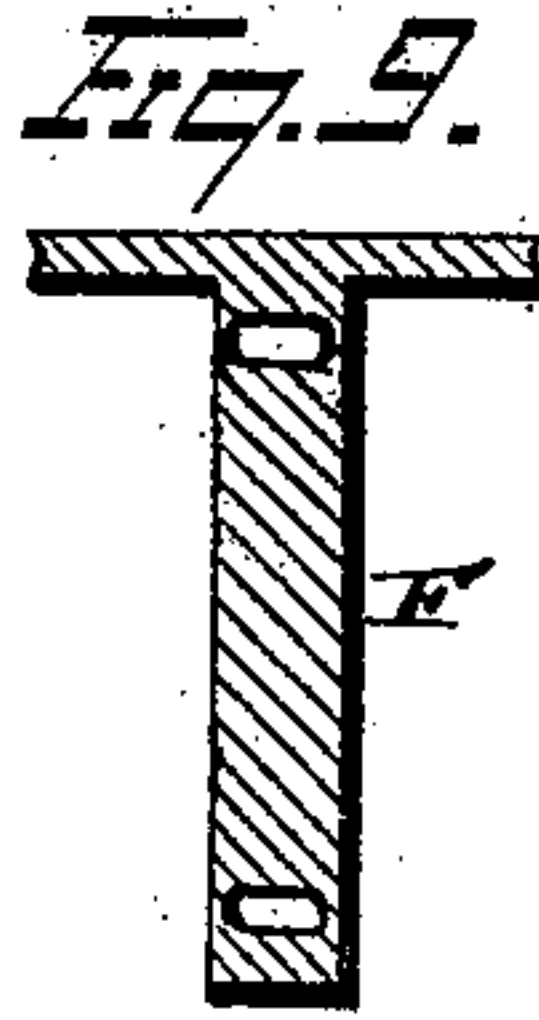
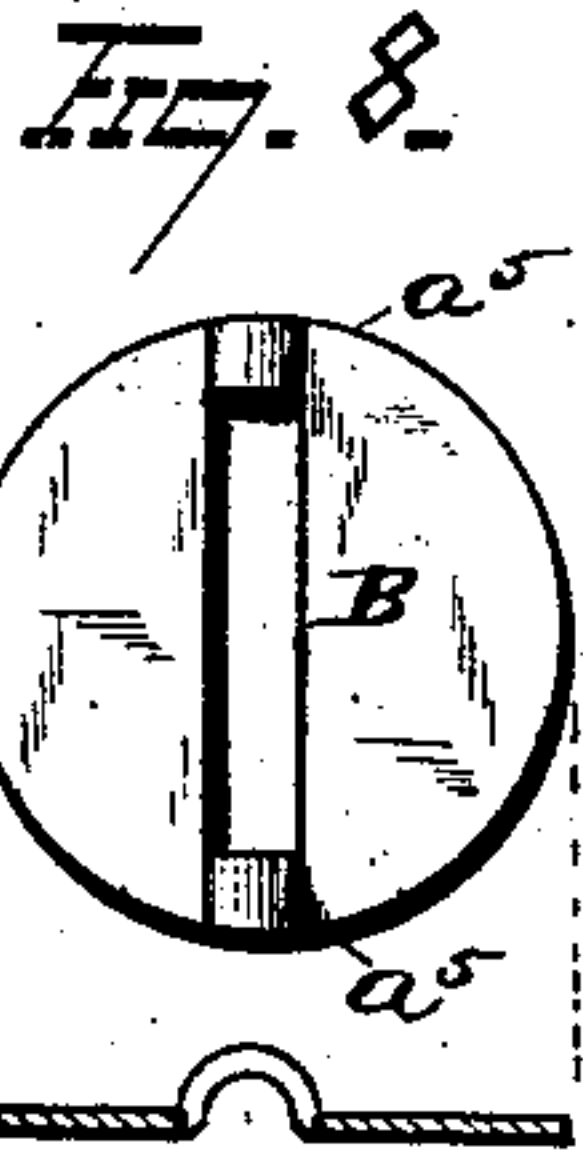
