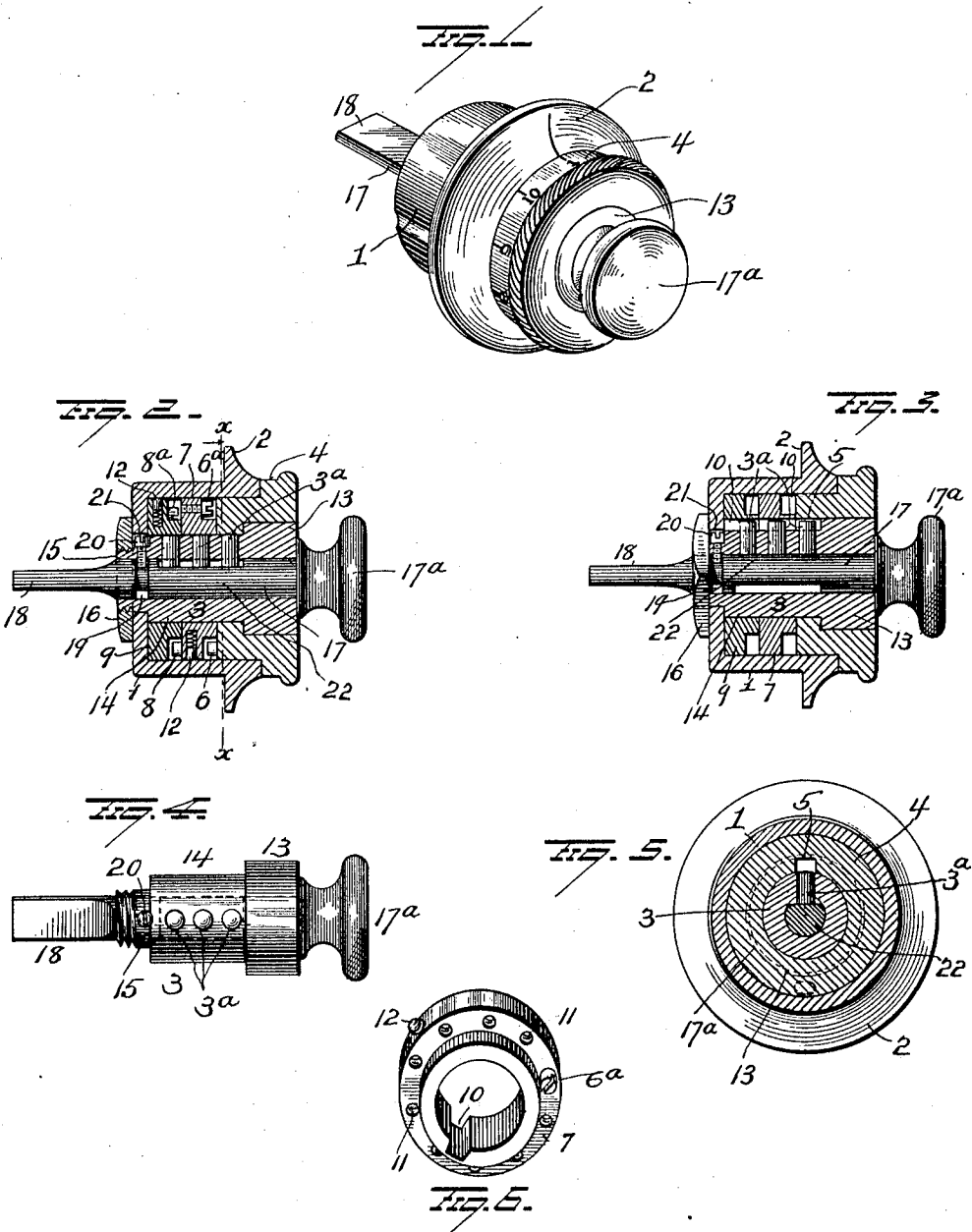


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COMBINATION LOCK.
APPLICATION FILED NOV. 28, 1911.

