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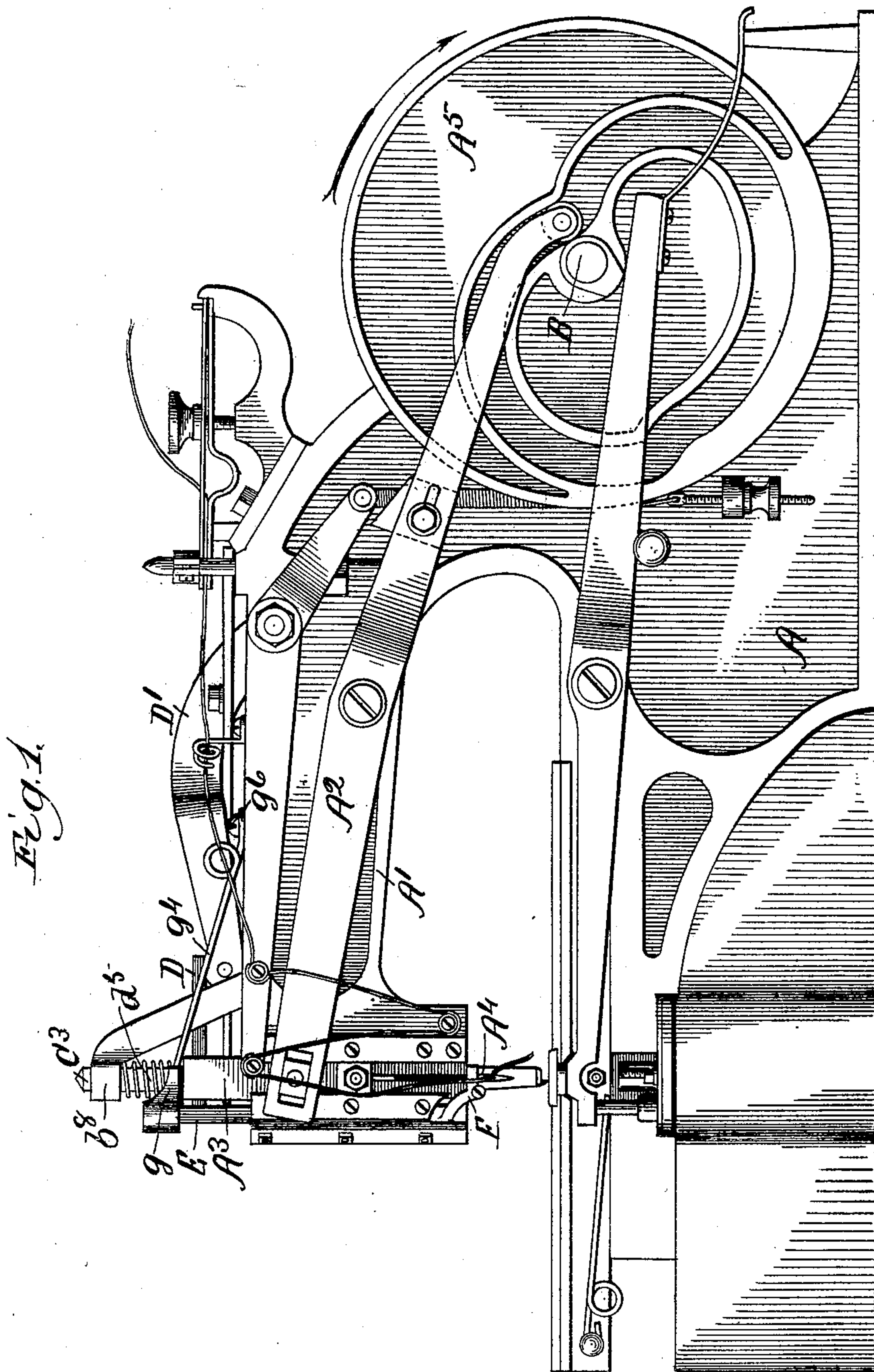
Patented Oct. 4, 1898.

J. B. DOBYNE.
SEWING MACHINE.

(Application filed May 15, 1895.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses:
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Lute F. Alter.

