

No. 678,907.

Patented July 23, 1901.

T. H. ROSS & E. DONALDSON.
SEWING MACHINE ATTACHMENT FOR OVEREDGE STITCHING.

(Application filed Oct. 2, 1900.)

(No Model.)

3 Sheets—Sheet 1.

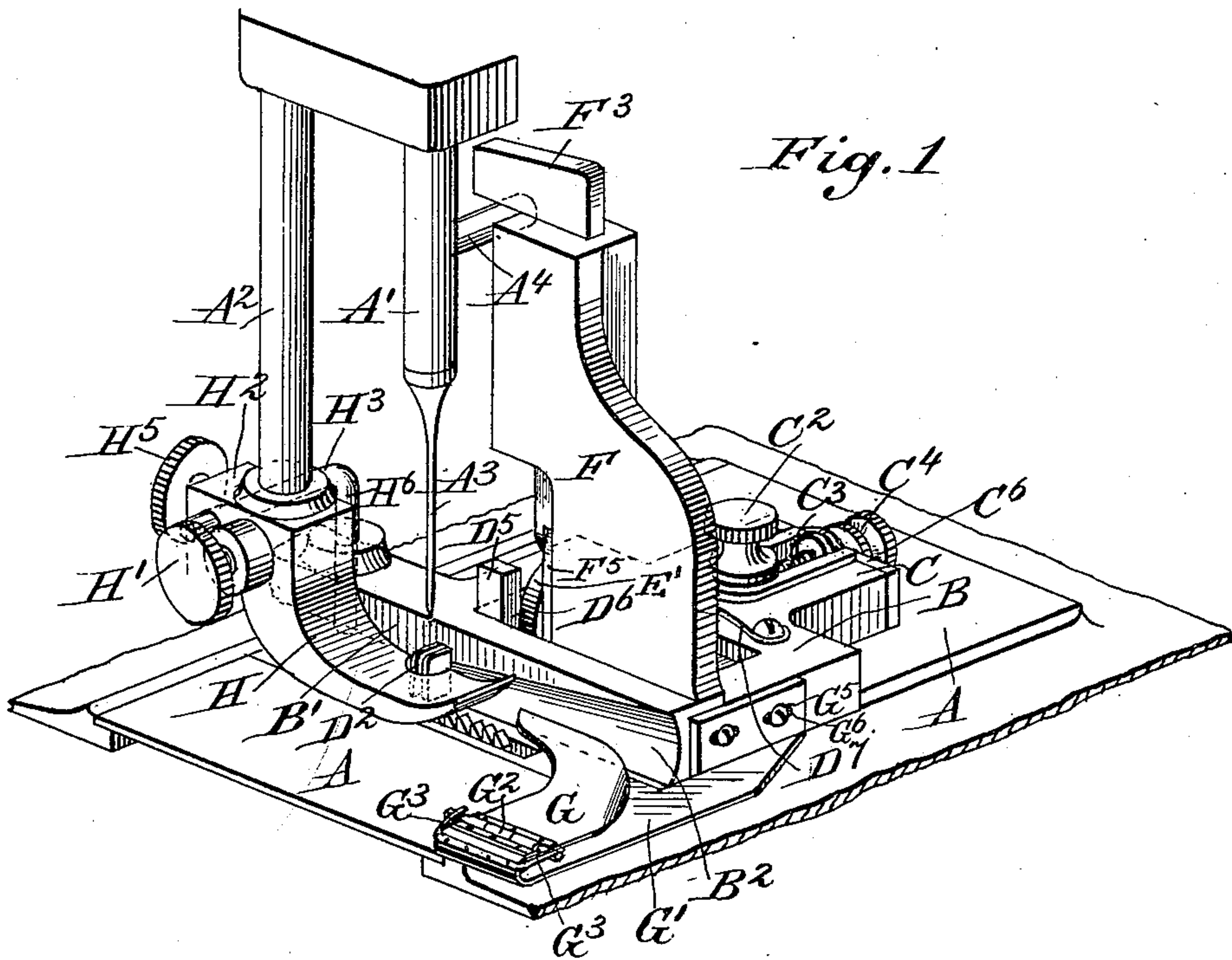


Fig. 1

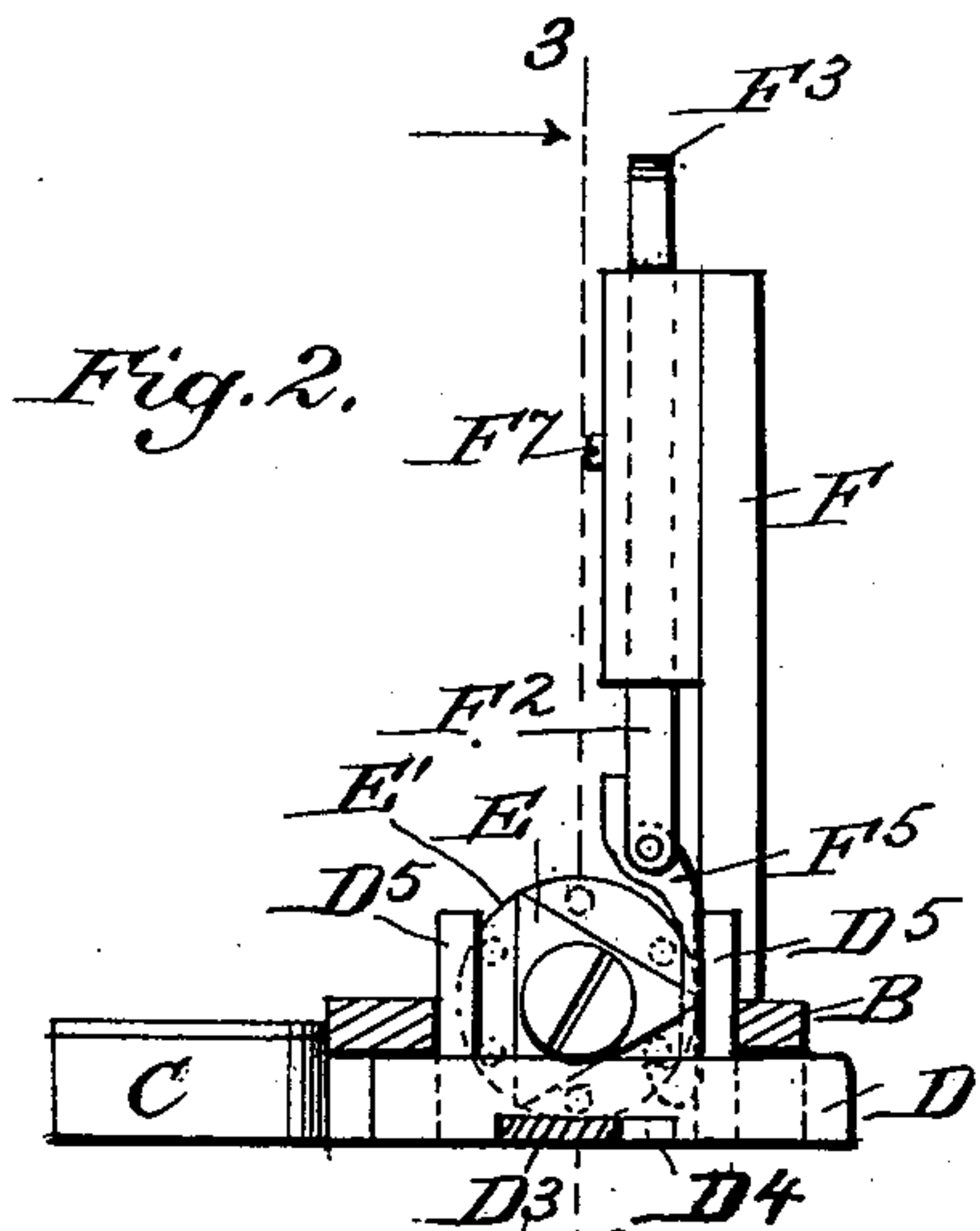


Fig. 2.

