

(No Model.)

2 Sheets—Sheet 1.

W. F. BEARDSLEE, C. KAISER & C. RUSSELL.
TRIMMING ATTACHMENT FOR SEWING MACHINES.

No. 431,136.

Patented July 1, 1890.

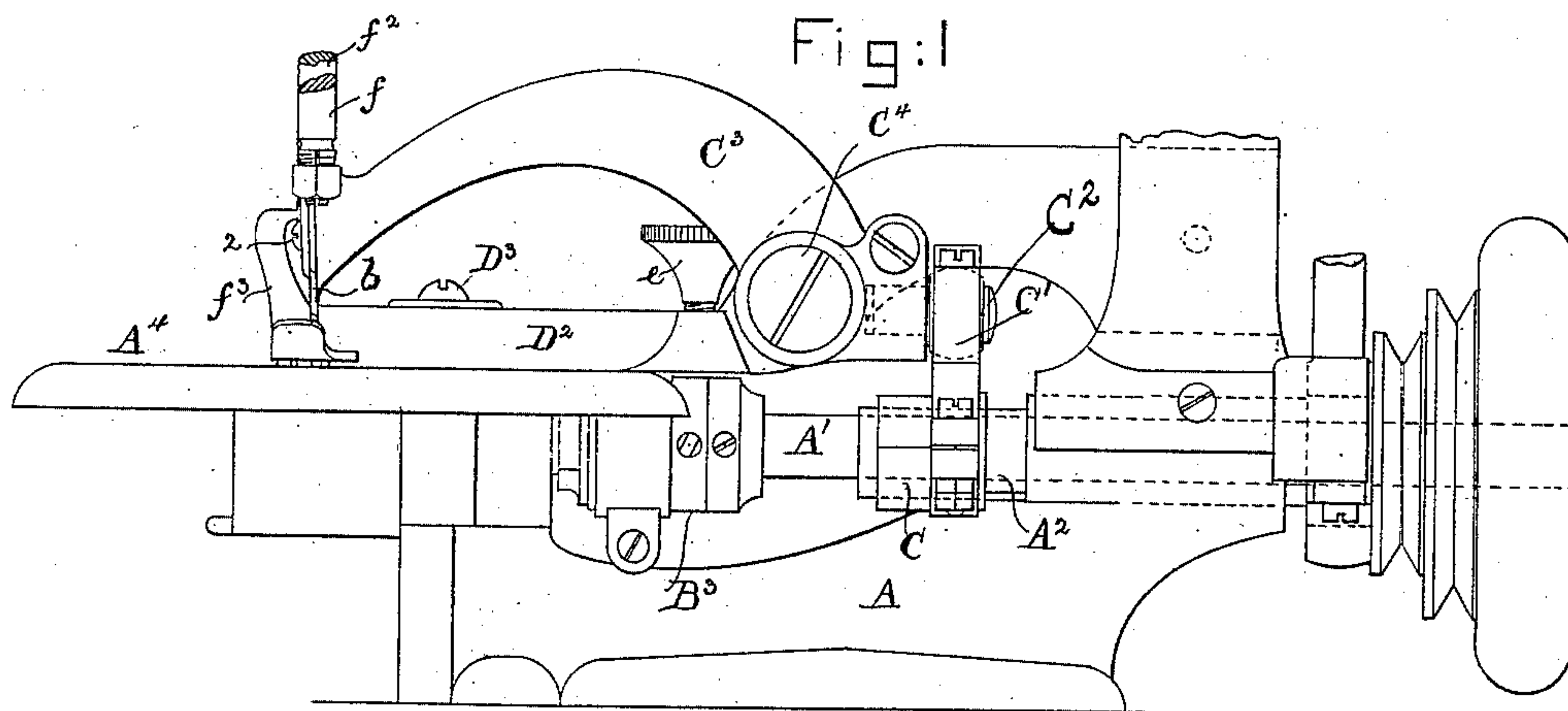


Fig: 2.