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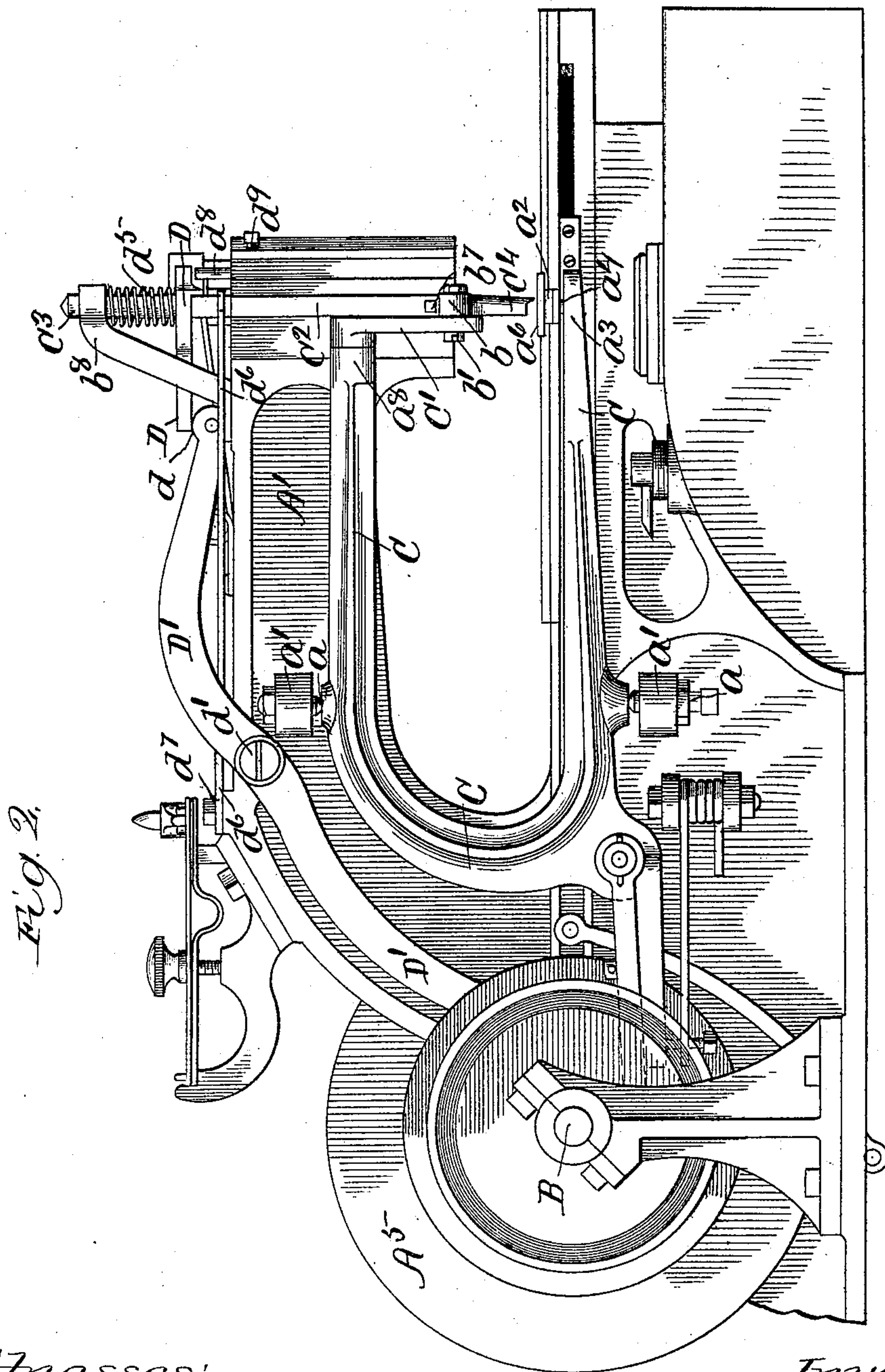
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