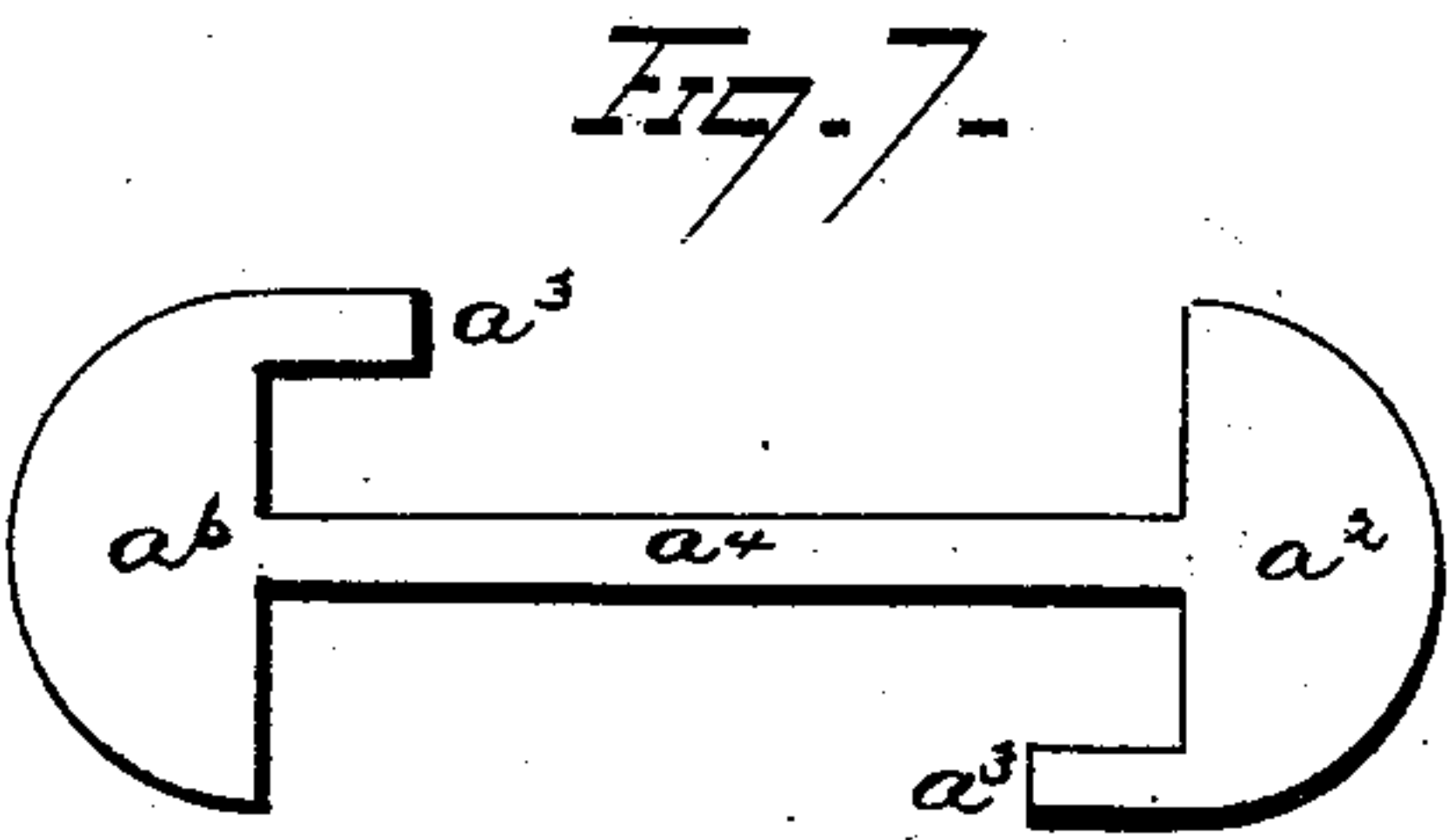