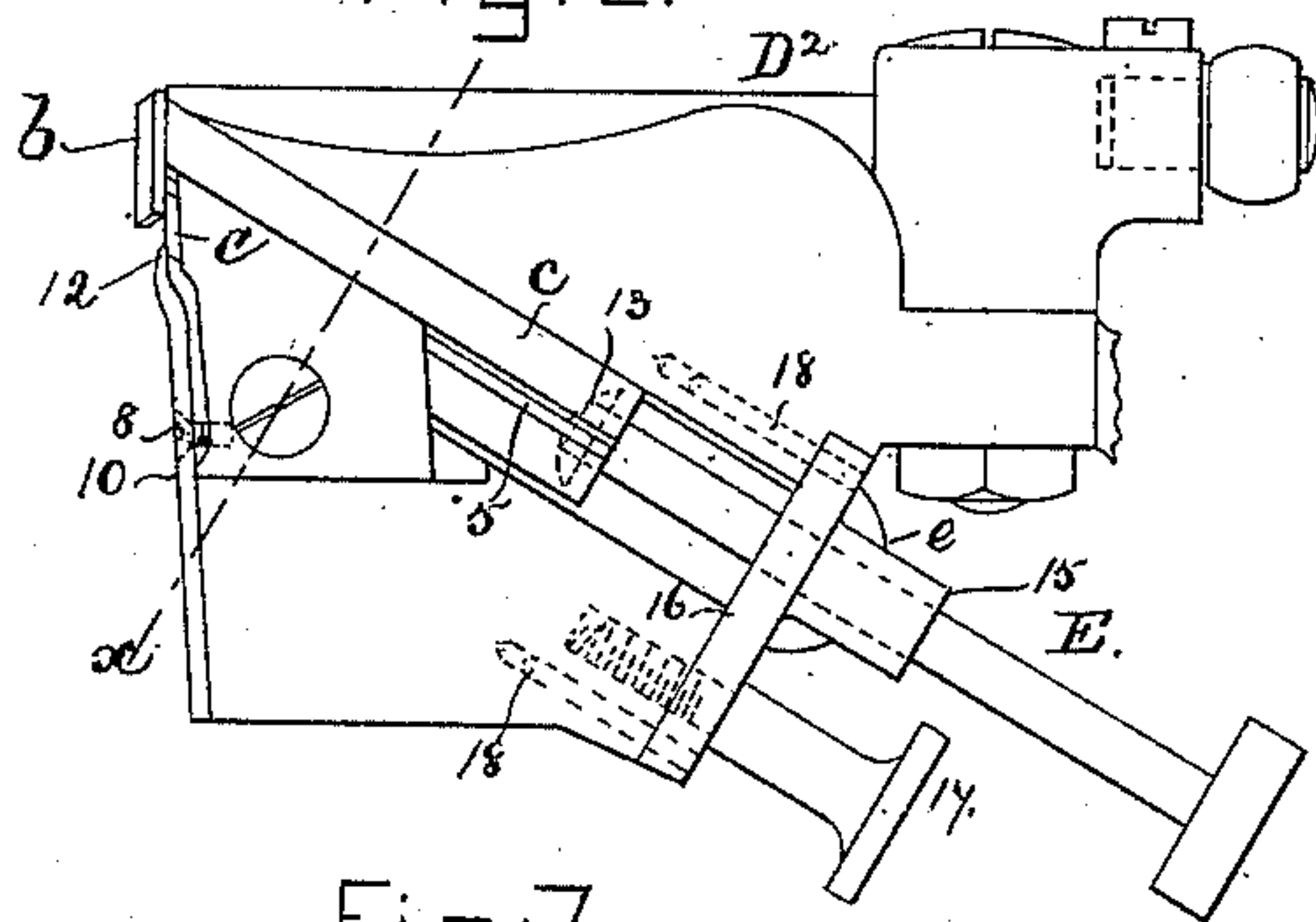


Fig: 3.

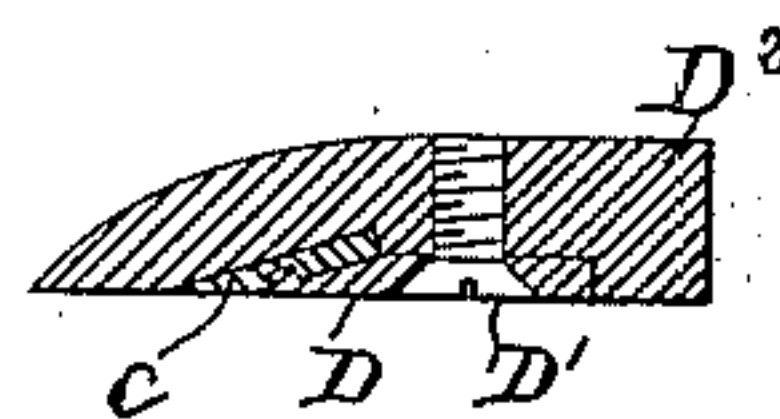


Fig: 7.

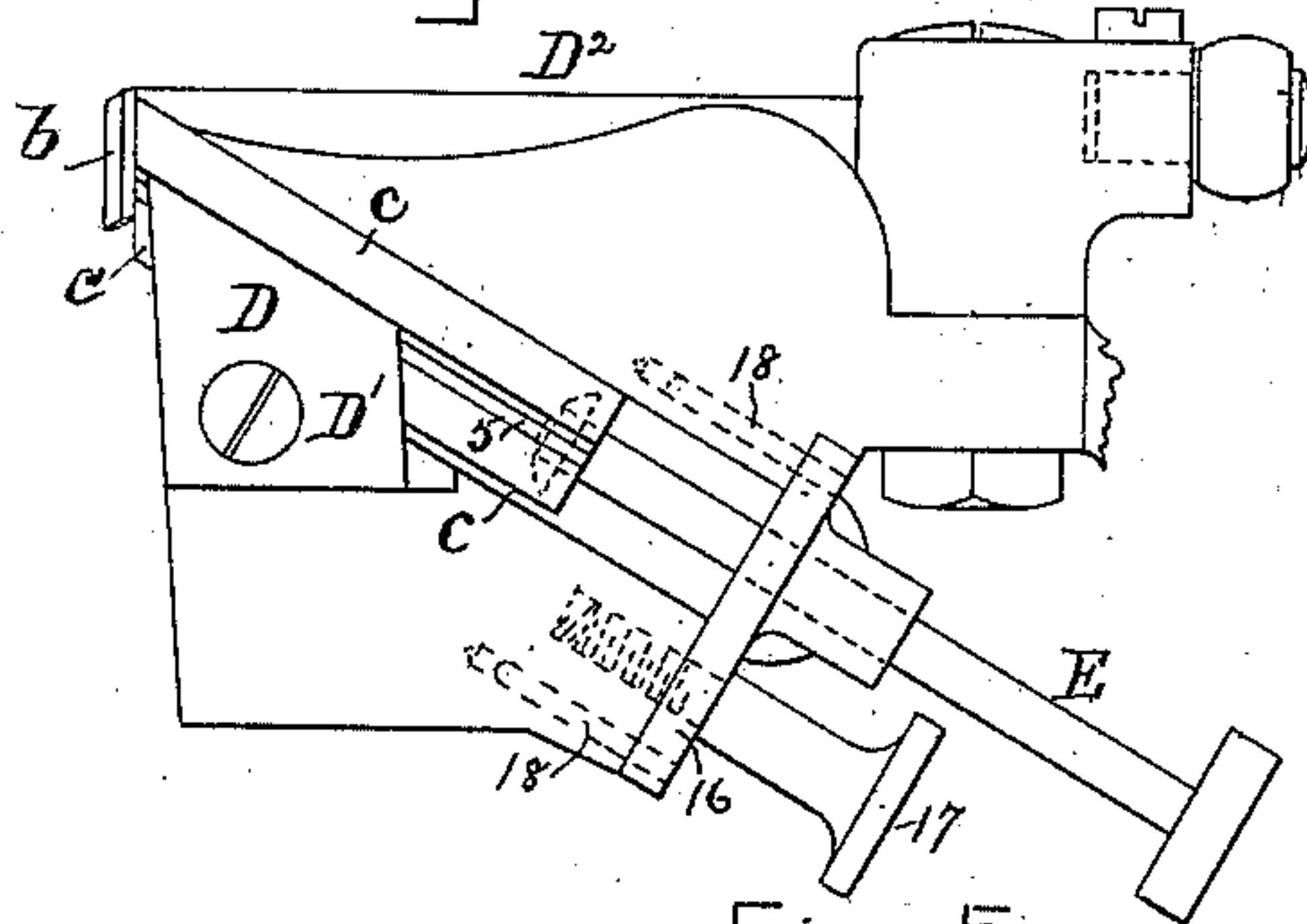


Fig: 4.