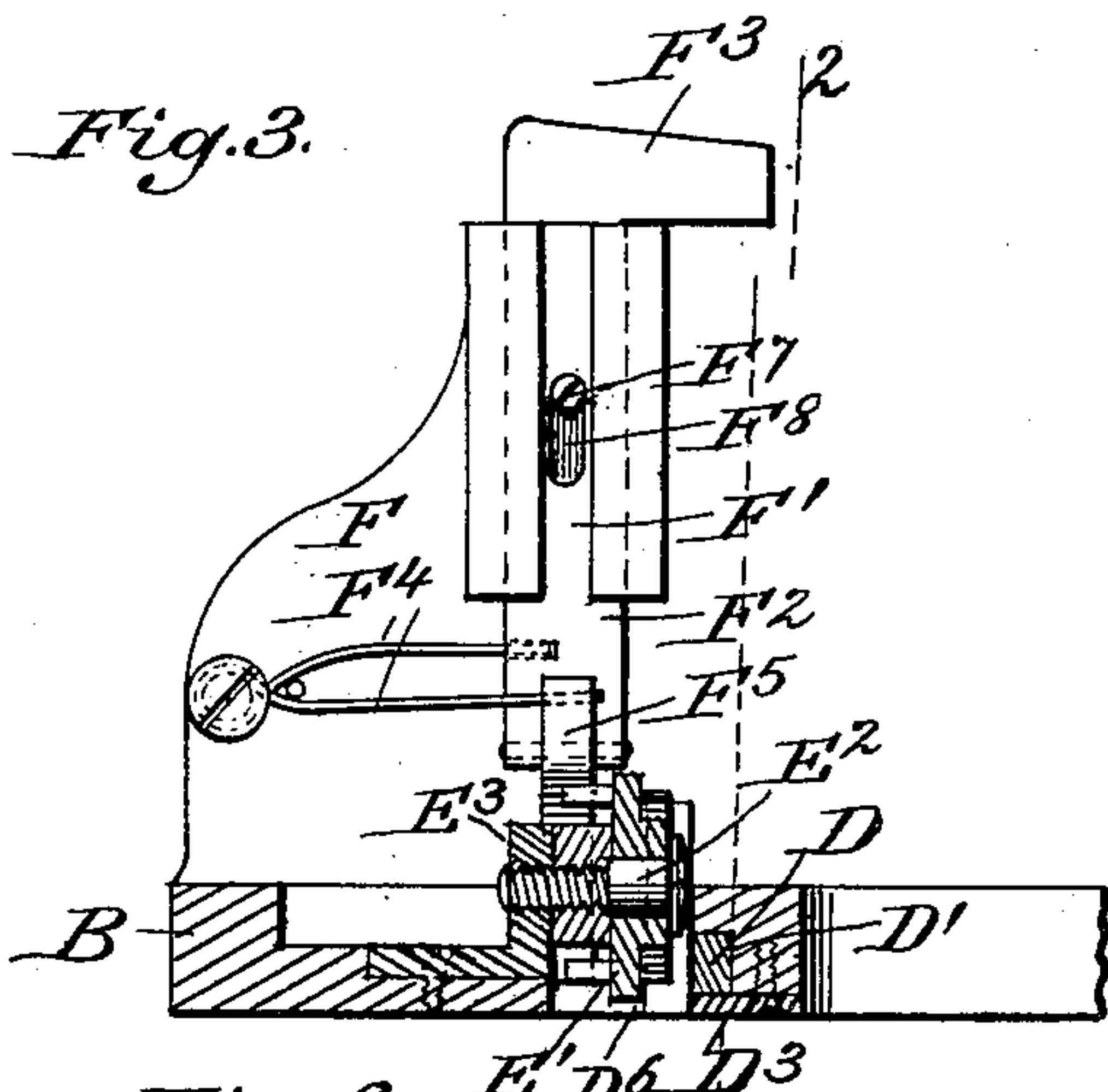


Fig. 3.

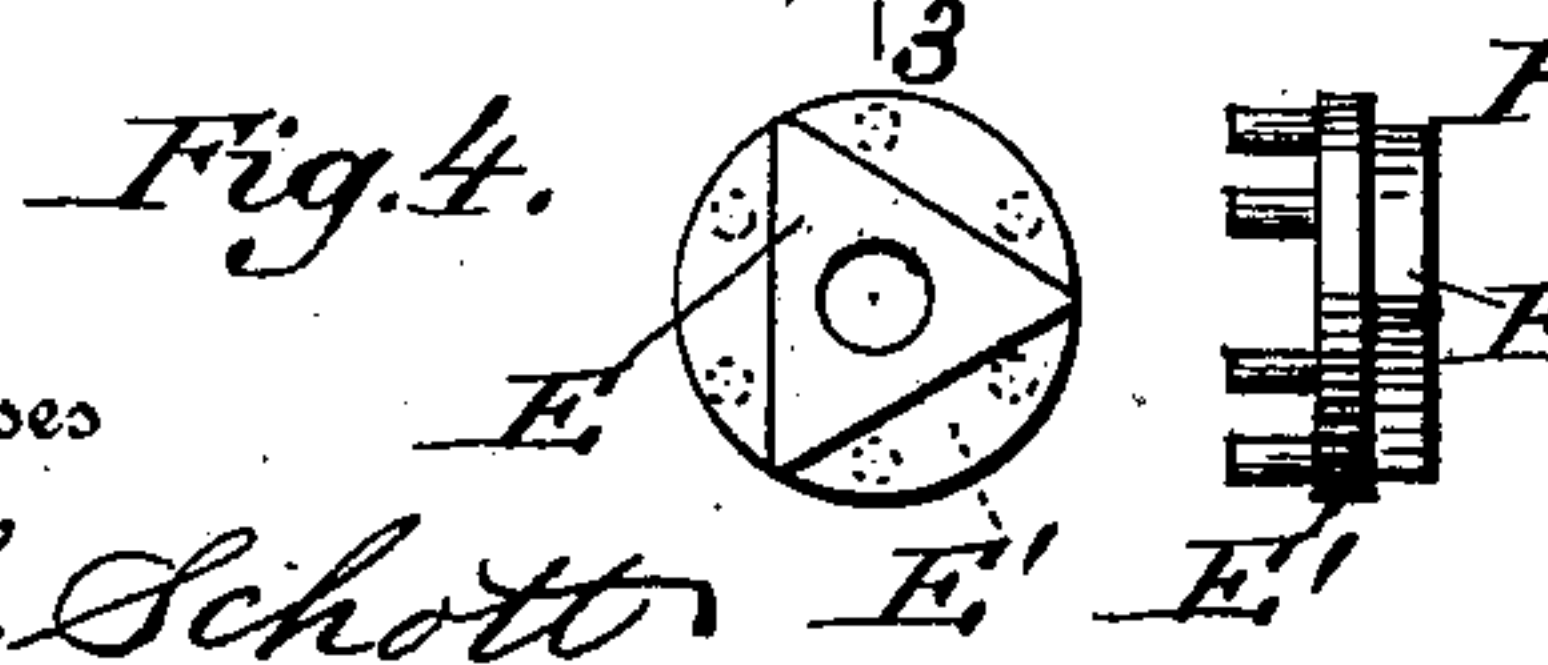


Fig. 4.

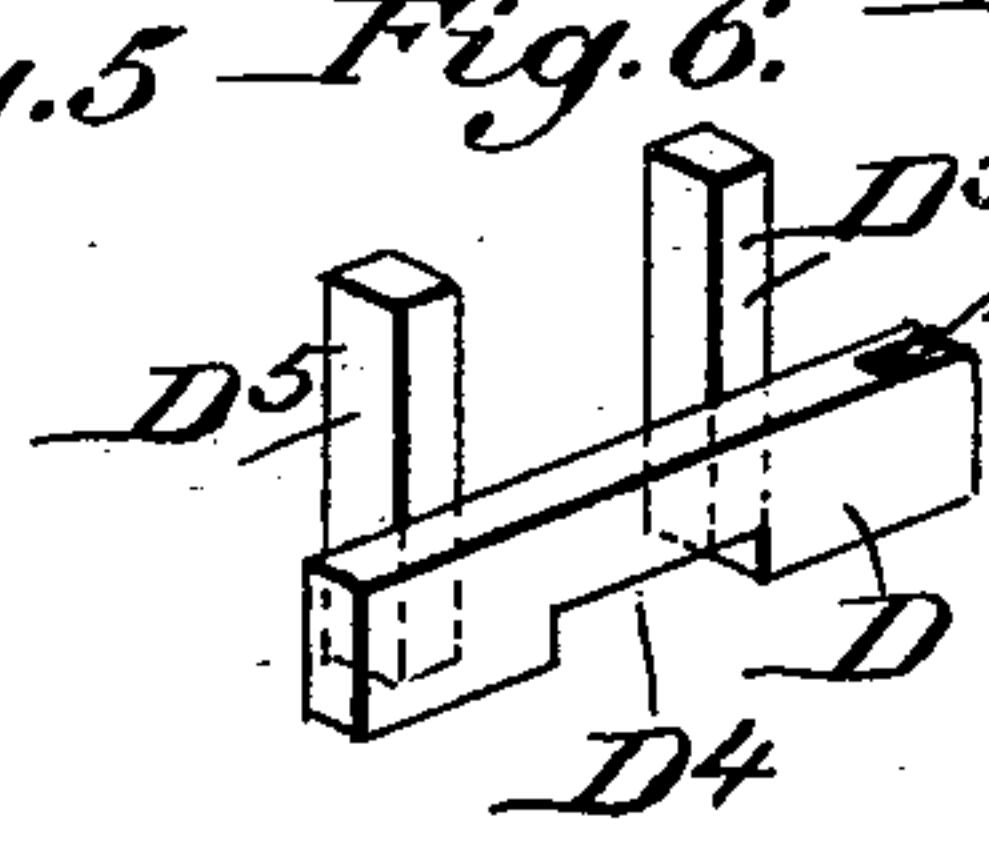


Fig. 5.

