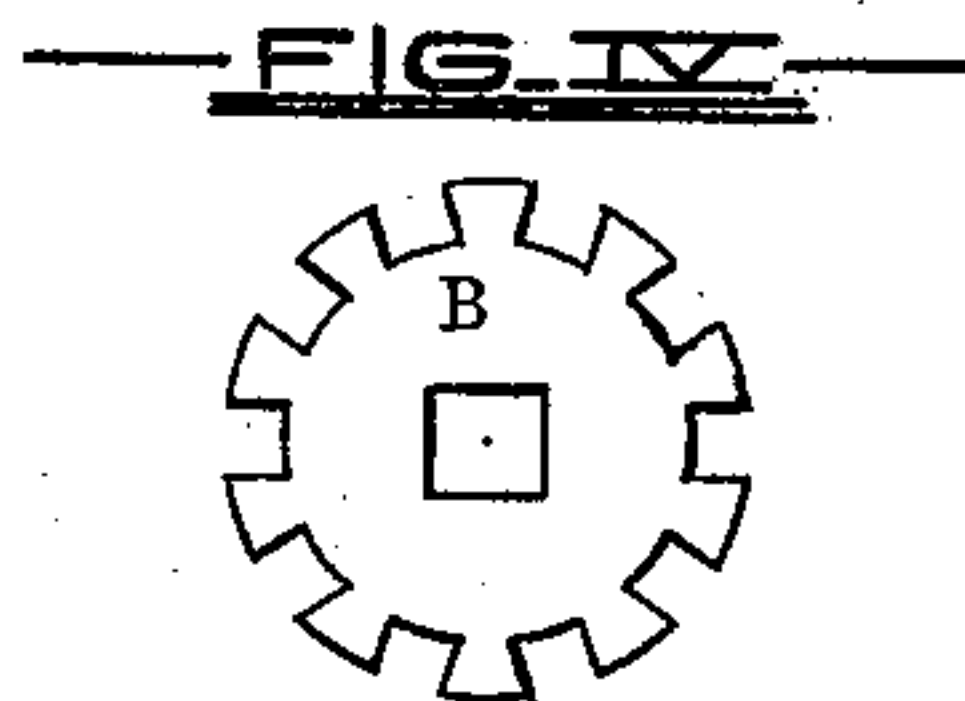
