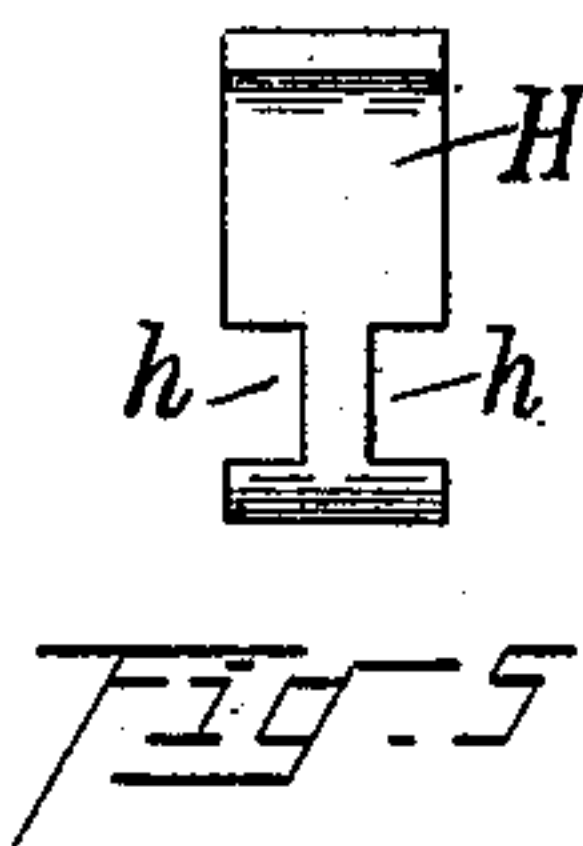
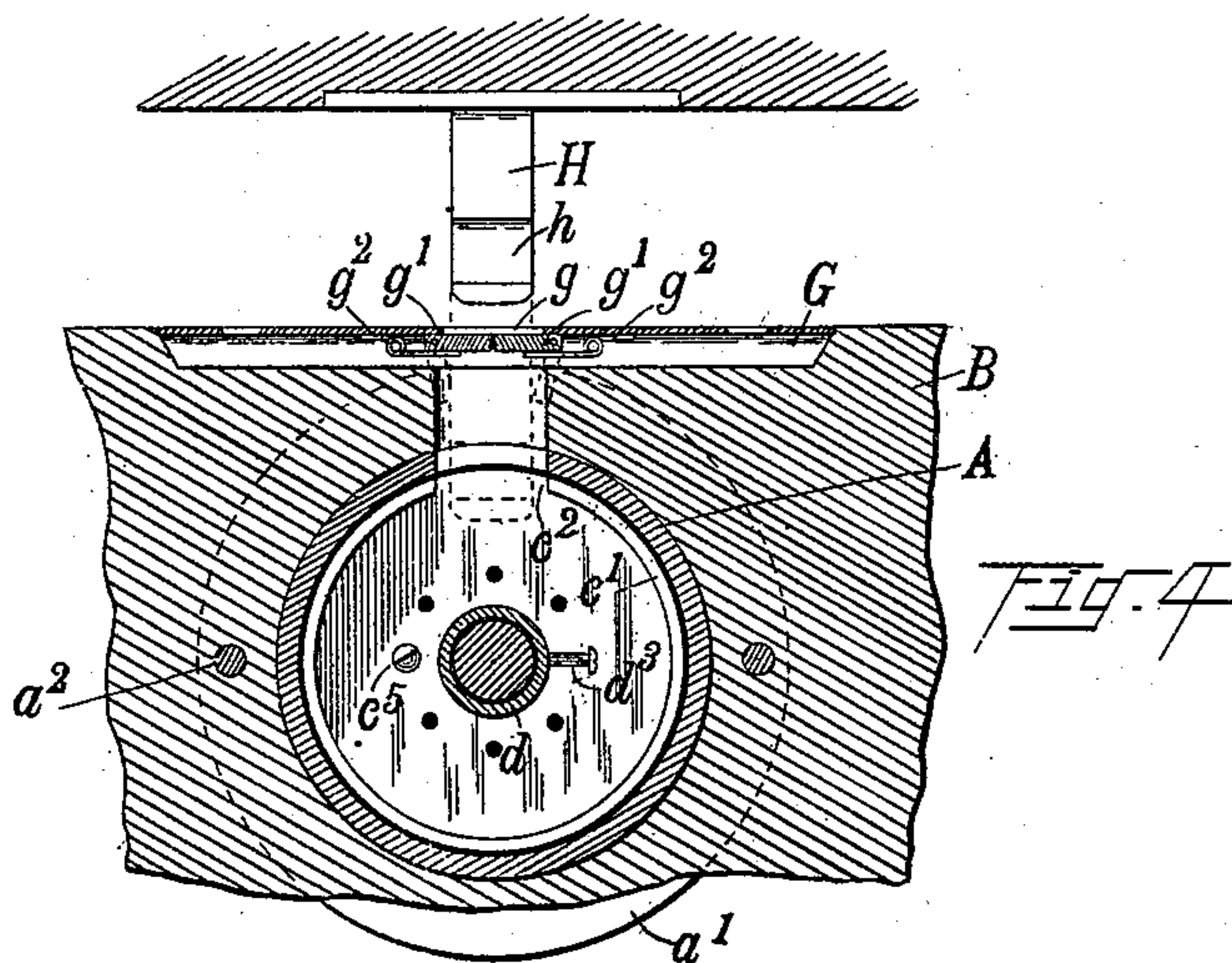