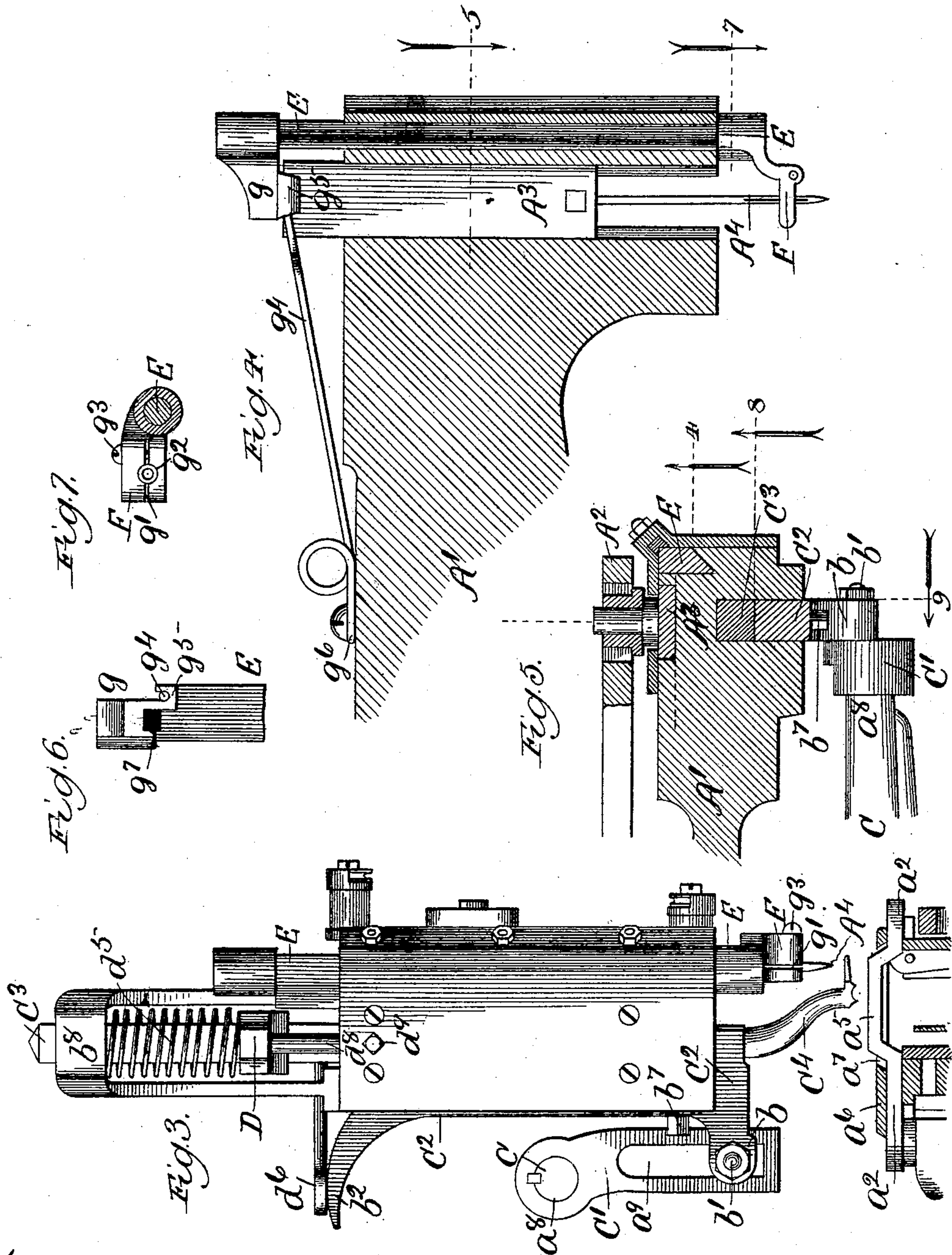
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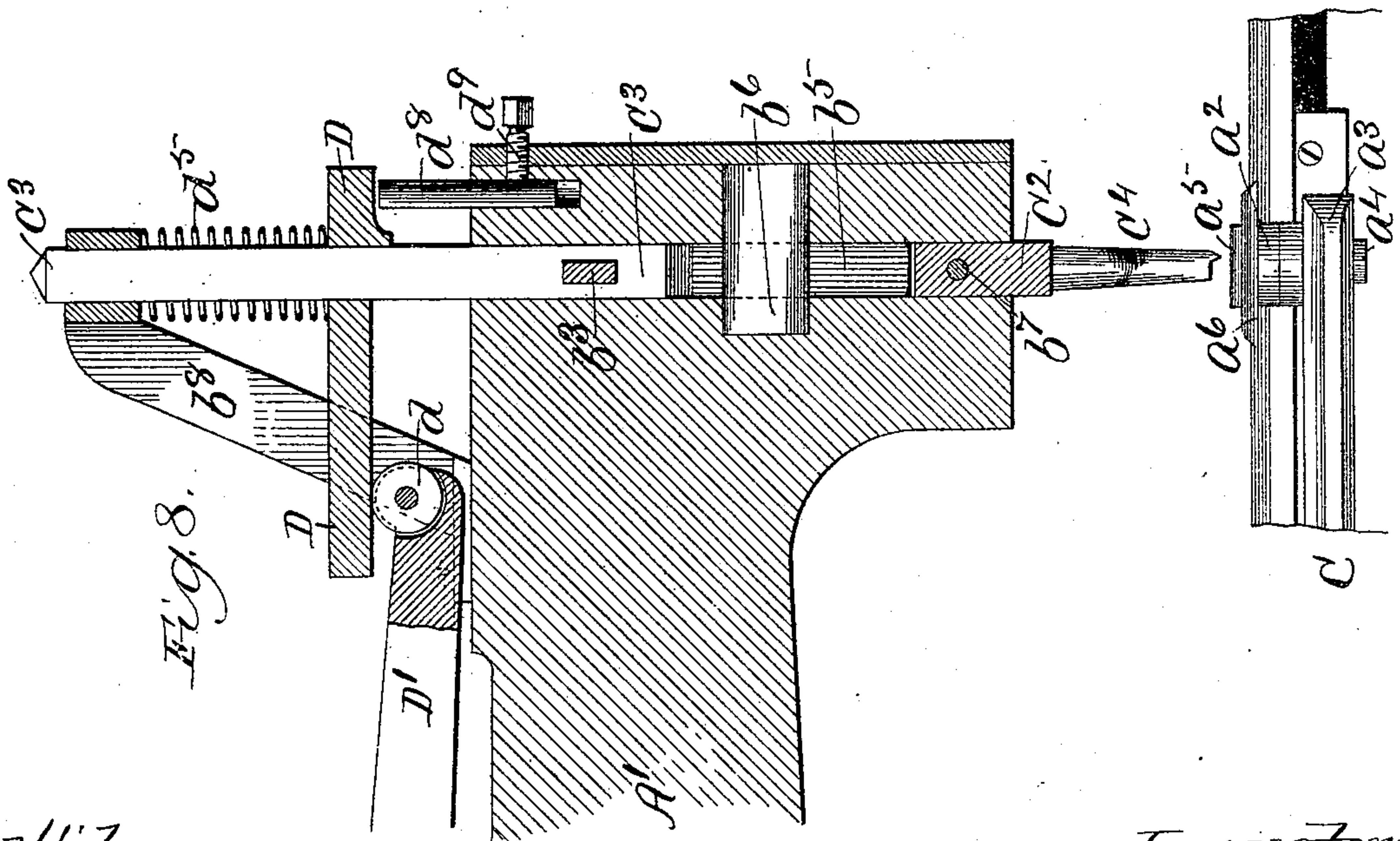
