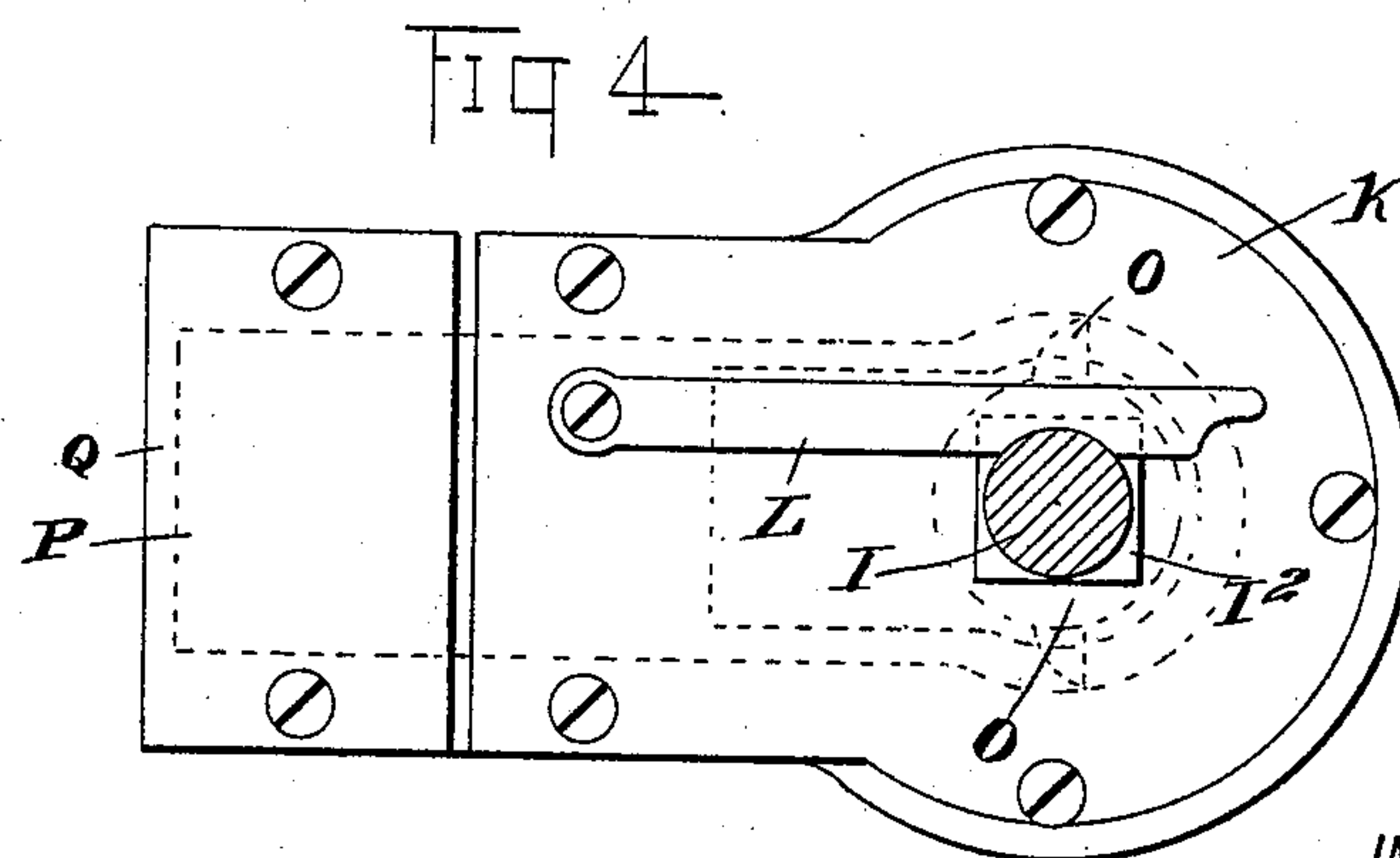
