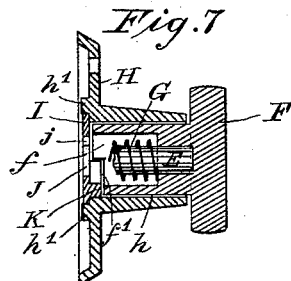
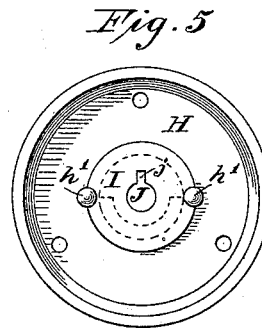
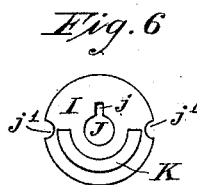
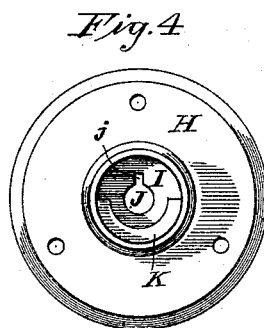
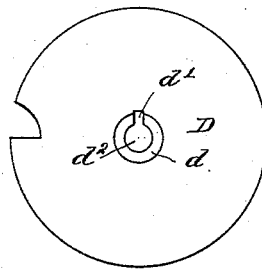
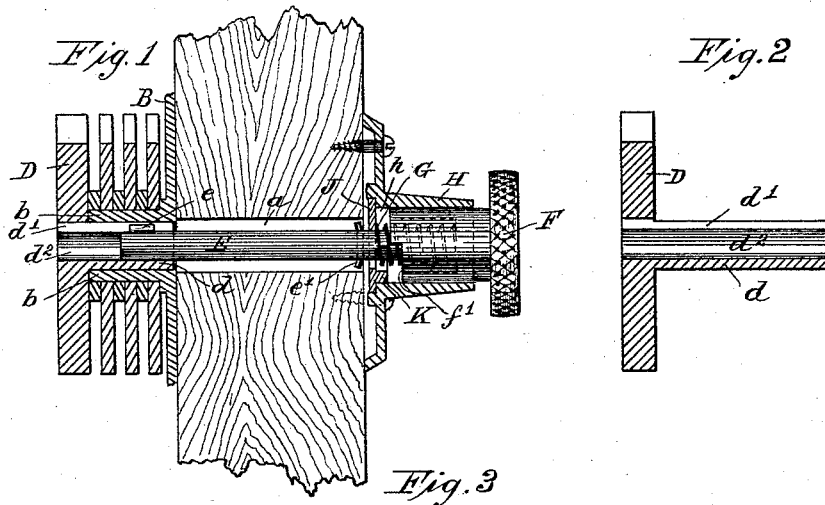


(Model.)

H. C. GRIFFIN.
PERMUTATION LOCK.

No. 423,148.

Patented Mar. 11, 1890.



Witnesses

C. F. Sherburne
G. P. Adams

Inventor

H. C. Griffin
By *his* Attorney *J. B. Thurston*

UNITED STATES PATENT OFFICE.

HEBER C. GRIFFIN, OF FRANKLIN FALLS, ASSIGNOR TO THE GRIFFIN LOCK COMPANY, OF FRANKLIN, NEW HAMPSHIRE.

PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 423,148, dated March 11, 1890.

Application filed May 6, 1889. Serial No. 309,826. (Model.)

To all whom it may concern:

Be it known that I, HEBER C. GRIFFIN, a citizen of the United States, residing at Franklin Falls, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improved Attachments for Combination-Locks, of which the following is a specification.

This invention relates particularly to means for accommodating the knob-spindle of combination-locks to various thicknesses of doors, the novel features of which will be clearly set forth in the following specification and claims, and fully illustrated in the accompanying drawings, forming an inseparable part thereof, of which—

Figure 1 is a sectional view showing a portion of a door to which my improvements are attached. Fig. 2 is a detached sectional view of my improved "dead-tumbler." Fig. 3 is a side elevation of the same. Fig. 4 represents a front elevation of my improved escutcheon. Fig. 5 shows the reverse side of the same. Fig. 6 is a detached elevation of a portion of my improved escutcheon. Fig. 7 represents my improved escutcheon and knob in section, showing a portion of the knob-spindle and spring in broken elevation.

Corresponding reference-letters indicate like parts throughout the various views.

A is a portion of a door in which is formed a hole *a*, through which to enter the knob or operating spindle of a lock.