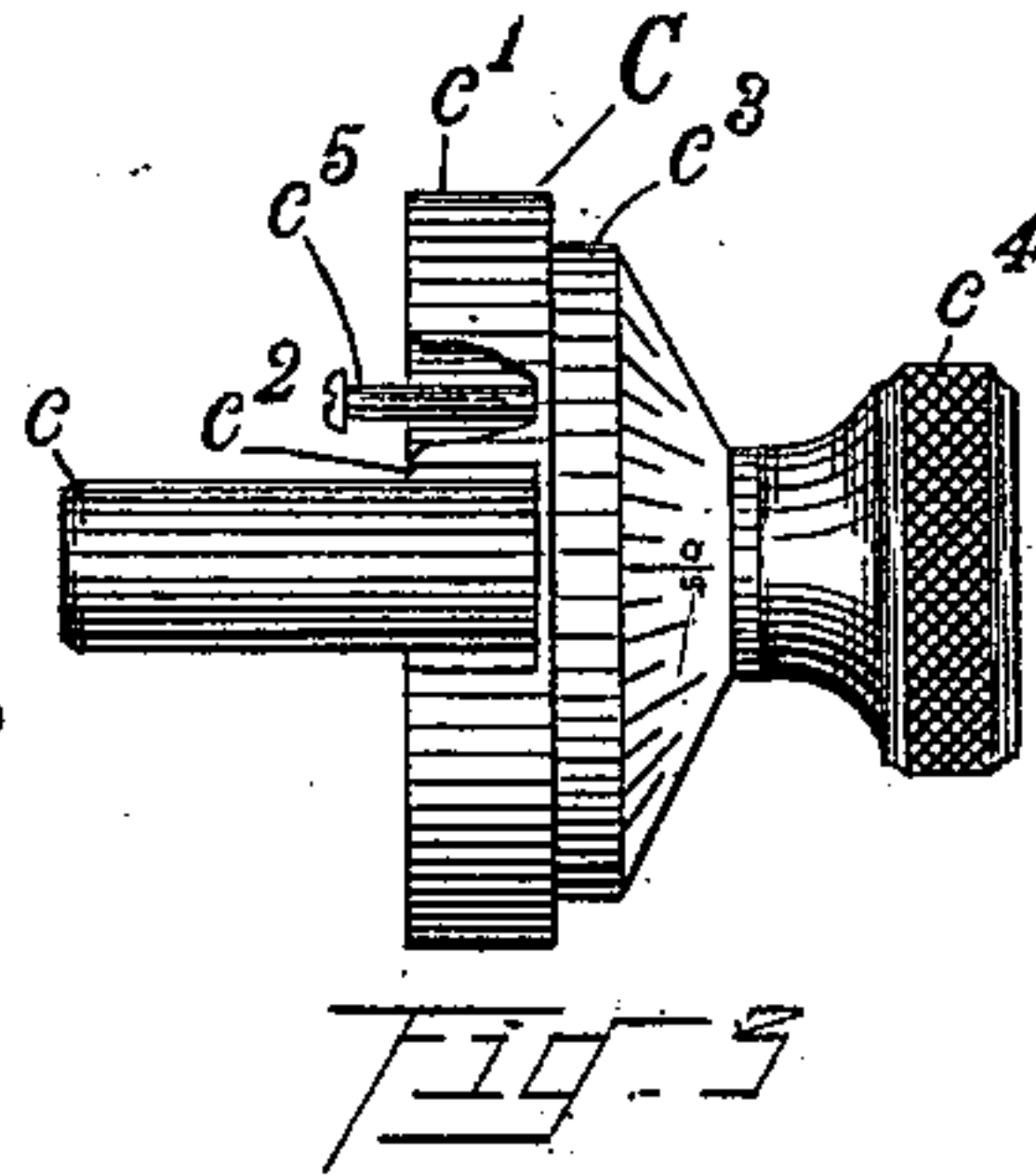
