

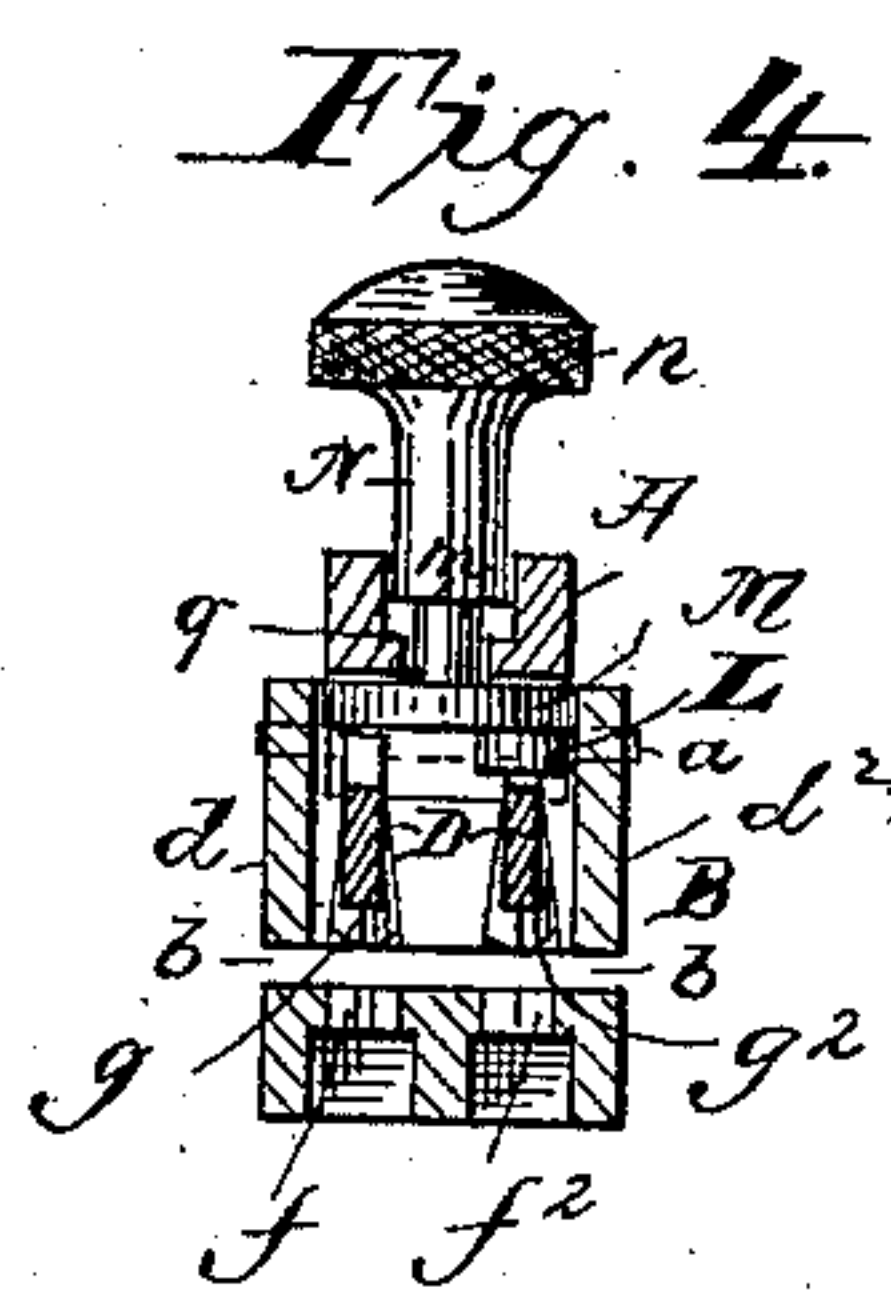