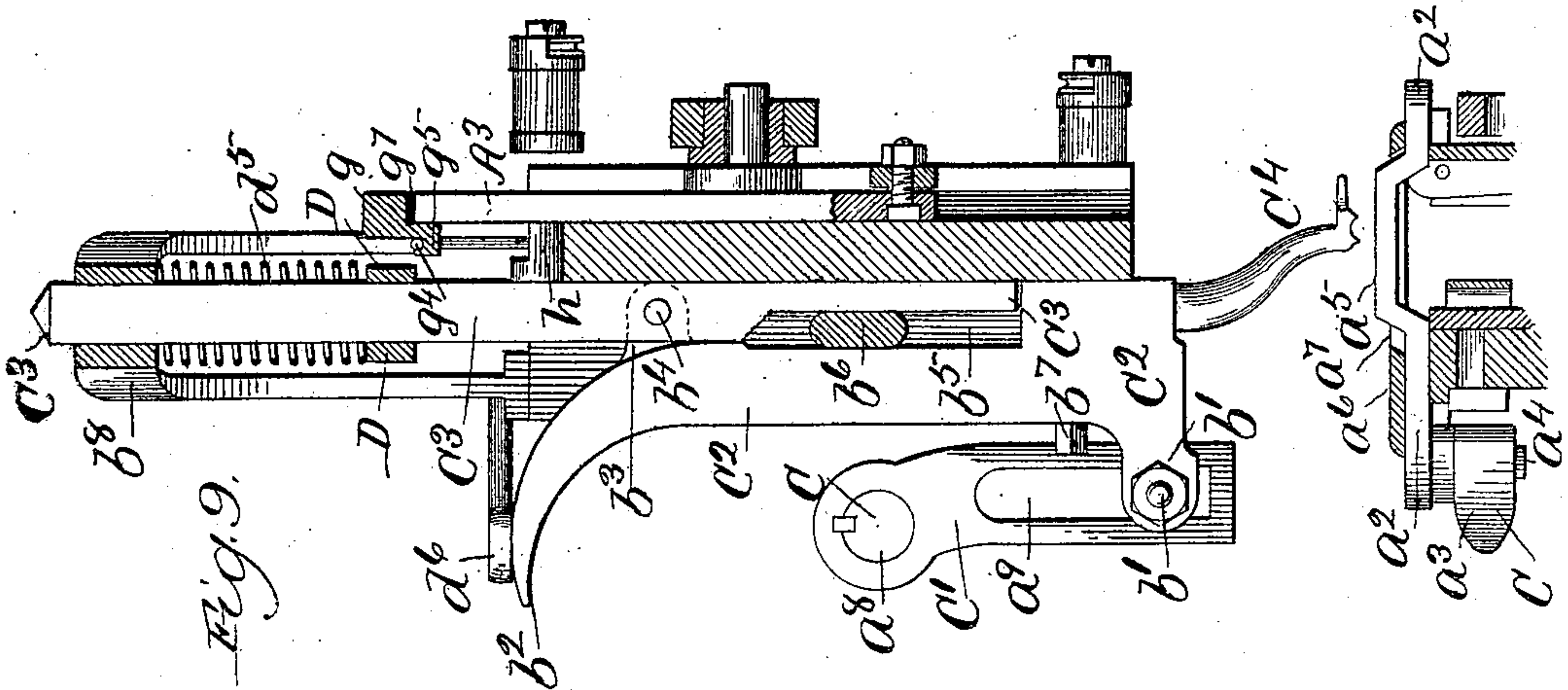
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5 Sheets—Sheet 4.