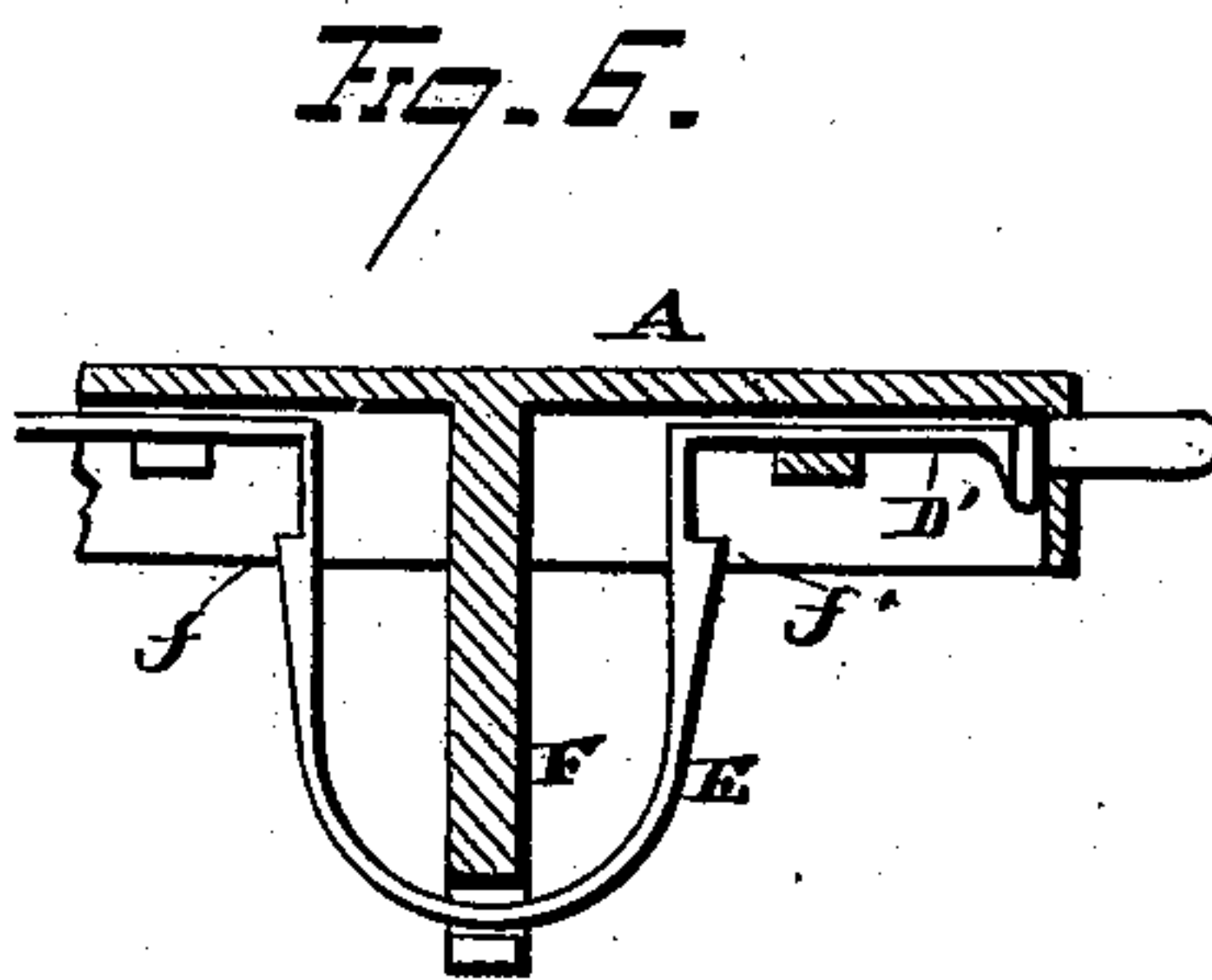
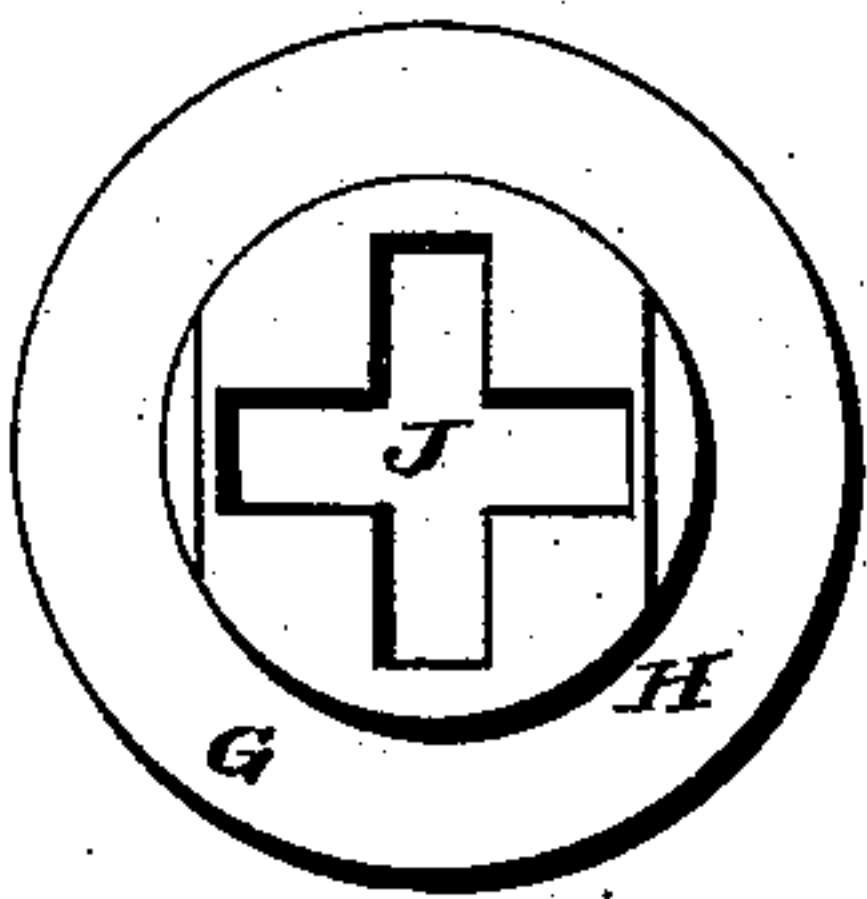