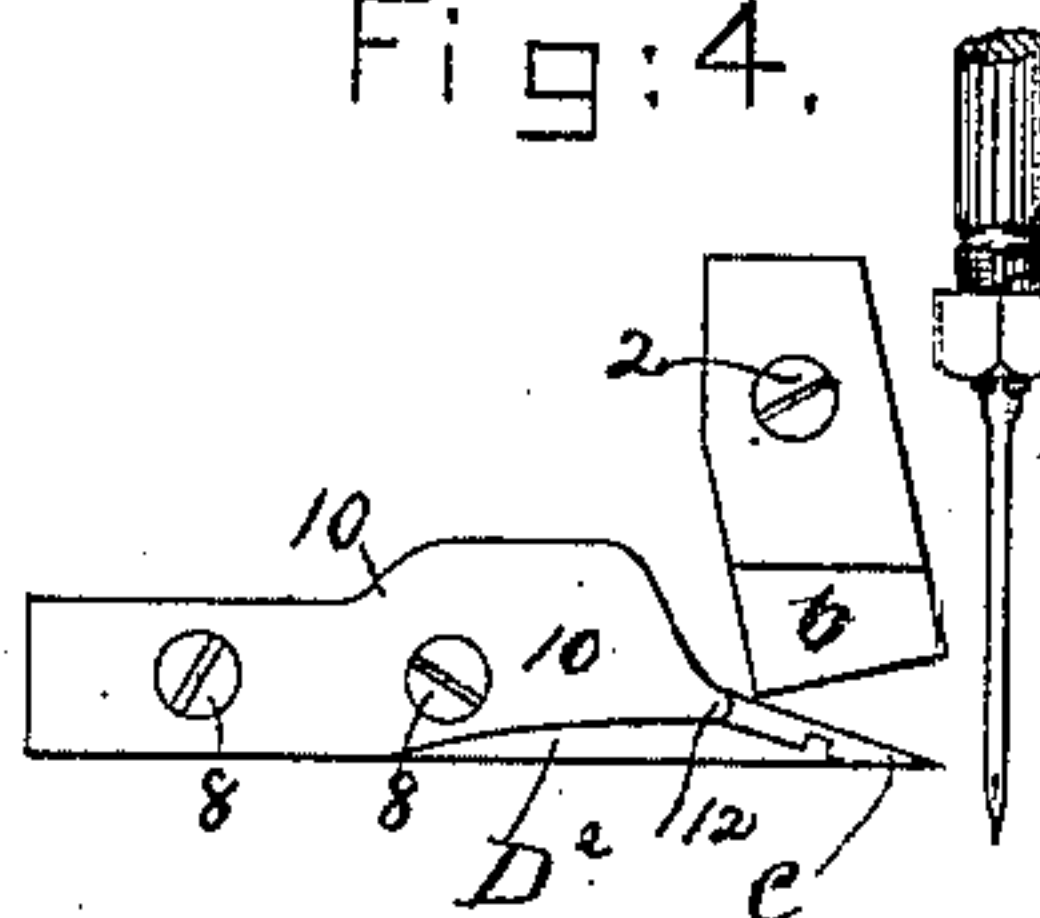


Fig: 8.

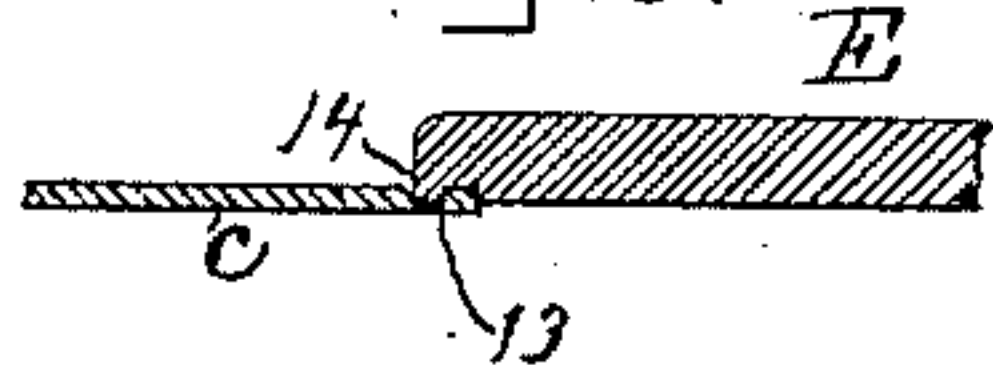


Fig: 5.