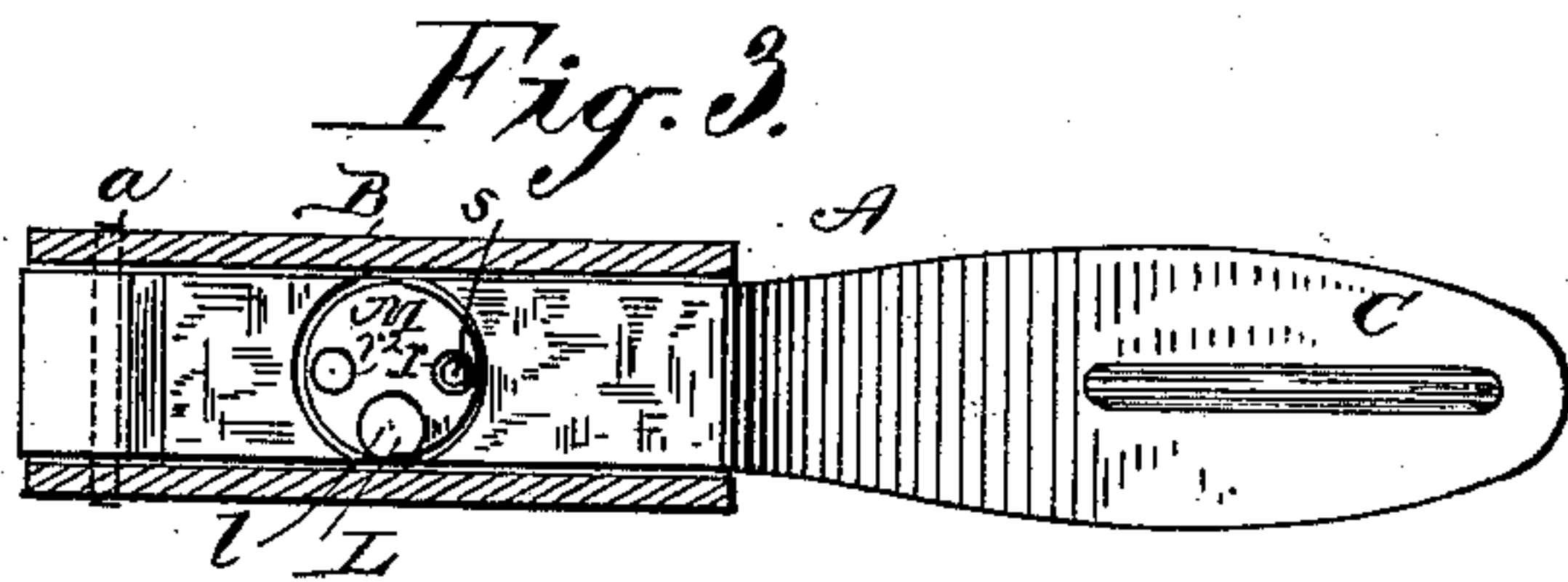
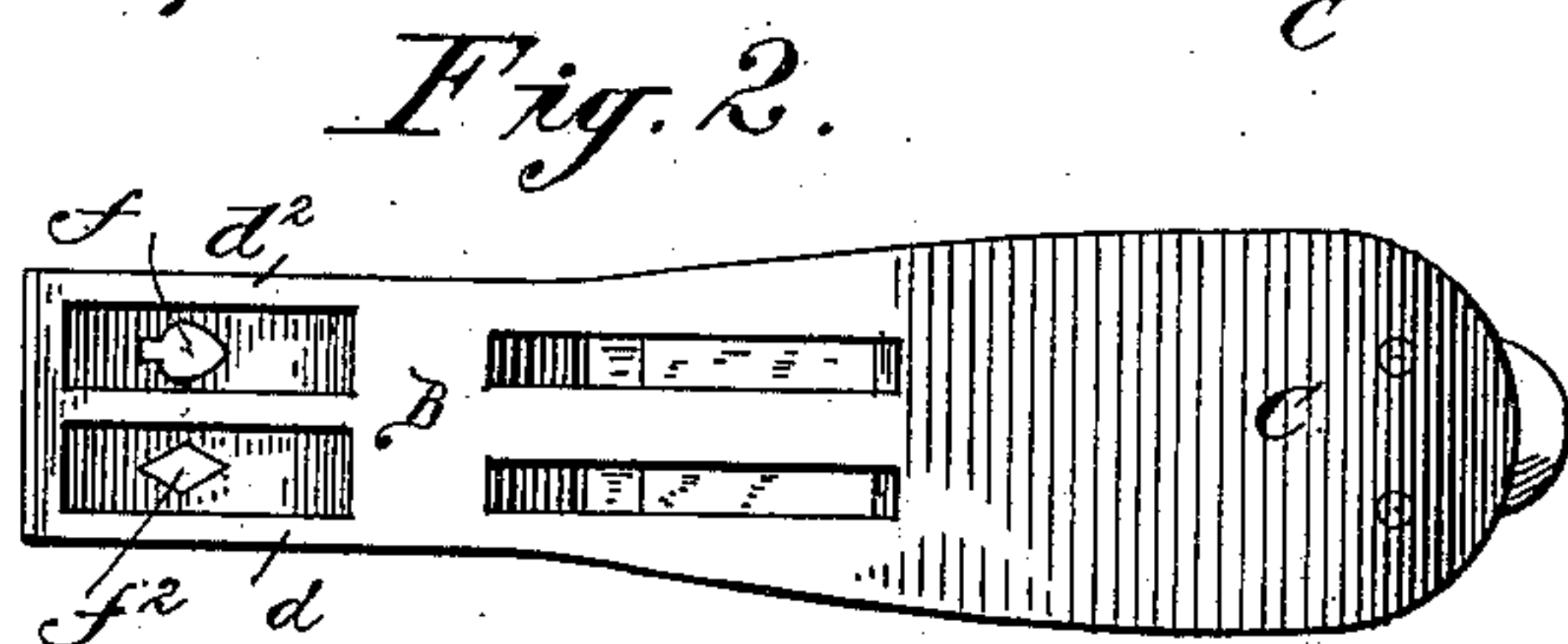