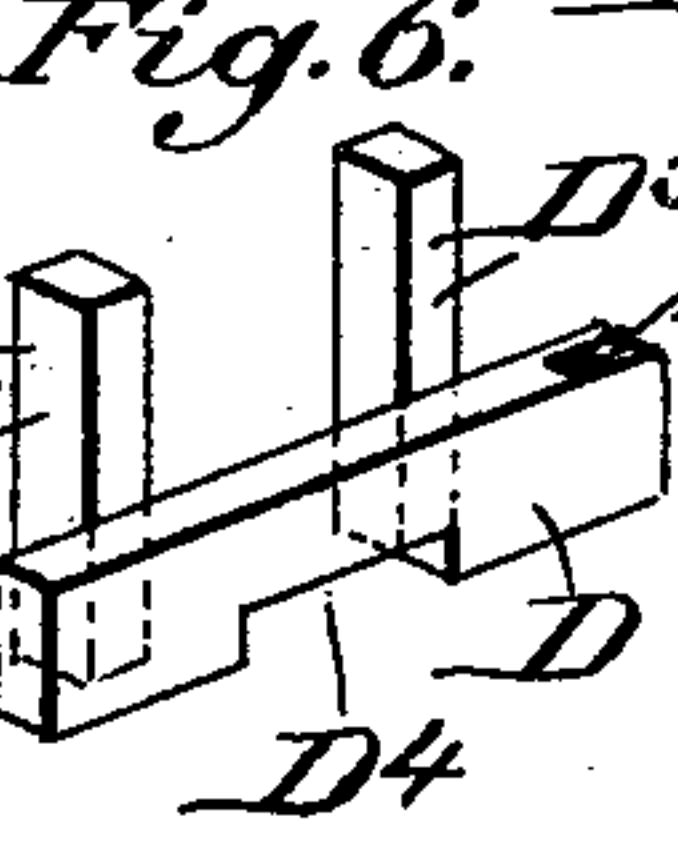


Fig. 6.

Witnesses
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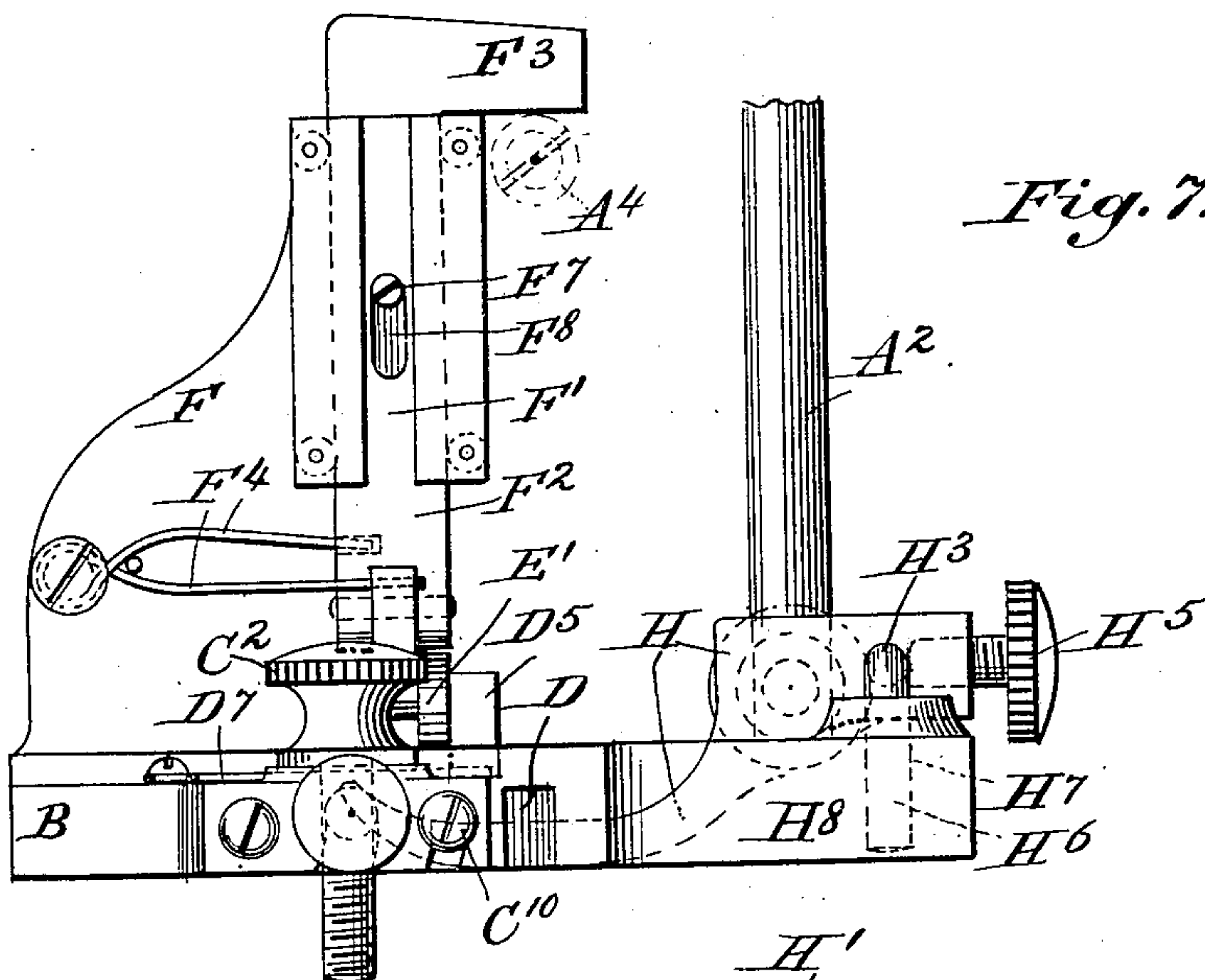


Fig. 7.

