

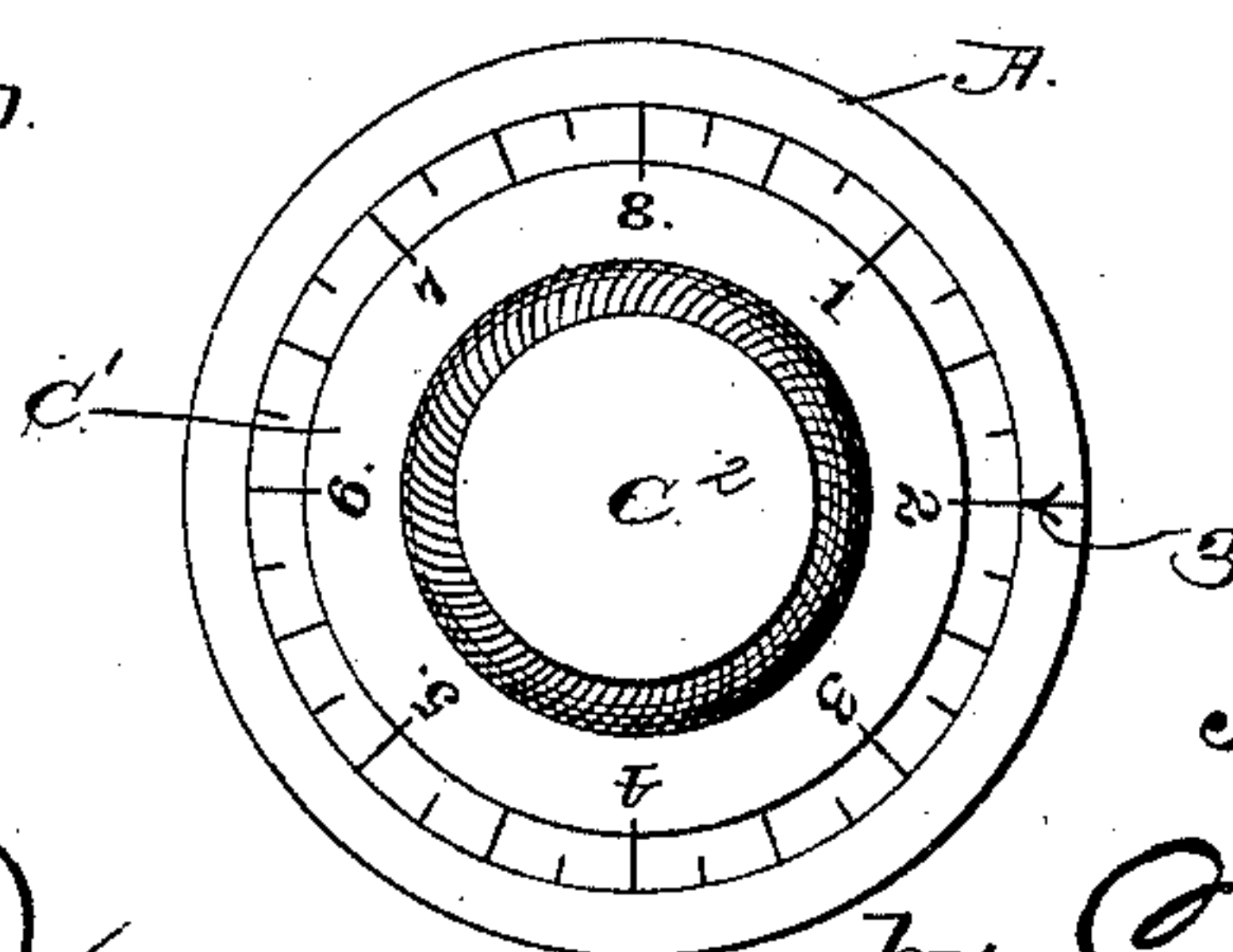
