W. M. WHEILDON.

COMBINATION LOCK.

APPLICATION FILED JAN. 27, 1913.

1,068,194. Patented July 22, 1913.

Fig. 1.

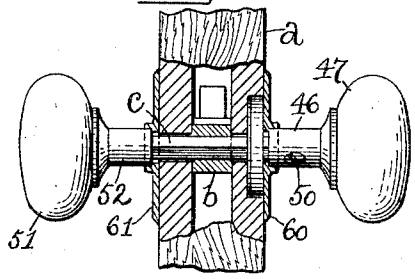


Fig. 2.

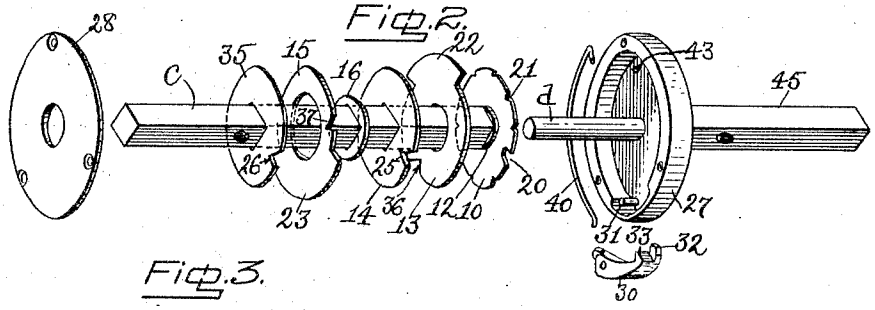


Fig. 3.

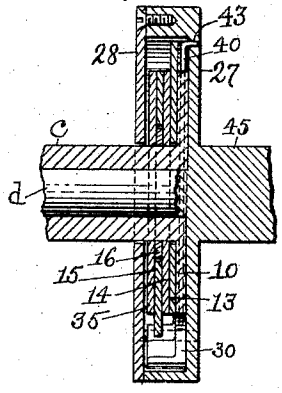


Fig. 4.

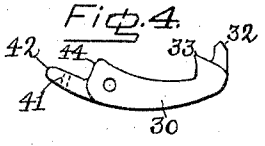


Fig. 5.

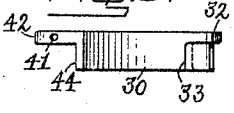
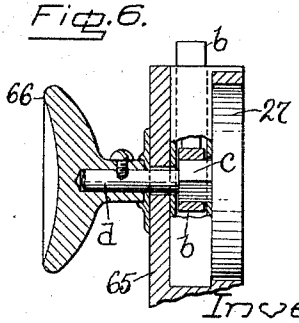


Fig. 6.



Witnesses:

M. S. Crozier,

J. Murphy

Inventor,

William M. Wheildon

by Jas. H. Churchill

Atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM M. WHEILDON, OF ASHLAND, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO EDWARD A. FILENE, OF BOSTON, MASSACHUSETTS.

COMBINATION-LOCK.

1,068,194. Specification of Letters Patent. **Patented July 22, 1913.**

Application filed January 27, 1913. Serial No. 744,356.

To all whom it may concern:

Be it known that I, WILLIAM M. WHEILDON, a citizen of the United States, residing in Ashland, county of Middlesex, and State of Massachusetts, have invented an Improvement in Combination-Locks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to a combination lock especially designed and adapted for use on doors of houses and offices, drawers and like structures, and has for its object to provide a simple, efficient and inexpensive device, with which glass or solid cast knobs such as now commonly used, may be employed.

The invention further has for its object to provide a lock of ordinary construction with a combination device, which can be used with the knobs of locks of ordinary construction such as now commonly used on doors, drawers, etc. To this end, I provide a spindle composed of two parts or members, one of which is angular in cross section to engage the bolt of the lock, and the other of which is cylindrical in cross section, and connect the two parts or members by mechanism capable of being moved into different positions, in one of which the two members of the spindle are coupled together to turn as one piece and in others of which said members remain disconnected, so that the cylindrical member may be turned without operating or moving the bolt. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is an elevation and section of a door provided with a combination lock embodying this invention. Fig. 2 is a view in which the spindle members and the combination mechanism for coupling them together are separated. Fig. 3, a vertical section on an enlarged scale of the spindle members and the combination mechanism assembled in working position. Figs. 4 and 5, enlarged views of the pawl shown in Fig. 2, and Fig. 6, a modification showing the lock applied to a drawer.

