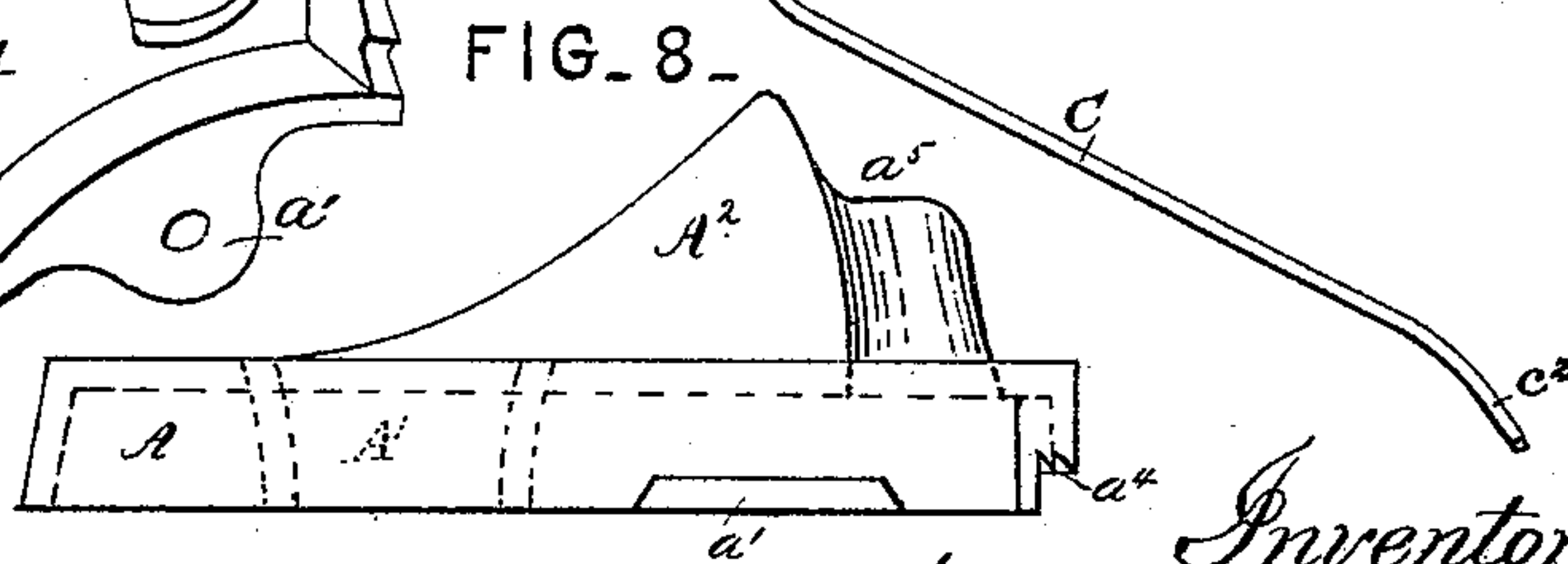