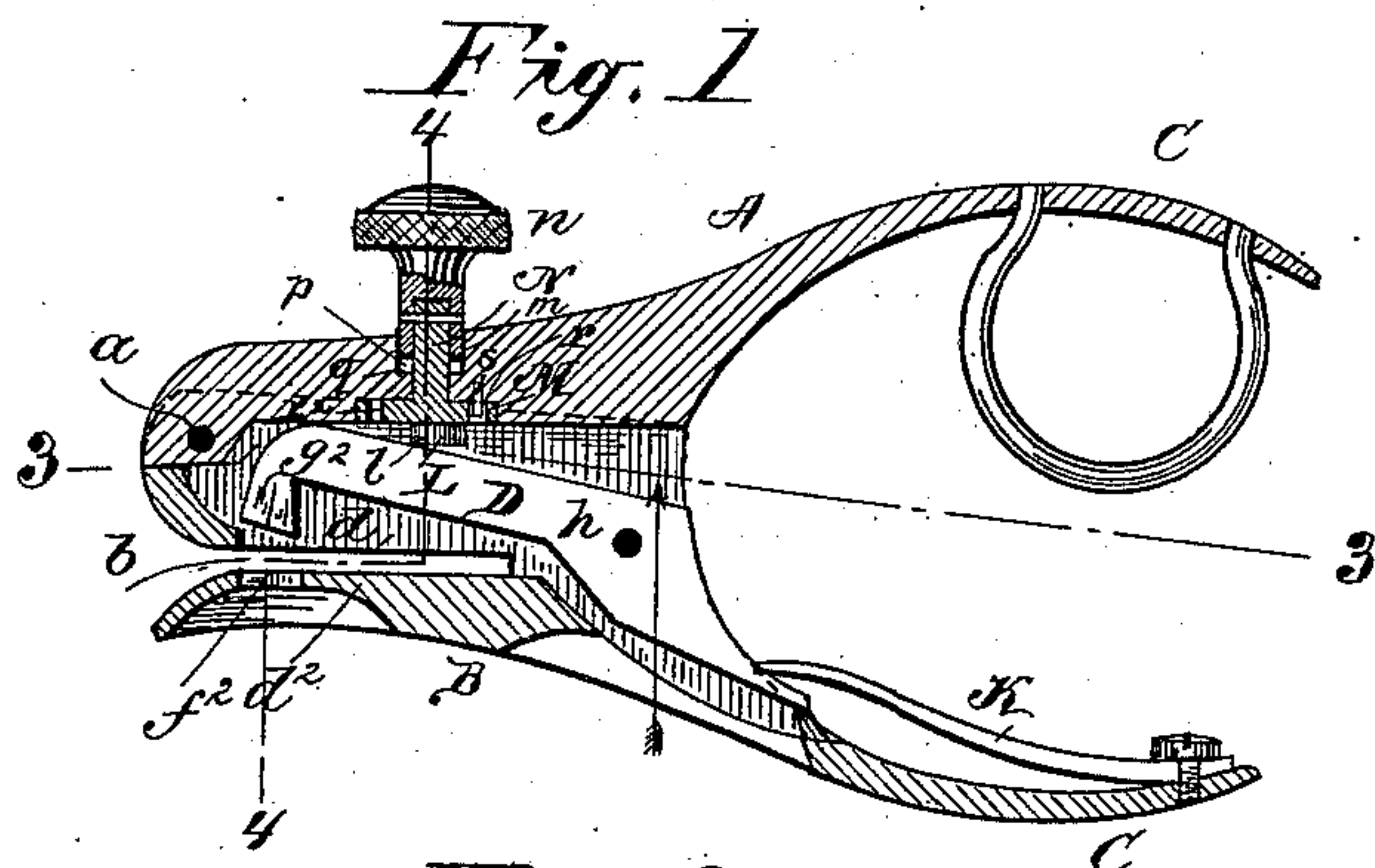
(No Model.)

