D. R. MARKLEY.

COMBINATION CYLINDER LOCK.

APPLICATION FILED MAR. 25, 1919.

1,308,090. Patented July 1, 1919.

Fig 1

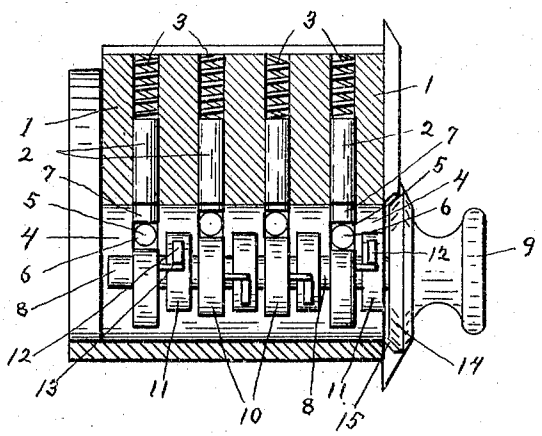



Fig 2

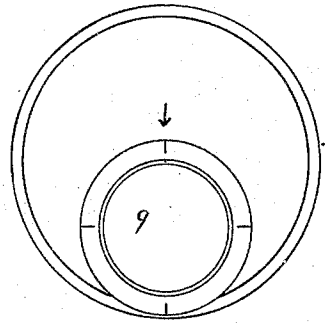
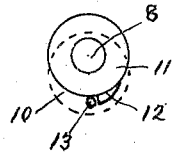



Fig 3



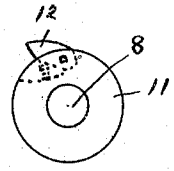




Fig 4

INVENTOR

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BY

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# UNITED STATES PATENT OFFICE.

DANIEL RICHARD MARKLEY, OF LANCASTER, PENNSYLVANIA.

## COMBINATION CYLINDER-LOCK.

1,308,090. Specification of Letters Patent. Patented July 1, 1919.

Application filed March 25, 1919. Serial No. 285,072.

*To all whom it may concern:*

Be it known that I, DANIEL RICHARD MARKLEY, a citizen of the United States, residing at 249 West Chestnut street, in the city of Lancaster, county of Lancaster, and State of Pennsylvania, have invented certain new and useful Improvements in Combination Cylinder-Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to locks of the class known as combination or permutation locks, wherein a knob is used for locking and unlocking in place of a key, and the construction may be used with door, cabinet or padlocks.

The general purpose of the device is to provide in combination with a cylinder lock having a series of plungers (intended to be held in position by a key to allow the cylinder to turn) a series of cams which rotate on a knob shaft and are operated by a corresponding disk secured on said shaft and having means for engaging said cams to rotate the same and operate the plungers to aline the breaks in the plungers to allow the cylinder to be turned to open the lock.

With these and other objects in view, my invention consists in certain construction and combination of parts as will hereinafter be fully described and claimed and illustrated in the accompanying drawings which form a part of the application and in which like figures of reference refer to corresponding parts in all of the views, but it is fully understood that while I have described my invention as shown that I do not confine myself to the exact design as shown as slight changes may be made in the arrangement of the parts without departing from the spirit of the invention.

In the drawings:—

Figure 1 is an enlarged sectional view of a cylinder lock, showing my invention embodied therein.

Fig. 2 is a front elevation of the lock.

Fig. 3 is a detail view of one of the cams and operating disks.

Fig. 4 is a detail view of a disk showing the latch.

Referring to the drawings, the usual cylinder lock is shown, comprising the casing 1, having mounted therein the plungers 2, of varying lengths, which are held by the springs 3.

The operating cylinder 4, is formed with orifices 5, within which balls 6, and the lower sections 7, of the plungers rest.

Within the cylinder 4, is mounted a shaft 8, secured to and rotated by the knob 9.

On said shaft 8, are rotatably mounted a series of cams 10, corresponding to the plungers 2, and adapted to raise the same so that their breaks aline to allow the cylinder to turn.

Adjacent to said cams 10, are a series of disks 11, mounted on said shafts 8, rigidly secured thereto, and adapted to be rotated thereby.

Each of said disks is provided with a spring operated latch 12, adapted to engage a pin 13, extending from the side of the cam 10, to drive said cam 10, when the shaft 8, is rotated in one direction and to pass the pin 13, without moving the cam 10, when the shaft 8, is rotated in the opposite direction, and as some of said latches 12, operate in one direction and some in the opposite direction the cams 10 are operated by turning the knob 9, first in one direction to a predetermined point for raising one plunger and then in the opposite direction to a predetermined point to raise the next plunger, and so on until all of the plungers are raised into an unlocking position when the cylinder may be turned to open the lock, which is done by pressing inwardly on the knob 9, which is formed with a beveled back 14, to engage in a frictional manner the beveled end of the cylinder 15, to enable the knob to rotate the cylinder.

As the knob is graduated in the usual way, different combinations may be made by employing cams in which the plunger raising point is set at a different place with relation to the shaft and disk.

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

In a permutation lock of the class described, the combination with a cylinder lock having a rotatable cylinder and a series of plungers, of a graduated knob mounted adjacent to the end of the cylinder, a shaft

secured to said knob and rotatably mounted in said cylinder, disks secured to said shaft, cams rotatably mounted on said shaft adjacent to said plungers and adapted to raise the same, and means carried by said disks for rotating said cams for moving said plungers into an unlocking position.

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

DANIEL RICHARD MARKLEY.

Witnesses:
D. REES DAVIS,
CHESTER F. HILL.

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