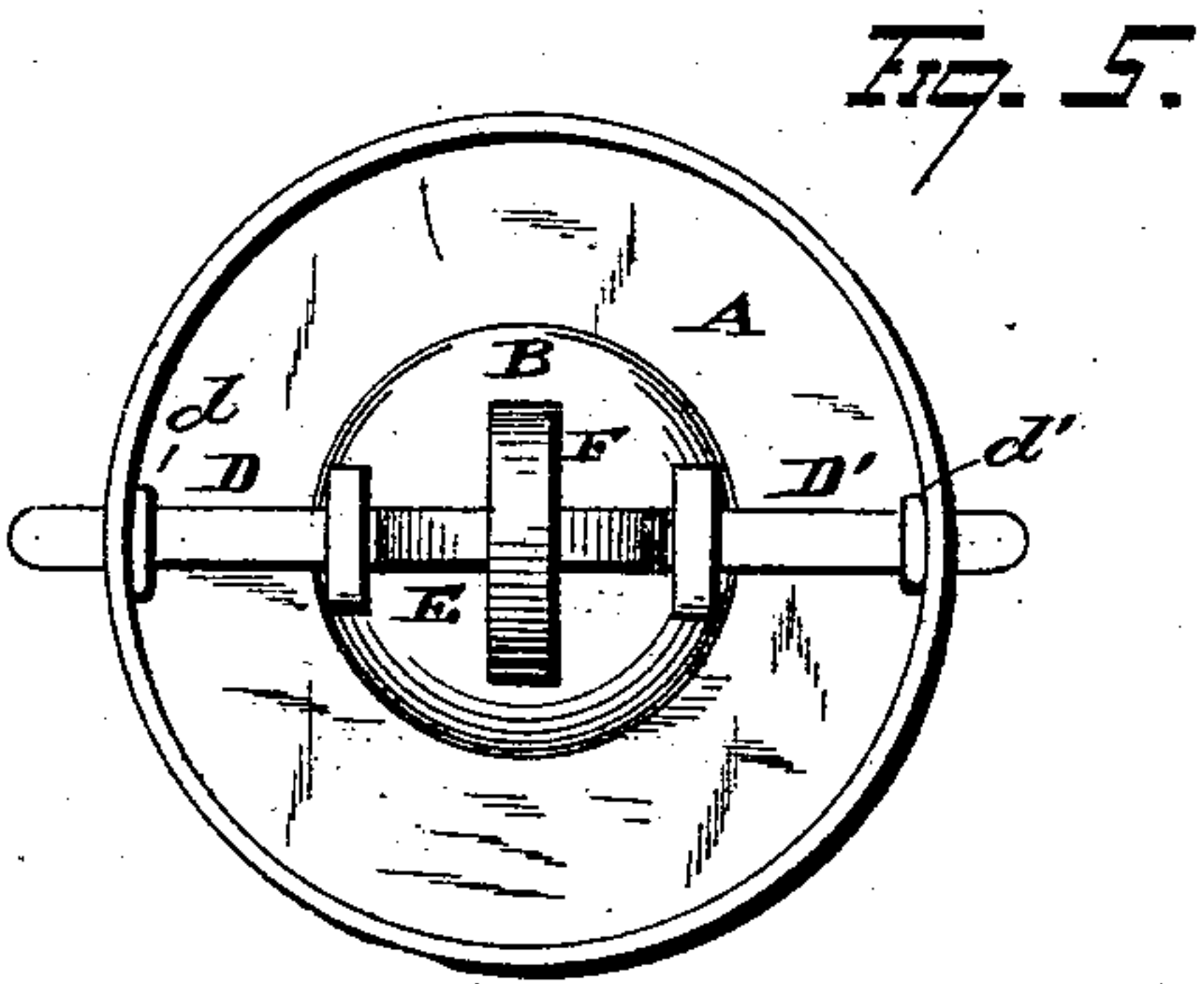
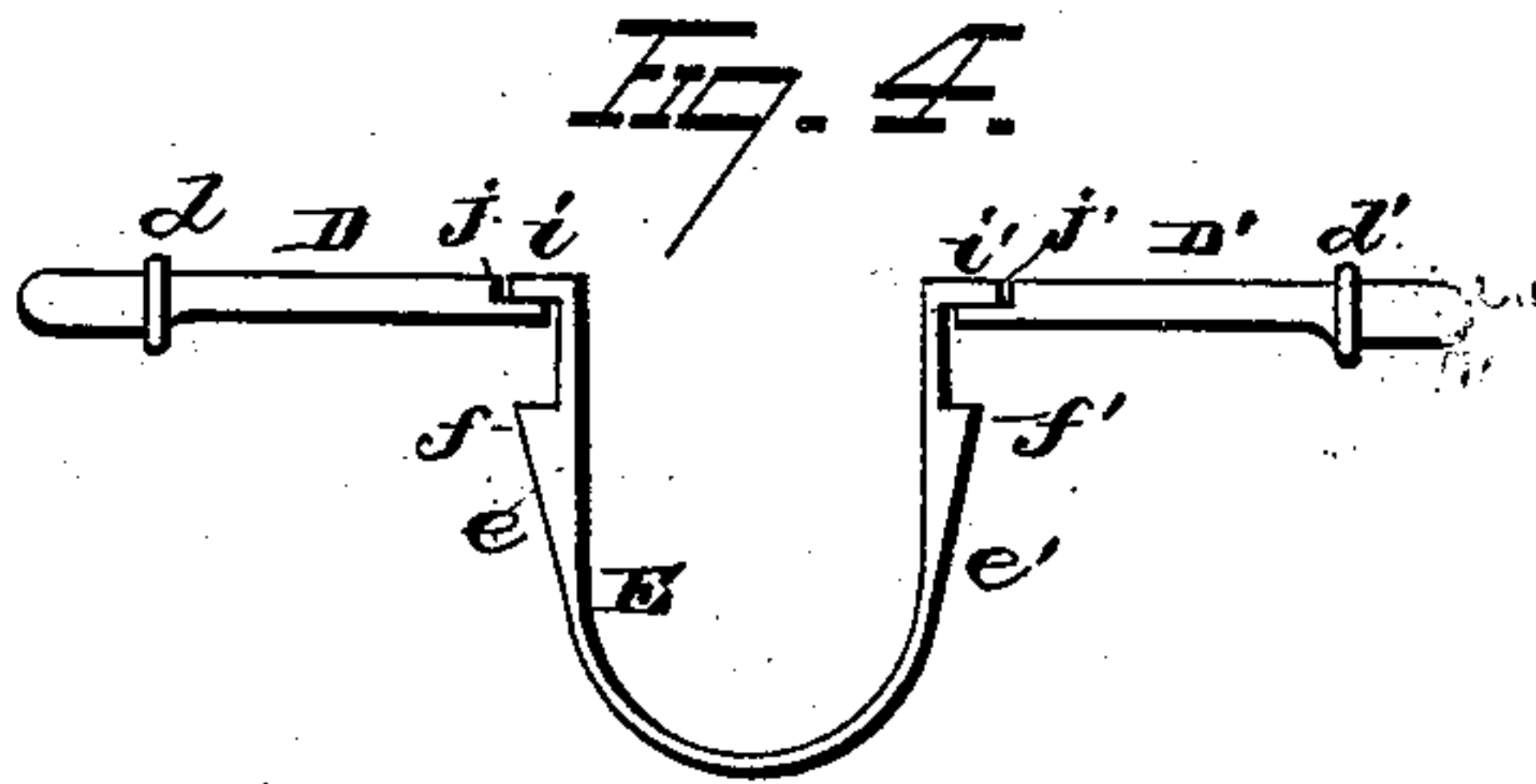