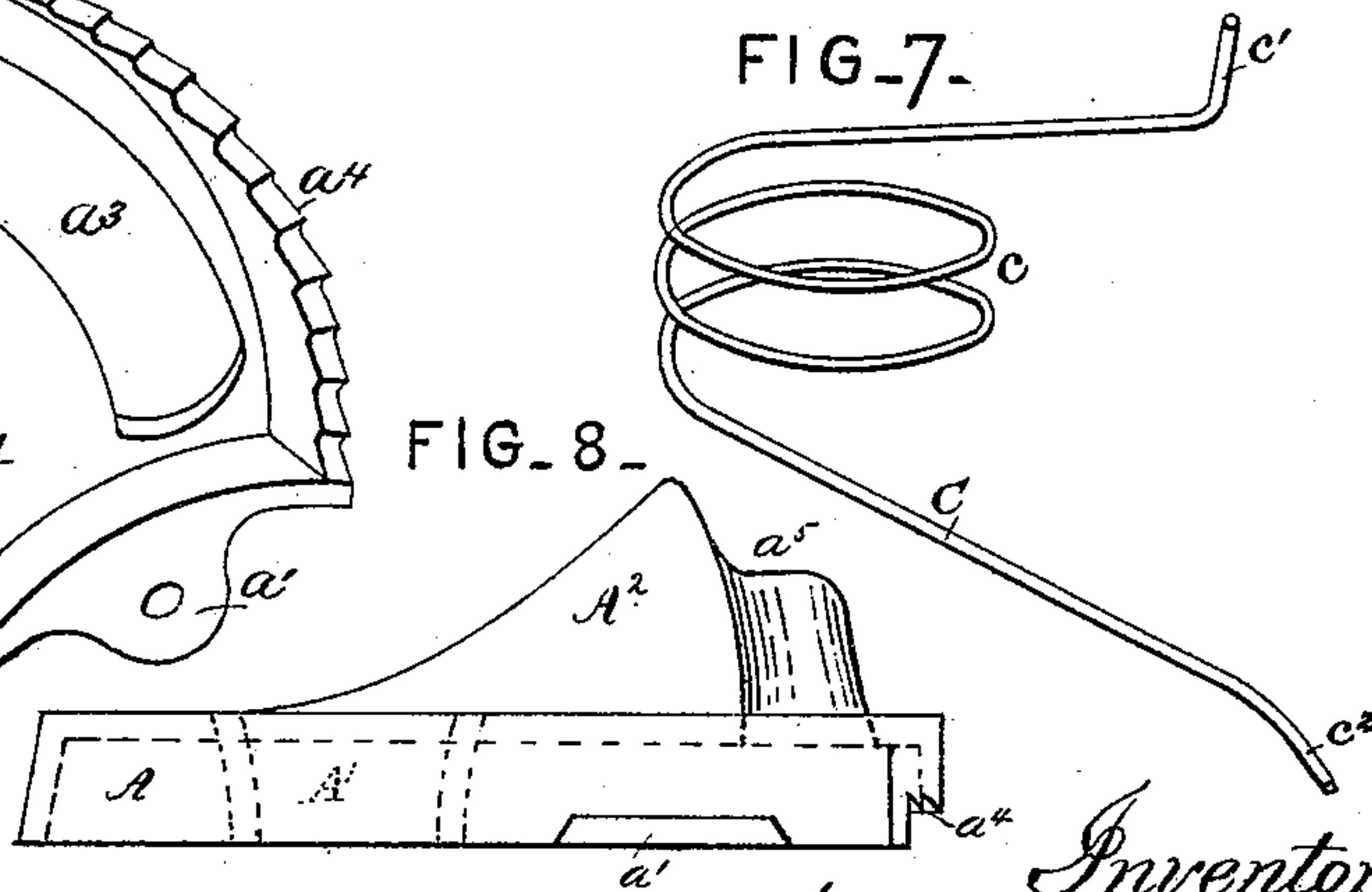
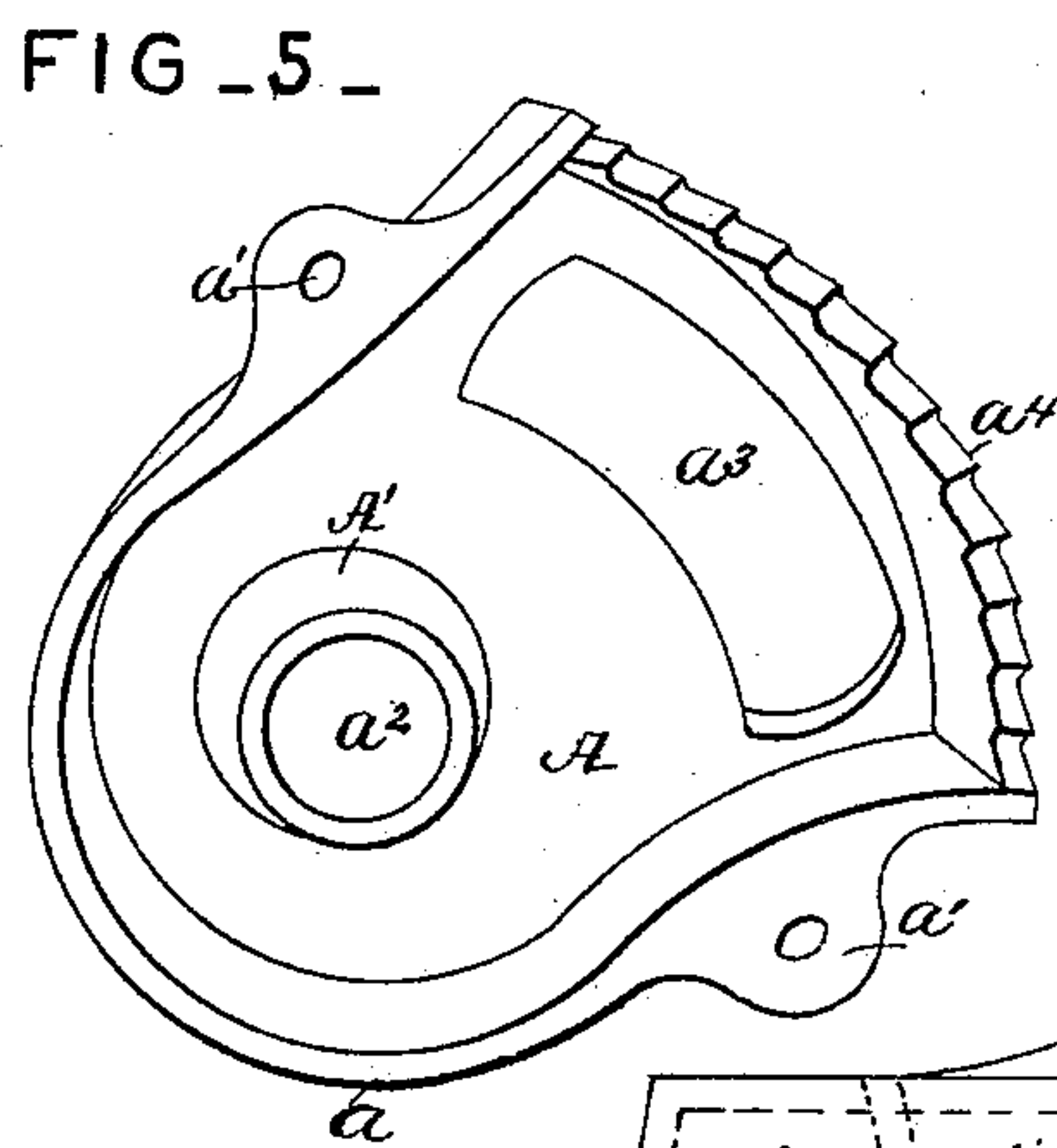