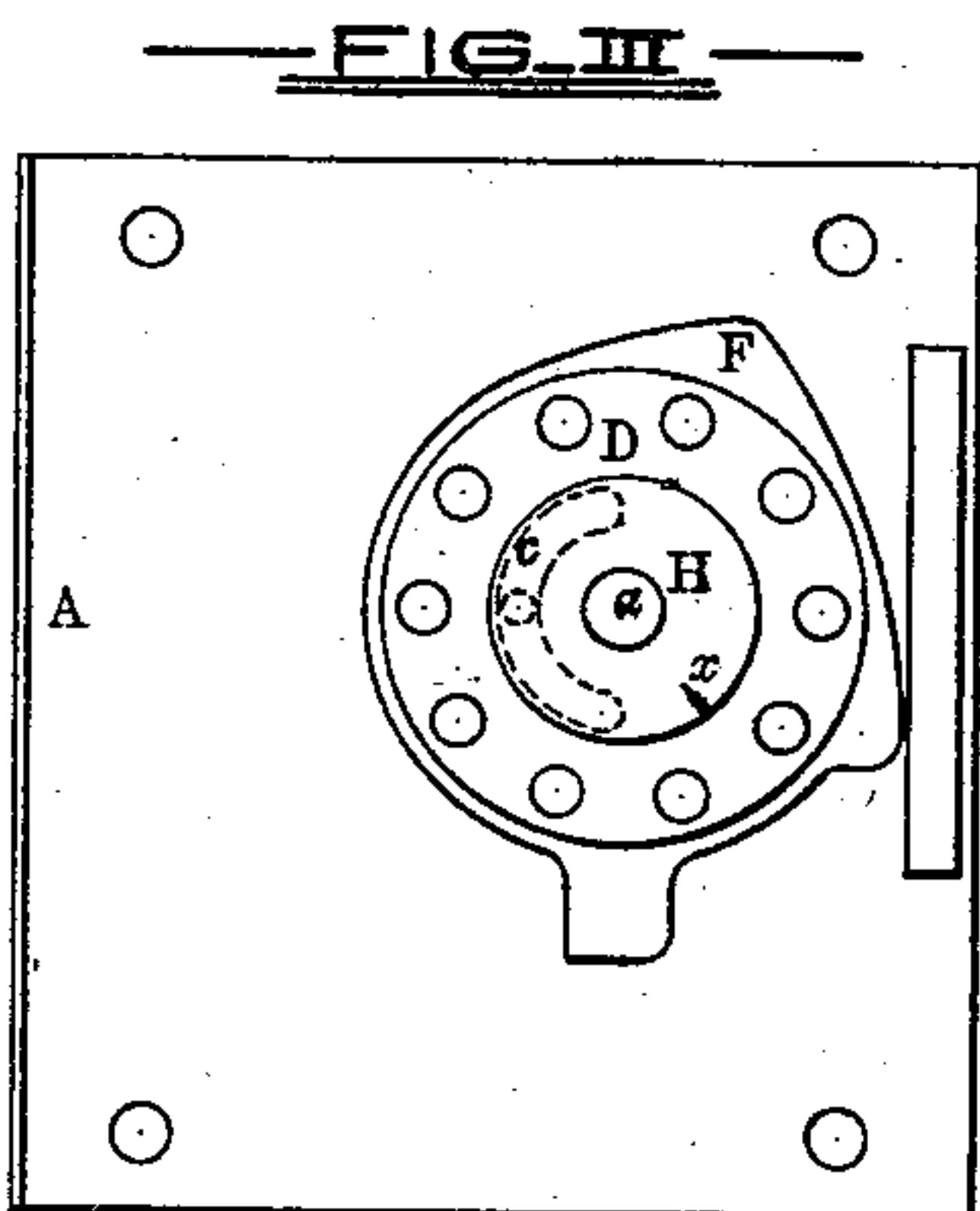
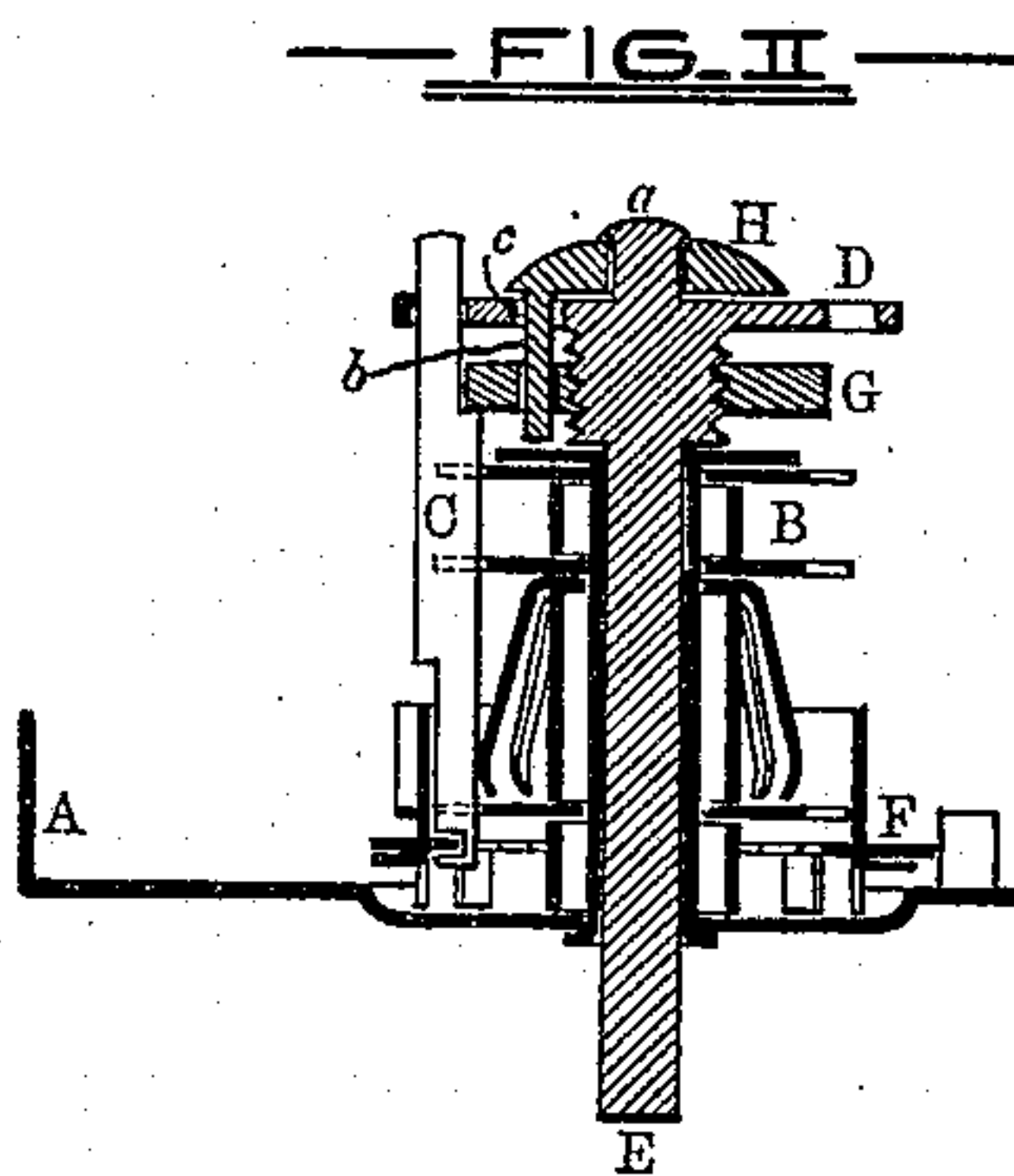
