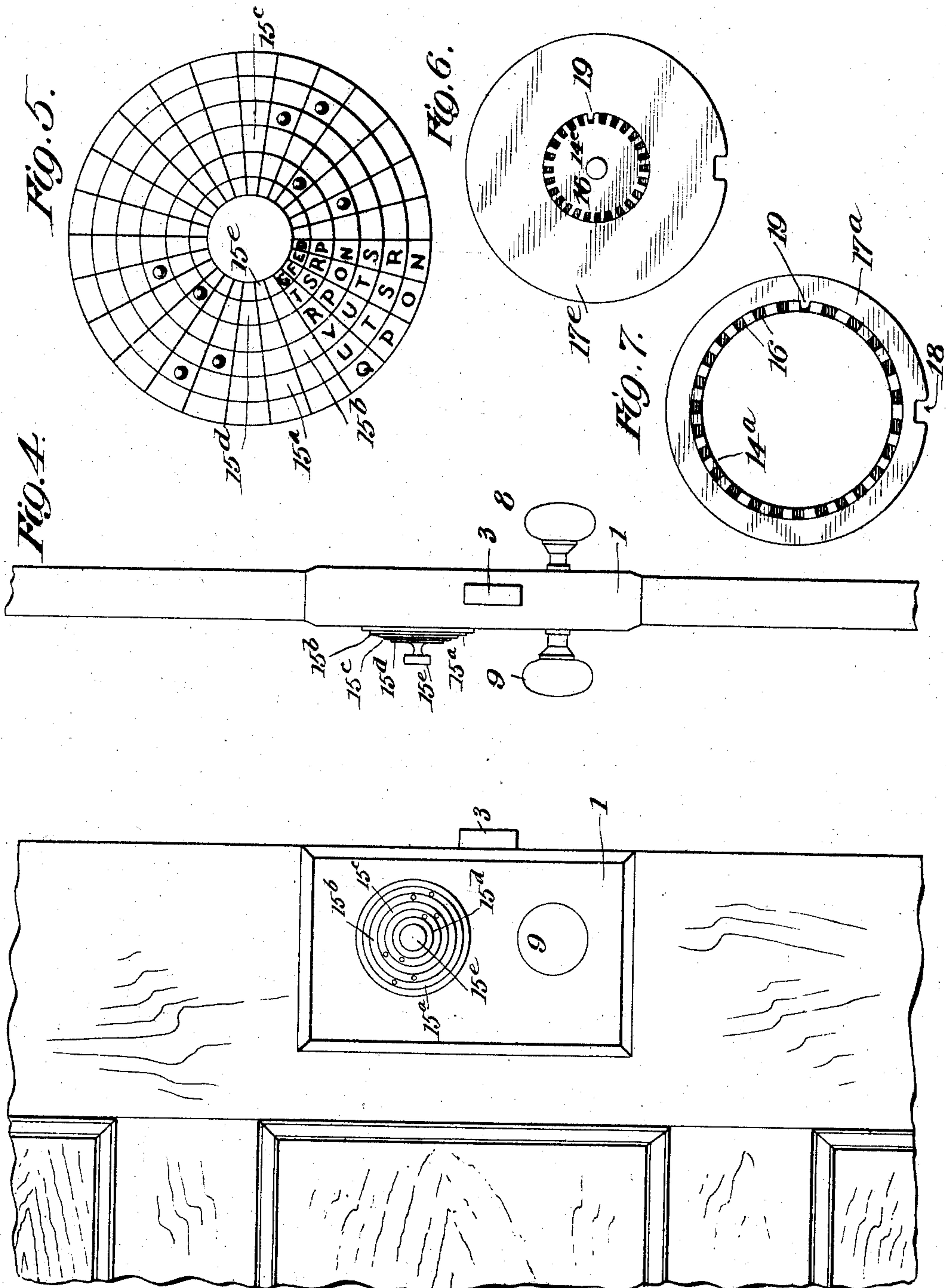
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# UNITED STATES PATENT OFFICE.