1,022,268.

Patented Apr. 2, 1912.



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COMBINATION-LOCK.

1,022,268.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed November 28, 1911. Serial No. 662,947.

To all whom it may concern:

Be it known that I, JOSEPH SCHECHTER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Combination-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in combination locks, and it consists in the parts and combination of parts as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved lock. Fig. 2 is a view in longitudinal section showing the spindle locked. Fig. 3 is a similar view showing the locking pins in line with the gates in the tumblers and dial. Fig. 4 is a view of the spindle, sleeve and locking pins. Fig. 5 is a view in transverse section and Fig. 6 is a view in perspective of one of the tumblers.

1 represents the cylinder or casing which carries the entire mechanism of the lock. This cylinder is open at its front end and provided with a flange 2, which overlaps the door around the opening therein in which the cylinder 1 is seated, and is also provided at its rear end with a small centrally located opening through which the threaded end of sleeve 3 passes.

Mounted in the open front end of the cylinder 1, is the dial 4, having a series of notches and numbers on its edge or periphery. The rear end of this dial is cylindrical in shape to snugly fit within the cylindrical bore of the casing 1, and is provided at its rear end with the locking pin gating 5, and with a rearwardly projecting driving pin 6, which latter is designed to engage a forwardly projecting driving pin 6^a on the tumbler 7, and the latter is provided with a rearwardly projecting driving pin 8, adapted to contact with a forwardly projecting driving pin 8^a on the tumbler 9.

The tumblers 7 and 9 are ring shaped in form, and each is provided on its inner surface with a gating 10, and each is also provided with a series of threaded holes 11 into any one of which the forwardly and rearwardly projecting driving pins 6^a, 8 and 8^a may be secured, hence by removing any

one of the pins from one hole, and changing it to another hole, the combination of the lock will be changed. Each tumbler is also provided with a spring pressed pin 12, seated in a recess in the periphery of the tumbler, and adapted to engage the inner wall of the cylinder or casing 1, and bear thereagainst with sufficient friction to prevent any accidental movement of either tumbler. The tumblers 7 and 9 are as before explained, located within the cylinder 1 in rear of the dial 4, and are turned or rotated by the latter.

Mounted within, and passing through the dial, tumblers and rear end of the cylinder or casing 1, is the sleeve 3, the front end 13 of which is cylindrical in shape and of greater diameter than the cylindrical rear portion 14. The extreme rear end 15 of the sleeve is still further reduced in diameter and is externally threaded to be engaged by the nut 16, which latter bears against the rear wall of the cylinder or casing 1 and locks all the parts above referred to against withdrawal from the cylinder. The cylindrical portion 13 of the sleeve, has a snug fit within the bore of the dial, while the cylindrical portion 14 of said sleeve snugly fits within the ring shaped tumblers 7 and 9. This cylindrical portion 14 of the sleeve 3 is provided with a series of holes for the locking pin 3^a, the holes being so located that one pin will be in alinement with the rear end of the dial, and the others are in alinement with the tumblers 7 and 9 respectively.

Passing through the sleeve 3, is the spindle 17, provided at its outer end with a knob 17^a by which it is turned, and at its inner end, at the rear of the sleeve, with a stem 18, which is designed for connection by suitable mechanism with the bolt locking and releasing device. This spindle is provided with a peripheral slot 19 into which the screw 20 carried by the sleeve 3 projects, thus locking the spindle 17 in place against endwise displacement, and the head of this screw 20 resting within the slot 21 in the rear wall of the cylinder or casing 1, prevents the sleeve from rotating. The spindle is also provided with a cam shaped body 22, against which the ends of the locking pins 3^a rest. When this cam 22 is turned so that its flat face is immediately under and is supporting the locking pins 3^a, the latter will be wholly within the sleeve 3, but when the

cam 22 is turned so that its curved face is in contact with the locking pins, the latter will be projected into the gatings in the dial 4 and tumblers 7 and 9.