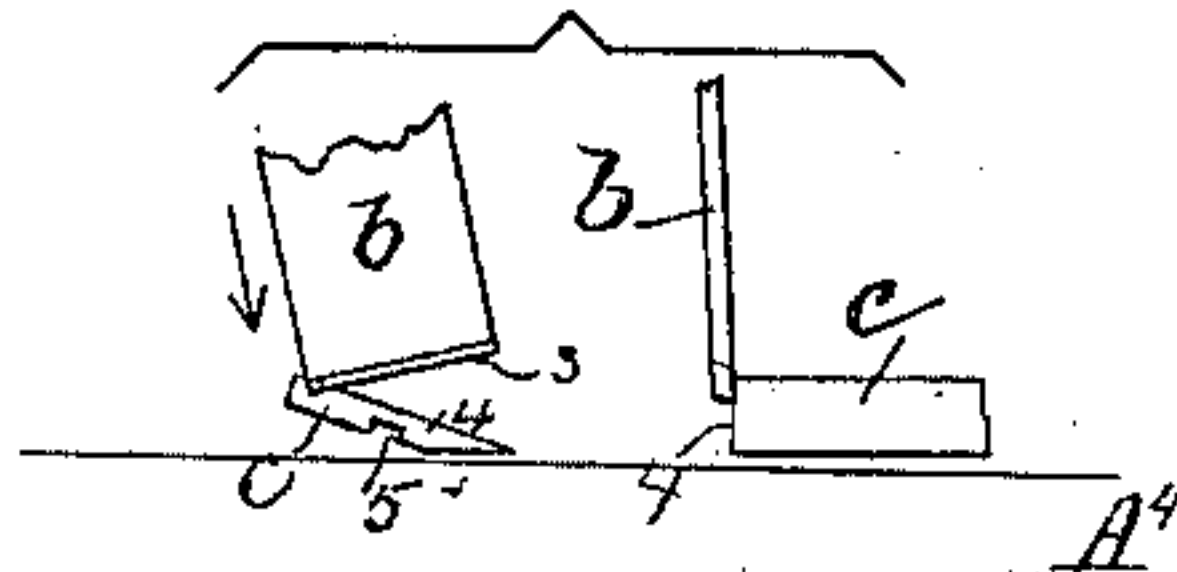
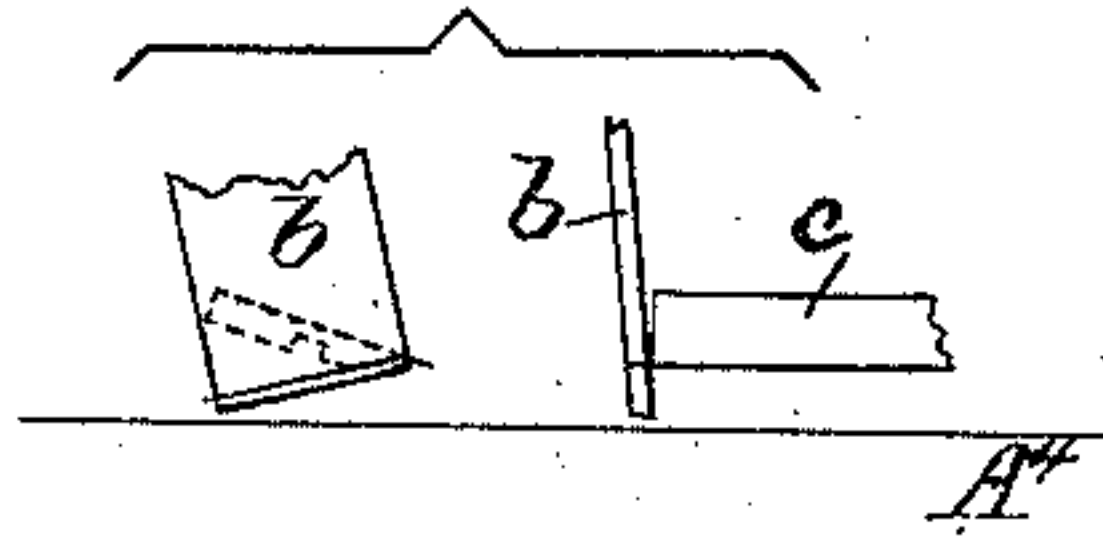


Fig: 6.