NEUMAN TOBIAS, OF KINGSTON, JAMAICA.

## COMBINATION-LOCK.

No. 864,395.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed September 20, 1906. Serial No. 335,351.

*To all whom it may concern:*

Be it known that I, NEUMAN TOBIAS, a subject of the King of Great Britain, residing at Kingston, in the Island of Jamaica, West Indies, have invented certain  
5 new and useful Improvements in Combination-Locks, of which the following is a full, clear, and exact description.

My invention relates to combination locks, and particularly to those having means by which the combination can be readily changed.

The principal object of the invention is to provide a lock of the general character stated above, and in which a plurality of notched disks are rotatably arranged on the same axis, so that each disk may be adjusted with respect to its registering means.

With this and other objects in view, the invention consists in the features of construction hereinafter set forth and claimed.

In the drawings: Figure 1 is a sectional view showing a door lock embodying the principles of my invention; Fig. 2 is a section on the line II—II of Fig. 1, looking in the direction of the arrow; Fig. 3 is a front view of a door having the lock applied thereto; Fig. 4 is an edge view of the door; Fig. 5 is a detail view  
25 showing the index disks by which the combination lock is operated; Fig. 6 is a detail view of one of the notched disks on its supporting core; Fig. 7 is a view of another notched disk on its supporting tube.

In carrying out the invention I make use of a plurality of concentrically arranged tubes which fit within one another so as to be freely rotatable. Each tube has separate registering means by which its angular position is determined, and also a notched or crowned extremity, the purpose of which is to enable the combination to be changed, as will hereinafter more fully appear.

Referring to the drawings in which like parts are designated by the same reference sign, 1 indicates broadly a door latch, having a casing 2, and a bolt 3,  
40 guided within the casing to have a to and fro movement.

4 indicates a spring by which the bolt is normally impelled into locking relation.

I provide means by which the bolt is always freely  
45 withdrawable from one side of the latch, and by which it can only be moved from the outside under certain circumstances. For this purpose the bolt has a plate 5, guided to have a slight independent longitudinal movement thereon, by virtue of the studs 6, projecting into the slots 7, of the bolt. By virtue of this construction the bolt may be withdrawn whenever the  
50 plate 5 is moved rearwardly, but the bolt may always have a rearward movement independently of the plate to unlock the door in case the plate should be  
55 locked against movement.

8 denotes a door knob, having an arm 8', which directly engages a notch 8'' in the bolt to move the same whenever desired, and 9 indicates another knob, having an arm 9', adapted to engage a notch 9'' in the plate 5 to move the same, and the bolt in case the plate 60 is not otherwise locked against movement. The knob 8 projects on the inside of the door, and the knob 9 on the outside thereof.

10 designates a pivoted detent lever normally impelled away from the plate 5 by a spring 11. The  
65 plate 5 has a notch 12, into which the detent 10 may be moved to resist movement of the plate.

As illustrated in the drawing the combination lock devices are arranged to hold the detent 10 in the notch 12 against the tension of the spring 11, until the correct  
70 combination has been set. For this purpose the casing 2 is provided with an opening and has a stationary disk 2<sup>a</sup> inserted and fixed therein in which is a comparatively large aperture 13, in which is revolutely supported the largest one of the series of concentric or nested tubes  
75 above mentioned. These tubes are indicated by the characters 14<sup>a</sup>, 14<sup>b</sup>, 14<sup>c</sup>, 14<sup>d</sup>. Within the tube 14<sup>d</sup> there is a central solid core or shaft 14<sup>e</sup>, although this may be also tubular if desired. While I have shown this particular number and arrangement of tubes, it is  
80 evident that this is immaterial. Each of the tubes and the central core or spindle 14<sup>e</sup> has a separate index wheel or disk, designated respectively 15<sup>a</sup>, 15<sup>b</sup>, 15<sup>c</sup>, 15<sup>d</sup>, and 15<sup>e</sup>. These index wheels or disks occupy a convenient position on the outside of the casing, and are preferably  
85 different in size, so that they may conveniently be registered with one another in order to set the combination. The other end of each of the tubes 14<sup>a</sup>, 14<sup>b</sup>, 14<sup>c</sup>, 14<sup>d</sup>, and also the central core or spindle 14<sup>e</sup>, are notched or crowned with radial notches 16, of which there may  
90 be as many as desired, for example, twenty-six in each tube, corresponding to the letters of the alphabet.