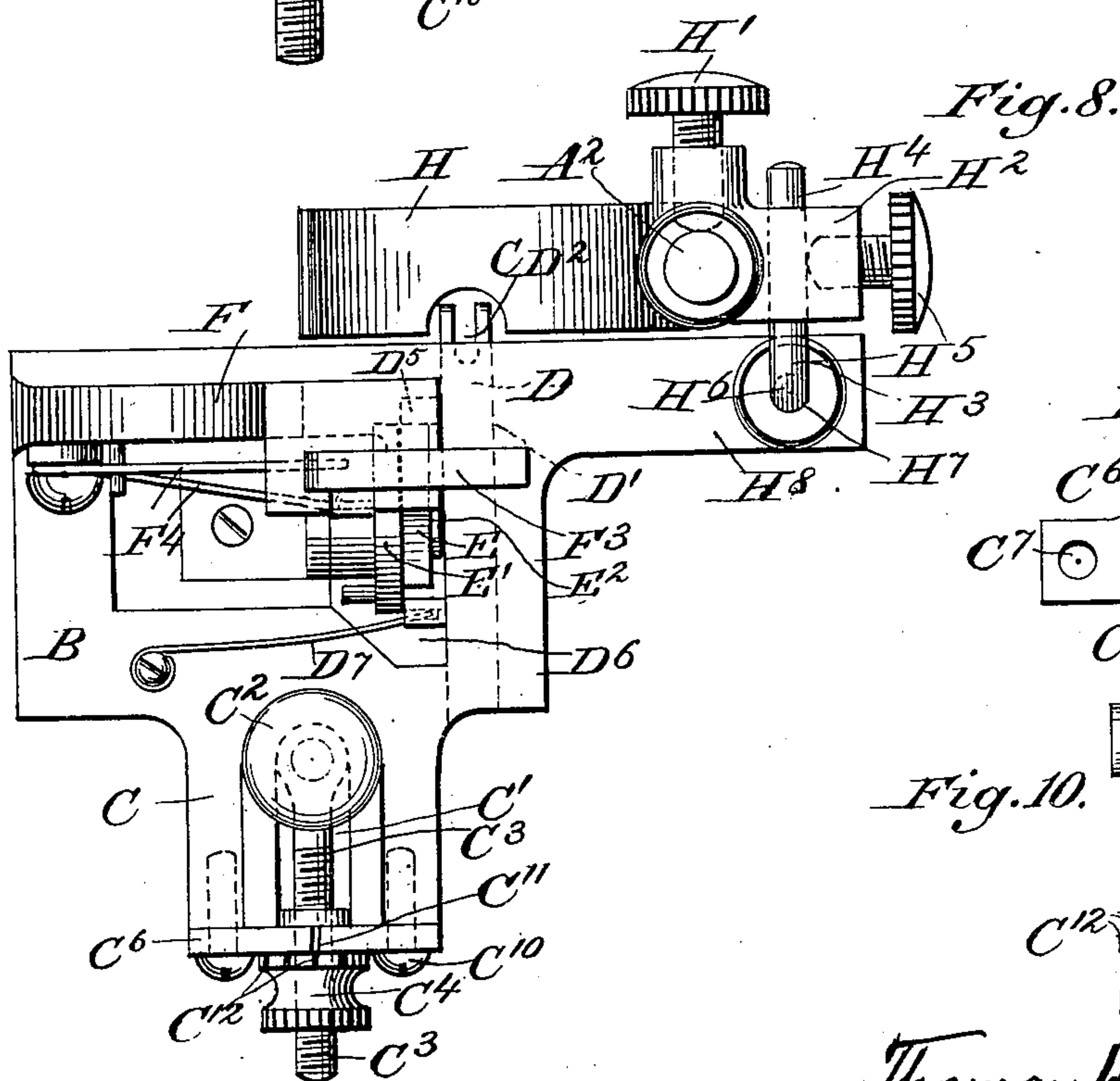


Fig. 8.

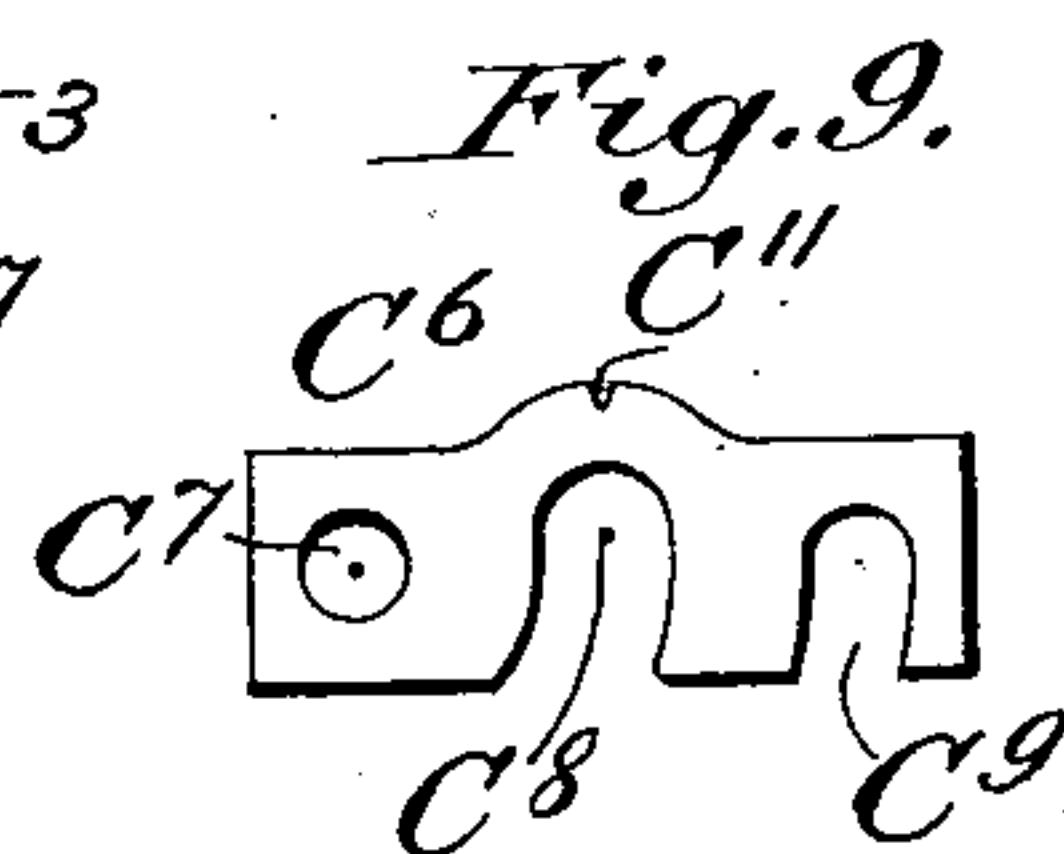


Fig. 9.

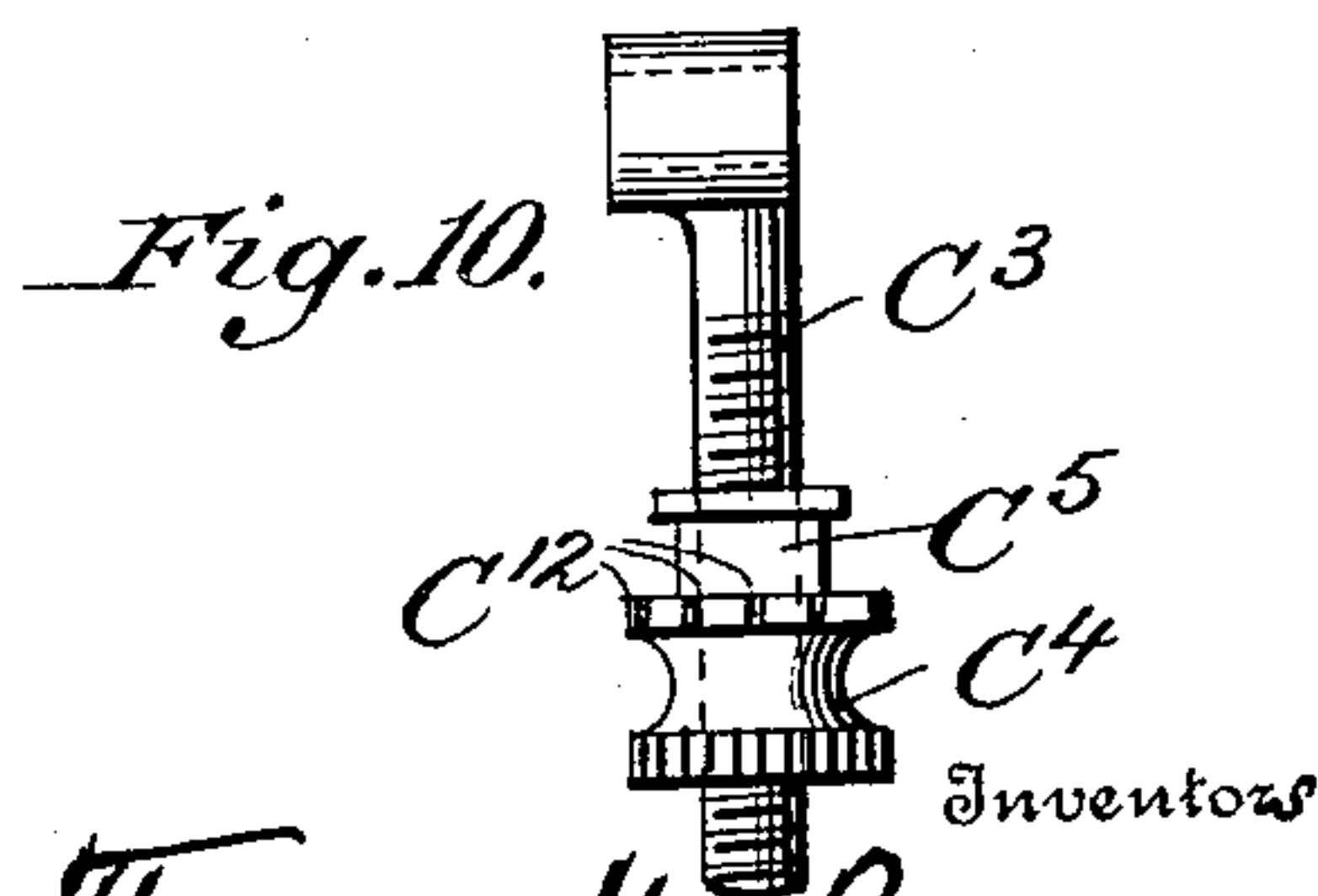


Fig. 10.