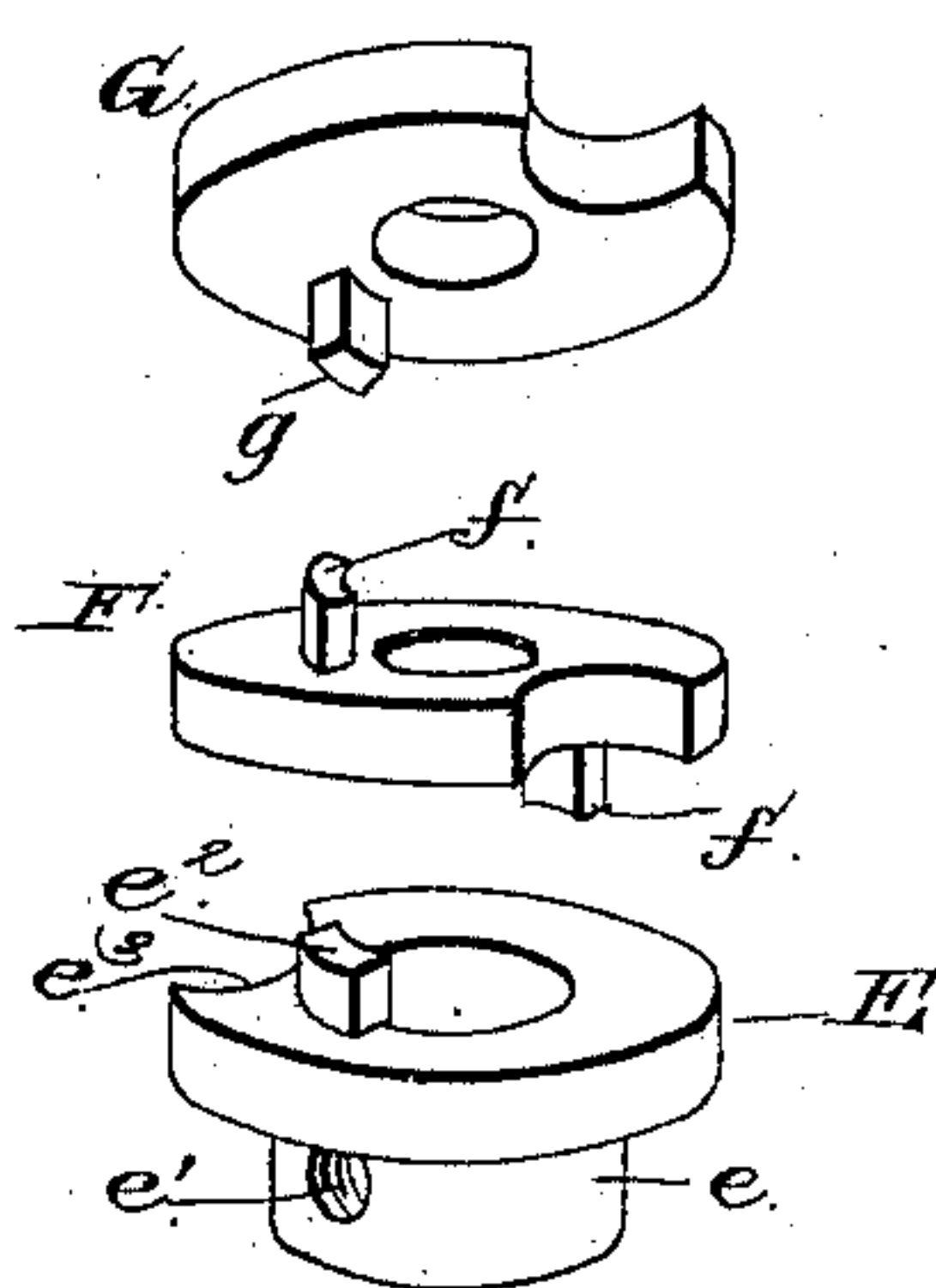