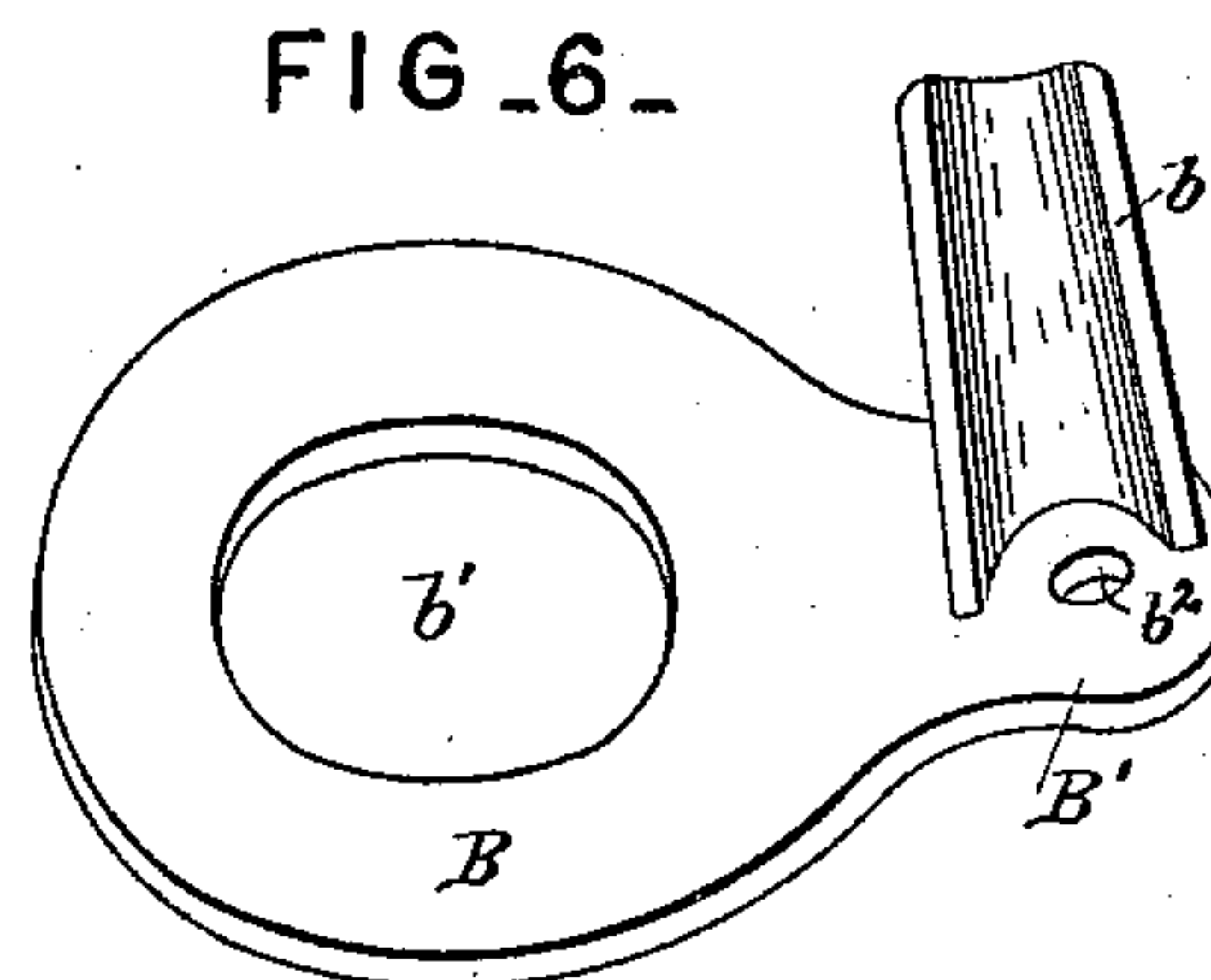