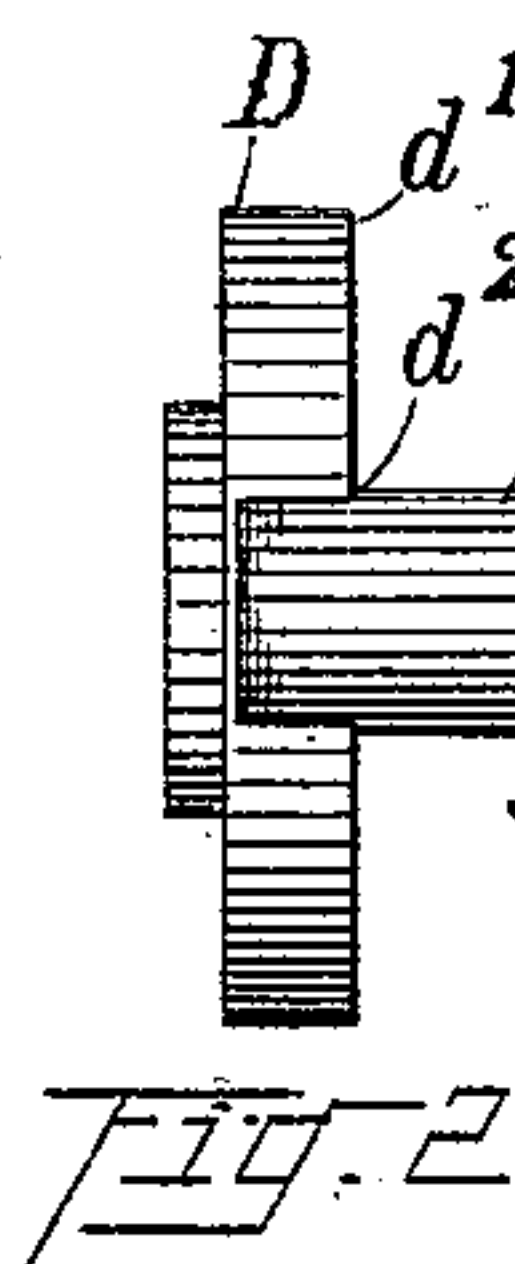
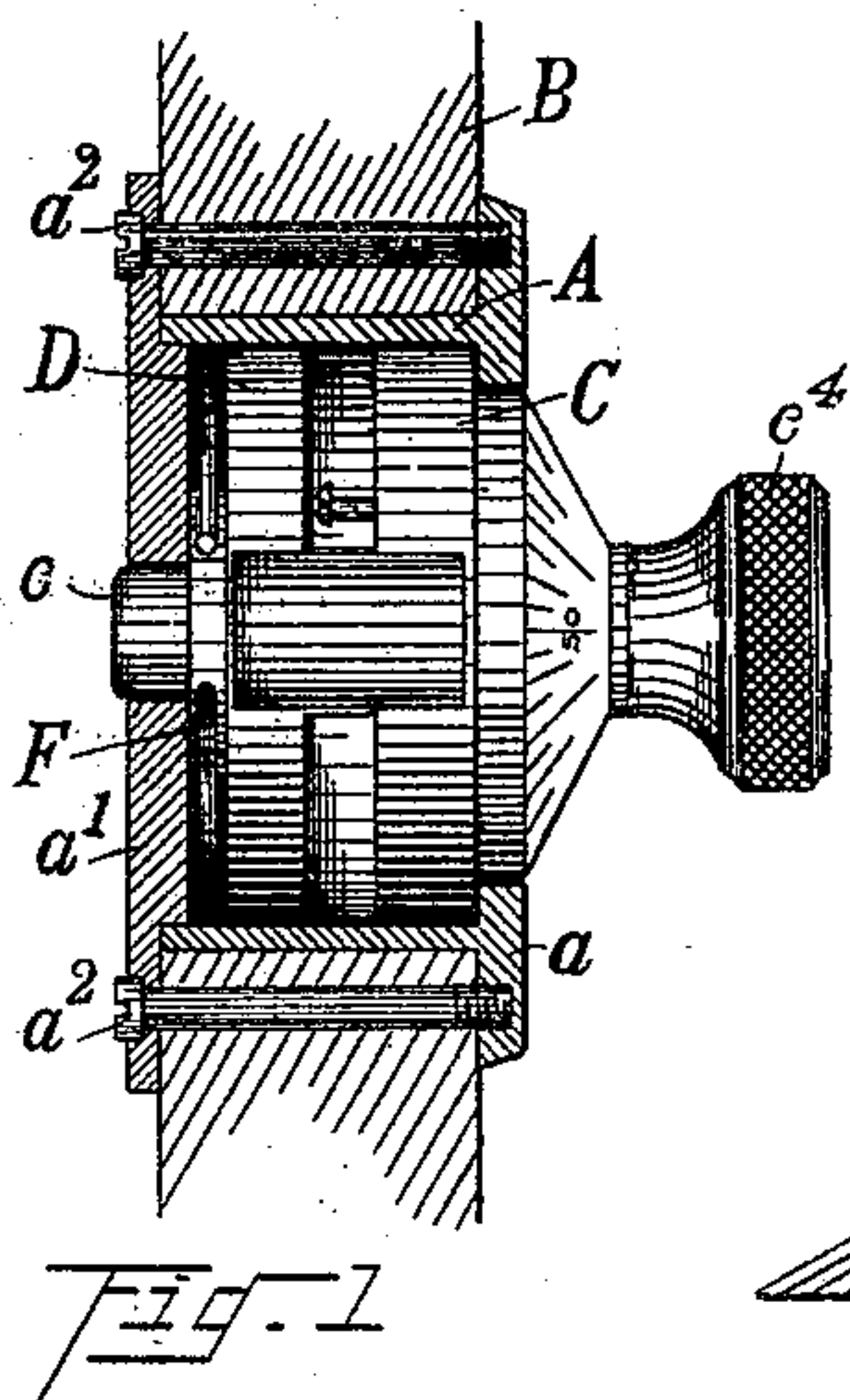