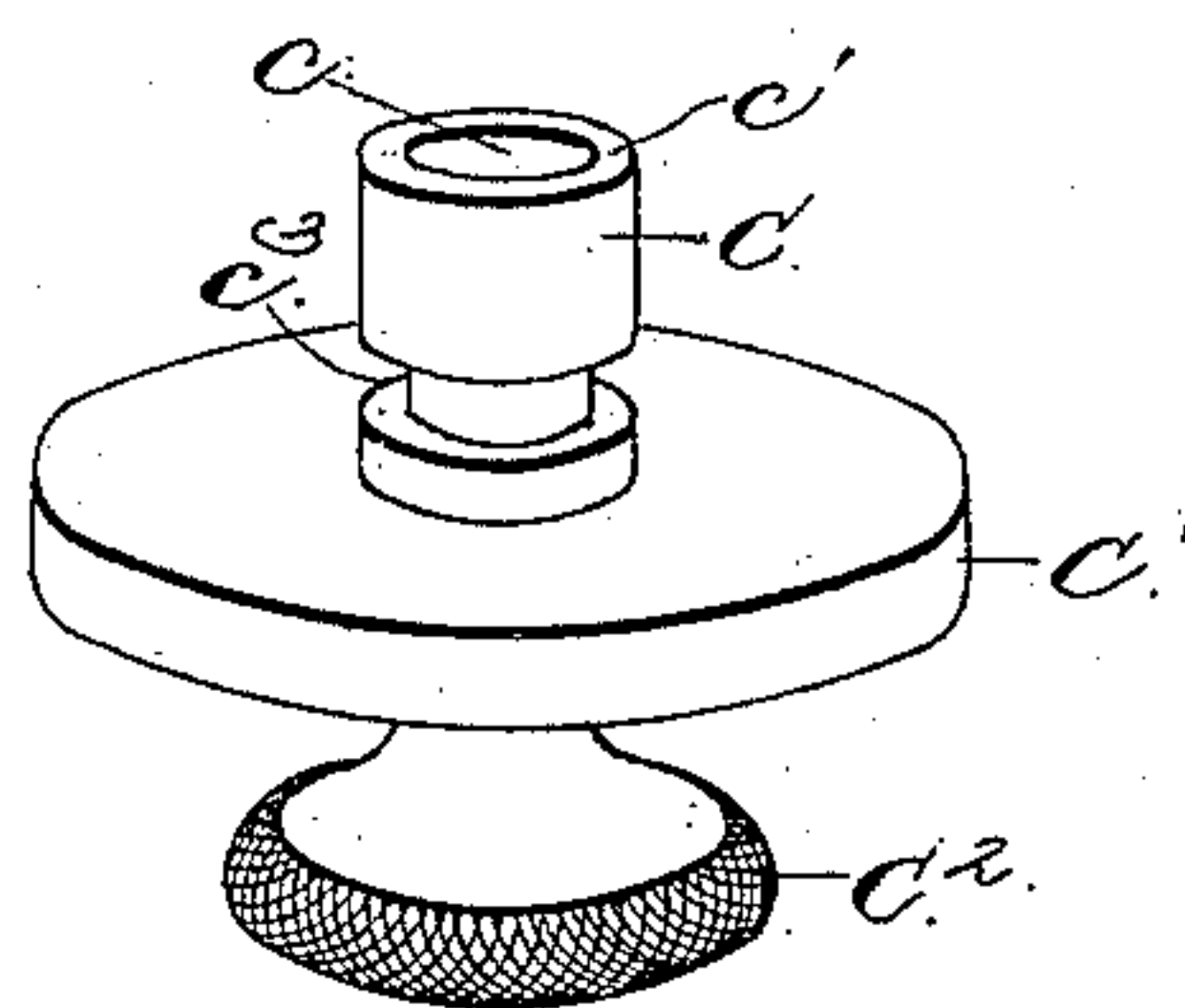
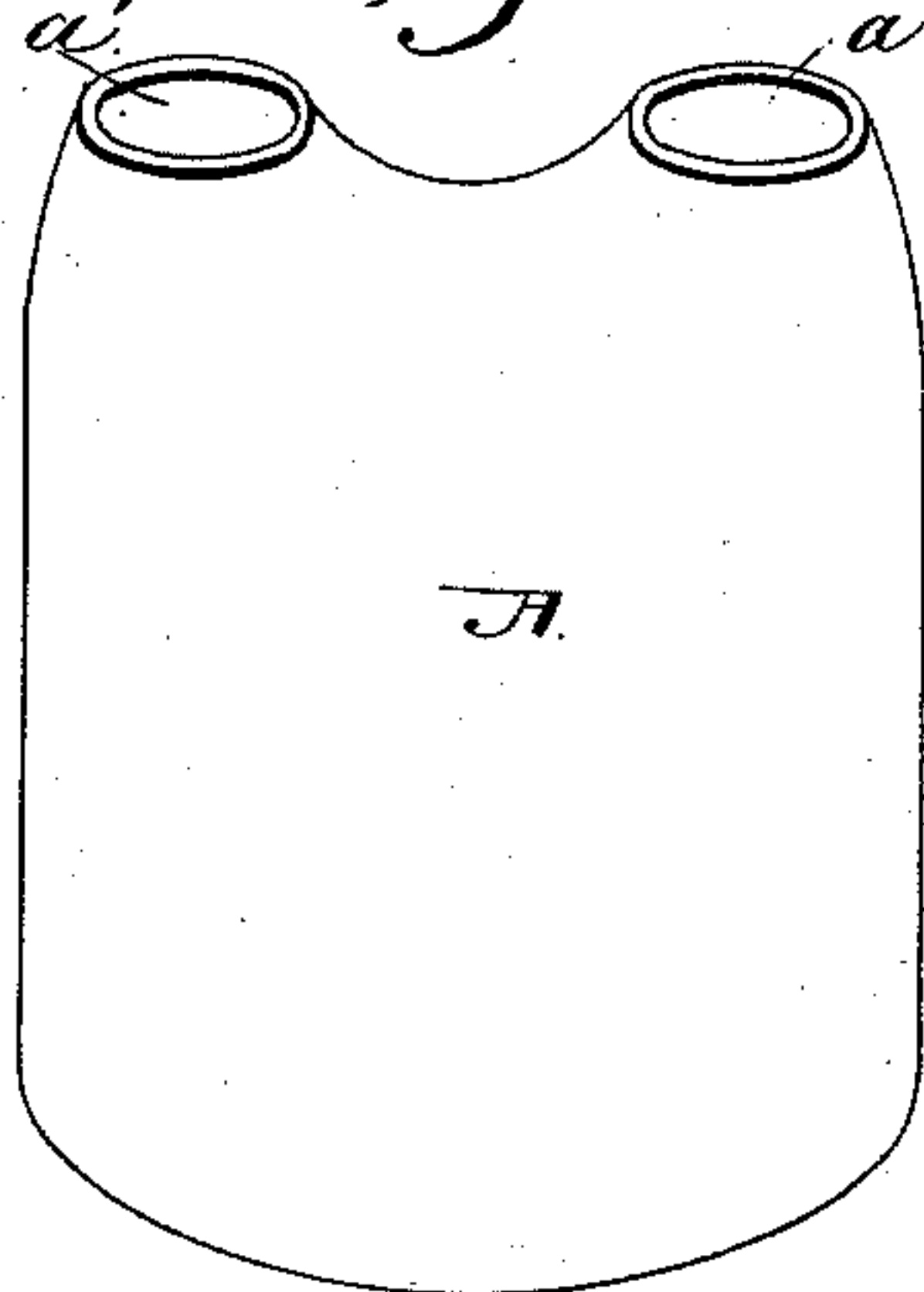