R. WOODMAN.

TICKET PUNCH.

No. 351,556.

Patented Oct. 26, 1886.



Witnesses.

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UNITED STATES PATENT OFFICE.

ROBERT WOODMAN, OF MALDEN, MASSACHUSETTS.

TICKET-PUNCH.

SPECIFICATION forming part of Letters Patent No. 351,556, dated October 26, 1886.

Application filed February 23, 1886. Serial No. 192,887. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WOODMAN, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Ticket-Punches, of which the following is a full, clear, and exact description.

This invention relates to improvements in what are commonly known as "ticket-punches;" and it is more particularly applicable to a ticket-punch of the class shown and described in Letters Patent of the United States issued to me, dated October 2, 1883, No. 285,867, although, as will appear from the description hereinafter given thereof, it is applicable to other punches, and therefore it is not intended to limit it in that regard.

These punches are composed of two lever-arms jointed or hinged at one end, a die in two parts, male and female, both carried by one of said arms, the one part movable and the other stationary thereon, and an abutment on the other of said arms to work on the movable part of the die.

This invention consists, in substance, of a punch composed of two lever-arms jointed or hinged together, two or more dies, each in two parts, male and female, and all carried by one of said lever-arms, and at least one part of each die fulcrumed or otherwise arranged on said arm so as to be capable of movement thereon toward and away from the other part thereof, and an abutment or abutments for the moving parts of the two-part dies located on the lever-arm of the jointed lever-arms opposite to that on which the dies are arranged, as aforesaid, and constructed and arranged to be adjusted and set in relation to the moving parts of the dies, and thereby from the working of the jointed lever-arms in a proper direction therefor to enable a punching of such one or ones of said two-part dies to be secured, as may be desired, and all otherwise, substantially as hereinafter described.

In the accompanying drawings a ticket-punch of this invention is illustrated.

Figure 1 is a longitudinal section at one side of the central line and through one of the two sets of dies. Fig. 2 is a view of the under side or edge of the punch. Fig. 3 is a longitudinal section on line 3 3, Fig. 1, and a face

view of the parts in the direction of the arrow, Fig. 1; and Fig. 4 is a cross-section on line 4 4, Fig. 1.

In the drawings, A and B represent two lever-arms at one end, jointed or hinged, as at *a*, and at the other end each made with a handle, C.

b is a slot in and along a portion of the length of the lever-arm B. This slot *b* is open on each side of the lever-arm B.

f f' are two female dies on the outer portion, *d'*, of the jaw B. These dies *f f'* are of different shapes—as, for instance, of a diamond and a spade.

g g' are male dies corresponding in shape to the female dies *f f'*, respectively. Each male die is at the outer end of separate but similar levers, D, both arranged in parallel and distinct longitudinal guideways of the lever-arm B, and each hung and turning upon a common stationary transverse fulcrum-pin, *h*, located between the jointed and handle ends of the lever-arms A B.

K is a bent spring, one for each of the die-carrying levers D. Each spring K rests on the end of its lever D opposite to that which carries the male die, and it is attached to the lever-arm B.

The construction and arrangement of lever-arms A B, male and female dies *f f' g g'*, carrying levers D for the male dies, and bent springs K, as above described, differ in no material respect from that described and shown in the Letters Patent before referred to, except that the punch is provided with two sets of dies, and a carrying-lever, D, for each set.