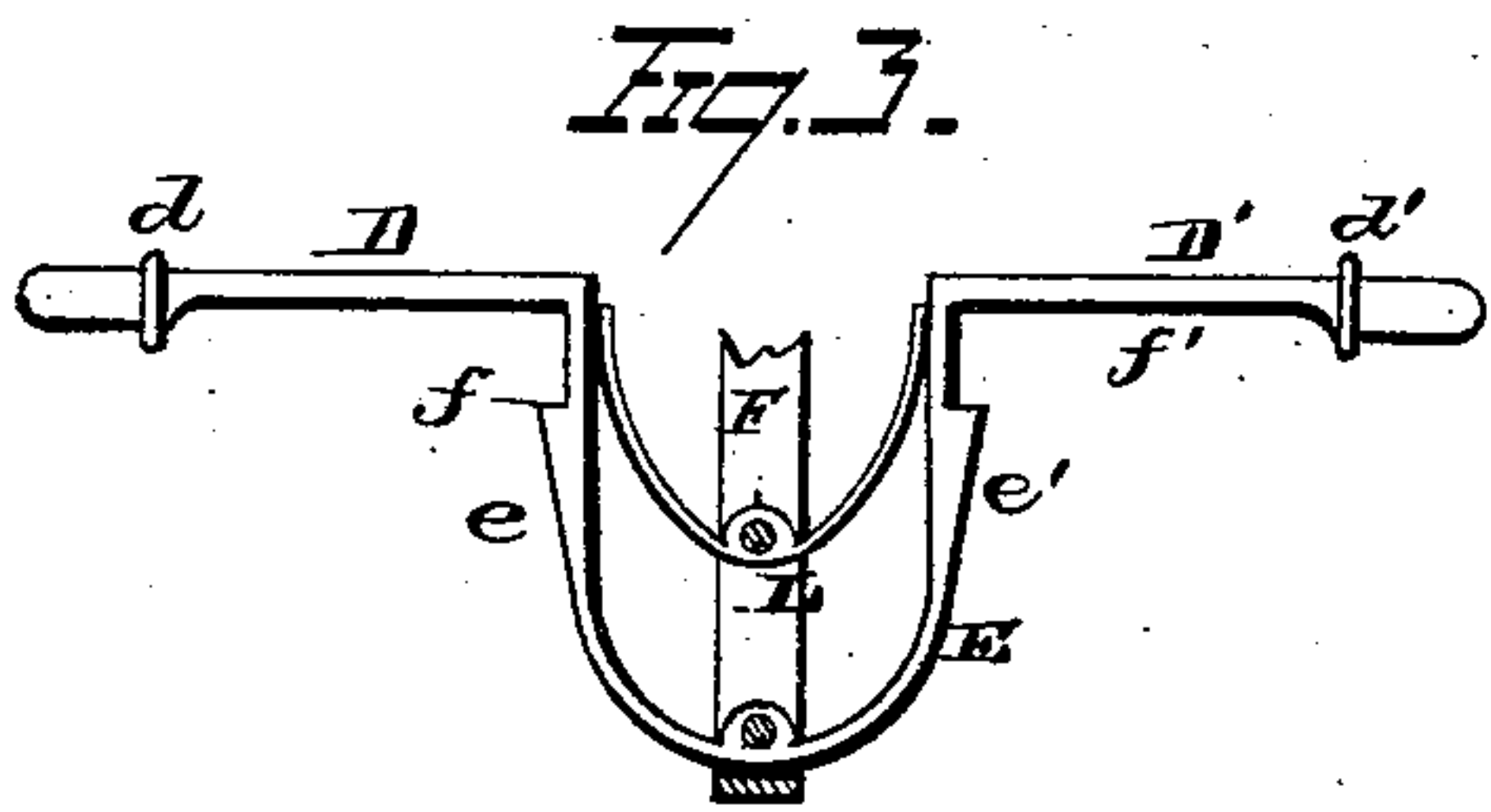