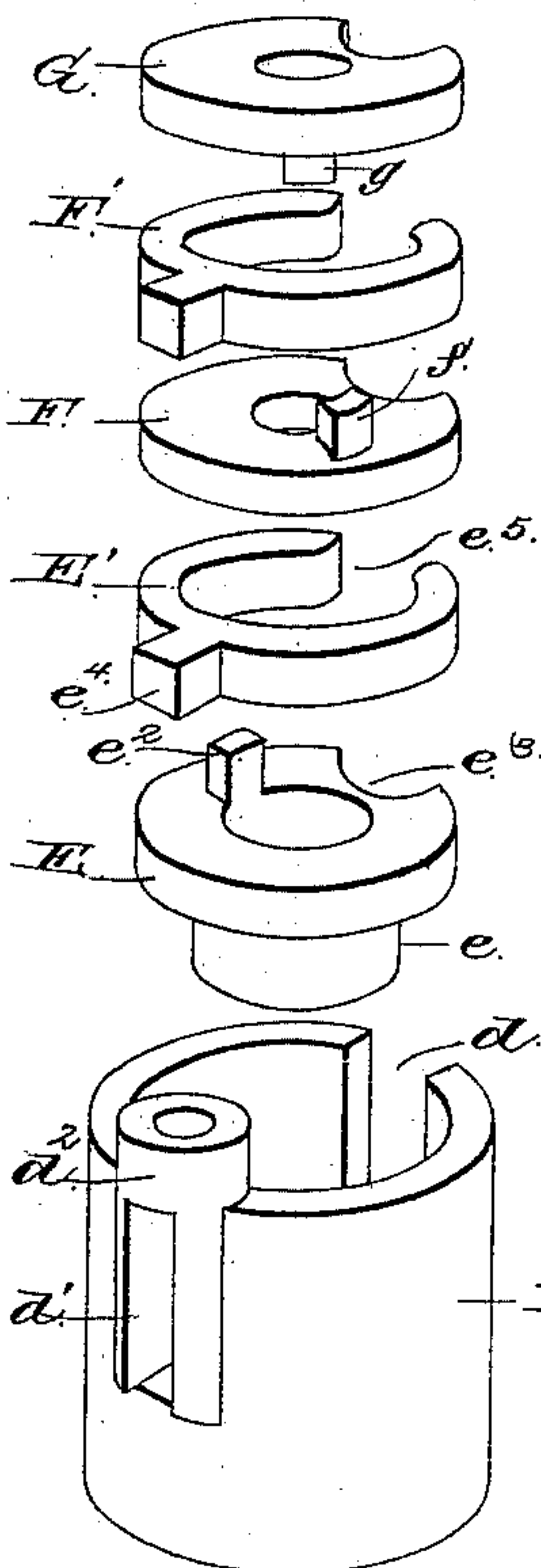