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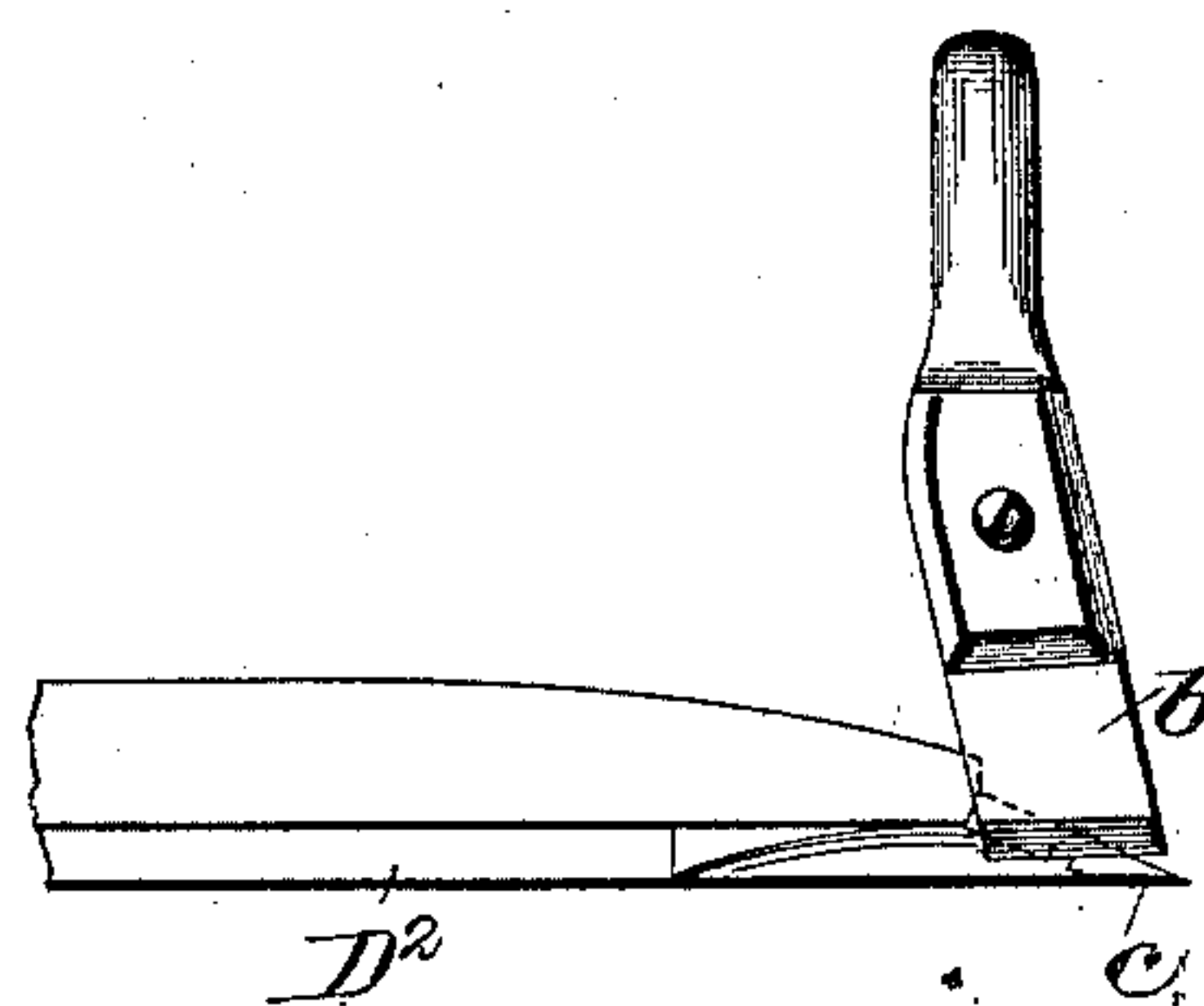
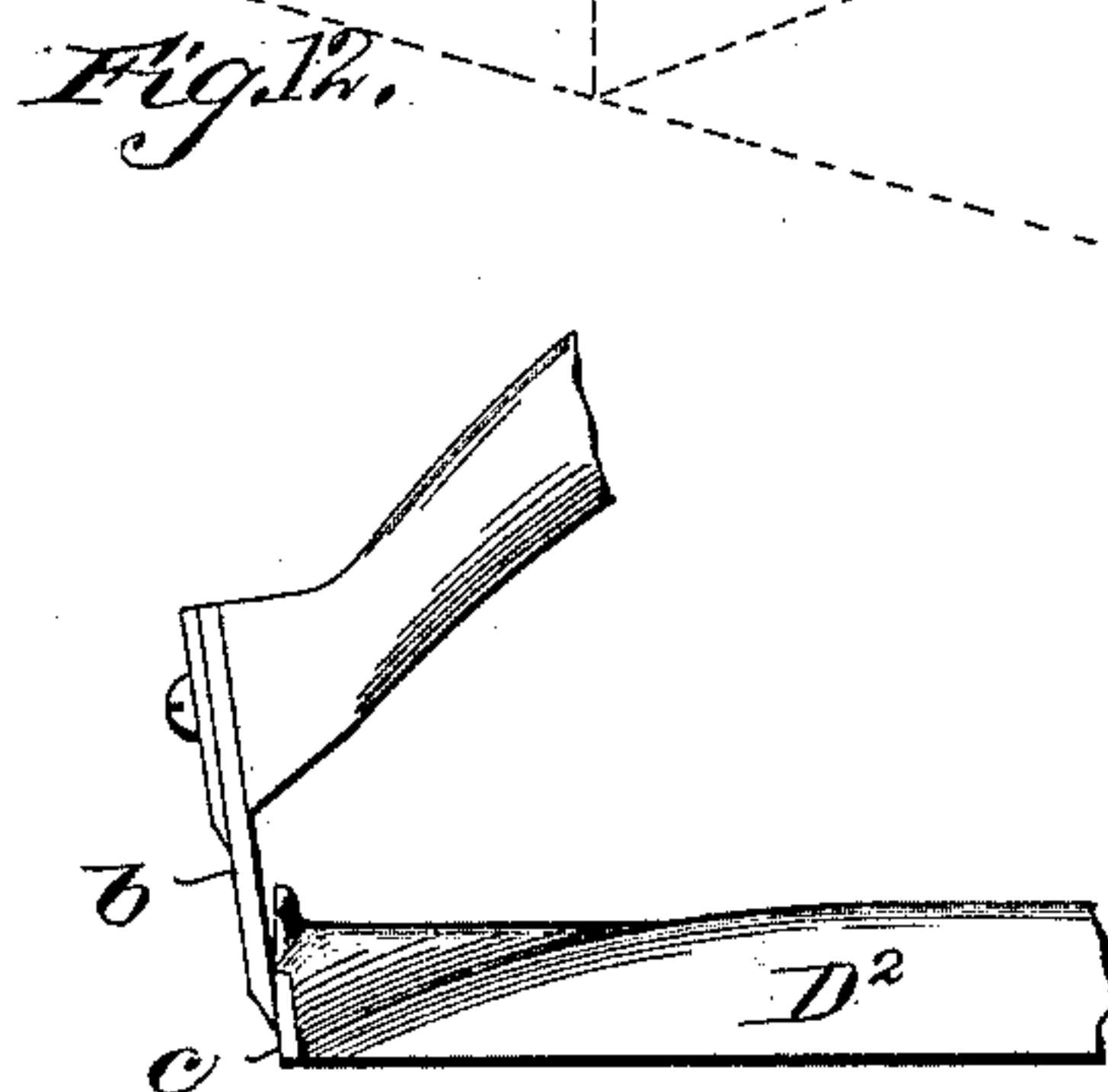