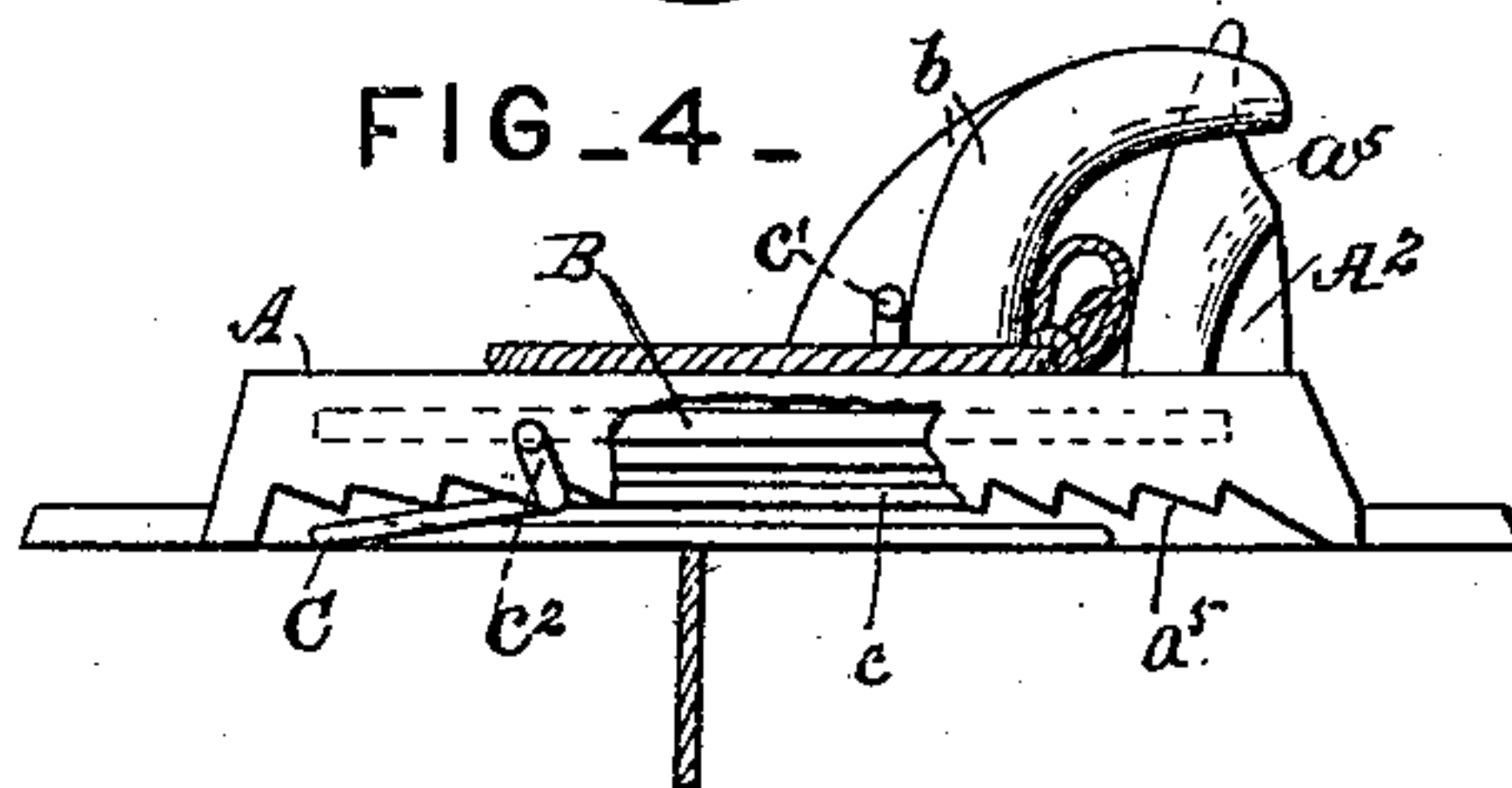