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No. 611,896.

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Fig. 10.

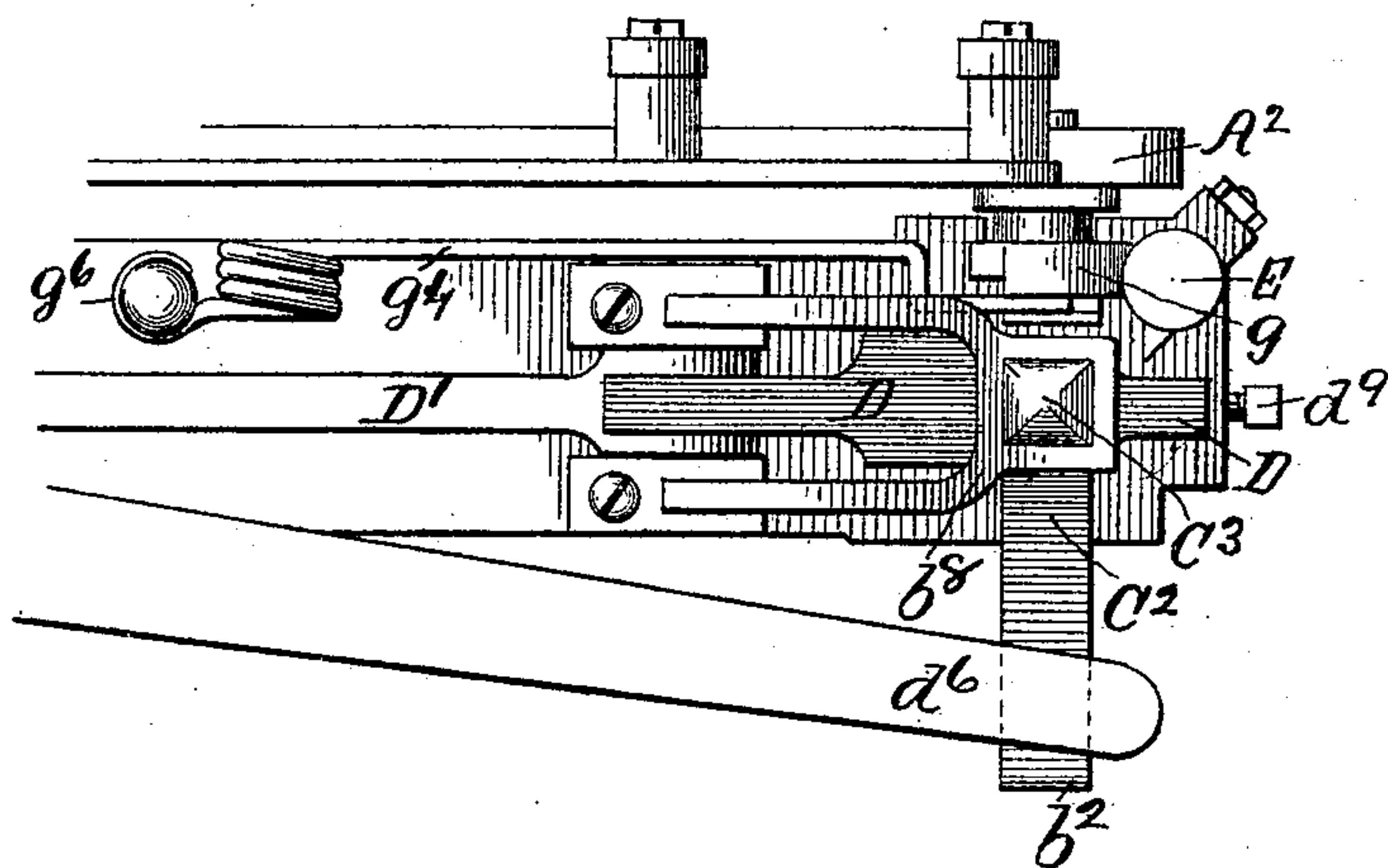
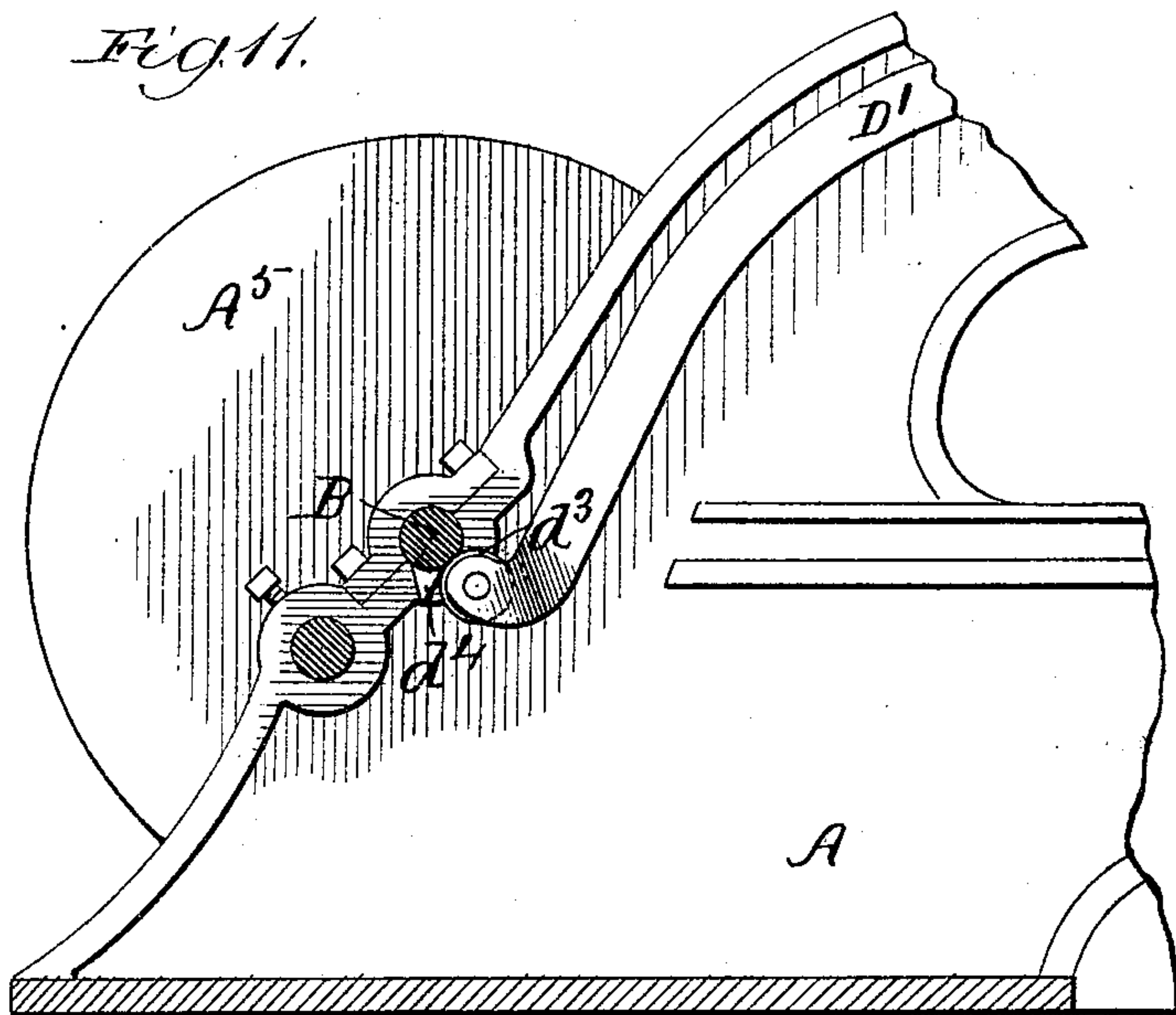