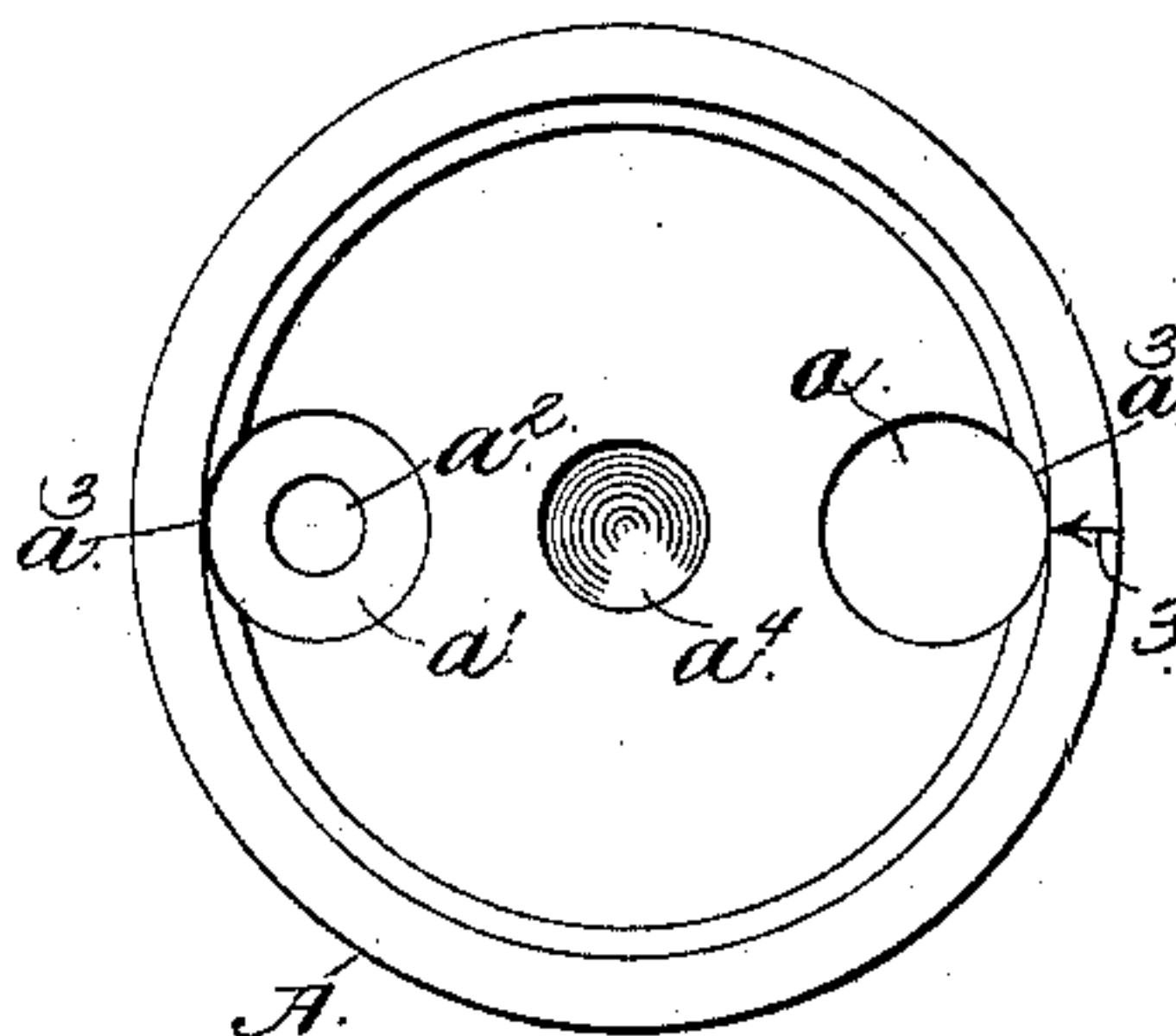