Referring to Figs. 1 to 5, *a* represents a door provided with a lock of any ordinary construction, whose bolt mechanism is represented in section by the member *b* thereof, through which is extended a spindle member *c* which is angular in cross section, so that rotation of the spindle member effects movement of the member *b* and of the bolt after the manner of the ordinary lock. The spindle member *c* has coöperating with it a second spindle member *d* which has a cylindrical portion, so that it can be turned without moving the bolt under normal conditions. The spindle member *c* is provided with a central bore for the whole or a portion of its length for the reception of the cylindrical spindle member *d*.

The spindle members *c*, *d*, in accordance with this invention are designed to be coupled together by a combination mechanism, comprising coöperating members, one of which is connected with one spindle member and the other of which is connected with the other spindle member.

In the present instance, the combination member connected with the angular spindle member *c* is shown as a series of disks mounted on it, said disks comprising a disk 10 fast on the spindle member and provided with a collar 12 on which is loosely mounted a tumbler disk 13, which is separated by a washer 14 from a second tumbler disk 15, which is loosely mounted on a ring 16, mounted on the spindle member *c* to turn therewith.

The disk 10 is provided in its periphery with a substantially wide deep notch 20 having substantially parallel side walls, and with a plurality of shallow V-shaped notches 21. The tumbler disks are provided with raised portions 22, 23, which extend for a portion of the circumferences of said disks, and are further provided with V-shaped notches 36, 37, for a purpose, as will be described. The disks referred to are designed to be assembled in small compass and in contact with one another, after the manner represented in Fig. 3, and are contained in a casing 27 secured to the spindle member *d* and provided with a removable cover 28. The combination member connected with the cylindrical spindle member is shown as a pawl 30, pivotally mounted on a stud or pin 31 on the inner side of the casing 27, and provided at one end with a substantially narrow tooth 32 and with a substantially wide tooth 33. The tooth 32 is made

longer than the tooth 33 and is provided with substantially parallel sides, see Fig. 4, and with a V-shaped end, the substantially parallel sides being designed to engage the straight side walls of the notch 20 in the disk 10, and the V-shaped end being designed to enter the V-shaped notches 21 in the periphery of the disk 10.

The wider tooth 33 is designed to extend over the tumbler disks 13, 15, and the washer 14 between the tumbler disks and a second washer 35 between the disk 15 and the cover 28, and to engage the peripheries of the same until the tumbler disks have been rotated so as to bring their V-notches 36, 37, into alinement with the V-notches 25, 26 in the washers 14, 35, and when thus alined, the tooth 33 drops into the V-notches, which allows the tooth 32 to enter the notch 20, and when this takes place, the spindle members *c*, *d* are coupled together, so that, rotation of the cylindrical spindle member *d* effects movement of the bolt *b*.

The pawl 30 is acted upon by a spring 40, which has one end inserted into a hole 41 in the tail piece 42 of the pawl, and has its other end inserted into a hole 43 in the casing 27.

The tumblers 13, 15 are moved in one direction by the wide tooth 33 engaging one end of the raised portions 22, 23 of the said tumblers, and are moved in the opposite direction by the opposite end 44 of the pawl engaging the opposite ends of the said raised portions.