Fig. 11.



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UNITED STATES PATENT OFFICE.

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WAX THREAD SEWING MACHINE COMPANY, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 611,896, dated October 4, 1898.

Application filed May 15, 1895. Serial No. 549,371. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. DOBYNE, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Sewing-Machines; 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 appertains to make and use the same.

This invention relates to the general construction; arrangement, and operation of the feed-lever, the different parts comprising the working head of the machine, and the mechanism and connections for actuating such parts, as will be hereinafter set forth.

In the drawings, Figure 1 is a front elevation of a machine embodying my improved features; Fig. 2, a rear elevation; Fig. 3, a front end elevation of the head of the machine; Fig. 4, a broken-away part elevation and part section on line 4, Fig. 5, looking in the direction indicated by the arrow; Fig. 5, a plan section on line 5, Fig. 4; Fig. 6, a broken-away detail of the upper end of a needle-guide bar, showing the spring for returning the same to its normal position; Fig. 7, a plan section on line 7, Fig. 4, showing the structure of the needle-guide in detail; Fig. 8, a sectional elevation on line 8; Fig. 9, a sectional end elevation on line 9, Fig. 5; Fig. 10, a broken-away plan of the head end of the machine; and Fig. 11, a broken-away part elevation and part section of the rear end of the machine, looking from the back side, showing in detail the means for raising this end of the presser-foot lever.