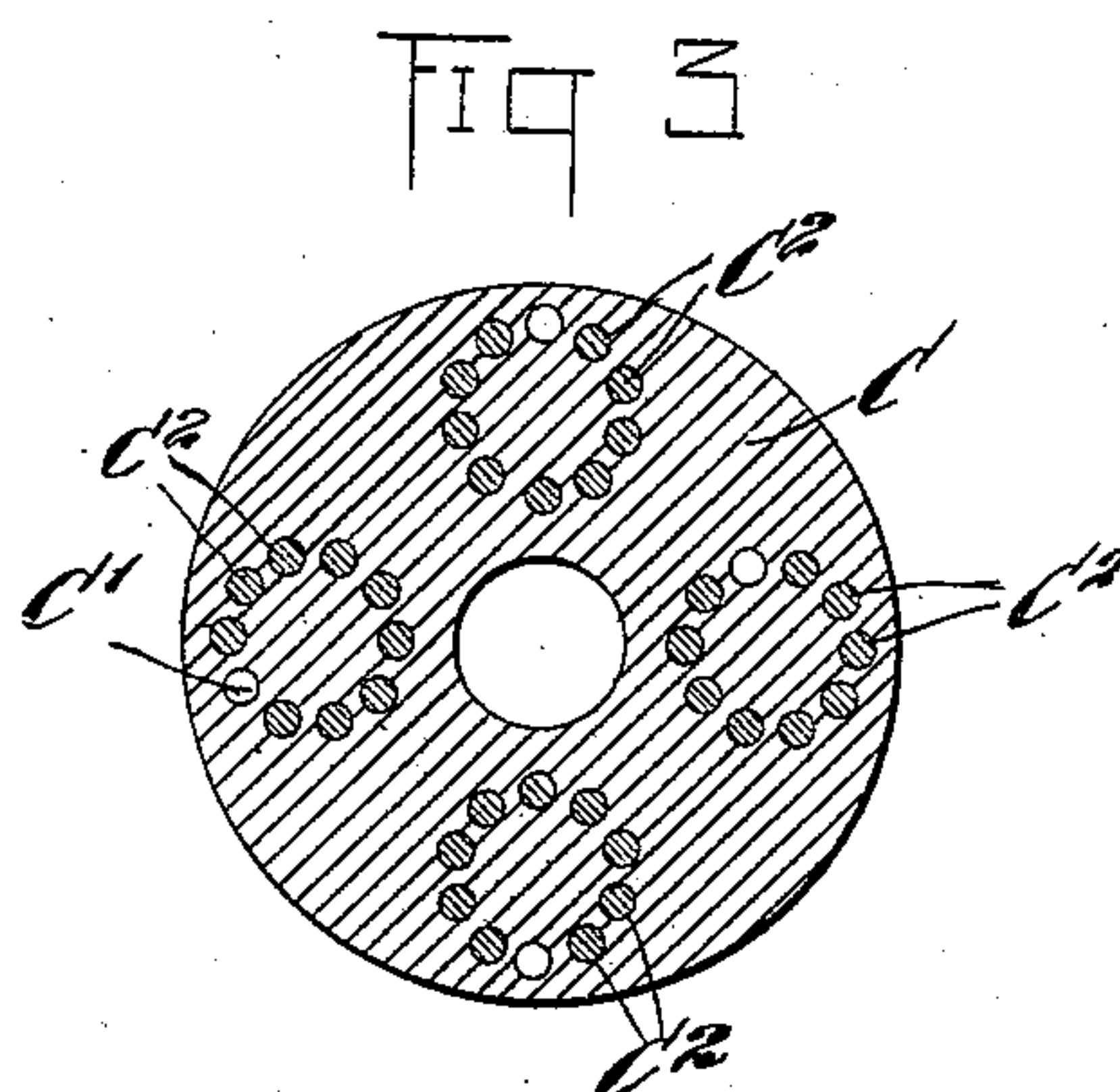
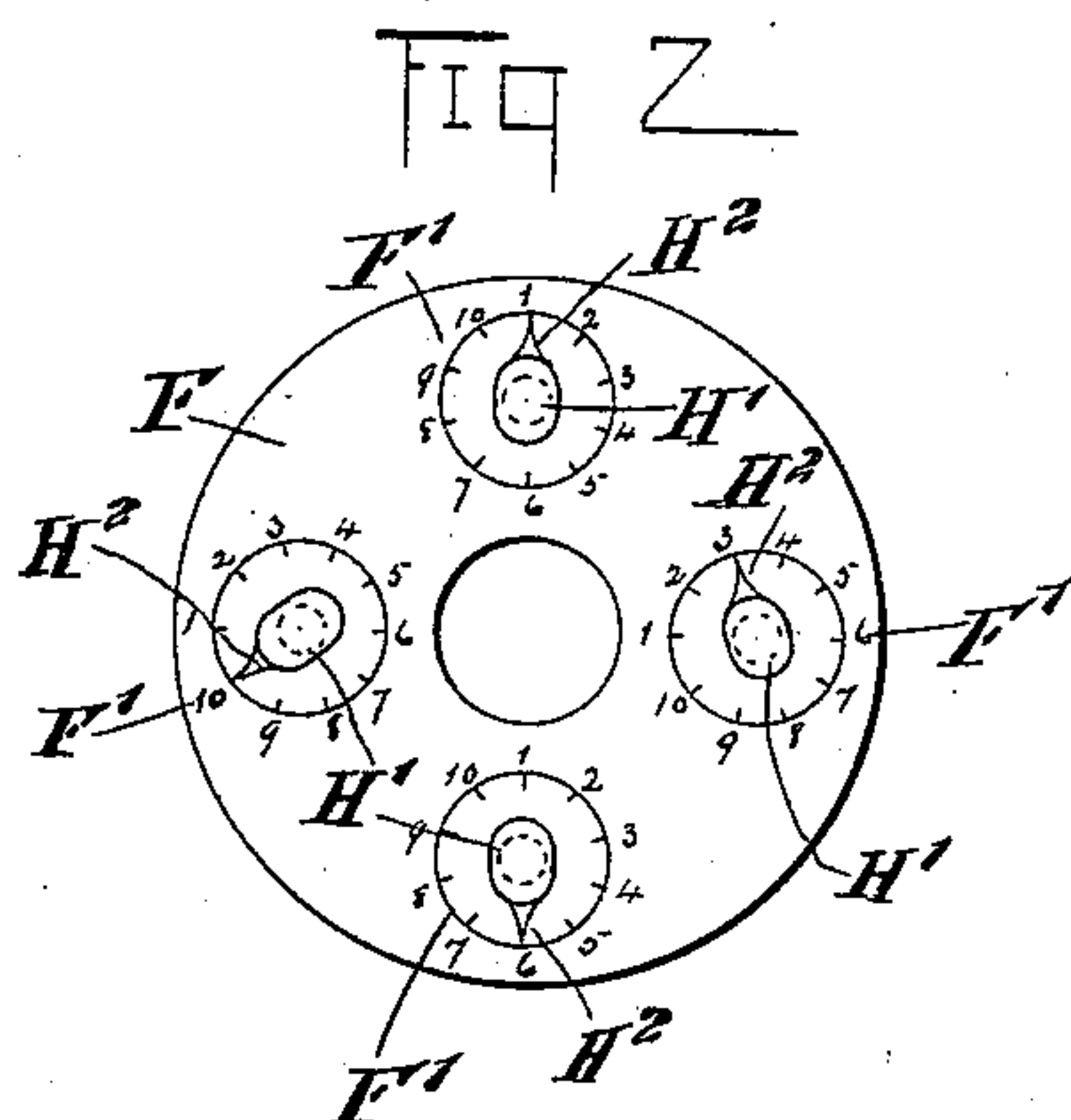