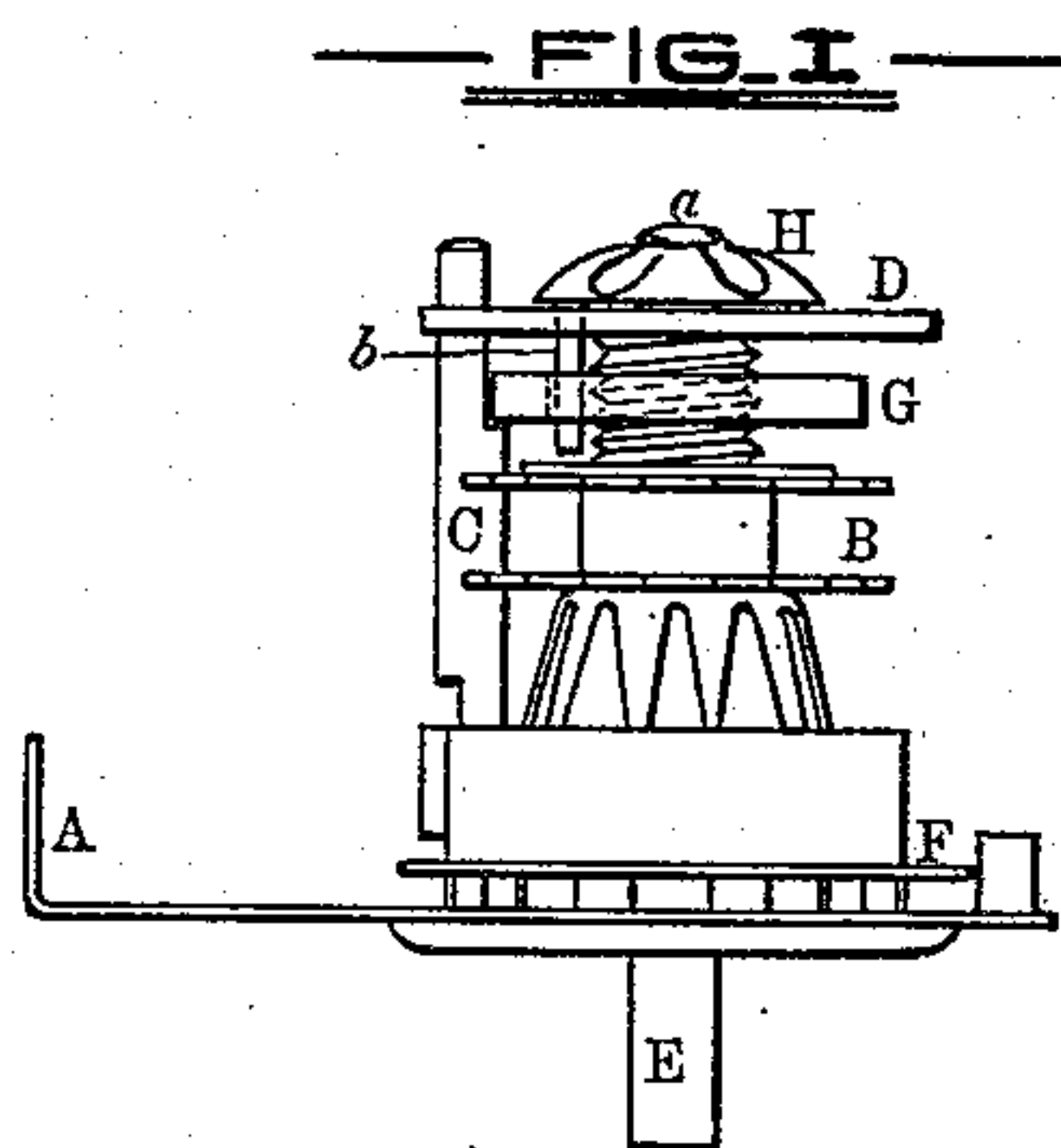