A is the supporting-base; A', the stationary overhanging arm; A², the needle-lever; A³, the needle-bar; A⁴, the needle; A⁵, the combined needle-cam and fly-wheel, and B the driving-shaft.

The forked or bifurcated feed-lever C is located at the back side of the machine and is adapted to have a vibratory action in a horizontal plane on pivot-bolts *a a*, adjustably inserted in lugs *a' a'*, formed on the machine.

The back end of the lower feed-dog *a*², Figs. 3 and 9, is connected to the lower fork end or member *a*³ of the feed-lever by means of a pin *a*⁴, loosely inserted therein. This feed-

dog is provided with a raised part *a*⁵, extending above the surface of the work-plate *a*⁶, which is provided with the opening *a*⁷ and is rigidly fastened to the top of the base.

On the upper front fork end or member *a*⁸ of the feed-lever is mounted a link or rigid arm C', extending downwardly therefrom, Figs. 3, 5, and 9, and is provided with a slot *a*⁹. The presser-foot bar C² is provided on the lower end with a rear extension or lug *b*, stopping on a line with slot *a*⁹. A bolt *b*¹ is loosely inserted in the slot in link C' and passes through the lug extension *b* of the bar C². This provides for the slight lateral or vibratory movement of the presser-foot bar coincident with that of the feed-lever, and the slot feature allows for the vertical movement in accordance with the thickness of the work.

The upper end of the presser-foot bar terminates in the lateral extension *b*² and is provided on its inner edge below this point with a lug *b*³, connected to a presser-foot guide-bar C³, Fig. 9, by a pivot-pin *b*⁴, on which the presser-foot bar has a slight rocking action in its working movement. The guide-bar C³ is cut away on the side adjacent to the presser-foot bar and below its pivotal connection therewith, so as to provide a space *b*⁵.

A guide-rib *b*⁶, Figs. 8 and 9, is rigidly inserted in the head end of the overhanging arm between the presser-foot bar and the guide-bar in space *b*⁵, and which assists in retaining these parts in their proper relative position and holds the guide-bar in a true vertical position in its guideway.

The presser-foot or upper feed-dog C⁴ is removably retained in its bar by a set-screw *b*⁷.

The guide-bar C³ is square in cross-section and extends above the head of the machine, the upper end being retained in position by a guide-bracket *b*⁸, bolted to the top of the overhanging arm. A lifting-dog D, having a square aperture in the front end thereof to correspond to and fit the guide-bar, is loosely mounted thereon. The rear end of the lifting-dog rests loosely on a friction-roller *d*, journaled in the front end of a vibrating lifting-lever D'. This lever is provided with a pivotal bearing *d*¹, Fig. 2, and runs downwardly from this point to the main driving-

shaft and has a friction-roller d^3 , Fig. 11, jour-
naled in the rear end thereof. The driving-
shaft is provided at this point with a cam
projection d^4 , that comes in contact with roller
5 d^3 once in each revolution, depressing this
end of lever D' and raising the opposite end,
which in turn raises the end of the lifting-
dog D resting thereon. Raising this end of
the dog at an angle from its horizontal posi-
10 tion causes the opposite end with its square
aperture to clamp and raise the guide-bar C^3 ,
which carries the presser-foot bar with it.
When the cam projection has passed out of con-
tact with the lever D' , the spring d^5 , coiled on
15 the guide-bar and bearing on the dog D , forces
the same downwardly to its normal position,
and with it this end of lever D' , and throws
the opposite end back in the pathway of the
cam to receive the contact thereof for the
20 next movement. The guide-bar and presser-
foot bar are returned downward by a flat
spring d^6 , the rear end of which is bolted on
top of the overhanging arm, as at d^7 , Fig. 2,
and the front depressing end bearing on the
25 extension b^2 of the presser-foot bar. A stop
 d^8 , Fig. 8, is located just under the front end
of the guide-bar dog D and is adjustable with
reference thereto by a set-screw d^9 . On the
down movement the contact of the dog with
30 this stop causes it to release its grip on the
guide-bar at the proper time.

A needle-guide bar E is located just in ad-
vance of the needle-bar A^4 and is adapted to
have a vertical movement, so that the guide
35 will follow the movement of the needle. This
needle-guide bar has an arm g mounted on
the upper end thereof, which extends across
the upper end of and in the pathway of the
needle-bar. On the lower end of the guide-
40 bar E is mounted a needle-guide foot F , pro-
vided with a split g' , Figs. 3, 4, and 7, for the
removable insertion of a sleeve or bushing g^2 ,
through which the needle plays.