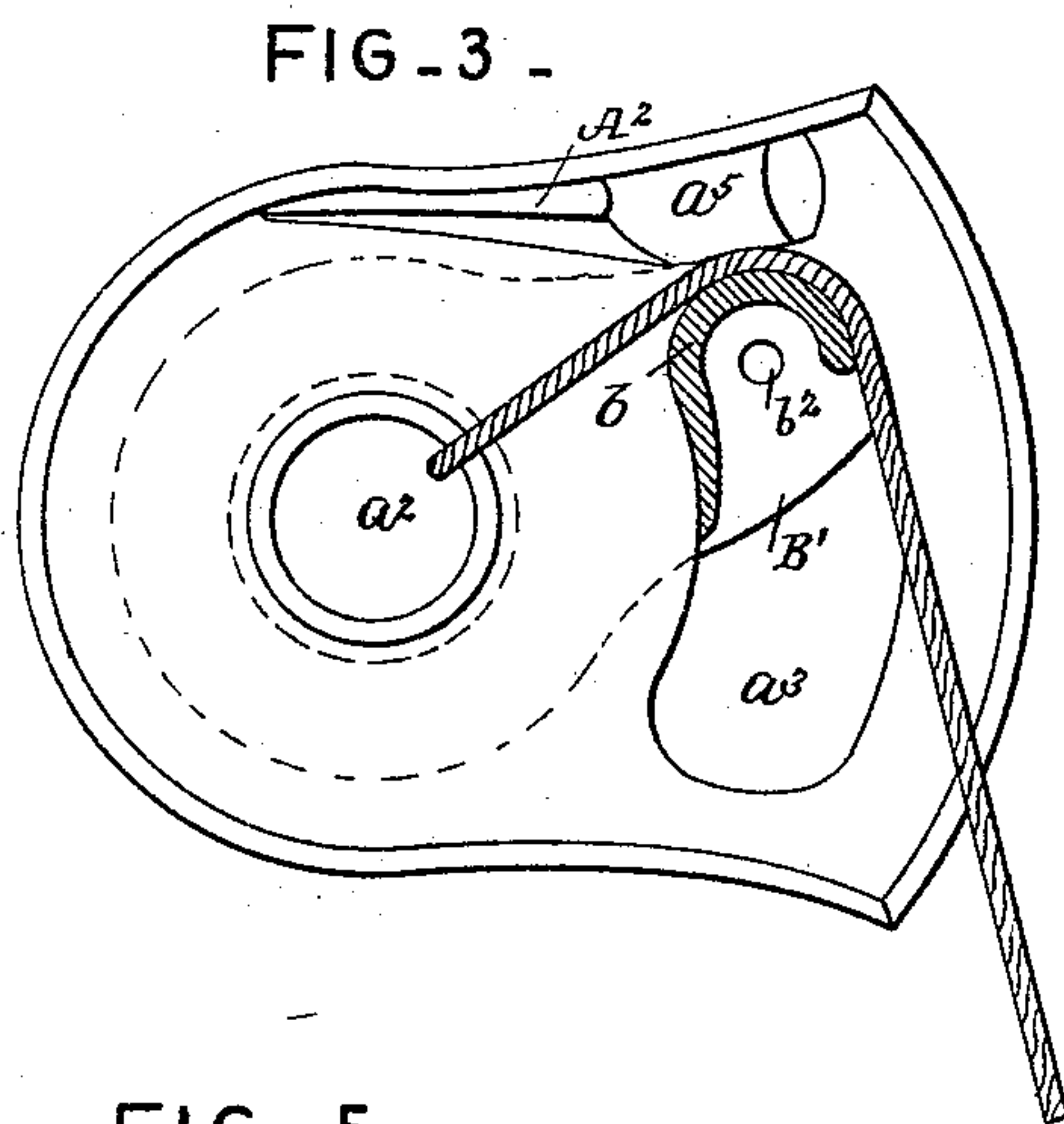
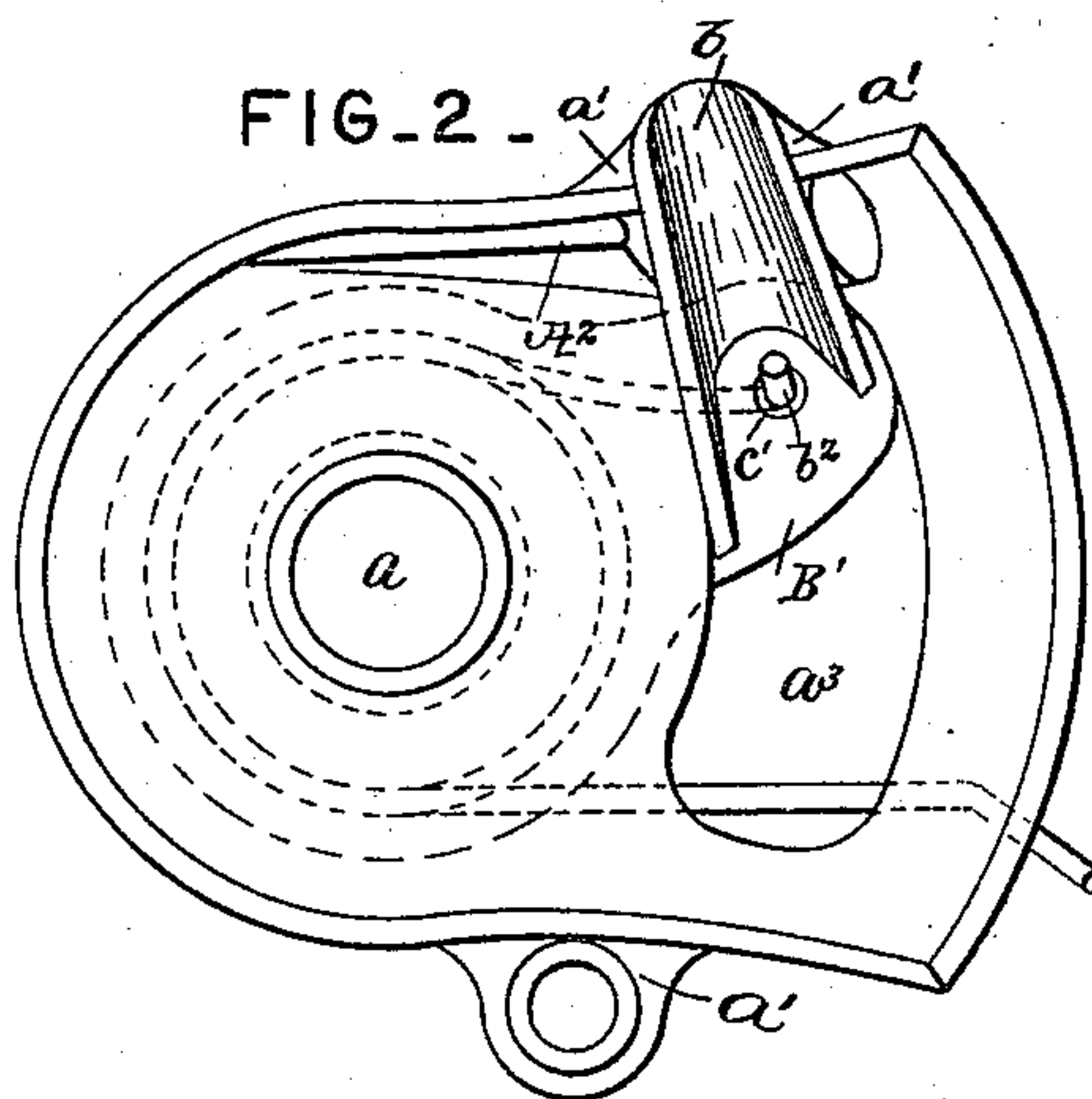