5 Normally when the door is locked, the locking pins are prevented from moving outwardly by their contact with the inner surfaces of the tumblers, and the inner ends of the locking pins, being in contact with
10 the flat face of the cam, positively lock the spindle against rotation.

The dial rotates the two tumblers, and when the dial is rotated in the usual manner to bring the gatings 10 in the tumblers
15 7 and 9 into alinement with the locking pins 3^a, thus releasing the latter, the spindle 17 will then be free to be turned by hand to actuate the bolt locking and releasing mechanism. The normal position of the flat surface of the cam 22 when the bolts are locked
20 or unlocked is adjacent the locking pins, hence by giving the dial a turn, the gatings in one or both of the tumblers 7 and 9 will be carried out of alinement with its locking
25 pins 3^a, thus preventing the latter from being projected, hence before the spindle can be turned, the dial must be actuated to bring all the tumblers into position where their gatings will aline with the locking
30 pins so that the latter may be moved by the cam, and as before stated the combinations may be changed by simply changing the positions of any one of the driving pins.

It is evident that many slight changes
35 might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself
40 to the exact construction and arrangement of parts shown and described, but

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

45 1. In a combination lock, the combination with a casing, a dial carried by said casing, and tumblers within and carried by the casing and actuated by the dial, of a spindle passing through the casing, dial and tumblers and mounted to rotate in the same, and
50 longitudinally movable locking pins, interposed between the tumblers and spindle and bearing against both for locking the spindle against rotation.

55 2. In a combination lock, the combination with a casing, a dial having a driving pin, and ring shaped tumblers each having a driving pin, and each also provided on its inner side with a gating, of a spindle and a
60 series of longitudinally movable locking pins interposed between the tumblers and spindle for locking the latter against rotation.

3. The combination with a casing, a dial, and a plurality of ring shaped tumblers, each of the latter having an internal gating
65 and a friction device for preventing its accidental rotation, of a rotating spindle and means interposed between said spindle and tumblers for locking the former against
70 rotation, except when the tumblers are moved to bring their gatings into alinement with said locking means.

4. The combination with a casing, a sleeve therein and a dial and tumblers mounted on
75 the sleeve within the casing, each tumbler having a gating on its inner side, of a spindle within the sleeve and a series of locking pins carried by the sleeve and bearing
80 against the spindle and tumblers, for locking the spindle against rotation except when the gatings in the tumblers are in alinement with the pins.

5. The combination with a casing, a sleeve secured therein and a dial and tumblers
85 mounted to rotate on the sleeve, each tumbler having a gating in its inner wall, of a spindle mounted in the sleeve and provided with a cam shaped section and a series of locking pins mounted in the sleeve and bearing
90 at one end against the tumblers and at the other end on said cam shaped section.

6. The combination with a casing, a sleeve secured therein, and a dial and a series of
95 tumblers mounted within the casing and on the sleeve, of a spindle mounted in the sleeve and provided with a cam shaped section and a plurality of locking pins seated in holes in the sleeve, one of said pins bearing
100 at one end against the dial and at its other end against the cam shaped section of the spindle, and the others, each bearing at one end against a tumbler and at its other
105 end against said cam shaped section, the said dial and tumblers having gatings in which the pins enter when the parts are properly manipulated to release the spindle.

7. The combination with a casing, of a dial therein, a series of ring shaped tumblers each having a gating in its inner face, and
110 each having a removable and adjustable driving pin, a spindle axially mounted in the dial and tumblers, and provided with a cam shaped surface, and a plurality of locking pins interposed between the cam section
115 of the spindle and the tumblers for locking the spindle against rotation except when the gatings in the tumblers are in alinement with the pins.

In testimony whereof, I have signed this
120 specification in the presence of two subscribing witnesses.

JOSEPH SCHECHTER.

Witnesses:

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