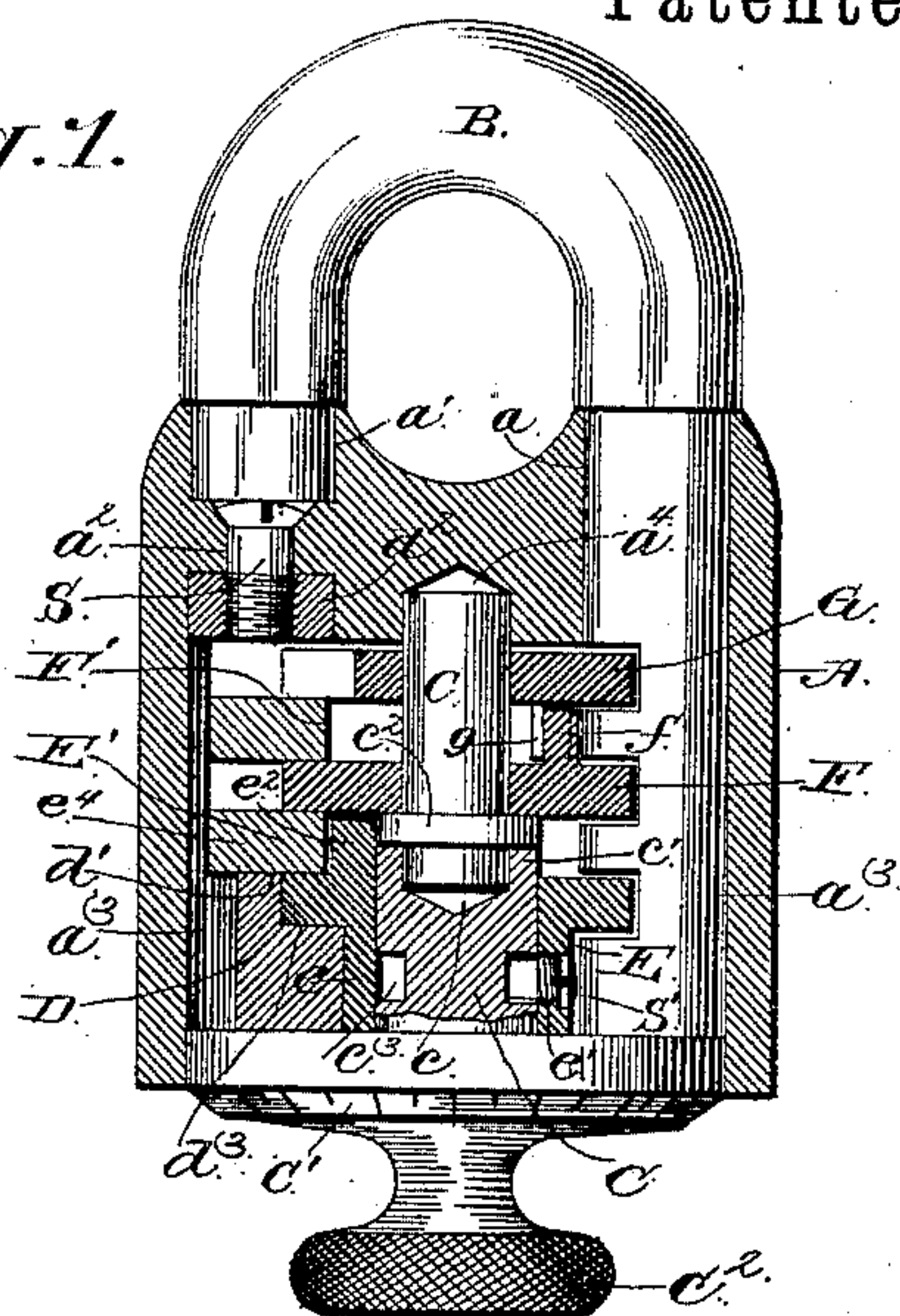
(Model.)