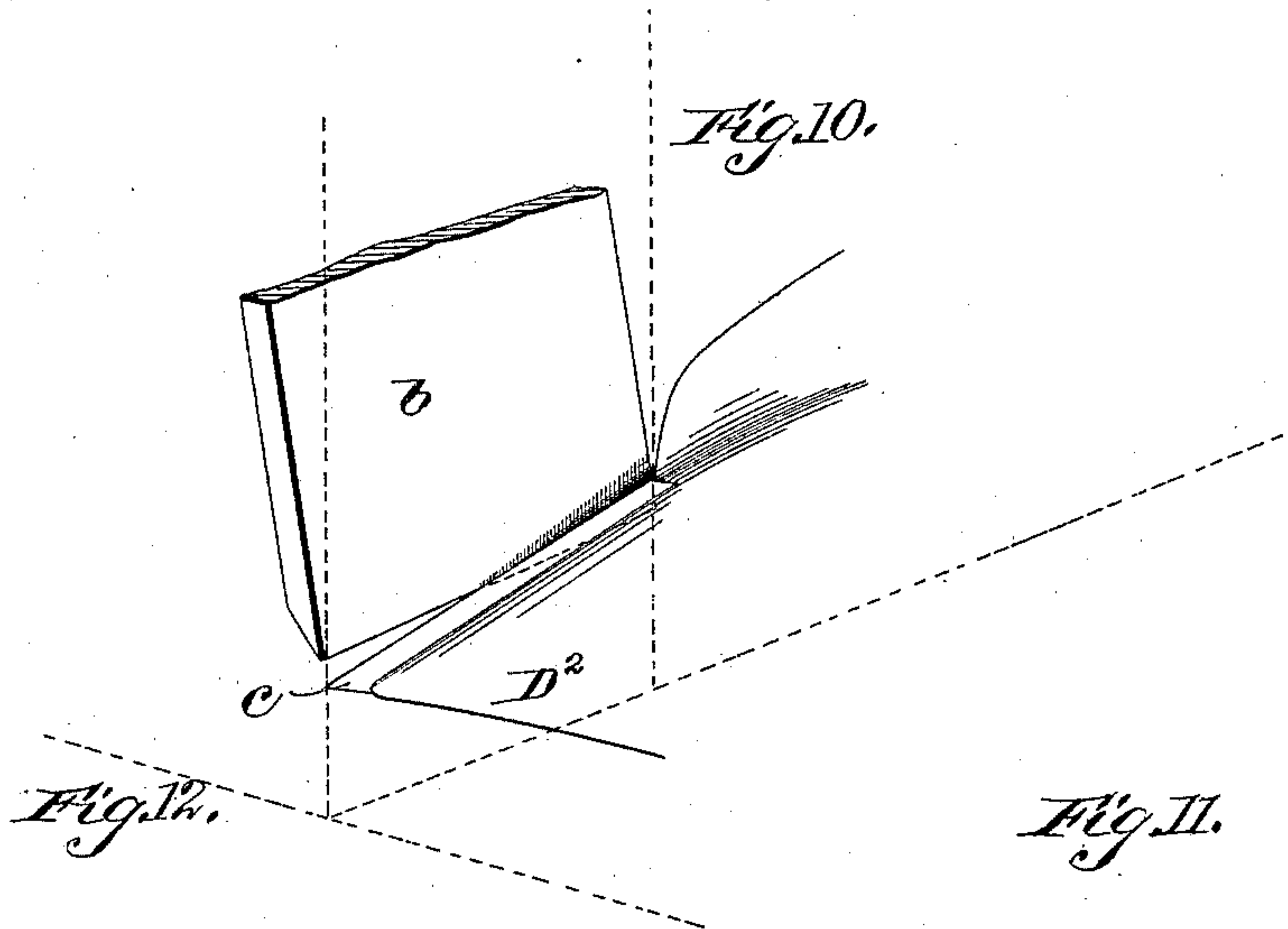
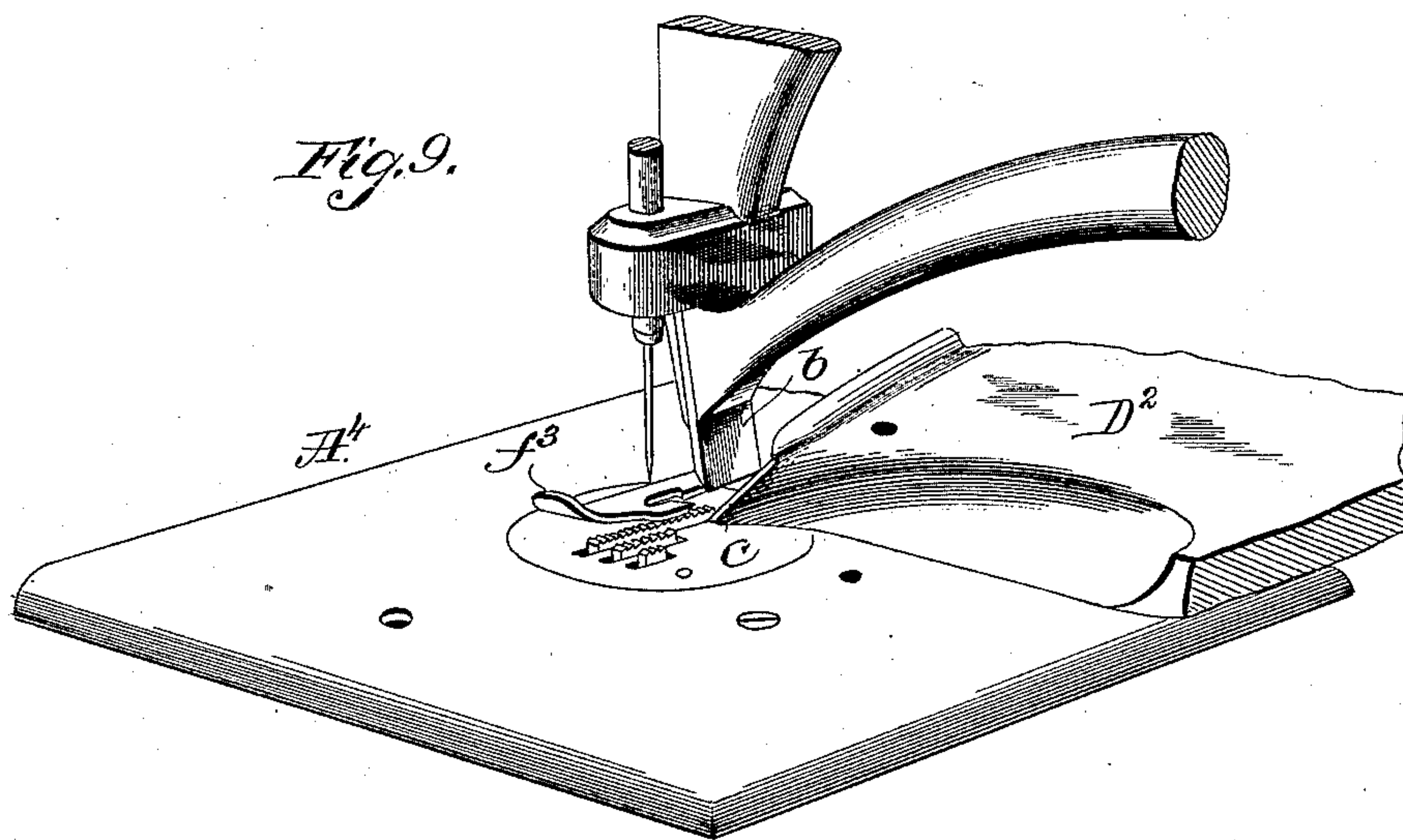
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UNITED STATES PATENT OFFICE.