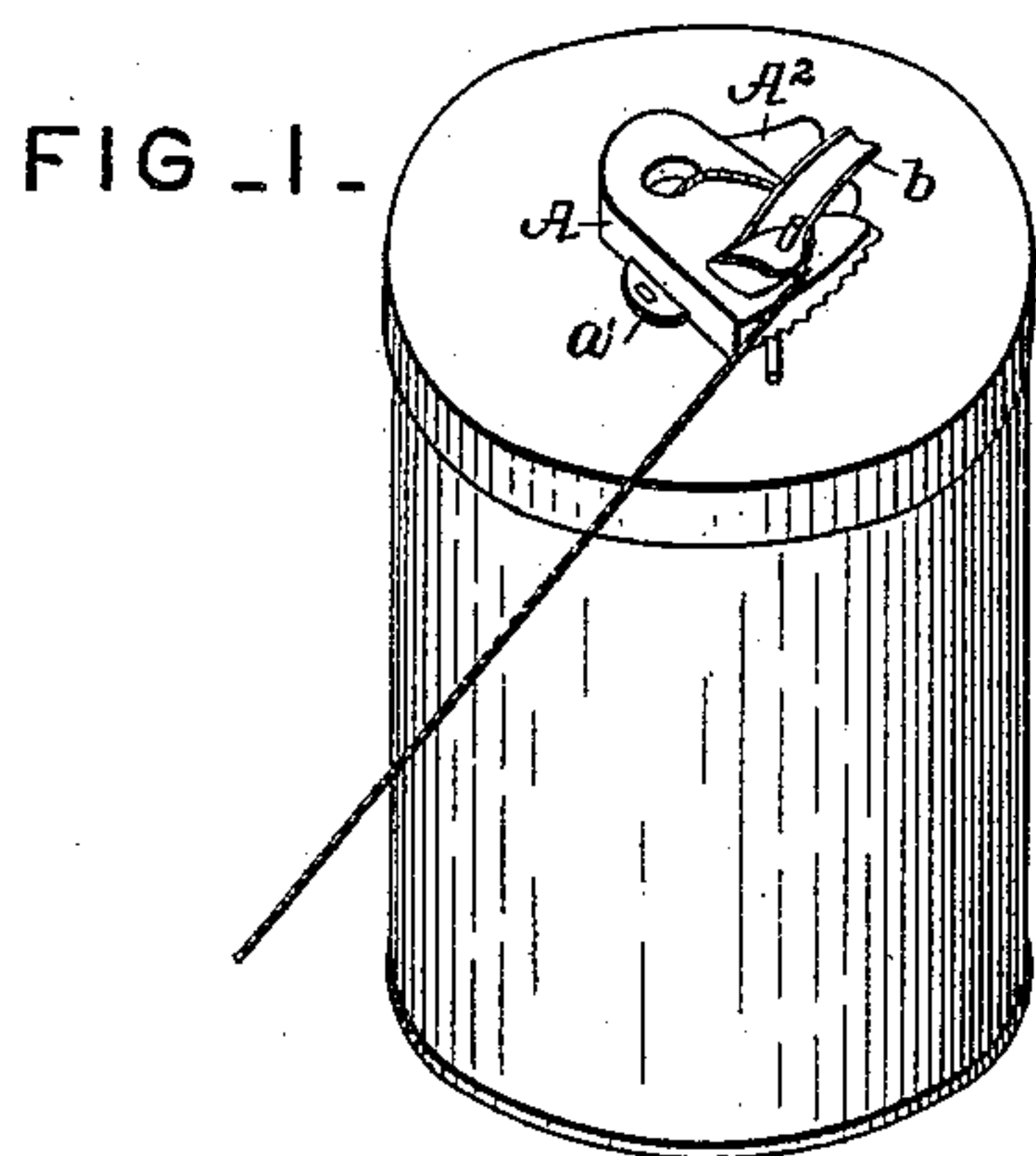