L is an abutment on the lever-arm A for the two die-carrying levers D, before described. This abutment L, as shown, is in the form of a pin or knob, *l*, projecting eccentrically from the face of a circular disk, M, at one end of a stem, N, having a shoulder, *m*, and a milled head, *n*, and which with the disk is arranged to turn in a corresponding-shaped bearing, *p*, of the lever-arm A, and to be capable of an in-and-out movement through said arm, limited in its outward movement by the abutment of the disk M against the inner face of the lever-arm, and in its inward movement by the abutment of the shoulder *m* of the stem N against the shoulder *q* of the bearing *p* there-

for. The disk M has two holes, r r^2 , at opposite diametrical points and in a line at right angles to a radial line through the center of the abutment L on the disk and the axis of said disk. Each hole r r^2 is in position to be engaged with a common pin, s , suitably placed upon the lever-arm, according as either thereof, by the rotation of the stem and disk, is presented thereto, and otherwise all is such that with either hole so engaged the abutment L of the disk M will then be in line with the bearing on one of the two die-carrying levers D D, according as said abutment is placed by the rotation of the disk at either side of the central line of the punch lever-arms A B, it being of course understood that for such rotation of the disk the disk must first, pressing its stem inward, be disengaged from the pin s of the lever-arm A.

In the use of the punch above described the ticket to be punched is placed in the slot b of the lever-arm B, and then the handle ends C of the lever-arms A B, being pressed toward each other, cause, through the abutment L on the lever-arm A, and according as to which of the die-levers D it is adjusted and set, as before explained, a pressing or movement of such lever D and of its die toward the female die corresponding therewith, which at the same time is moving toward the male die, the whole resulting in a punching of the ticket in accordance therewith. On a then release of the pressure upon the handle ends of the lever-arms A B all of the parts, operated as above stated, are returned to their normal position by the reaction of the bent spring K of the die-carrying lever worked upon by the abutment L of the lever-arm A, and which working was against the tension of said spring. The operation of the punch, as above explained, and when once its abutment is adjusted and set to the desired die-lever of the two die-levers, differs in no material respect from that of the punch described and shown in the Letters Patent aforesaid, the improvement making this invention consisting, in substance, in the adaptation of the abutment to be placed into and out of operative position as to either of said die-carrying levers.

Although, as herein particularly described, and shown in the drawings, the punch has two sets of dies, it may have more or less, and the feature of the adjustable abutment L described, and making, in substance, this invention, is readily adapted to such change in the number of the sets of dies. As, for instance, suppose the punch to have three or four sets of dies; then the carrying-disk M for the abutment L must have a corresponding number of holes, r r^2 , suitably located to insure the locking of the abutment at and on any one of the series of die-carrying levers, according as which of the same it is desired to have work in the use of the punch. The adjustable abutment of this invention enables either of the sets of dies carried by the punch to be worked as may be desired, the others at

the time remaining inoperative, and, as is plain, such adjustable abutment, whether applied to one or more sets of dies, is the same in principle and in operation; and, furthermore, as is plain, in a punch having a series of sets of dies an adjustable abutment may be provided for each, or one for the whole number, or for any part or parts or combinations of parts of the whole number.

The construction and arrangement of the adjustable abutment, as described and shown, is most simple, practical, and effective; but it is not intended to limit the invention to such particular construction and arrangement, the invention being broadly to an abutment constructed and arranged to be adjusted substantially as and for the purpose stated.

Having thus described my invention, I claim—

1. In a punch for tickets, &c., two jointed arms or jaws, A B, and punching-dies, male and female, carried by the jaw B, the one die stationary and the other movable thereon, in combination with an abutment of the jaw A, adjustable thereon in relation to and for work on the movable die of jaw B in the operation of the punch, substantially as described, for the purposes specified.

2. In a punch for tickets, &c., two jointed arms or jaws, A B, and two sets of punching-dies, each set, male and female, carried by the jaw B, and one part of each set stationary, and the other parts each separately movable thereon, in combination with an abutment of the jaw A, adjustable thereon in relation to and for work on the movable dies of jaw B in the operation of the punch, substantially as described, for the purpose specified.

3. In a punch for tickets, &c., two jointed arms or jaws, A B, and punching dies, male and female, carried by the jaw B, the one die stationary and the other movable thereon, in combination with a head, M, having an eccentric abutment, L, for work on said movable die, the head being lengthwise movable and rotatory on and adapted to be engaged with and disengaged from the jaw A, and all so as to adjust the abutment L in relation to said movable die, substantially as described, for the purposes specified.

4. In a punch for tickets, &c., two jointed arms or jaws, A B, and punching dies, male and female, carried by the jaw B, in combination with a head, M, having an eccentric abutment, L, for work on said movable die, the head having holes r , and a shouldered stem, N, received by a shouldered socket, n , of the jaw A, having a pin, s , to engage holes r of said head, substantially as described, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT WOODMAN.

Witnesses:

ALBERT W. BROWN,
WM. S. BELLOWS.