J. E. SPENCER & J. C. SANDERS.

COMBINATION PADLOCK.

No. 378,736.

Patented Feb. 28, 1888.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH E. SPENCER AND JOHN C. SANDERS, OF LEVEL, MARYLAND.

## COMBINATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 378,736, dated February 28, 1888.

Application filed August 15, 1887. Serial No. 247,003. (Model.)

*To all whom it may concern:*

Be it known that we, JOSEPH E. SPENCER and JOHN C. SANDERS, citizens of the United States, residing at Level, in the county of Harford and State of Maryland, have invented a new and useful Improvement in Combination-Padlocks, of which the following is a specification.

Our invention relates to an improvement in combination-padlocks; and it consists in the construction and arrangement of the parts thereof, which will be more fully hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which fully illustrate our invention, Figure 1 is a transverse vertical section of our improved lock. Fig. 2 is a perspective view of the casing carrying the tumbler mechanism, spindle, dial-plate, and knob. Fig. 3 is a detail perspective view of the inner shell or casing and the parts carried thereby removed therefrom. Fig. 4 is a bottom plan view of the lock entire. Fig. 5 is a detail perspective of the knob and the parts integrally formed therewith. Fig. 6 is a detail perspective view of the top, bottom, and the intermediate tumbler. Fig. 7 is a bottom plan view of the outer casing.

A indicates the outer shell or casing of the lock, which may be constructed in any suitable form, but preferably in the form herein illustrated and set forth. The upper portion of the said casing is provided with an opening, *a*, for the passage therethrough of the longer leg of the shackle or staple B, which is formed with a series of notches, and directly opposing said opening a circular recess or socket, *a'*, is formed for the reception of the shorter leg of the said shackle or staple. The socket *a'* has a smaller opening, *a''*, through the lower portion thereof for the passage of a screw, S, for purposes which will be fully hereinafter described. Two arc-shaped depressions or recesses, *a'''*, are formed with the inner surfaces of the side walls of the outer casing, A, in direct alignment with the opening *a* and the under side of the socket *a'*. These depressions extend nearly down to the bottom of the casing, which is entirely open. In the top inner surface of the said casing A, between the opening *a* and the socket *a'*, a socket, *a<sup>4</sup>*, is formed for the reception of the upper end of the central spindle.

The central spindle is preferably constructed in two sections, C C, a socket, *c*, being formed in the upper end of the lower section, having a flange, *c'*, and a shoulder, *c''*, is formed with the lower end of the upper section, which engages with the said socket *c* and flange *c'*. The upper end of the upper section of the spindle engages with the socket *a<sup>4</sup>*, which centrally supports and steadies the movement of the spindle and the parts mounted in connection therewith.

The lower section of the spindle is provided with a groove, *c<sup>3</sup>*, and has the dial-plate C' and the operating-knob C'' integrally formed therewith. The under side of the dial-plate C' is provided with a series of notches or indication-lines, which are numbered from 1 to 8, with intersecting halves and quarters. It will be readily understood that only a portion of the said numbers will be used in releasing the leg of the shackle or staple from the lock.

D indicates the inner shell or casing, which is constructed with an opening, *d*, which extends vertically through one side thereof, and through which the longer leg of the shackle passes and is locked when the combination is set. In the side of the said shell, immediately opposite the opening *d*, a narrow slot, *d'*, is formed, which only partially extends through the vertical height of the said casing. On the upper edge of the casing, immediately over the opening *d'*, a circular boss or collar, *d''*, is integrally formed therewith, which is engaged by the screw S, and by which means the said shell D, carrying the combination, is secured in the outer casing, A. The lower portion of the casing D is formed with a flange, *d'''*, upon which the lower tumbler rests and has movement.

The lower tumbler, E, is formed with an integral collar, *e*, which depends from its lower face, said collar being provided with a screw-threaded opening or hole, *e'*, for the passage therethrough of a set-screw, S', the inner end of which bears in the groove *c<sup>3</sup>*, formed in the lower section, C, of the spindle. By this means the said tumbler is attached to the said lower section of spindle. With the upper face of the lower tumbler, E, a lug, *e''*, is integrally formed, and the edge of said tumbler is constructed with a semicircular depression, *e'''*.