(No Model.)

A. E. ELLINWOOD.  
TENSION DEVICE.

No. 438,615.

Patented Oct. 21, 1890.



Attest:  
Geo. T. Smallwood.  
Lewis Freeh.

Inventor:  
Augustus E. Ellinwood.  
By A. Smith & Son, Attys.



# UNITED STATES PATENT OFFICE.

AUGUSTUS E. ELLINWOOD, OF AKRON, OHIO, ASSIGNOR TO LEWIS MILLER, OF SAME PLACE.

## TENSION DEVICE.

SPECIFICATION forming part of Letters Patent No. 438,615, dated October 21, 1890.

Application filed November 12, 1888. Renewed March 20, 1890. Serial No. 344,679. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTUS E. ELLINWOOD, a citizen of the United States, and a resident of Akron, county of Summit, and State of Ohio, have invented a new and useful Improvement in Tension Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to a novel construction of device for regulating the tension on a cord as it is drawn from the ball or spool, either by hand or by machine, by which it is used, whether for the binding of grain or for other purpose, and it will be understood from the following description and claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a cord box or holder with my improved tension device applied to its perforated cover. Fig. 2 is a plan view of the tension device. Fig. 3 is a similar view with the yielding clamp horn or jaw in section. Fig. 4 is a side elevation of the device with the outer shell partly broken away; Figs. 5, 6, and 7, perspective views of the parts of the device detached; and Fig. 8 is a side elevation of the shell, looking from the left side of Fig. 4.