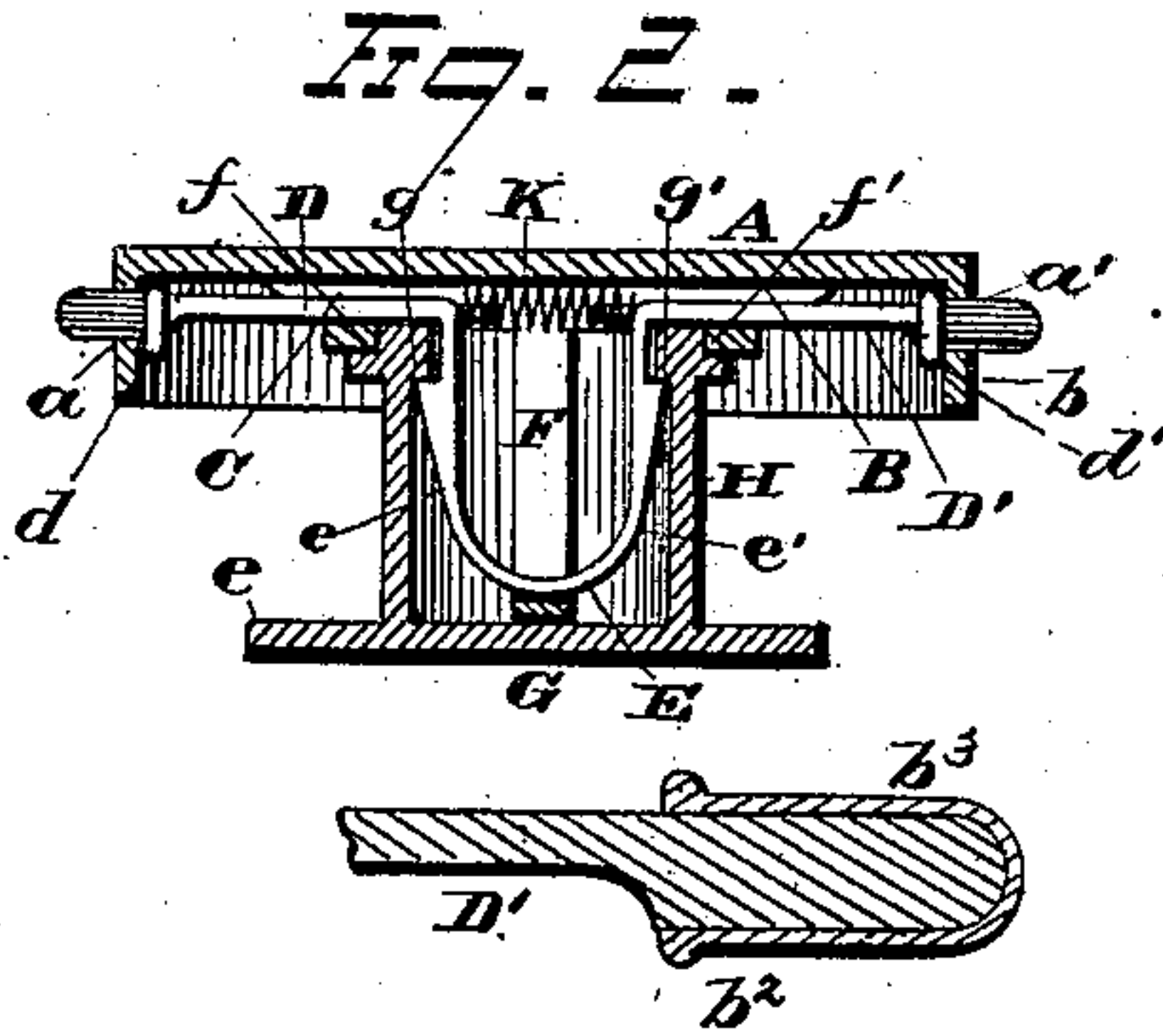
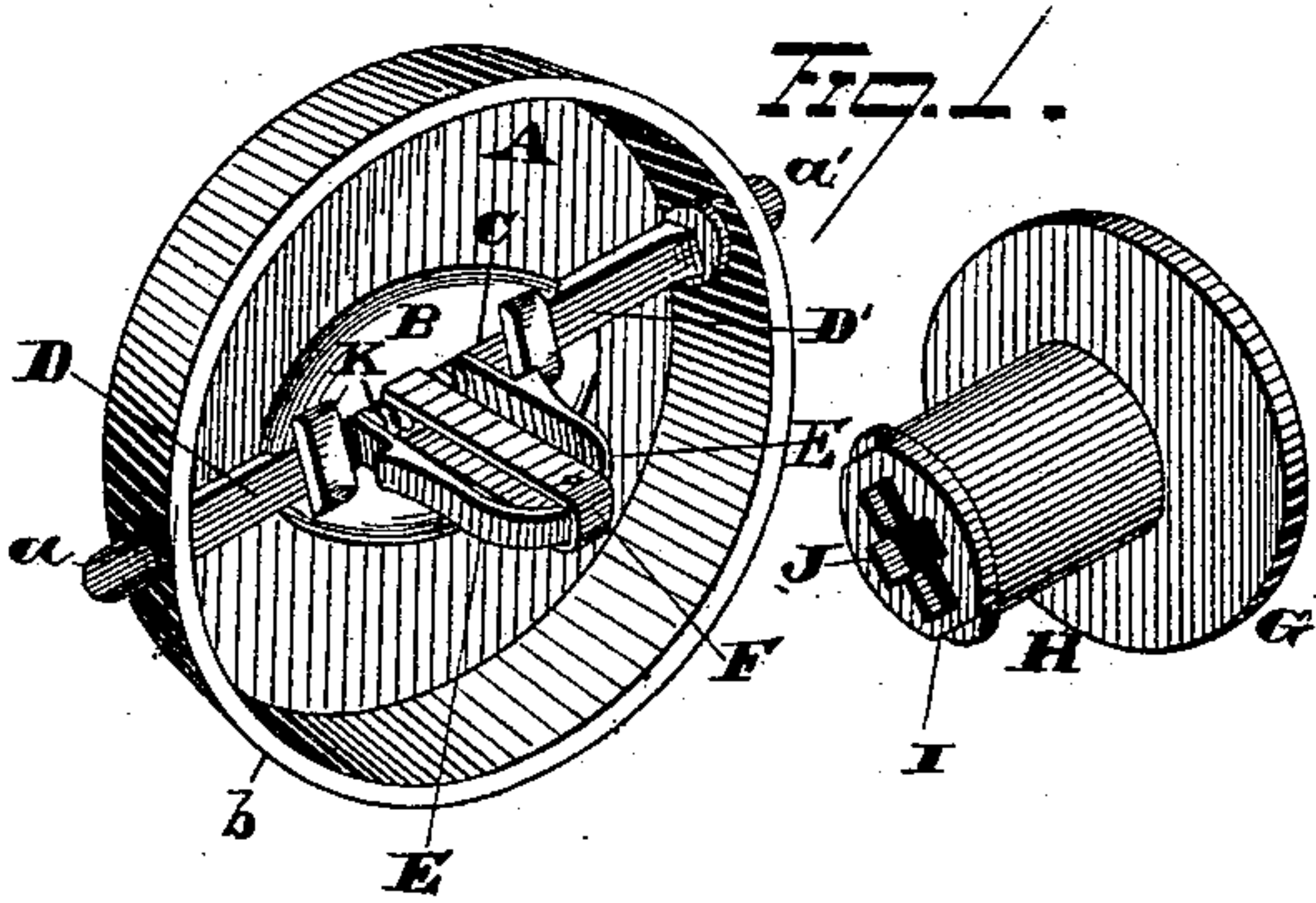


