

No. 668,049.

Patented Feb. 12, 1901.

P. NASH.
COMBINATION LOCK.

(Application filed Aug. 24, 1898.)

(No Model.)

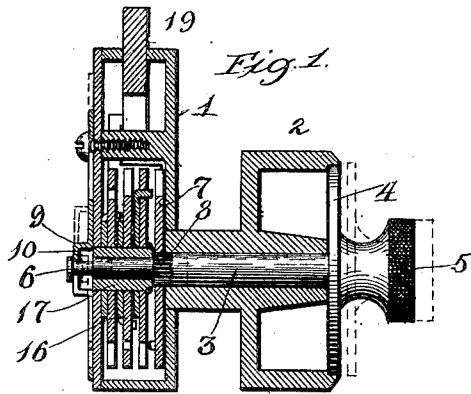


Fig. 2.

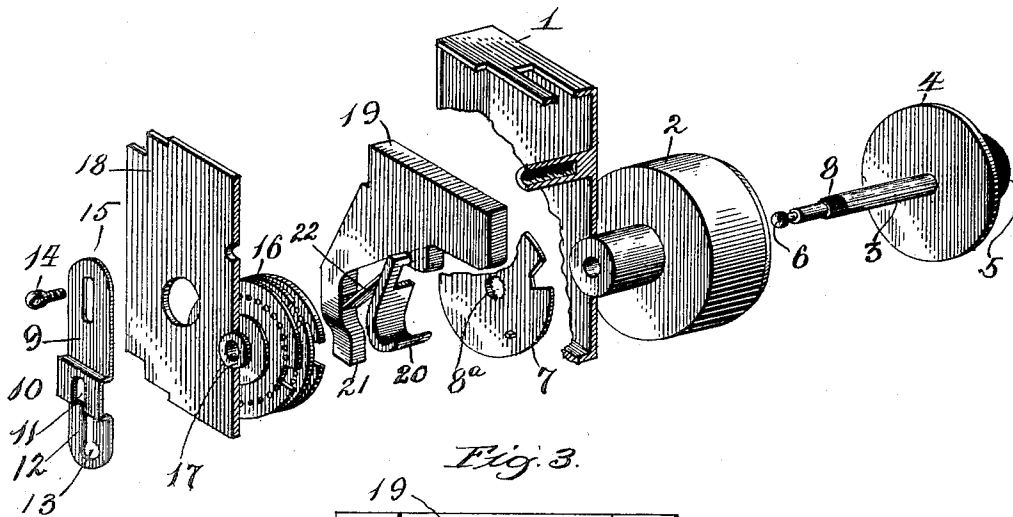
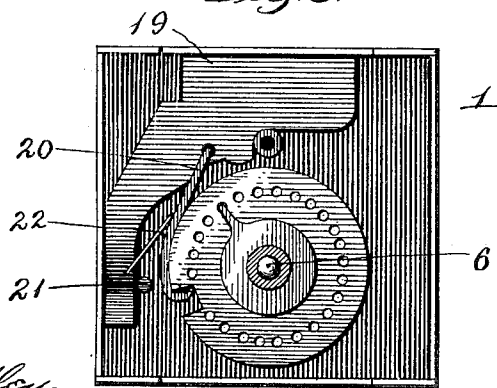


Fig. 3.



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PAUL NASH, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE & TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 668,049, dated February 12, 1901.

Application filed August 24, 1898. Serial No. 689,414. (No model.)

To all whom it may concern:

Be it known that I, PAUL NASH, a citizen of the United States, and a resident of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Combination-Locks, of which the following is a specification.

My invention relates to a combination-lock having means for readily changing the combination without disarranging the internal mechanism of the lock, and has for its object to simplify the construction of such a lock and provide a more convenient means for effecting the desired changes.

The spindle preferably has the dial fixed upon it and projects entirely through the lock and case, and the driving-cam is fitted to the spindle by suitable means which permits easy adjustment between them circumferentially, so that changes in the combination are effected by simply displacing the spindle longitudinally sufficiently to disengage it from the combination mechanism, then turning the spindle, with its attached dial, relatively to the tumblers, so as to bring it into a new relation to them, and then again moving the spindle longitudinally into engagement with the driving-cam. The spindle is secured in its projected or engaged position by means of a guard which may be slid into and out of engagement with a head on the spindle. The guard has two engaging faces, one in a plane to engage the head when the spindle is projected, by which engagement the parts are held in their normal positions, and the other face in a plane within the first-named face, so as to permit shifting movement, but prevent removal of the spindle, said guard being, however, removable when it is desired to open the lock to make a complete rearrangement of tumblers.