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TRIMMING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 431,136, dated July 1, 1890.

Application filed July 5, 1888. Serial No. 279,008. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM FURMAN BEARDSLEE, CHARLES KAISER, and CHARLES RUSSELL, all of New York, county and State
5 of New York, have invented an Improvement in Machines for Sewing and Trimming Fabrics, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention is an improvement on that class of machines for sewing and trimming fabric wherein shear-like blades are employed to trim the fabric parallel to the line
15 of sewing.

In trimming-machines used prior to our invention, wherein a stationary lower cutter member has co-operating with it a movable upper member, the edges of the said cutter
20 members have been arranged parallel each to the other and to the slots in the usual throat-plate through which the feed-points work, and the acting edge of the upper member has been beveled to form an acute angle
25 with relation to the throat-plate; but the form of trimming mechanism has been found objectionable as lacking clearance. To afford clearance the edge of the lower member of the cutter-bar has been placed oblique to the
30 slot in the throat-plate in which the feed-points work, and the edge of the upper or movable member of the cutter substantially parallel to said slot has been kept pressed against the edge of the under but stationary
35 member by a force due to a spring, as in United States Patent No. 255,578; but in practice this form of trimming mechanism has been found objectionable, for the scraping of the edges of the cutters against each other by
40 a force due to a spring wears away and dulls the edges of the cutters so rapidly that very much time is lost in removing cutters, grinding them, and again replacing them. To overcome the difficulties alluded to we have
45 devised a trimming mechanism wherein the cutting-edges of both members are substantially in vertical planes, each parallel to a vertical plane passing through the line of stitching, as in the class of trimmers first re-

ferred to; but to give the necessary clearance 50 we have located the cutting-edge of the lower cutter member so that that corner of its cutting-edge farthest from the operator in the direction of the feed is most elevated from the level of the throat-plate, so that the cut- 55 ting-edge of the lower cutter-bar forms an obtuse angle to the top of the throat-plate, and the upper member as a whole, instead of being reciprocated in a vertical plane or perpendicular to the surface of the cloth-plate 60 or parallel to the plane in which the needle moves, is reciprocated in a plane which is inclined with relation to the cloth-plate and to the plane of reciprocation of the needle; or, in other words, the upper end of the upper 65 cutter-blade is tipped over somewhat from a vertical plane. By tipping up that part of the lower cutter member farthest from the operator in the direction of the feed and causing the upper cutter member to reciprocate in a plane inclined from a perpendicular it is possible to have the cutting-edge of one cutter near one end thereof meet the cutting-edge of the other cutter near one end, and then, in the further movement of one of the 75 said cutter members, cause the point of contact between the said two cutters to be gradually shifted to the opposite ends of the said cutting-edges, leaving ample clearance behind the said points of contact, and yet, as the cutting-edges are parallel to each other in the two vertical planes parallel to the vertical planes passing through the line of stitching or through the feed-slots in the throat-plate, respectively, the said edges do not scrape one 85 along the other as when a spring is used, and as a result thereof the edges of the cutter members keep sharp for a long time.

Our invention consists, essentially, in the combination, in a sewing-machine, of the following elements, viz: a cloth-plate, feeding mechanism, a bed-plate on the said cloth-plate, a stationary cutter-bar having its cutting-edge in a vertical plane parallel to a vertical plane passing through the line of stitching, the rear corner of the cutting-edge of the said bar or the corner thereof farthest from the operator in the direction of the feed be- 90 95

ing elevated, as described, to place the said cutting-edge diagonally with relation to the cloth-plate, and a movable cutter-blade having a cutting-edge in a vertical plane substantially parallel to the vertical plane passing through the cutting-edge of the said cutter-bar and movable in said plane, the said cutter-blade being tipped outwardly at its upper end away from a vertical line intersecting the cutting-edge of the cutter-bar, and means to actuate the said blade, the edge of the said blade traveling along the edge of the cutter-bar and contacting therewith at but a single point in any one of the different positions of the said cutter blade, thus leaving a clearance behind the cutting-point of the two blades in the direction of the feed, substantially as will be described.

Other features of our invention will be hereinafter described, and set forth in the claim at the end of this specification.

Figure 1, in side elevation, shows a sufficient portion of a sewing-machine to illustrate our invention; Fig. 2, an under side view of the bed-plate for holding the lower member of the cutter on the cloth-plate. Fig. 3 is a section of Fig. 2 in the dotted line x . Fig. 4 is a left-hand end elevation of the said bed-plate right side up, together with the blade b and needle and part of the needle-bar. Figs. 5 and 6 represent different views of the cutting members to show the relative position of their edges. Fig. 7 is a view of the underside of the bed-plates with the stop-plate omitted, as it may be, if desired; Fig. 8, a detail showing the bar E with its lip engaged with the bar C . Fig. 9 is a detail in perspective showing the cloth-plate, the throat-plate, part of the bed-plate presser-foot, and parts of the trimming devices. Fig. 10 is an enlarged detail; and Figs. 11 and 12 are other views enlarged from that shown in Fig. 1 to better show the positions of the movable blade with relation to the cutter-bar.

The frame-work A has suitable bearings for the main shaft A' , which is provided with an eccentric A^2 , the said shaft also having attached to it an eccentric B^3 , common to United States Patent No. 355,053, dated December 28, 1886, wherein the said eccentric is shown by like letter, the said eccentric in the present invention, as in the machine described in the said patent, actuating a feeding mechanism which will engage and feed the material to be fed over the cloth-plate A^4 to be trimmed by the cutters to be described, the said feed mechanism not being herein fully shown or described because not of our invention, and instead of the particular feed mechanism described in the said patent we may use any other suitable or well-known feeding mechanism.