H. CLARKE.
COMBINATION-LOCK.

No. 187,101.

Patented Feb. 6, 1877.



WITNESSES

Wm W. Towner
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UNITED STATES PATENT OFFICE.

HENRY CLARKE, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN COMBINATION-LOCKS.

Specification forming part of Letters Patent No. 187,101, dated February 6, 1877; application filed October 6, 1876.

To all whom it may concern:

Be it known that I, HENRY CLARKE, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Combination-Locks, of which the following is a specification:

My invention relates to certain improvements upon Letters Patent heretofore granted to me, reissued February 29, 1876, and numbered 6,958 and 6,959, setting forth respectively a combination seal-lock and a combination-lock; and its object is to multiply the number of combinations capable of formation by the parts of the lock governing the locking and unlocking operation, and thus add to the security of the lock.

In the patents above referred to, (which describe fully the parts of the lock not forming the present invention, together with their operation,) the projection of the tumblers by means of the ornamental band is limited by their contact with the under side of the dial plate or disk, through which their ends are caused to pass. The disk having no longitudinal movement upon the central stem, the operator, by pulling out the ornamental band provided for the purpose, at once accomplishes the preliminary step in the manipulation of the locking and unlocking mechanism, as the point at which the tumbler's stop is fixed without previous adjustments. Thus, in the patents named, it is seen that discovery of the operative combination depends only upon knowing which of the tumblers are to be pushed back after all have been drawn out.

In the present invention the said disk, although its other functions are the same as in the said patents, is not used as a stop for the tumblers when drawn out by the said band, the stop herein employed being a collar adjustable longitudinally upon the central stem, on which it must be moved to a known position before the desired stopping-point of the tumblers can be obtained. Thus the operative combinations are multiplied by making the preliminary step in the manipulations of the lock to consist in arranging the collar on the central stem so as to cause the tumblers to stop at the necessary point, the depression of the known combination of tumblers after all are drawn out being, in the present in-

vention, the secondary step in bringing the several parts into such relative position as to admit of the locking or unlocking operation.

In the further description of my invention which follows, reference must be had to the accompanying drawing, in which Figures 1 and 2 are respectively an exterior and a sectional view of parts of a lock embodying my present improvements. Fig. 3 is a plan of the same, and Fig. 4 a top view of a detached part of the lock.

Similar letters of reference indicate similar parts in all the views.

A is the lock-case, and B the core or holder for the tumblers C. The dial plate or disk is represented by D, it being a part of or attached to the end of the central stem E. The details of construction and the operation of such parts of the lock as are not immediately affected by the attachment of my present improvements are fully described in the said patents, to which reference is made.

In the lock shown in the drawing annexed, the movement of the lock-bolt, which element is not shown, is accomplished by limited circumferential motion of the plate F. This movement, as in the patents referred to, is only obtainable upon the projection of the tumblers C to such height above or beyond the outer surface of the disk D as will bring notches in certain of them in a line with projections on the plate F, and the return of the remaining tumblers, having similar notches differently situated, to their original positions.

The outward movement of the tumblers required to be projected or extended to allow of the passage of the projections on the plate F is limited by the collar G, which has been previously adjusted upon the central stem E, the collar being threaded and movable upon the correspondingly-threaded part of the stem. The adjustment of the collar G, or the change of its position upon the stem E, is effected by means of a knob, H, fitted to turn upon a central pin, *a*, on the upper face of the disk. The medium of communication between the knob and the collar G is a pintle, *b*, fastened to the under side of the knob, and passing through a circular or curved slot, *c*, in the disk into a hole in the collar.

In operating the lock a mark, *x*, upon the

knob is brought in a radial line with one of the tumblers or some letter or mark on the dial-plate, and upon the bringing together of the said indicating-marks, the distance of the collar G from the under side of the disk is known to be such as will allow of the required projection of the tumblers.

From this it will be seen that in view of the fact that the proper combination of extended and depressed tumblers cannot be obtained unless the collar G is in its correct position, the first stage of the locking or unlocking operation consists in properly adjusting the collar by means of the knob.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. In combination with the central stem of the lock, a collar or stop, having a movement independent of the tumblers of the lock, and adapted to be moved to a known position upon said stem, and thus serve as a device for limiting the movement of the tumblers required to be projected or extended to admit of the manipulation of the lock, substantially as herein specified.

2. A threaded central stem, a threaded collar or stop upon the said stem, and a knob placed at the outer end of the same, and having a circumferential movement transmissible to the said collar or stop, combined in a lock, substantially as described, whereby, on indicating-marks upon the said knob and the dial-plate of the lock being brought together, the said collar or stop is caused to occupy a required and known position on the said central stem, for purposes herein specified.

3. In combination, substantially as described, an exterior circumferentially-moving knob, an adjustable threaded collar, a central threaded stem, a dial plate or disk having a curved or circular slot, and a pintle connecting the knob and disk, for the purposes set forth.

In testimony whereof I have hereunto subscribed my name this 22d day of July, A. D. 1876.

HENRY CLARKE.

Witnesses:

WM. T. HOWARD,
THOS. MURDOCK.