

(No Model.)

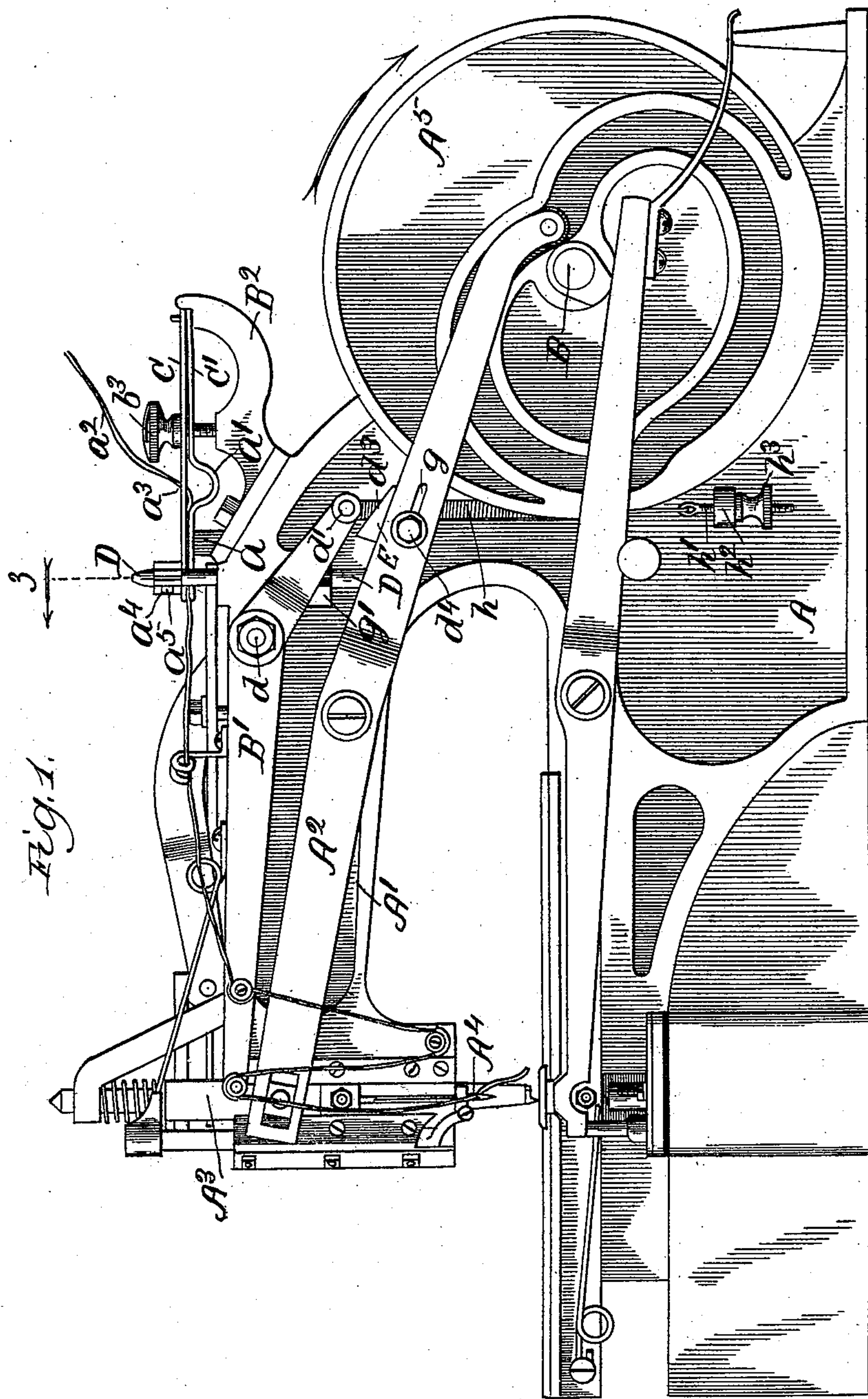
2 Sheets—Sheet 1.

J. B. DOBYNE.

# TENSION DEVICE FOR SEWING MACHINES.

No. 564,557.

Patented July 21, 1896.



Witnesses:  
E. S. Chayford,  
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Attys

(No Model.)