The needle-bar f and the presser-bar f^2 are and may be all as in the usual Willcox & Gibbs sewing-machine, and will be operated in usual manner.

The eccentric A^2 receives about it an eccen-

tric-strap C' , the opposite end of the said strap embracing the ball-shaped head of a pin C^2 , suitably secured in the short arm of a vibrating lever C^3 , having its fulcrum on a stud C^4 at right angles to the shaft A' , the forward end of the said lever having attached to it by a suitable screw 2 the upper or movable blade or cutter b , composed of a steel blade having a slotted shank, the said blade, as shown, having its cutting-edge substantially at right angles to its length, as best shown in Figs. 5 and 7, the blade being, however, preferably set diagonally with relation to the usual needle-hole, (shown in Fig. 4,) so that a straight line in prolongation of the said edge would intersect the cloth-plate. Viewing Fig. 1, it will also be seen that the said blade is slightly inclined from true perpendicular to the cloth-plate and from the line of reciprocation of the needle; but the edge 3 of the blade b is in a vertical plane parallel, or substantially so, with a vertical plane passing through the cutting-edge 4 of the under member or bar c , and both are consequently in parallel vertical planes, each of which is parallel to a vertical plane passing through the line of stitching, and also to the vertical plane passing through the slots in the throat-plate through which the feed-points work.

The cutter-bar c is herein shown as a narrow plate having at its under side a longitudinal groove, as 5, which groove receives in it a lip, as shown in Fig. 3, at the edge of the support-plate D , attached to the trimmer bed-plate D^2 by a suitable screw D' , the said bed-plate being secured to the cloth-plate A^4 by a suitable screw D^3 . The bar forming the cutter member c is presented and held in an angular position, as shown in Figs. 3, 4, and 6, with relation to the cloth-plate, or that side of the said bar farthest from the operator in the direction of the feed is elevated or tipped up, so that the cutter-blade b in its descent, as in Figs. 4, 5, 9, 10, 11, and 12, first comes in contact with the rear and most elevated edge of the said bar c , and as the edge 3 of the blade b continues to descend the contact between it and the edge 4 of the bar c is made to follow along the edges of the said blade as a single point until the blade b and bar c occupy the position shown in Fig. 6, wherein the right-hand diagram by the small open space shows the clearance which exists at such time.

The vertical planes passing through the cutting-edges 3 and 4 in the direction of their length from front to rear of the machine are, as stated, parallel, or substantially so, and such planes are, in part, practically contiguous, and the blade b in its descent is enabled to travel close to, but it does not scrape against, the edge 4 so as to scrape or dull both its own edge 3 and the edge 4, as would be the case if the said cutting-edges occupied oblique planes from front to rear of the machine, as in the Patent No. 255,578 referred to.

The eccentric A^2 is so placed and the ec-

centric-strap is of such length as at each up-stroke of the blade *b* to bring its edge 3 entirely above the edge 4 so as to leave a clear open space, as in Fig. 4.

5 The bed-plate D^2 at its edge next the usual feed-slot in the usual plate A^4 has applied to it by screw 8 a stop-plate 10, having a prong 12, which serves to arrest the outward movement of the bar *c*.

10 The bar *c*, as shown in Fig. 2 by dotted lines, has a cross-groove 13, which is entered by a lip 14 (see Fig. 8) of an adjusting-rod *E*, fitted to slide longitudinally in a sleeve 15, forming part of a plate 16, attached to the
15 bed-plate by a set-screw 17, the said plate 16 having two steady-pins 18 entering holes in the bed-plate.

The bar *c* may be moved longitudinally by the rod *E* for the purpose of adjustment and
20 is held in adjusted position by a set-screw, as *e*. (See Figs. 1 and 2.)

When it is desired to remove the bar *c* to be ground, the set-screw 17 is removed, and thereafter the rod *E* and clamping-plate 16
25 may be removed, and after them the bar *c*, and when it is desired to grind the cutter, the devices described enable the removal of the cutter-bar to be accomplished quickly.

The presser-foot f^3 , attached to the presser-
30 bar f^2 , may be of any usual shape, and be attached to the presser-bar f^2 in usual manner.

The shaft A' at its forward end is supposed to have attached to it a rotating hook of the Willcox & Gibbs pattern, which hook
35 co-operates with the thread of the needle in usual manner to form a chain-stitch.

We claim—

1. The cloth-plate, feeding mechanism, a
40 bed-plate on the said cloth-plate, and a cutter-bar *c*, having its cutting-edge in a vertical plane parallel to a vertical plane passing through the line of stitching, the rear corner of the cutting-edge of the said bar or the corner farthest from the operator in the di-

rection of the feed being elevated, as de- 45 scribed, to place the said cutting-edge diagonally with relation to the cloth-plate, combined with the movable cutter-blade *b*, having a cutting-edge 3, moving in a vertical plane substantially parallel to the said ver- 50 tical plane of the cutting-edge of the said cutter-bar, the said blade *b* being tipped outwardly at its upper end away from a vertical line intersecting the cutting-edge of the cutter-bar, and with means to actuate the said 55 blade, the combination and arrangement of the said cutter-bar and blade being such, substantially as described, as to enable the edge 3 of the blade to travel along the cutting- 60 edge of the cutter-bar *c* and contact there- with at but a single point in any of the different positions assumed by the blade in its descent, thus leaving a clearance behind the cutting-point of the two blades in the direc- 65 tion of the feed, substantially as described.

2. In a sewing-machine, the bed-plate D^2 , the cutter-bar *c* therein, and provided along its longitudinal edge with a groove 5, the support-plate *D*, having a lip to enter the said groove and constitute a clamp and guide for 70 said bar, combined with the rod *E*, adapted to engage at its inner end the inner end of the said cutter-bar, and with the detachable bearing-plate 16, having guide-pins 18, and with a set-screw 17, the removal of the said 75 screw permitting the plate, the rod, and the cutter-bar to be drawn out from the bed-plate, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of 80 two subscribing witnesses.

WILLIAM FURMAN BEARDSLEE.
CHARLES KAISER.
CHARLES RUSSELL.

Witnesses:

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