Witnesses

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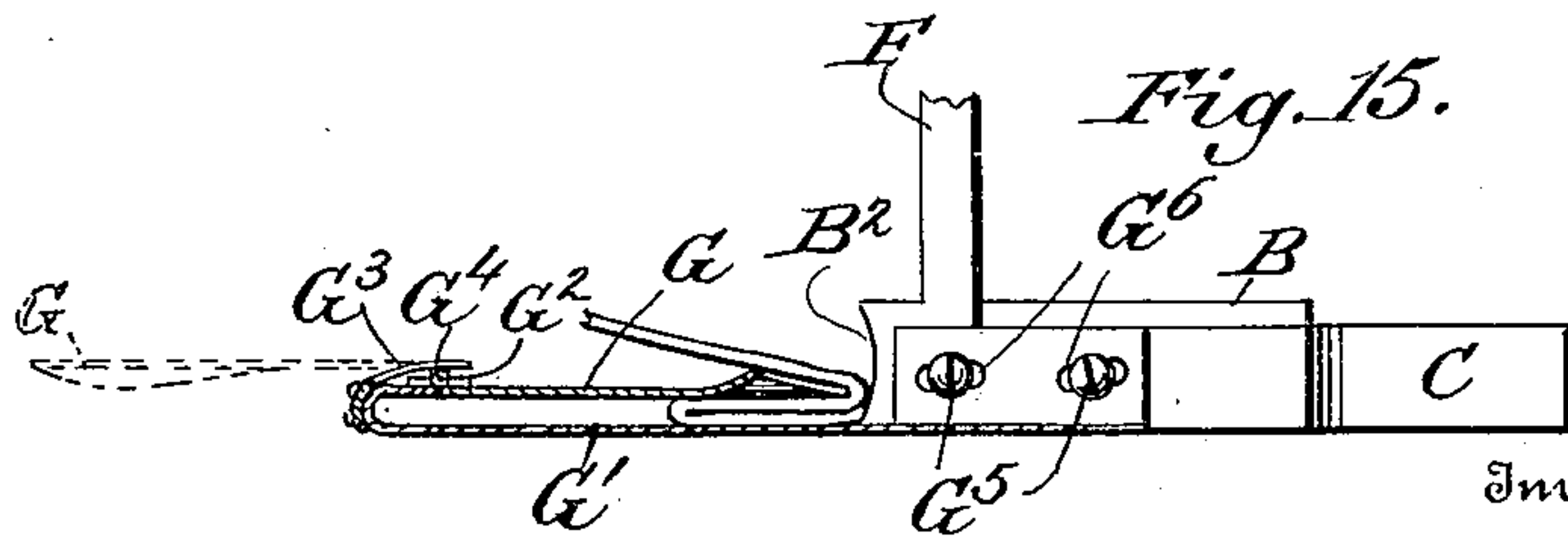
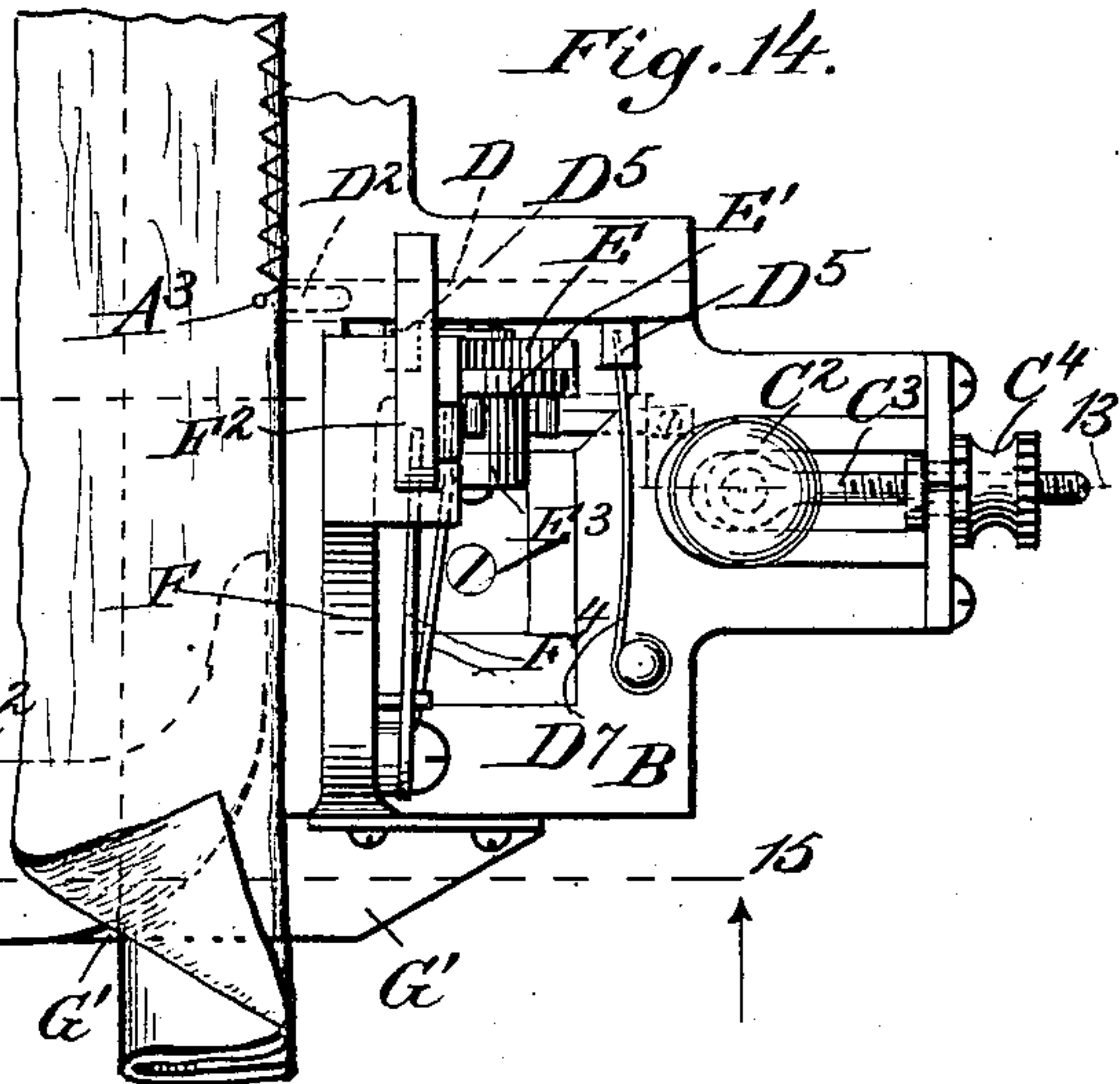
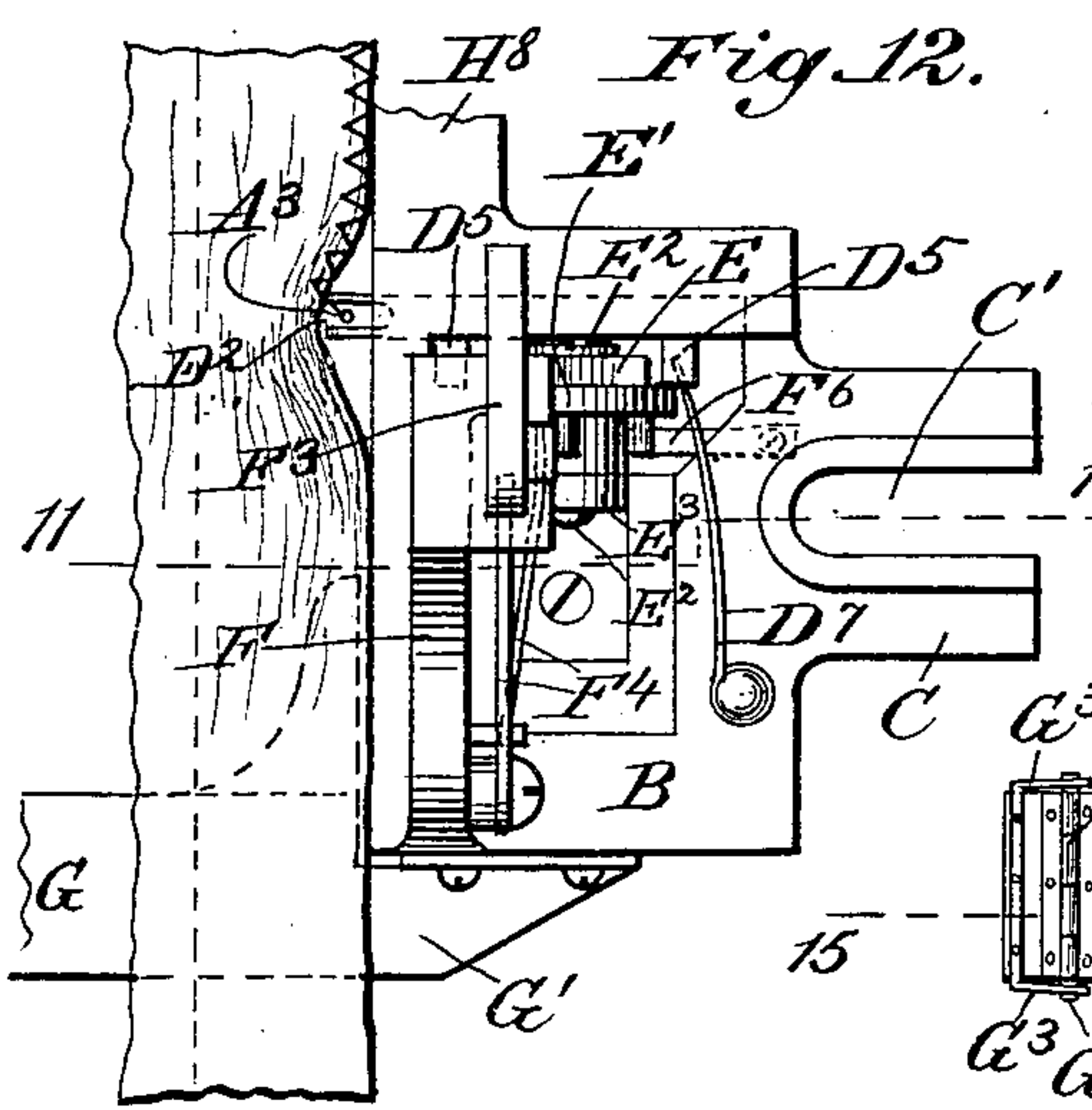
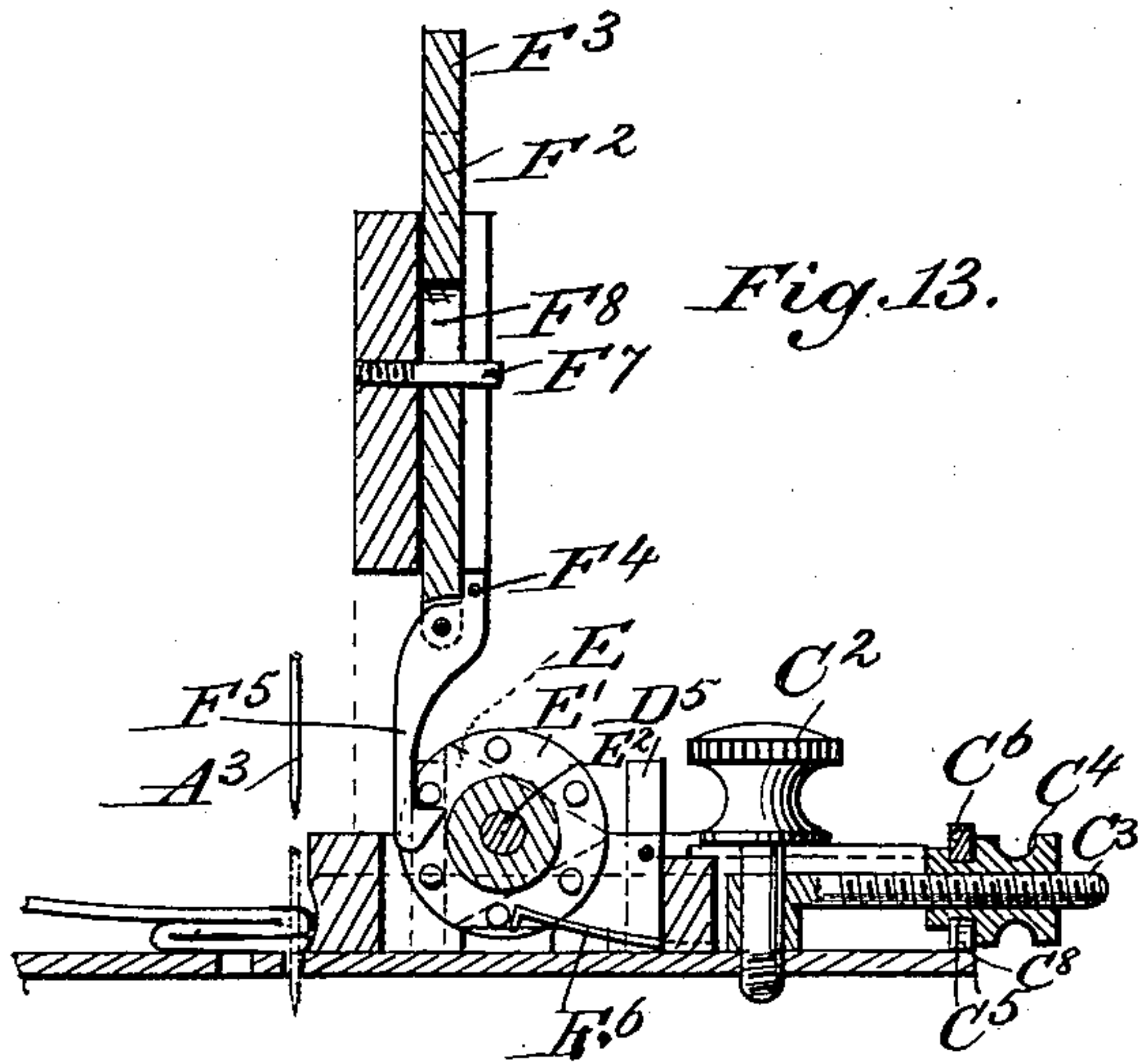