(No Model.)

F. D. SWEET.  
PERMUTATION LOCK.

No. 541,511.

Patented June 25, 1895.



WITNESSES.

*Frederick D. Sweet*  
*Helen M. Wood*

INVENTOR.

*Frederick D. Sweet*  
*By Wing & Thwaites*  
*his attys*



# UNITED STATES PATENT OFFICE.

FREDERICK D. SWEET, OF ELYRIA, OHIO.

## PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 541,511, dated June 25, 1895.

Application filed March 16, 1894. Serial No. 503,879. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK D. SWEET, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Permutation-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide a simple and inexpensive permutation lock of a character especially adapted for use upon desks, boxes and other analogous structures; and the invention consists in the details of construction, and the specific combinations of parts described and definitely pointed out in the claims.

In the drawings, Figure 1 is a horizontal central section through the lock-case, showing the parts therein. Fig. 2 is a detached view of one of the tumblers. Fig. 3 is a detached view of the other tumbler and the parts to which it is rigidly connected. Fig. 4 is a transverse sectional view of the lock, and Fig. 5 is a side view of the bolt.

Referring to the parts by letter, A represents the lock case, which, as shown, is cylindrical in form. On its front end is an external flange *a*. The rear end of the case is open for the reception of the parts to be presently explained. The case passes through one side B of the box or other structure; and a plate *a'* which is secured against the rear end of the case by the screws *a*<sup>2</sup>, prevents the removal of the case from said side B, as well as the removal of the contained parts from the case.