2 Sheets—Sheet 2.

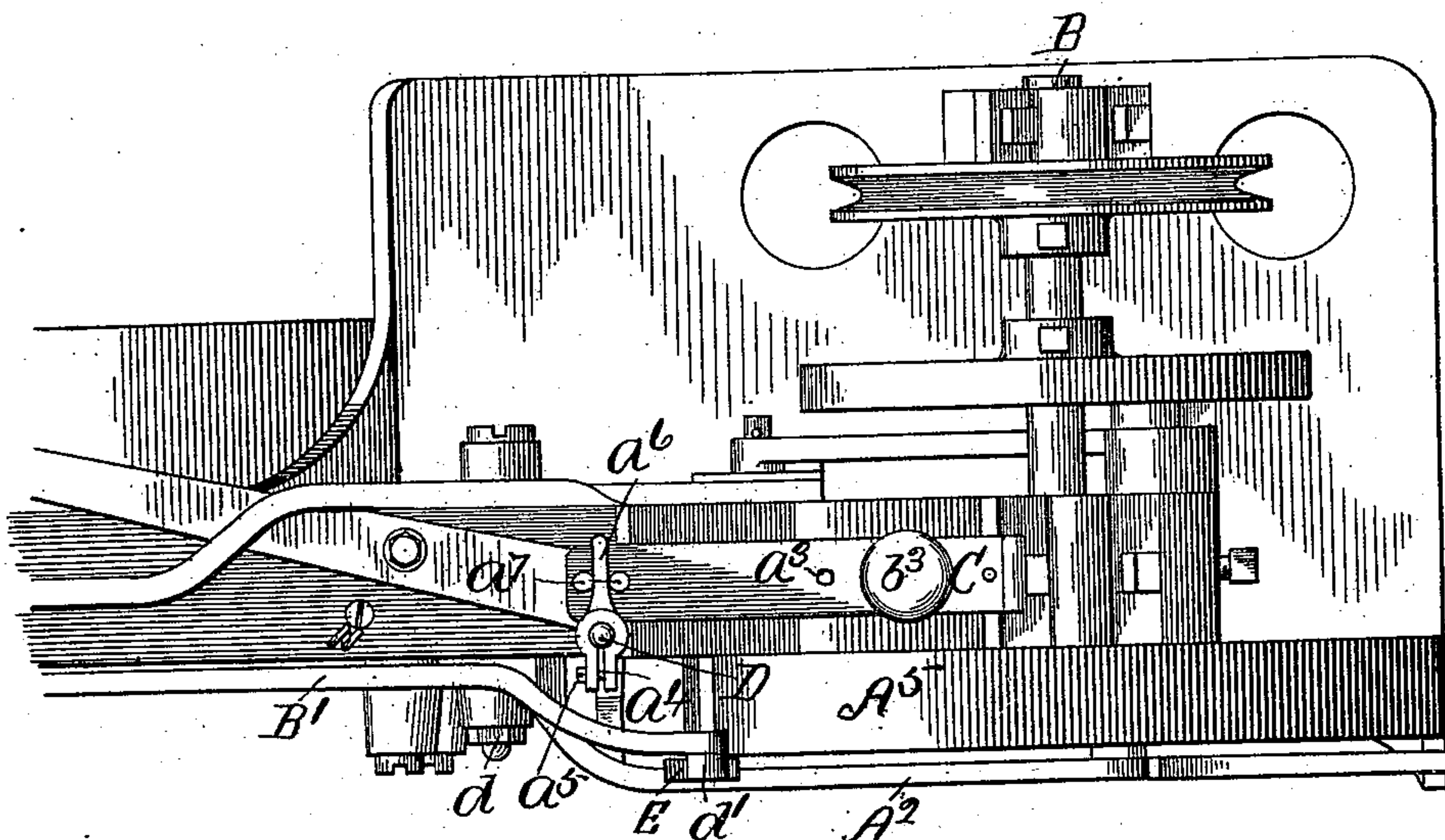
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# TENSION DEVICE FOR SEWING MACHINES.

No. 564,557

Patented July 21, 1896.

Fig. 2.



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# UNITED STATES PATENT OFFICE.

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WAX THREAD SEWING MACHINE COMPANY, OF SAME PLACE.

## TENSION DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 564,557, dated July 21, 1896.

Application filed May 15, 1895. Serial No. 549,369. (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 Tension Devices for 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 a tension-lock attachment and means for regulating the movement or throw of the tension-lever, and has for its object to provide improvements of this character that will greatly facilitate the operation of these parts.

In the drawings, Figure 1 is a front elevation of a machine embodying my improved features; Fig. 2, a broken-away plan; and Fig. 3, a broken-away part elevation and part section on line 3, Fig. 1, looking in the direction indicated by the arrow.

A represents the supporting-base; A', the stationary overhanging arm; A<sup>2</sup>, the needle-lever; A<sup>3</sup>, the needle-bar; A<sup>4</sup>, the needle; A<sup>5</sup>, the combined needle-cam and fly-wheel; B, the driving-shaft, and B', the take-up lever.