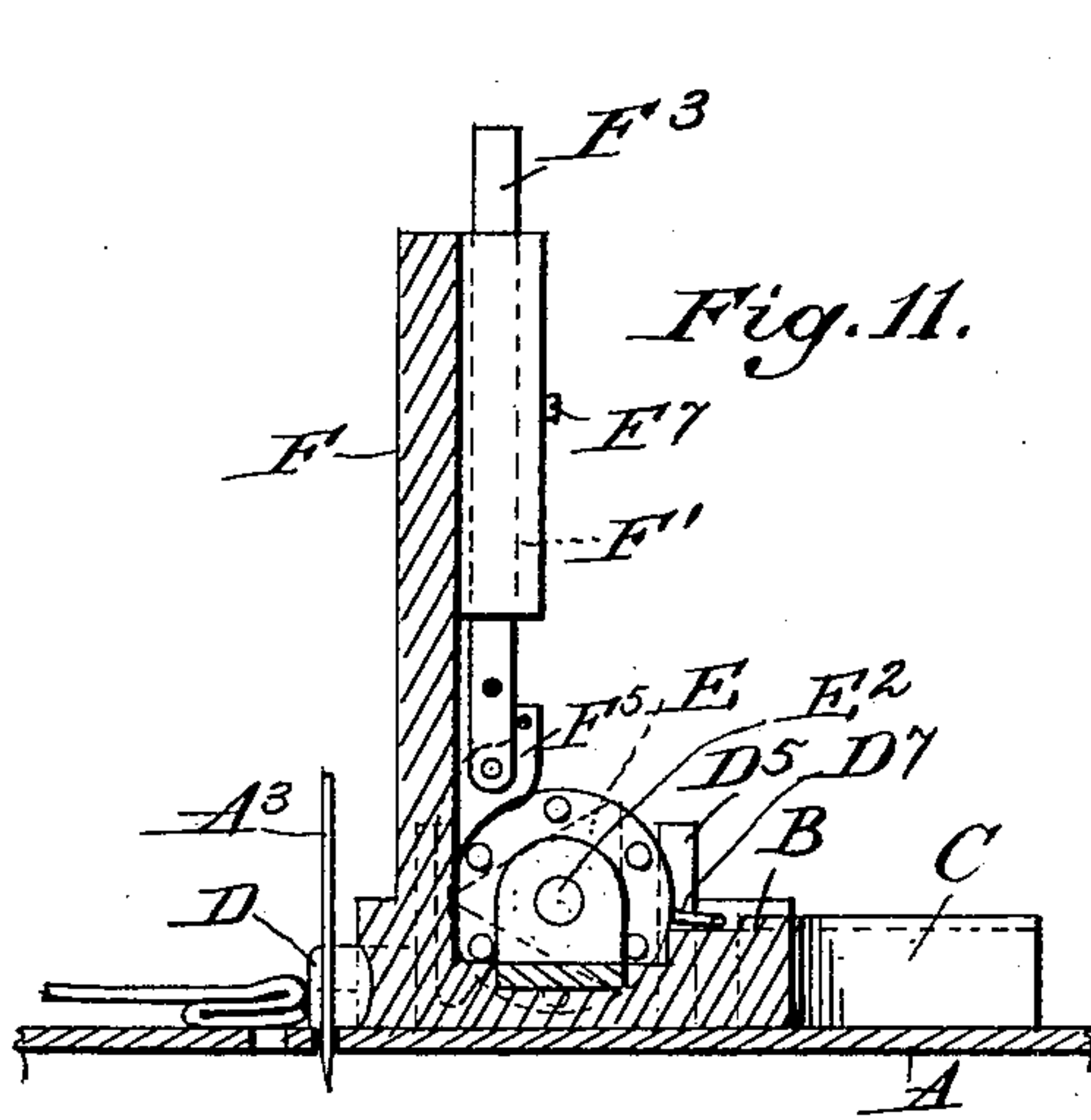
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3 Sheets—Sheet 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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SEWING-MACHINE ATTACHMENT FOR OVEREDGE-STITCHING.