My invention will be fully understood upon reference to the accompanying drawings, in which—

Figure 1 is a vertical axial section of a lock embodying my invention, the positions to which the parts are shifted for changing the combination being indicated by dotted lines. Fig. 2 is a perspective of the parts segregated. Fig. 3 is a rear view of the lock with the back plate removed.

1 represents a lock-casing, from the forward side of which projects a common form of dial-cup 2.

3 represents the spindle, which has permanently fixed to its forward end the dial 4 and knob 5, while its rear end extends entirely through the lock-casing 1 and terminates in a protruding head 6, by which the spindle is held against displacement. The spindle passes through the drive-cam 7 and makes driving connection with it at an intermediate point through the medium of milled or other interlocking faces 8 8^a, which may be readily brought into and out of engagement by a slight axial movement of the spindle. When the spindle is in the position shown in full lines in Fig. 1, the spindle controls the lock by an appropriate number of turns; but if the spindle be displaced axially to a position indicated by the dotted lines and the dial and drive-cam be moved relatively and the spindle then replaced to normal position the movements required to concert the cam and tumblers will thereafter be indicated by a different set of numbers. In other words, the "combination" will be changed.

In order to hold the spindle surely in its normal position and yet render it conveniently displaced whenever it is desired to change the combination, I employ a guard 9, provided with a face 10, by which it engages the head 6 to hold the spindle in its projected position. The guard is further provided with a slot 11, which permits it to slide its face out of engagement with the spindle-head to permit displacement of the latter. To limit the withdrawal of the spindle, the guard has another engaging face 12 in a plane within the face 10 and which intercepts the head after it is released from the face 10. If it is desired to remove the spindle entirely, the guard may be still further shifted to bring opposite the head an opening 13 large enough to permit the passage of the head. A screw 14 in the casing normally works in a slot 15 in the guard and limits the movement of the latter, so that the spindle cannot be entirely released without removing the screw.

16 represents a nest of tumblers of common construction journaled on the sleeve 17, which is carried by the back plate 18. The drive-

cam 7 is so confined between the casing 1 and sleeve 17 that the spindle is readily moved into and out of driving connection with it by merely pushing the milled portion of the spindle into the milled opening in the drive-cam.

19 is the bolt, of common construction, which is moved by the drive-cam and tumblers through the medium of dog 20. When the gatings of the cam and tumblers are assembled, the dog enters and engages said parts, so that continued turning of the spindle retracts the bolt. Thereafter if the spindle be turned in the opposite direction the bolt will be projected and the dog 20 expelled from the gatings and held over the stump 21, so as to dog the bolt. Spring 22, interposed between bolt 19 and dog 20, tends to force the latter into the gatings when the tumblers are concerted.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a dial-lock, the combination of suitable locking mechanism, including tumblers and a drive-cam, a controlling-spindle upon which the dial is fixed, extending through the lock, having at an intermediate point, driving connection with the drive-cam through the medium of milled or other engaging faces on said parts, constructed for movement into

and out of driving connection; said spindle terminating in a head projecting beyond the casing and provided with a retaining-guard slotted to permit movement over the spindle and provided with two engaging faces in different planes; substantially as and for the purpose set forth.

2. In a dial-lock, the combination of suitable locking mechanism, a spindle upon which the dial is fixed, extending through the locking mechanism, movable axially into and out of driving connection with the locking mechanism and terminating in a protruding end formed with a head, and the herein-described retaining-guard formed with a slot permitting sliding movement over the head on the spindle, and terminating in an enlargement permitting withdrawal of the spindle, said guard provided with the raised engaging face holding the spindle in driving position and with the lower engaging face permitting limited axial movement of the spindle for changing the combination, and with the slot and retaining-screw for limiting the movement of the guard; substantially as and for the purpose set forth.

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