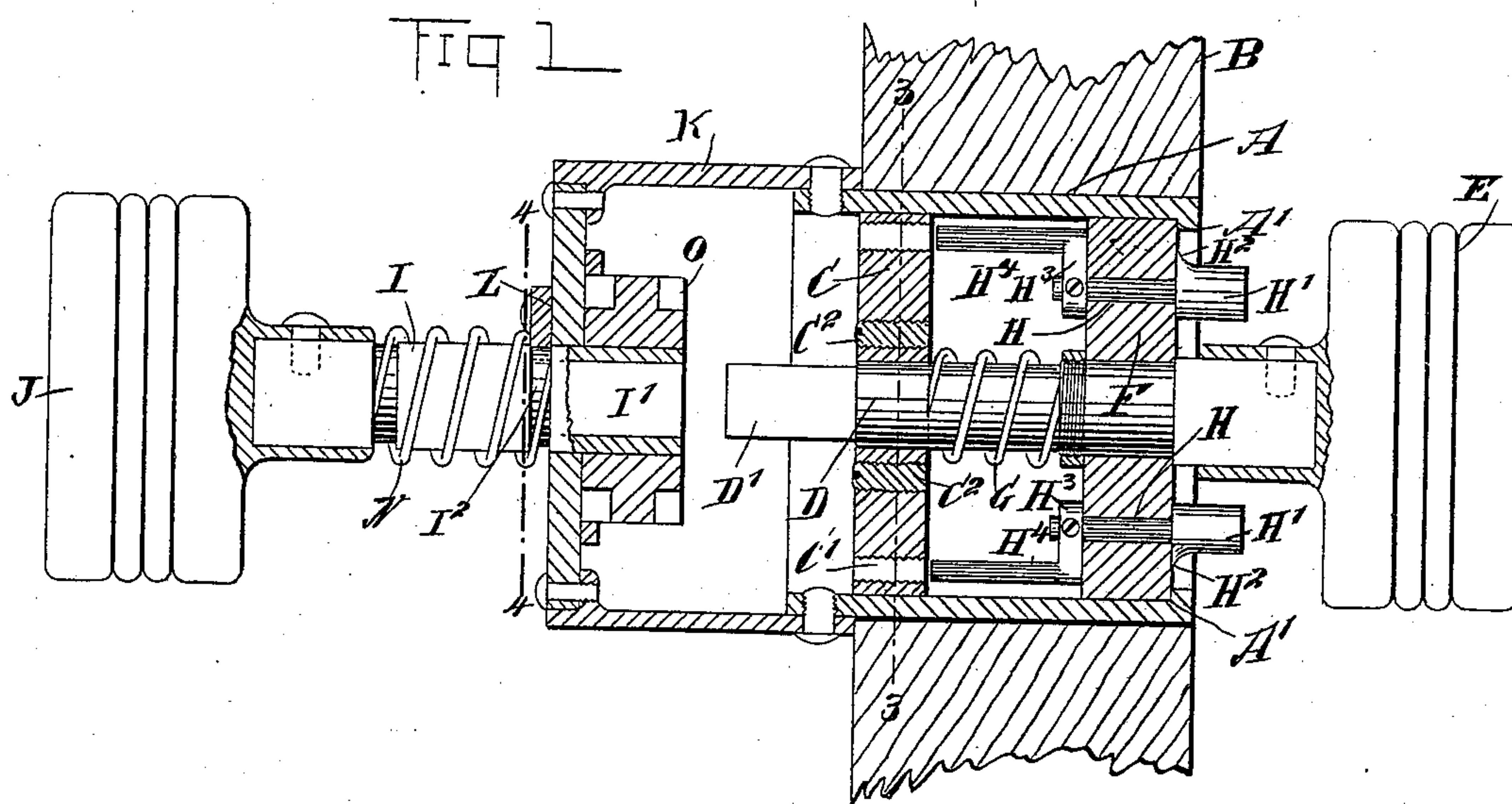