SPECIFICATION forming part of Letters Patent No. 678,907, dated July 23, 1901.

Application filed October 2, 1900. Serial No. 31,771. (No model.)

To all whom it may concern:

Be it known that we, THOMAS H. ROSS, a subject of the Queen of Great Britain, and EDWIN DONALDSON, a citizen of the United States, both residents of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sewing-Machine Attachments for Overedge-Stitching, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to improvements in sewing-machine attachments of that class which are used for intermittently diverting the course of the fabric from its path of travel through the line of reciprocation of the needle for the purpose of forming overedge-stitches.

The invention consists in the novel construction, combination, and arrangement of parts, such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar reference characters designate corresponding parts, Figure 1 is a perspective view of an attachment embodying the invention, showing it mounted on the work-plate of a sewing-machine in conjunction with the presser-foot and needle-bars. Fig. 2 is a sectional view on the line 2 2 of Fig. 3. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a detail view showing the cam for operating the pusher-bar. Fig. 5 is a similar view showing the cam and lantern-gear. Fig. 6 is a similar view showing the pusher-bar. Fig. 7 is an enlarged view showing a side elevation of the attachment. Fig. 8 is a similar view showing a plan of the device except the fabric-guide. Fig. 9 is a detail view showing the plate forming the bearing for the thumb-nut of the adjusting-screw. Fig. 10 is a similar view showing the adjusting-screw. Fig. 11 is a sectional view on the line 11 11 of Fig. 12. Fig. 12 is a plan view showing the fabric moved clear of the needle by the pusher-bar. In this view for the sake

of clearness the presser-foot is not shown. The upper member of the fabric-guide is also turned back for the same reason. Fig. 13 is a sectional view on the line 13 13 of Fig. 14. Fig. 14 is a plan view showing the fabric beneath the needle. Fig. 15 is a sectional view on the line 15 15 of Fig. 14.

Only so much of the sewing-machine is shown as is necessary to illustrate the operation of the attachment. The work-plate A, the needle-bar A', and the presser-foot bar A² may be of any construction suitable in the premises. In the needle-bar is secured the usual needle A³ by the set-screw A⁴. On the lower end of the bar A² is attached the presser-foot, which will be hereinafter particularly described. On the work-plate A is secured the attachment adjacent to the presser-foot and the needle-bars and also in such a position that the face B' of the base B will be adjacent to and parallel with the line of travel taken by the fabric being stitched. The face B' of the base is provided with a tapering groove B² to facilitate the passage of the fabric.

Mechanism for adjustably securing the attachment to the work-plate is provided. The base B has an extension C, provided with a recess C', through which the screw C² is adapted to pass, and by clamping the base between its head and the work-plate serves to hold the attachment in place. The shank of the screw passes through an eye in the end of the screw-threaded rod C³. The latter lies partly within the recess C' and projects at its screw-threaded end beyond the same. On this screw-threaded rod is a thumb-nut C⁴, provided with a journal C⁵. A plate C⁶ is hinged at one end, as at C⁷, to one of the arms of the extension C and is adapted to be turned down across the opening of the recess C'. It is provided with a bearing C⁸ for the journal C⁵ of the thumb-screw, and at its free end the plate has a recess C⁹ for engagement with the screw C¹⁰ to hold it in place. By slightly loosening the clamping-screw C², so that the attachment can be moved with some little friction, and by turning the thumb-nut C⁴ the attachment can be moved more or less relatively to the clamping-screw, and thereby

adjusted to accommodate the fabric to be stitched more accurately and quicker than it could be by simply loosening the clamping-screw and moving the attachment by hand.

5 It may be stated that these adjustments have to be made within a small fraction of an inch, as they are measured according to the thickness of the fabric. In the top edge of the plate C⁶ is a notch C¹¹, and in the periphery
10 of the thumb-nut C⁴ are notches C¹², placed at regular intervals. By means of these notches the adjustment of the attachment can be gaged. In practice one complete turn of the thumb-nut will move the attachment
15 one thirty-second of an inch.

A reciprocating pusher-bar D is mounted in a guideway D' in the under side of the base B, so that it can be intermittently projected at right angles from the face B' of the
20 base into the path of travel of the fabric and the line of movement of the needle. At its forward end the pusher-bar is bifurcated, as at D², to register with the needle when the latter descends and when the pusher-bar is
25 in an advanced position. The pusher-bar is held in place in the guideway by the plate D³, secured to the base B and extending into the recess D⁴. The movement of the pusher-bar is limited by the length of the recess D⁴
30 and the width of the plate registering with it. Projecting from the side of the pusher-bar are the extensions or uprights D⁵, which extend upwardly through the recess D⁶ in the base. The pusher-bar is normally held in a
35 retracted position by the spring D⁷, secured at one end to the base and engaging at the other end with one of the uprights D⁵. The pusher-bar is reciprocated by the three-sided cam E, rotated between the uprights D⁵. The
40 cam is mounted on the end of the lantern-gear E' and turns with the same. A screw E² passes through the cam and gear, forming an axis for the same, and is turned into the angle-plate E³, secured to the base. The lantern-gear has six teeth or spokes, one for each
45 side and each angle of the cam E, so that by turning the said gear the distance between two teeth or one-sixth of a rotation at a time the angles and the sides of the cam are alternately and successively brought to bear on
50 the forward upright D⁵, so that the pusher-bar is reciprocated back and forth against the action of the spring D⁷. If the spring D⁷ should not act with certainty to retract the pusher-bar, the cam will act on the rear upright D⁵ and move the pusher-bar to the rear. The spring D⁷ also serves to take up any lost motion when the cam is acting on both uprights, and thereby prevents noise.

60 Mechanism for rotating the lantern-gear E' is provided. On the base B is mounted the standard F, and in the face of the latter is the vertical guideway F', in which moves the slide-bar F², from the upper end of which the
65 arm F³ projects. The slide-bar is normally held in a lowered position by a member of the whistle-spring F⁴, secured to the standard F.

The slide-bar is reciprocated vertically and against the action of the whistle-spring by the set-screw A⁴, carried by the needle-bar
70 engaging with the arm F³ as the machine is operated. To the lower end of the slide-bar is pivoted the pawl F⁵, the lower end of which is normally held in a position to engage with the lantern-gear E' by the other member of
75 the whistle-spring F⁴, which engages with the upper end of the pawl above the latter's pivotal point. The formation of the pawl is such that on the downward movement it disengages from the spoke of the lantern-gear
80 and on its upward movement engages with the succeeding spoke or tooth. By the reciprocation of the pawl the lantern-gear is given one-sixth of a complete rotation at each upward movement, so that an angle and a
85 side of the three-cornered cam are successively brought to bear on the forward upright D⁵, and the pusher-bar thereby reciprocated. To limit the movement of the lantern-gear, a spring F⁶ is provided, which
90 bears against said gear and acts as a brake. The vertical movement of the slide-bar is limited by the pin F⁷ projecting from the standard F and registering with the elongated slot F⁸ in the slide-bar.
95

Mechanism is provided to aid in securing the attachment in its adjustments on the work-plate and also relatively to the presser-foot. On the lower end of the bar A² is attached the presser foot or shoe H by the set-
100 screw H'. The presser-foot has a projection H² extending from its heel. Transversely through the extension an opening extends, and in the same is placed the horizontal arm H³ of the angular rod H⁴. This arm is held
105 in place in the presser-foot by the set-screw H⁵. The vertical arm H⁶ enters the vertical opening H⁷ of the extension H⁸ of the base of the attachment. The length of the arm H⁶ and the depth of the opening H⁷ are such
110 that the rod will always be in register with the opening as the presser-foot is raised or lowered.

A fabric-guide is provided to aid the operator in folding and guiding the goods to be
115 operated upon as they are fed into the machine. This guide consists of two members G and G', respectively, hinged together by the hinge G². The members are held in their relatively-adjusted positions by the spring
120 G³, secured to the lower member and bearing at its free ends on the squared ends of the pintle G⁴, projecting from the ends of the hinge G². The pintle is made fast to the upper member G, so that when the said mem-
125 ber is turned the spring by bearing on the flat parts of the pintle will hold the said member in position. The relative arrangement of the flat parts of the pintle is such that the spring will hold the upper member par-
130 allel with and above the lower member at right angles to the lower member or turned back from the same. The upper member is slightly bent upward at its free end and is

curved in the direction taken by the goods in passing through the machine, so as to offer the least resistance possible to the passage of the fabric. Sometimes it may be desired to
 5 adjust the fabric-guide relatively to the attachment. This can be done by loosening the screws G^5 and moving the guide to the desired position, which is permitted by the elongated slots G^6 , through which the screws
 10 pass into the base of the attachment.