17<sup>a</sup>, 17<sup>b</sup>, 17<sup>c</sup>, 17<sup>d</sup>, and 17<sup>e</sup> designate a series of disks each having a notch 18, and a central hole corresponding respectively to the sizes of the respective tubes and  
95 the central core 14<sup>e</sup>. Each of these disks also has a key 19 adapted to enter the notches 16 above mentioned. It is evident that each disk may be positioned in this way in any desired relation to its index wheel 15.

20 indicates a cap threaded on to a stud 21 on the  
100 central core or spindle 14<sup>e</sup>, and 22 is a cotter pin to hold this cap in place.

The various notched disks being all assembled on their supporting tubes, it is evident that they may be independently rotated to any desired position by manipulating the exterior index wheels 15<sup>a</sup>, 15<sup>b</sup>, 15<sup>c</sup> and  
105 15<sup>d</sup>. When the notches are all brought beneath the detent lever 10, the latter moves away from the plate 5 under the influence of its impelling spring 11, and thereafter the plate 5 and therewith the bolt 3 are freely  
110



movable from the exterior knob 9 of the door. Whenever it is desired to reset the combination this is readily accomplished by moving the pin 22 and the cap 20 and re-positioning the notched disks on the crowned ends of the various tubes 14<sup>a</sup>, 14<sup>b</sup>, 14<sup>c</sup>, etc., and the central core or shaft 14<sup>e</sup>.

What I claim, is:—

1. In a combination lock, a bolt spring-impelled into closing relation and having slots therein, a plate having a flat face in contact with said bolt and having studs engaging the slots of the bolt, whereby said bolt is guided on the plate, means for guiding said plate to move in a rectilinear path, separate door knobs having means engaging said plate and said bolt respectively and a detent for locking said plate whereby the plate is prevented from movement without preventing the movement of the bolt.

2. In a combination lock, a bolt spring-impelled into closing relation and having slots therein, a plate having a flat face in contact with said bolt and having studs engaging the slots of the bolt whereby said bolt is guided on the plate, means for guiding said plate to move in a rectilinear path, separate door knobs having means engaging said plate and said bolt respectively and a detent for locking said plate whereby the plate is prevented from movement without preventing movement of the bolt, and a series of notched disks engaging said detent to prevent the release of same except when the notches of said disks are moved into proper alinement.

3. In a combination lock, a casing, a plate guided thereby and having studs thereon, a bolt having slots engaging

said studs and guided by the plate, a blade spring fixed at one end to the casing and bearing on said bolt to normally press the same into locking relation, separate door knobs having means engaging said plate and said bolt respectively, a detent lever movable into engagement with said plate and spring-impelled away from the same, and plurality of notched disks to prevent such movement of said detent except when the notches of the disks are moved in proper alinement with one another.

4. In a combination lock, a casing, a plate and a bolt guided to have separate movements parallel to one another, separate door knobs adapted to move said plate and said bolt, said plate also having means for moving said bolt, a detent engaging said plate, a series of concentric tubes revoluble within one another, each of which has a notched or crowned end, and a plurality of notched disks each having a key to cooperate with the crowned ends of said tubes, said notched disks being adapted to rest against said detent.

5. In a combination lock, a bolt spring impelled into closing relation, a plate guided adjacent to said bolt, said plate being adapted to move said bolt, door knobs having separate means for displacing said plate and said bolt, a detent pivoted to engage said plate and a series of notched disks adapted to be moved into relation to resist displacement of said detent.

In witness whereof, I subscribe my signature, in presence of two witnesses.

NEUMAN TOBIAS.

Witnesses:

FRANK S. OBER,  
ANN PROCTOR.