B represents a section of the lock-plate or housing, which may be secured to one side of a door. Upon said plate B may be formed or secured a hollow journal or sleeve *b*, upon which is mounted the various loose or movable tumblers C.

D is my improved dead-tumbler, which is provided with a hollow projection or journal *d*, having, preferably, in one of its sides a longitudinal slot *d'*, extending its entire length and through said tumbler, as shown in Figs. 1 and 2. The journal *b* of the plate B is bored to fit and form a bearing for the hollow projection or journal *d* of the tumbler D. The knob or operating spindle E projects through the opening *a* of the door and enters the opening *d*² of the tumbler, and its projection or journal, respectively, D *d*. That

end of said spindle E which enters the said dead-tumbler D and its projecting journal *d* may be formed square, as also may the opening *d*², which it enters in order that the one may necessarily rotate with the other; but I prefer the construction shown in Figs. 1, 2, and 3—viz., the cylindrical spindle E fitting the cylindrical opening *d*² in the tumbler and its journal, said spindle being provided near one end with a projecting spline *e*, which enters the slot *d'* in said tumbler and its journal, respectively, D *d*, thus permitting longitudinal movement of said spindle therein and maintaining unity of motion rotatively of said spindle and tumbler. By this construction a given length of spindle may be made to answer equally as well for application to a thin or thick door, and thus obviate the necessity of providing numerous lengths of spindles. This mode of connection between the dead-tumbler and spindle affords an opportunity for a longitudinal movement of said spindle and its knob within the escutcheon for the purpose of determining the point from which to compute a combination by the sense of touch or feeling instead of that of sight, as is the common custom. For this purpose I secure to the opposite end of the spindle E a knob F, which is preferably chambered at *f*, for the reception of a helical spring G, which surrounds said spindle, and is expanded between said knob F and the end or bottom of the socket *h* of my improved escutcheon H, which may be fastened by suitable screws to the side of a door. The movement of the knob F, which enters the socket *h* of the escutcheon H, may be limited by means of a pin *e'* passed through the spindle E, and projecting at either side behind said escutcheon and the said knob F, which may contact with said escutcheon on the opposite side. The inner end of the knob F may be slotted at *f'* to a depth not exceeding the limit of longitudinal movement of said knob and spindle, and the bottom I or inner terminus of the socket *h* of the escutcheon H is provided with a corresponding protuberance K, adapted to enter the slot *f'* of said knob. The function of the spring G is to normally hold said knob off from said protuberance; but by gently pressing said knob

inward while rotating the same, when the slot in said knob shall have reached a point opposite to the protuberance of said escutcheon, the former will receive the latter and thereby the operator will become aware that the "zero-point" or that from which to compute a combination has been reached.

For convenience in construction I prefer to form the bottom or seat of the socket *h* of the escutcheon *H* of a separate piece *I*, which has a central perforation *J*, in which is formed a slot *j*, through which to enter the spindle *E*, having the spline *e*, and upon this piece *I* is formed the protuberance *K*, which, when required to be finished, can be more easily handled than if cast in the socket of said escutcheon. The said piece *I* may be cheaply and quickly attached to the escutcheon by being slotted in its edges, as at *j' j'*, for the reception of the projections *h' h'*, formed upon the back of said escutcheon *H*, which projections may be readily spread by a blow from a hammer, after said piece shall have been placed in position or "upset" in a manner to firmly secure it there.

Having described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. In combination-locks, the combination of one of the tumblers having at one side a hollow journal, provided with a slot running longitudinally therein, and an operating-

spindle upon which said tumbler is mounted, provided with a spline for entering said slot in the journal of said tumbler.

2. In combination-locks, the combination of the dead-tumbler, an operating-spindle mounted and capable of longitudinal movement therein, an actuating-knob mounted upon said spindle, having a slot on its inner face, an escutcheon provided in its socket with a protuberance for engaging said slot in the knob, and means for normally holding them disengaged, substantially for the purpose specified.

3. The combination of the tumbler having a slotted central perforation, an operating-spindle having near one end a key or spline and at the other end an actuating-knob, provided with a slot in its inner end, and chambered, as shown, for the reception of a helical spring mounted upon said spindle, the said spring, an escutcheon having within its socket a suitable protuberance for entering the slot in said knob, and means for limiting the outward movement of said knob and its spindle, all substantially for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HEBER C. GRIFFIN.

Witnesses:

CHAS. E. ESTEY,
JOHN N. HOWE.