A bracket B<sup>2</sup> is bolted on the shoulder of the overhanging arm. On the outer end of this bracket are supported the corresponding ends of a double-plate tension-spring consisting of the upper member or leaf C and the lower member C'. The inner end of the spring-supporting bracket is provided with a fulcrum-post *a*, on which the springs bear at this point, their inner ends extending beyond this bearing-point, as shown in Fig. 1. The under spring member is provided with the bowed part *a'*, for the purpose of increasing the resilience thereof and incidentally to conveniently permit of the insertion of the thread *a*<sup>2</sup> through an aperture *a*<sup>3</sup> in the upper spring member.

A slide or draw rod D has a vertical position back of the take-up lever and needle-lever. On the upper end of this rod is mounted an open collar *a*<sup>4</sup>, adjustably clamped thereon by means of a screw *a*<sup>5</sup>. This collar is provided with a horizontal finger projection *a*<sup>6</sup>, extending across, Figs. 2 and 3, the top of the inner ends of the springs and bearing thereon

at a point in advance of the fulcrum-post *a*. The pins *a*<sup>7</sup> prevent the compressing-finger from having a lateral movement. On the lower end of rod D is adjustably mounted a collar *b*, having a lug *b*<sup>1</sup>, Fig. 3, projecting toward the needle-lever. A corresponding lug *b*<sup>2</sup> is formed on the needle-lever and is adapted to have an intermittent contact with lug *b*<sup>1</sup> through the vibratory action of said lever, as will be explained farther along.

It will be noted that the rod D hangs loosely in position, being suspended from the finger projection *a*<sup>6</sup>, bearing on the tension-spring members, and is so adjusted that the lug on the needle-lever, on the down movement, comes in contact with the lug on rod D and forces the same downward, which has the effect of bending down the inner ends of the tension-spring members and clamping or locking the thread therebetween at the proper time with reference to the movement of the needle and the take-up lever so as to always insure an even pull-in for every stitch.

The contact of the lugs on the lower end of rod D and the needle-lever is of but short duration, and is regulated by the adjusting-collars and timed with reference to the movement of the cooperating parts.

When the pressure of the lug on the needle-lever is relaxed, the rod D is raised to its normal position by the tension-spring, the down movement bending it over its fulcrum-post. The tension of the double spring is regulated by a thumb-screw *b*<sup>3</sup>, inserted down through the springs and having a threaded engagement in the bracket-support.

The take-up lever B' is provided with a pivot-bearing *d*, and has a friction-roller *d*<sup>1</sup> mounted on the rear end thereof. To the vibrating needle-lever, just under this end of the take-up lever, is secured a lifting-plate *e*, having its contacting edge beveled, as at *d*<sup>3</sup>. The plate is adjustably secured to the needle-lever by a clamping-bolt *d*<sup>4</sup>, inserted through a slot *g* in said lever, so that the contact with the take-up lever may be earlier or later, as the nature of the work requires. The downward movement of the rear end of the take-up lever is arrested by a stop *g*<sup>1</sup>, so that the lifting-plate and take-up lever do not have a continuous contact; but when in the position



illustrated in Fig. 1 they are separated by a considerable space, the needle being at about its highest point. As the needle enters the work the lifting-plate is set to come in contact with and raise the rear end of the take-up lever against the action of its spring and causes a corresponding downward movement of the front end thereof.

To the rear end of the take-up lever is connected one end of a spring  $h$ , the lower end of which is connected with an adjusting-screw  $h'$ , inserted loosely down through a lug  $h^2$ , and has an adjusting-nut  $h^3$  threaded on the lower end thereof. This spring returns the lever to its normal position and provides for a tension adjustment with reference to the weight of the thread.

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

1. In a sewing-machine, the flat-plate tension-spring, the slide-rod supported on the frame and having an adjustable bearing-piece

engaging said spring, and an adjustable piece in position for engagement by the needle-lever, all combined substantially as described. 25

2. The plate-tension spring supported on a bracket on the machine-arm as described, a vertical rod having a collar held thereon by a set-screw, said collar having a finger projection extending across the upper spring at one side of the fulcrum thereof, pins extending from said spring and retaining the said finger against lateral displacement, and a collar adjustably mounted on said vertical rod, said collar having a lug projecting toward the needle-lever and in position to be engaged thereby as said lever vibrates, all combined substantially as described. 30 35

In testimony whereof I affix my signature in presence of two witnesses. 40

JAMES B. DOBYNE.

Witnesses:

L. M. FREEMAN,  
L. B. COUPLAND.