The door *a* may and preferably will be recessed on one side to receive the casing 27, and the portion 45 of the cylindrical spindle member *d*, which is extended beyond said casing, may be made angular in cross section to have fitted over it the hub 46 of a knob 47, which may be the ordinary solid or cast knob, such as is now employed on doors provided with ordinary locks. The hub 46 may be secured to the angular portion 45 by a screw 50 in the ordinary manner. The angular spindle member *c* is provided with a like knob 51, whose hub 52 is fitted over the said spindle and is secured thereto by a screw not shown. In operation, the tumblers on the angular spindle member *c* require a given number of clicks or movements of the rotating spindle member *d* in one direction to bring the notch 36 of the tumbler 13 into alinement with the notch 20 in the disk 10, and a different number of clicks in the opposite direction to bring the notch 37 of the tumbler 15 into alinement with the notch 20, and when thus positioned the wide tooth 33 of the pawl can drop into the V-notches of the tumblers and of the washers, and the long tooth 32 into the notch 20 in the disk 10, by turning the knob 47 a third series of clicks or until the teeth of the pawl are engaged with their coöperating notches, and when thus engaged, a reverse movement of the knob 47 effects movement of the bolt *b* to unlock the door.

The hubs 46, 52 of the door knobs 47, 51 are mounted to turn in face plates 60, 61 secured to the opposite sides of the door.

By reference to Fig. 1, it will be seen that the knobs 47, 51 may be solid cast metal knobs or they may be of glass, and in fact the same as now used with the ordinary door lock, and that the ordinary door lock can be converted into a combination lock, by merely replacing the spindle of the same with the combination spindle shown in Figs. 1 and 2, which enables the ordinary lock of a door to be converted into a combination lock at a minimum expense, in a minimum time and with the least possible labor. So also the locks of drawers and the like may be provided with a combination spindle, as shown in Fig. 6, wherein the angular portion 45 of the cylindrical spindle member *d*, which extends beyond the casing 27 in Fig. 2, is omitted, and the angular spindle member *c* upon which the tumblers are mounted is shortened, so that when fitted over the cylindrical spindle member *d*, the latter projects beyond the same and through the front of the drawer 65 and is provided with the knob 66.

I have herein shown one construction embodying this invention, but it is not desired to limit the invention to the particular construction shown.

Claims.

1. In a lock of the character described, in combination, a spindle comprising two members, one of which is angular in cross section to engage a bolt and is provided with a central bore, and the other of which has a cylindrical portion extended into the central bore of the first mentioned member, a disk fast on the first mentioned member and provided on its periphery with a notch having substantially parallel sides and with a plurality of substantially V-shaped notches, a plurality of tumbler disks having notches and loosely mounted on said first mentioned spindle member, a pawl pivoted to the second mentioned spindle member and coöperating with said tumbler disks to effect movement thereof and having a plurality of teeth, one of which teeth coöperates with the notches in the periphery of the disk fast on the first mentioned spindle member, and the other of which coöperates with the tumbler disks and with the notches therein, substantially as described.

2. In a lock of the character described, in combination, a spindle comprising two members, one of which is angular in cross section and provided with a bore, and the other of which is extended into said bore and is capable of turning therein, combination members connected with said spindle members

and coöperating to couple the two spindle members together under one condition and to disconnect them under another condition, substantially as described.

3. In a lock of the character described, in combination, a spindle member angular in cross section and having a bore, a second spindle member extended into said bore and having a casing attached to it, said casing having a removable cover fitted over the first-mentioned spindle member, and combination members located in said casing and coöperating to couple and uncouple said spindle members, substantially as described.

4. In a lock of the character described, in combination, two spindle members normally disconnected, and combination members for coupling said members together, one of said combination members having a notched disk fast on it and having a notched disk loose on it, and the other combination member having a pawl coöperating with the said loose disk to bring its notch into alinement with the notch in the fixed disk to enable the spindle members to be coupled together, substantially as described.

5. In a lock of the character described, in combination, a spindle member having mounted thereon a fixed disk provided with a notch in its periphery and a loose disk provided with a notch in its periphery, a pawl coöperating with said loose disk to effect movement thereof on said spindle member to bring the notch of said loose disk into alinement with the notch in the fixed disk and means to support said pawl.

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

WILLIAM M. WHEILDON.

Witnesses:
JAS. H. CHURCHILL,
J. MURPHY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."