*c* represents an arbor which is revolubly mounted at its rear end in a socket in the plate *a'*. Rigid with said arbor is a disk C having on its outer edge a rearwardly projecting cylindrical flange *c'*, in which a notch *c*<sup>2</sup> is cut. On the front side of this disk is a cylindrical boss *c*<sup>3</sup>, which passes out through and is revolubly mounted in a cylindrical hole in the front end of the lock case. This hole is smaller in diameter than the disk C, wherefore the said disk and arbor may not be removed through said front end of the case. The front face of this cylindrical boss is gradu-

ated and forms the dial, which is substantially like all permutation lock dials; and a dial knob *c*<sup>4</sup> is provided for turning it.

A sleeve *d* is loosely mounted on the arbor *c*. Rigid with said sleeve is a disk D, having on its outer edge the cylindrical flange *d'*, in which a notch *d*<sup>2</sup> is cut. The front end of the sleeve bears against the disk C and thereby prevents the too near approach of the disks C and D.

A pin *d*<sup>3</sup> is screwed into the sleeve *d*, and this pin is engaged by a pin *c*<sup>5</sup> which screws into the rear side of the disk C, wherefore, as the disk C is turned, the two pins *d*<sup>3</sup> and *c*<sup>5</sup> engage and the disk D is turned. A number of holes for the reception of the pins *d*<sup>3</sup> and *c*<sup>5</sup> may be formed in the sleeve *d* or disk C or both, and by changing the position of either pin, the combination of the lock is altered.

A friction spring F is secured to the sleeve *d* between the disk D and plate *a'*, and this spring bearing against the lock case holds the disk D against accidental displacement during the independent rotation of disk C.

G represents a face plate which is fastened to the top edge of the side B to which the lock case is secured. In it is a hole *g* and the bolt passes through this hole and through a like hole in the lock case.

H represents the bolt which is secured to the cover or lid of the box, and in the front or rear sides of this bolt are the horizontal grooves *h h*.

The two flanged disks C and D are the lock tumblers. When they are in the proper position, viz., with the notches *c*<sup>2</sup> and *d*<sup>2</sup> directly below the hole in the face plate G, the bolt may be entered into or withdrawn from the lock,—but when either or both of the tumblers are turned from said position prevent the entry of said bolt into said lock, or, if the bolt is in, the flanges *c'* and *d'* enter the grooves *h* in the bolt and prevent its removal.

Hinged to the under side of the plate G are the two gates *g' g'*, which are adapted to close the hole therein, and which are held in the position so to do by the springs *g*<sup>2</sup> *g*<sup>2</sup>. The purpose of these gates is to prevent foreign bodies falling into the lock. The bolt in entering the lock pushes these gates down, and holds



them down until it is withdrawn, when their springs turn them up to the position shown.

Having described my invention, I claim—

1. The combination of a lock case having  
5 an external flange on its front end, a rear plate, and screws which pass through the rear plate and screw into said flange thereby securing the said two parts of the case together and to the desk or other structure on which  
10 said lock is to be used, with an arbor *c* mounted at its rear end in said rear plate, a disk rigid with said arbor having a notched cylindrical flange, a cylindrical boss *c*<sup>3</sup> on the front side of said disk passing through and revolubly  
15 mounted in the front end of said case, a sleeve *d* loosely mounted on said arbor, a disk rigid with said sleeve having a notched cylindrical flange, and pins adapted to engage with each other secured to said sleeve *d* and disk *C* respectively, substantially as and for the purpose specified.  
20

2. The combination of a cylindrical lock

case having an external flange on its front end, and a rear plate adapted to be secured to said lock case, with an arbor *c* mounted at  
25 its rear end in said plate, a disk rigid with said arbor having a notched cylindrical flange, a cylindrical boss *c*<sup>3</sup> on the front side of said disk passing through and revolubly mounted in the front end of the lock case, a sleeve *d*  
30 loosely mounted on said arbor, a disk rigid with said sleeve having a notched cylindrical flange, a friction spring secured to said sleeve bearing against the lock case, and pins adapted to engage with each other secured to said  
35 sleeve *d* and disk *C* respectively, substantially as and for the purpose specified.

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

FREDERICK D. SWEET.

Witnesses:

E. L. THURSTON,

L. F. GRISWOLD.