(No Model.)

F. J. HEACOCK.
PERMUTATION LOCK.

No. 577,301.

Patented Feb. 16, 1897.



WITNESSES:

H. Kellyer.
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INVENTOR

INVENTION
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Tanner
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UNITED STATES PATENT OFFICE.

FOSTER J. HEACOCK, OF SALEM, INDIANA.

PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 577,301, dated February 16, 1897.

Application filed August 11, 1896. Serial No. 602,412. (No model.)

To all whom it may concern:

Be it known that I, FOSTER J. HEACOCK, of Salem, in the county of Washington and State of Indiana, have invented a new and Improved Combination-Lock, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved combination-lock, more especially designed for use on doors and constructed to permit of conveniently changing the combination whenever desired.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a face view of the dial. Fig. 3 is a cross-section of the fixed disk on the line 3 3 of Fig. 1; and Fig. 4 is a cross-section of the inner knob-spindle and the locking device therefor, the section being taken on the line 4 4 of Fig. 1.

The combination-lock is provided with a suitable casing A, preferably made cylindrical and set in the door B, as plainly indicated in Fig. 1. At or near the inner end of the casing A is held a fixed disk C, forming at its middle a bearing for the shank or spindle D, extending through the casing, and carrying at its outer end a knob E.

On the shank D is secured a dial F, fitted like a piston in the casing A and normally resting against an annular shoulder A', formed interiorly on the outer end of said casing A. A spring G, coiled on the shank D, serves to normally hold the said dial F in its outermost position. In the dial F are journaled a number of longitudinally-extending shafts H, each carrying on its outer end a knob or handle H', formed with a pointer H², indicating on a graduation F', held or formed on the face of the dial F. (See Fig. 2.)

On the inner end of each shaft H is secured an arm H³, from which extends longitudinally a pin H⁴ in the space between the disk C and the dial F. In the disk C are arranged sets of apertures C', the apertures in each set being arranged in a circle the center of which

is in alinement with the axis of the shaft H, and the apertures are in alinement with the pins H⁴. Thus when the knob H' is turned the pin H⁴ can be brought into alinement with any one of the apertures in the corresponding set of apertures, the pointer H² indicating on the graduation F', with which aperture the pin H⁴ is in alinement, it being understood that the said graduation registers with the several apertures in each set. The several apertures in each set, with the exception of one, are adapted to be plugged by screw-heads C², as plainly indicated in Figs. 1 and 3, so that only one of the apertures can be engaged by the corresponding pin H⁴, and consequently the knob H' must be turned to bring the pointer H² to that numeral of the graduation F' that corresponds with the non-plugged aperture. Now it is evident that when one of the pins H⁴ is not in alinement with the non-plugged aperture then the knob E and shank D cannot be pressed inward, as the said pin abuts against the disk C at a plug C², but if all the pins H⁴ are in alinement with the non-plugged apertures in the several sets then upon pressing the knob E the shank D and dial F are caused to slide rearward and the pins H⁴ pass into the non-plugged apertures.