The screw g^3 provides for the adjustment
45 of the split end in changing sleeves of differ-
ent sizes in accordance with needles of dif-
ferent diameters.

An up movement is imparted to the needle-
guide bar by the upper end of the needle-bar
50 coming in contact with the arm g and the
down movement by a spring g^4 , one end of
which rests in a lug g^5 , Figs. 4 and 6, formed
on the arm g , the opposite tension end being
secured on the overhanging arm, as at g^6 .
55 This arrangement provides a close-fitting
needle-guide and causes the same to follow
the movement of the needle, and thereby
greatly lessening the liability of the needle
to bend or break.

60 A rubber buffer g^7 , Figs. 6 and 9, is inserted
in the under side of arm g and lessens the
contact shock of the needle-bar.

The downward movement of the needle-
guide bar is arrested by a stud h , Fig. 9, pro-
65 jecting from the presser-foot guide-bar C^3 , the
lug g^5 of the arm g coming in contact there-
with and resting thereon until the needle-bar

returns on the up movement. This prevents
the needle-guide bar from descending too far;
otherwise the guide would come in contact 70
with the presser-foot.

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

1. In a sewing-machine, the combination 75
with a forked feed-lever, having a vibratory
action in a horizontal plane, of a lower feed-
dog, secured to the lower member of said le-
ver and a presser-foot bar, carrying the up-
per feed-dog or presser-foot and secured to 80
the upper member of said lever, whereby a
positive movement is imparted to said feed
devices simultaneously, substantially as de-
scribed.

2. In a sewing-machine, the combination 85
with a feed-lever, and means for actuating
the same, of a slotted link, mounted on the
upper front end of said lever, a presser-foot
bar, having a movable connection with said
slotted link, a guide-bar, to which the presser- 90
foot bar is pivoted, and means for imparting
a vertical movement to said presser-foot bar
and guide-bar simultaneously, substantially
as described.

3. In a sewing-machine, the combination 95
with a presser-foot bar, of a guide-bar, to
which the presser-foot bar is pivoted, a lift-
ing-dog, loosely mounted on the upper end
of the guide-bar, a vibrating lifting-lever, the
front end whereof has frictional contact with 100
said lifting-dog, the driving-shaft, provided
with a cam projection adapted to have an in-
termittent contact with and depress the rear
end of said lever, and a spring, imparting a
downward movement to said presser-foot bar 105
and guide-bar when the lifting pressure of
the said vibrating lever is relaxed, substan-
tially as described.

4. In a sewing-machine, a forked feed-lever
and means for vibrating the same horizon- 110
tally, the feed-dog connected to the lower
member of said lever, and the presser-foot
having linked connection to the upper mem-
ber of said lever, and means for lifting said
presser-foot, all combined substantially as 115
described.

5. In a sewing-machine, the combination
with a forked feed-lever, and means for vibrat-
ing the same in a horizontal plane, of a feed-
dog, attached to the lower member thereof, a 120
slotted link, mounted on the upper member,
a presser-foot bar, connecting at its lower end
with said link, a guide-bar to which said
presser-foot bar is pivoted, a spring-pressed
lifting-dog, loosely mounted on said guide- 125
bar, a vibrating lifting-lever, the front end
of which has frictional contact with the under
side and rear end of said lifting-dog, the
driving-shaft, provided with a cam projection
adapted to have an intermittent contact with 130
and depress the rear end of said lever, and a
spring, bearing on and imparting a downward
movement to the presser-foot bar, substan-
tially as described.

6. In a sewing-machine, the presser-foot above the work-table and means for reciprocating the same vertically, the feed-dog below the work-table and means for reciprocating the same horizontally, and mechanism substantially as described connecting the feed-dog and presser-foot, and serving to actuate said presser-foot in horizontal direction, all combined substantially as described.

7. In a sewing-machine, the vertically-movable guide-bar and presser-foot yieldingly connected thereto, the clamping-dog embracing said guide-bar, the operating-lever engaging said dog at one side of the bar, to cramp and lift it, and the spring engaging said dog to depress it, all combined substantially as described.

8. In a sewing-machine, the reciprocating needle-bar, the needle-guide bar in advance of the needle-bar and having an arm in the

path of movement of the needle-bar, and the needle-guide foot at the lower end of said needle-guide bar, having adjustable sleeve through which the needle plays, all combined substantially as described.

9. In a sewing-machine, the vertically-reciprocating needle-bar, the vertically-movable needle-guide bar actuated in one direction by the needle-bar and in the other by a spring, and supporting the needle as described, and the presser-foot guide having a stop for the needle-guide bar, all combined with suitable driving mechanism, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES B. DOBYNE.

Witnesses:

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