The operation of the device is as follows: To adjust the attachment to adapt it to the thickness of the goods to be stitched, the screws C^2 and H^5 are loosened and the attachment is moved by hand approximately to the
 15 proper position. To accommodate a thick fabric, for instance, the attachment should be adjusted so that there will be quite a space between the face B' of the base and the line
 20 of movement of the needle. As shown in the drawings, the attachment is shown in an adjustment suitable for goods of medium thickness. After the screws have been loosened and the attachment adjusted by hand as near
 25 as may be to the proper position, then the clamping-screw C^2 is turned into the base-plate to bind the attachment slightly. By turning the thumb-nut C^4 more or less an almost accurate adjustment of the attachment
 30 can be secured, so far as the proper distance from the line of travel of the needle is concerned, although it may not be exactly parallel with the line of travel of the goods or the presser-foot. However, by turning the
 35 attachment slightly by hand on the screw C^2 as an axis it can be moved parallel with the line of travel of the fabric or with the presser-foot. After it has been so turned the set-screws C^2 and H^5 are turned to respectively
 40 clamp the attachment to the work-plate and to secure the horizontal arm H^3 in the presser-foot. When it is desired to make serge stitching, for example, the fabric is folded, as shown in Figs. 11 to 13, inclusive, and
 45 placed under the presser-foot in the ordinary way. The fabric-guide, which is open during the preliminary folding, is closed and the machine is started. As the fabric is fed forward, the guide enables the operator to make
 50 the fold to a better advantage than he could without such assistance. The fabric is fed across the work-plate in the usual manner. The operation of the needle and pusher-bar is as follows: It is assumed that the needle
 55 is in an elevated position and that the pusher-bar is retracted, as shown in Figs. 13 and 14. The needle descends and passes through the bight of the cloth and the edge beneath the same. On the return stroke of the needle-bar through the intervening mechanism the
 60 pusher-bar is advanced and forces the cloth from beneath the needle and the latter descending on the succeeding stroke passes through the bifurcated end of the pusher-bar
 65 outside of the cloth. These two operations are respectively repeated alternately. It is obvious that the attachment is adapted to

other forms and patterns of stitching, depending on the way in which the fabric is folded and the way it is fed through the machine. 70

Having thus described the invention, what we claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine attachment, a base 75 provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway of the standard and adapted to be reciprocated by 80 the needle-bar of a sewing-machine, means for limiting the movement of said slide-bar, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, and a pawl carried by said slide-bar for ro- 85 tating said gear.

2. In a sewing-machine attachment, a base provided with a horizontal guideway, a pusher-bar movable in said horizontal guideway, a standard mounted on said base provided with 90 a vertical guideway, a slide-bar movable in said vertical guideway and adapted to be reciprocated by the needle-bar of a sewing-machine and provided with a vertical slot, a pin projecting from said standard and registering 95 with said slot to limit the vertical movement of said slide-bar, a spring pressing said slide-bar downward, and mechanism for conveying motion from said slide-bar to said pusher-bar for reciprocating the latter. 100

3. In a sewing-machine attachment, a base provided with a horizontal guideway, a pusher-bar movable in said horizontal guideway, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, 105 a standard mounted on said base provided with a vertical guideway, a slide-bar movable in said vertical guideway and adapted to be reciprocated by the needle-bar of a sewing-machine and having a vertical slot, a pin pro- 110 jecting from said standard into said slot for limiting the vertical movement of said slide-bar, a spring pressing said slide-bar downward, and a pawl carried by said slide-bar adapted to engage with said gear to rotate the 115 same.

4. In a sewing-machine attachment, a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with 120 a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging directly with said pusher-bar for positively moving the same in 125 both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

5. In a sewing-machine attachment, a base provided with a guideway, a pusher-bar mov- 130 able back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be recip-

roated by the needle-bar of a sewing-machine, extensions carried by said pusher-bar, a cam mounted between said extensions and adapted to bear on one or the other for positively moving said pusher-bar in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

6. In a sewing-machine attachment, a pusher-bar movable back and forth, a cam engaging directly with said pusher-bar for positively moving the same in both directions, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar and adapted to engage with said gear to rotate the same.

7. In a sewing-machine attachment, a base provided with a recess, a screw-threaded rod placed in said recess and provided with a collar, at its inner end, a clamping-screw passing through said collar, a thumb-nut turned on said rod and having a journal, and a bearing carried by said base for said journal.

8. In a sewing-machine attachment, a base, a bearing carried by said base, a thumb-nut journaled in said bearing, a clamping-screw adapted to be turned into a work-plate, and a screw-threaded rod engaging with said clamping-screw and engaged by said thumb-nut.

9. In a sewing-machine attachment, a base provided with a recess, a plate hinged to said base and having a bearing, a thumb-nut journaled in said bearing, a screw-threaded rod placed within said recess having a collar at its inner end and engaged by said thumb-nut, and a clamping-screw passing through said collar.

10. In a sewing-machine attachment, a base, a plate attached to said base provided with a bearing and having a notch in its edge adjacent to said bearing, a thumb-nut journaled in said bearing and provided with notches in its periphery adapted to register with said notch in the plate when the thumb-nut is turned, a clamping-screw, and a screw-threaded rod connected with said clamping-screw and engaged by said thumb-nut.

11. In a sewing-machine attachment, the combination of a presser-foot having a transverse horizontal opening, the base of an attachment provided with a vertical opening, an angular rod having one of its members placed in the opening in the presser-foot and the other member inserted in the vertical opening in the base and adapted to be moved up and down therein, and means for securing said rod in the presser-foot.

12. In a sewing-machine attachment, a base, a guide consisting of two members hinged together and adjustably attached to said base, a pintle for the hinge connection between said members made fast to one of the same and having flat portions, and a spring carried by the other of said members and adapted to bear on the flat portions of said pintle.

13. In a sewing-machine attachment, a

pusher-bar movable back and forth, a spring normally pressing said pusher-bar in one direction, a cam for moving said pusher-bar in both directions and against the action of said spring, and means for rotating said cam.

14. In a sewing-machine attachment, a pusher-bar movable back and forth, a spring normally pressing said pusher-bar in one direction, a cam engaging directly with said pusher-bar for positively moving the same in both directions and against the action of said spring, and means for rotating said cam.

15. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess for limiting the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam engaging with said pusher-bar for moving the same in both directions and against the action of said spring, and means for rotating said cam.

16. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a cam for moving said pusher-bar in both directions, and means for rotating said cam.

17. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam engaging with said pusher-bar for positively moving the same in both directions and against the action of said spring, and means for rotating said cam.

18. In a sewing-machine attachment, a pusher-bar movable back and forth, extensions carried by said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam mounted between said extensions for positively moving said pusher-bar in both directions and against the action of said spring, and means for rotating said cam.

19. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, extensions carried by said pusher-bar, a cam mounted between said extensions for positively moving said pusher-bar in both directions, and means for rotating said cam.

20. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, extensions carried by said pusher-bar, a cam mounted between said extensions for positively moving said pusher-bar in both directions and against the action of said spring, and means for rotating said cam.

21. In a sewing-machine attachment, a pusher-bar movable back and forth, a spring

normally pressing said pusher-bar in one direction, a cam for reciprocating said pusher-bar in both directions and against the action of said spring, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar and adapted to engage with said gear to rotate the same.

22. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a cam for reciprocating said pusher-bar in both directions, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar adapted to engage with said gear to rotate the same.

23. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam for reciprocating said pusher-bar in both directions and against the action of said spring, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar adapted to engage with said gear to rotate the same.

24. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, extensions carried by said pusher-bar, a cam mounted between said extensions adapted to bear on one or the other for positively moving said pusher-bar in both directions and against the action of said spring, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar and adapted to engage with said gear to rotate the same.

25. In a sewing-machine a presser-foot in

combination with an attachment having a base provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, means for limiting the movement of said slide-bar, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

26. In a sewing-machine a presser-foot in combination with an attachment having a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging directly with said pusher-bar for positively moving the same in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

27. In a sewing-machine a presser-foot in combination with an attachment having a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, extensions carried by said pusher-bar, a cam mounted between said extensions and adapted to bear on one or the other for positively moving said pusher-bar in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

THOMAS H. ROSS.
EDWIN DONALDSON.

Witnesses:

T. F. FAY,
ADELAIDE MARSHALL.