The inner end D' of the shank D is made polygonal to engage a correspondingly-shaped socket I', formed on the inner end of the inner shank I, carrying a knob J.

The shank I is mounted to turn and is fitted to slide in a casing K, secured to the inner end of the casing A, as indicated in Fig. 1. The shank I is normally locked in place by a lever L, engaging an annular groove I² in the shank, to prevent longitudinal movement of said shank. A spring N presses on the shank I to hold the same normally in an outermost position, and on the said shank and within the casing K is secured a tumbler O for operating a bolt P, adapted to engage a keeper Q for holding the door locked. Now when the several parts are in the position illustrated in Fig. 1 the operator has turned the knobs H' to place the pointers H² on the numerals indicating the combination, so that the pins H⁴ register with the non-plugged apertures in the disk C. The operator now presses the knob E inward, and the inner end D' of the shank engages the socket I' of the

shank I, and the operator upon turning the knob E operates the said shank I and tumbler O to move the bolt P out of engagement with the keeper Q, and the door is unlocked and can be opened. As soon as the door is open and the operator releases the pressure on the knob E then the latter moves back to its former position by the action of the spring G, and when the operator now turns one, two, or all of the knobs H' to bring the pin or pins H⁴ out of alinement with the non-plugged apertures then the lock is again in position to prevent opening of the door by unauthorized persons. When it is desired to open the door from the inside, the operator simply turns the knob J to actuate the tumbler O and bolt P to move the latter out of engagement with the keeper Q.

By the arrangement described it is evident that the lock cannot well be tampered with, as access to the several parts in the casing A can only be had by first removing the casing K, which is on the inside of the door. Furthermore, the combination can be readily changed by the owner by removing one or more screw-plugs C² and screwing the same in the previously non-plugged apertures, it being understood that the owner knows the non-plugged apertures by the numerals on the corresponding graduations F', and thus knows the combination. Thus, as shown in Fig. 2, the combination is "1, 3, 6, 10," following the graduation on the dial from the top around to the left.

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

1. In a combination-lock, the combination with a casing, of a disk fixedly secured in the inner end of the casing and provided with a central opening and a plurality of apertures, a knob-spindle sliding in the said disk, a dial secured to the knob-spindle within the casing and sliding in the casing with the spindle, a spring surrounding the spindle between the disk and dial, and a plurality of shafts mounted to rotate in the dial and each having on its inner end a handle and a pointer indicating on a graduation on the dial and provided on its inner end with a pin adapted to be brought into alinement with an opening in the disk

and to enter the same when the knob-spindle is pushed inward, substantially as described.

2. In a combination-lock, the combination with a casing, of a disk fixedly secured in the inner end of the casing and provided with a central aperture and sets of apertures, each set being arranged in a circle, plugs for closing all except one aperture of each set, a knob-spindle sliding in the central aperture of the disk, a dial secured to the spindle within the casing, a plurality of shafts mounted to rotate in the dial and each having on its inner end a handle and a pointer indicating on a graduation on the dial and provided with an arm at its inner end from which projects a pin, and a spring for holding the dial and spindle in the outermost position, substantially as described.

3. In a combination-lock, the combination with a bolt-operating spindle adapted to be arranged on the inside of a door, of a disk having a central opening and provided with a plurality of apertures, said disk being adapted to be arranged in a door at the inner face thereof, a knob-spindle sliding in and projecting through the disk for engagement with the bolt-operating spindle, a dial secured to the said sliding spindle, a spring for holding the dial and spindle in an outermost position, and a plurality of shafts mounted in the dial and each having on its outer end a handle and pointer and provided on its inner end with a pin, substantially as described.

4. A combination-lock, comprising a casing, a disk secured in the casing and provided with sets of apertures, plugs for closing all except one aperture of each set, a knob-spindle sliding in and projecting through the disk, a dial secured to the spindle and provided with shafts carrying pins on their inner ends, a second casing secured to the inner end of the first casing and a knob-spindle for operating the bolt mounted in the second casing and having a socket in its inner end to receive the end of the sliding knob-spindle, substantially as herein shown and described.

FOSTER J. HEACOCK.

Witnesses:

JOHN J. HARDIN,
WILLIAM OVERMAN.