Upon the top surface of the tumbler E a circular open-sided separating-collar, E', is



mounted. This collar E' is provided with a lug,  $e^4$ , which engages with the opening  $d'$ , and thereby holds the said collar in a stationary adjustment. On the opposite side of the collar to that with which the lug  $e^4$  is arranged an opening,  $e^5$ , is formed, which is of the same width as the opening  $d$  in the shell D.

The jamb between the upper and lower sections of the spindle C is arranged about on a level with the top surface of the collar E', and when said collar has been adjusted upon the top surface of the tumbler E the upper section of the spindle is mounted in connection with the lower section of spindle. A tumbler, F, is then adjusted over the upper section of the spindle, said latter tumbler being similar in construction to the tumbler E, but without the collar  $e$ . This tumbler F is also provided with lugs or projections  $f$ , arranged upon both the upper and lower faces thereof. Upon the upper surface of the tumbler F a collar, F', is placed, which is of a construction similar to that of collar E'. Upon the collar F' another tumbler, G, is adjusted, having a smooth top surface and a lug,  $g$ , depending from the lower side thereof. The end of the upper section of the spindle projects above the top tumbler, G, and enters the socket in the inner central portion of the outer casing, A.

It will be observed that the central tumbler, F, as hereinbefore described, is constructed with a lug projecting above the upper face thereof and one projecting downward from the lower face of the said tumbler-plate. These lugs engage with the lug projecting upward from the lower tumbler, E, and that which projects downwardly from the under face of the tumbler-plate G, and by this construction and arrangement the combination may be released or set by an engagement of the said lugs, which turn the tumblers until the semi-circular recessed portions thereof are adjusted in line with the opening  $d$  in the inner shell, or until the said tumblers shall have become disengaged from the notches in the single locking-leg of the shackle or hasp B.

The collars E' and F' are adapted to separate the tumblers for the purpose of permitting the free movement of the lugs formed with the said tumblers and engagement thereby and therewith by the lugs on the tumblers adjacent thereto.

While we preferably construct the spindle in sections, as hereinbefore set forth, it will be understood that some of the heavier constructions of locks would require a continuous spindle, and we reserve the right to use such form of spindle, as it would be equally efficient and operative as the sectional spindle described herein.

It will be further understood that the number of tumbler-plates can be increased or decreased as may be desired, the same construction and arrangement as herein described being preserved at all times.

To open the lock, the operation and combi-

nation is as follows: The dial-plate is turned to the right until 5' 2 registers with the notch 3 on the lower edge of the outer casing. The dial-plate is then given an entire revolution to the left, and is then adjusted in the same direction until 2' 2 engages with the notch 3. The plate is then turned to the right until 4' 4 engages with the notch 3, when the staple or shackle can be readily withdrawn from the lock. To release the inner shell, D, after the staple has been withdrawn, the screw S is removed and the said shell carrying the spindle and tumblers, together with the dial-plate and knob, will drop out of the bottom of the outer casing.

The novelty, utility, and advantage of our improved construction being obviously apparent and appreciable it is unnecessary to further enlarge upon the same herein.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the inner shell, D, having the opening  $d$  extending vertically therethrough, and the opening  $d'$  extending only partially through the vertical height of the said casing, the centrally-mounted spindle, the tumblers E, F, and G, having semi-circular depressions in their edges adapted to register with the opening  $d$  in the casing D, and the interposed collars E' and F', having lugs on one side thereof projecting through the opening  $d'$ , and openings on the opposite side permanently engaging with the opening  $d$  in the shell D, substantially as described.

2. In combination with the outer shell or casing, A, having internal vertical grooves, the inner removable shell, D, carrying the tumblers and the tumbler-operating mechanism, the collar or boss formed integrally with the top edge of the shell D, and the screw  $s$ , adapted to secure or release the shell D from the outer casing, A, as set forth, whereby the entire mechanism may be readily removed from the outer casing without disturbing the tumblers, substantially as described.

3. In combination with the lower section of the spindle, constructed with a socket,  $c$ , and having a groove,  $c^3$ , as set forth, the knob and dial-plate being integrally formed with said portion of the spindle, the lower tumbler, E, having a collar,  $e$ , integrally formed therewith and depending from the lower side thereof, and the set-screw  $s'$ , passing through the collar  $e$  into the groove  $c^3$  in the spindle for securing the tumbler E in connection therewith, as set forth, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

JOSEPH E. SPENCER.  
JOHN C. SANDERS.

Witnesses:

J. W. FOSTER,  
W. S. FORSYTH.