## Sleeve Button and Stud.

**No. 227,184.**

**Patented May 4, 1880.**



**WITNESSES**

E. D. Nottingham  
A. W. Bright

INVENTOR

Drville T. Smith  
By A. A. Seymour  
INVENTOR  
ATTORNEY



# UNITED STATES PATENT OFFICE.

ORVILLE T. SMITH, OF BROOKLYN, NEW YORK.

## SLEEVE-BUTTON AND STUD.

SPECIFICATION forming part of Letters Patent No. 227,184, dated May 4, 1880.

Application filed November 21, 1879.

*To all whom it may concern:*

Be it known that I, ORVILLE T. SMITH, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sleeve-Buttons and Stud; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in sleeve-buttons and studs, the object being to provide a button or stud wherein the back may be detachably secured to the front and form a firm and rigid connection, which will sustain practically the same wear, usage, and strain as an ordinary solid or non-separable article, and the connecting parts made to embody both simplicity in construction and adapted to be produced at a small initial cost; and to this end my invention consists in a sleeve-button or stud embracing certain novel features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, in perspective, of the button front and back when detached or separated from each other. Fig. 2 is an enlarged longitudinal vertical section of the button with the back secured to the front. Figs. 3, 4, 5, 6, 7, 8, and 9 are modifications.

A represents the front of the button, which may be of any desired form, material, and construction. To the rear surface of the front A is secured a plate, B, which is raised at its central portion and provided with a longitudinal central slot, C, within the opposite ends of which engage the inner and adjacent ends of the push-rods D D', the outer ends of which project through slots  $a a'$  in the periphery or depending flange  $b$  of the button, said push-bars being provided with shoulders or collars  $d d'$  to limit their outward movement.