A indicates an outer shell or casting consisting of a plate having a flange or rim  $a$  formed upon one of its sides and extending around it, and having at its open outer end laterally-projecting perforated ears  $a'$   $a'$ , through which it is secured to the cord box, guide, or other support. This shell is made semicircular in form at one end, the other end being elongated and extending in right or slightly-diverging lines from the sides of the semicircular portion, as shown, and it is provided with a perforation at  $a^2$  concentric with the semicircular portion thereof and surrounding said perforation on the inner face of plate with an annular flange or hub  $A'$ , made, preferably, tapering inward in the form of a hollow frustum of a cone, as shown. The outer expanded end of the shell has a slot  $a^3$  formed in it, made in an arc of a circle of which the perforation  $a^2$  is the center, and the flange or portion of the shell-rim at said end has a se-

ries of notches formed in its outer edge at  $a^4$ , for a purpose which will appear. The outer face of this shell has a projecting spur or horn  $A^2$ , made, preferably, in the triangular form shown, rising from a point on the circular portion thereof and on one side thereof toward its outer end, where it is recessed at  $a^5$  to receive the overhanging end of a bent or hook-shaped horn  $b$  on an inner pivoted plate B. The plate B is made, preferably, approximating an annular disk in form, but having an arm  $B'$  projecting from it on one side, said arm carrying the horn or spur  $b$ , which is formed upon or otherwise rigidly secured to it.

The central perforation  $b'$  adapts the plate to fit and turn on the hub  $A'$ , resting snugly against the inner face of the plate or side wall of the shell A, with the horn  $b$  projecting through the slot  $a^3$ . The plate is held in place on the hub  $A'$  and against the inner face of shell A by a spring C, made, preferably, from a single rod or wire, to which two, three, or more coils  $c$  are given at or near the center of its length, which surround the hub  $A'$  and rest upon the support to which the case A is fastened, serving to press the plate up snugly against the side wall of said shell. One of the arms of this spring has its end bent upward at  $c'$  to pass through an eye or perforation at  $b^2$  in the arm  $B'$  of the plate B, and the other arm has its end bent outward at  $c^2$  to adapt it to engage the notches or teeth  $a^4$  in the flange of shell A, and also as a projecting handle for effecting the adjustment of said end in the notches  $a^4$  and the consequent tension of the spring.

The horn  $b$  on the plate B is made, preferably, in U shape in cross-section, as shown in Fig. 3, and the adjacent face of the horn  $A^2$ , against which the horn  $b$  presses the cord, may be made concave to match the convex face of the face of the horn  $b$ ; but it is preferred to make it slightly convex at its lower end, as shown in Fig. 3, so that the cord moving between two convex opposing faces ordinarily will have only the clamping action of the cord upon it to resist its passage. The upper end of the horn  $b$  is bent so as to overhang the notched outer end  $a^5$  of the horn  $A^2$



in such manner that while it can yield to permit a knot in the cord to readily pass between it and the horn  $A^2$ , as indicated in Fig. 4, it will prevent the escape of the cord from between the horns or spurs, no matter at what angle of inclination the device may be supported or whether upon the upper or under side of its support.

By adjusting the spring C in the rack  $a^4$ , the horn  $b$  will be pressed with greater or less force against the horn  $A^2$ , and the resistance of said horns or spurs to the passage of the cord between them will be correspondingly increased or diminished, as may be required.

The form of the horns and the freedom of the horn  $b$  to yield adapt the device to readily permit the passage of a knot in the cord without rendering the latter liable to be broken.

The device may be attached to the cord-box, as shown, or to any suitable arm or support between the ball or spool and the point of use of the cord.

Having now described my invention, I claim as new—

1. The combination, in a tension device, of a fixed plate having on its face a rigid horn or spur and provided with a hollow hub or sleeve through which the cord passes, a second plate or arm pivoted on said hub and carrying a second horn or spur, and a spring operating to press the movable horn against the fixed horn for causing said horns to grasp the cord between them, substantially as described.

2. The outer shell or case A, provided with the hollow hub  $A'$ , slot  $a^3$ , and horn or spur  $A^2$ , in combination with the plate B, pivoted on said hub and carrying the horn or spur  $b$ , projecting through the slot  $a^3$ , and the spring C, surrounding the hub  $A'$  and acting on said horn or spur, substantially as described.

3. The plate or shell A, having the flange  $a$ , hub or pivot  $A'$ , slot  $a^3$ , horn or spur  $A^2$ , and rack  $a^4$ , in combination with the pivoted plate B, carrying the horn or spur  $b$ , projecting through the slot  $a^3$ , and the spring C, one end secured to and upholding the plate B, the other adjustable in the rack  $a^4$  for regulating its tension, substantially as described.

4. The combination, with the cord-box, of a cord-tension device secured thereto and supported thereon, said device consisting of the shell A, having the slot  $a^3$  and horn or spur  $A^2$ , the plate B, inclosed by and pivoted within said shell and provided with the horn or spur  $b$ , projecting through the slot  $a^3$ , and the spring C, engaging said plates and having one end adjustable for regulating its tension, substantially as set forth.

In testimony whereof I have hereunto set my hand this 10th day of November, A. D. 1888.

AUGUSTUS E. ELLINWOOD.

Witnesses:

O. L. SADLER,  
W. K. MEANS.