The plate B and shank F of the button may be made of a single piece of metal, as shown in Fig. 7, if desired. The metal blank in such case is composed of the portions  $a^6 a^2$ , each of which is provided with a clip,  $a^3$ , extending inward from one corner of the same, while the

adjacent sides of the portions  $a^6 a^2$  are connected by a strip,  $a^4$ . By forming a loop of the strip  $a^4$  it is transformed into a slotted or skeleton shank, F, and the portions  $a^6 a^2$  brought in close proximity to each other, so that the outer ends of clips  $a^3$  will overlap the opposite portions of the blank, and when soldered thereto will form keepers, as illustrated in Fig. 1, to prevent the vertical displacement of the push-rods.

Again, instead of forming the slotted shank integral with the plate B, it may be made independent thereof and the plate made of a single piece, as shown in Fig. 8, the central portion of the blank being partly removed to form a slot for the reception of the ends of the push-rods, and the keepers  $a^5$  being struck up to retain the push-rods against vertical displacement.

The collars on the ends of the push-rods are formed by the annular flanges  $b^2$ , formed on the open ends of the cups  $b^3$ , which latter are drawn into the desired form and secured to the outer ends of the push-rods, thus forming a finished end for the push-rods and collars to limit their outward movement.

To the inner ends of the push-rods are connected the opposite ends of the semi-oval spring E, the arms  $e e'$  of which have shoulders  $f f'$  formed on their outer sides in close proximity to the plate B. One end of a skeleton or slotted shank, F, is secured to the plate B, or formed integral therewith, while its outer end serves as a stay or brace for the spring E, the latter passing through an opening in the outer end of said shank, and thereby receiving proper protection, and it is prevented from being crushed, bent, or laterally displaced.

G represents the button-back, having an oval or flattened hollow post, H, secured thereto. The outer end of said post has a plate, I, secured thereto, in which is formed an opening, J, of substantially the form of a Maltese cross. Plate I serves to form shoulders  $g g'$  in the interior of the hollow post and at opposite ends thereof, with which engage the shoulders  $f f'$  on the spring E when the latter is forced into the hollow post, and thus firmly secure the button-front to the back, the connection being readily made, owing to the tapering or oval form of the spring E, which enables the latter



to be easily inserted in the outer end of the hollow post.

The skeleton or slotted shank F serves as a shield to protect the spring E and prevent it from being crushed or distorted in form, and further serves to prevent the spring from being displaced laterally, and either severed or disconnected from the push-rods. Shank F also serves another important function. As heretofore stated, it is made of angular form in cross-section—that is to say, it may be made square, rectangular, or of other equivalent angular form in transverse section—and is inserted in the corresponding angular-shaped slots in the outer end of the hollow post, and thereby prevents the front or back from twisting and relieves the spring from any undue strain.

To disengage the back from the front, it is simply necessary to press upon the projecting ends of the push-rods, and thus force the ends of the spring E toward each other, which operates to disengage the shoulders on the spring from the hollow post and allow the spring to be readily withdrawn, while the spring E may be used without any additional spring in connection therewith. In some cases I prefer to employ a re-enforcing spring, K, in connection. Re-enforcing spring K may be a spiral spring; as illustrated in Fig. 2 of the drawings, the opposite ends thereof resting against the ends of the semi-oval spring E; or, instead of a spiral spring, a leaf or semi-elliptic spring, L, as shown in Fig. 3 of the drawings, may be employed, in either case the re-enforcing spring serving to prevent the setting of the spring E, and thus insuring a perfect engagement of the parts. Again, the semi-oval spring E may have its ends turned outward, as at *i i'*, and said ends engage with the notched ends *jj'* of the push-rods, as represented in Fig. 4. Again, instead of using a flattened tubular or an oval post, the latter may be round and the shank made of sufficient width to insure a firm and extended bearing, as illustrated in Fig. 5; or, if desired, the post may be square or of rect-

angular form. Again, the shank may be solid throughout its length, with exception of its outer end, and the latter portion have an opening formed therein for the spring, as shown in Fig. 6. This construction will answer when it is not desired to employ a re-enforcing spring; or, if it is desired to employ a solid shank and a re-enforcing spring, the shank may be made as shown in Fig. 9, with holes at its top and bottom, the hole at the top serving to receive the curved spring, and the one at the bottom the spiral re-enforcing spring.

In case the elliptic re-enforcing spring should be used in lieu of the spiral form, the lower opening in the shank would be located at about the vertical center of the shank.

I make no claim to the combination of the re-enforcing spring with the curved locking-spring.

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

1. The combination, with the hollow post having interior shoulders and angular slots formed in the outer end of the post, of a locking-spring provided with shoulders and a slotted shank adapted to fit snugly in the angular slots in the post, said shank having the locking-spring secured within its outer end by means of a rivet passed through the spring and shank, substantially as set forth.

2. The plate B, provided with a central slot, and having the push-rod keepers made integral therewith, substantially as set forth.

3. The combination, with the button-front, of a locking-spring having push-rods connected or made integral therewith, said push-rods being provided with collars to limit their outward movement, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

ORVILLE T. SMITH.

Witnesses:

A. W. BRIGHT,  
FRANK O. McCLEARY.