

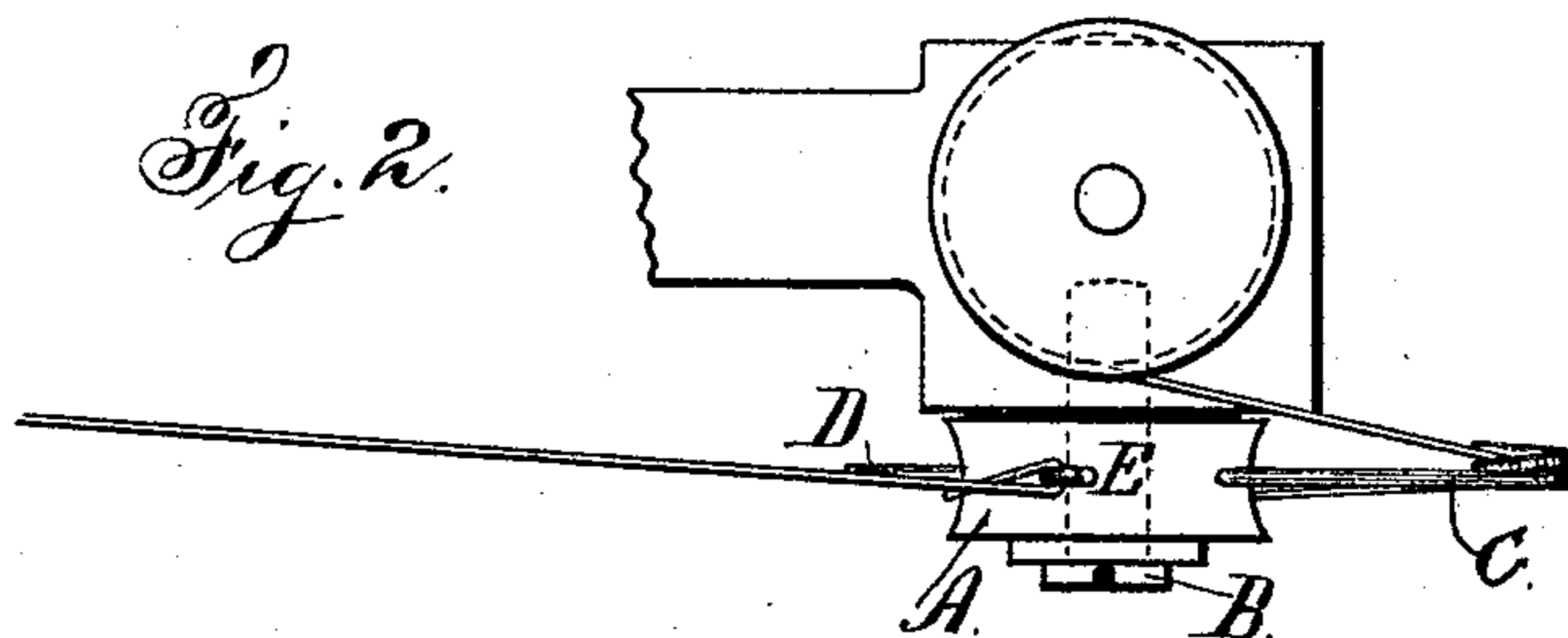
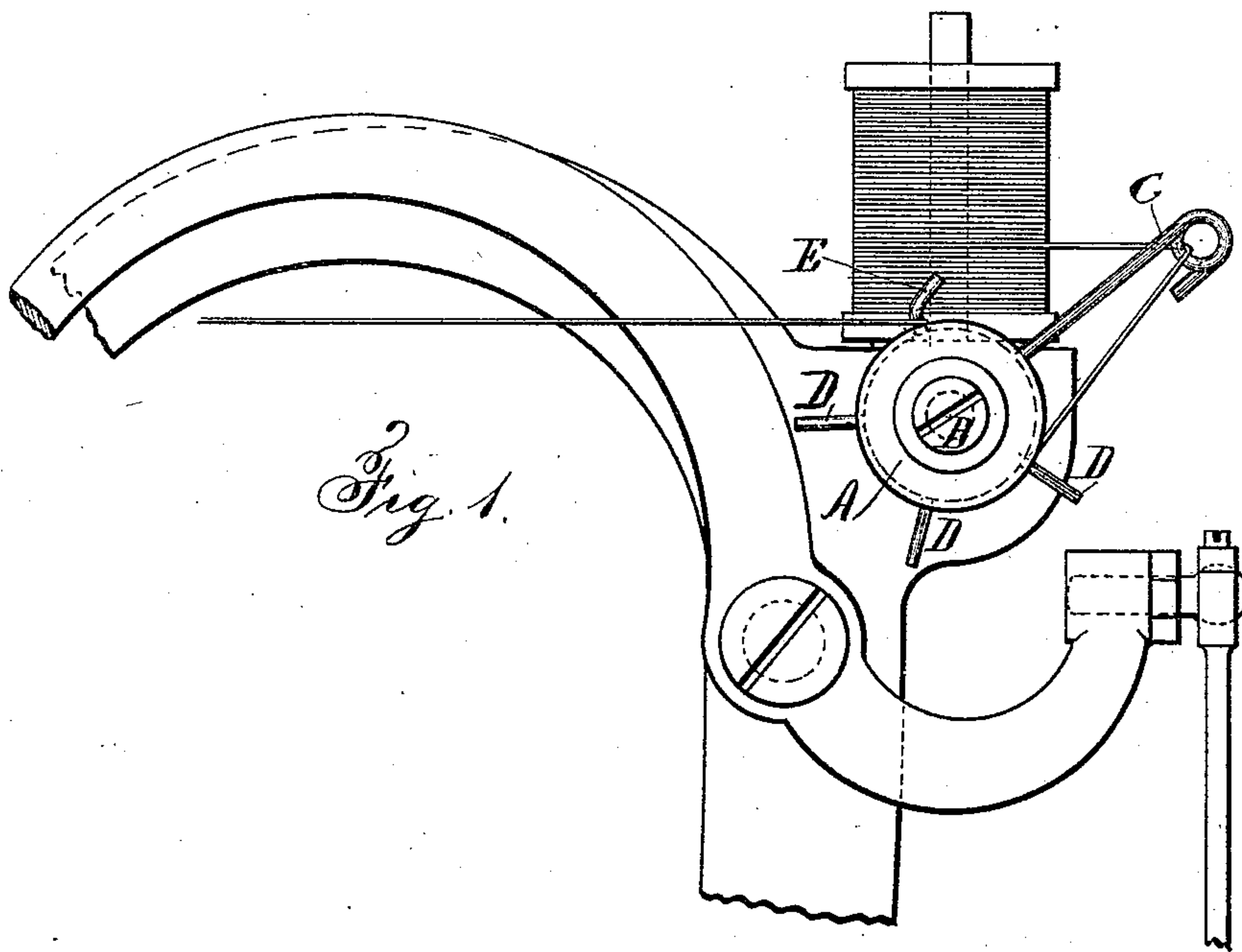
(No Model.)

G. H. FOUNTAIN.

THREAD TENSION DEVICE FOR SEWING MACHINES.

No. 437,430.

Patented Sept. 30, 1890.



Witnesses
Harold Serrell
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UNITED STATES PATENT OFFICE.

GEORGE H. FOUNTAIN, OF PLAINFIELD, NEW JERSEY.

THREAD-TENSION DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 437,430, dated September 30, 1890.

Application filed March 3, 1890. Serial No. 342,464. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. FOUNTAIN, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Thread-Tensions for Sewing-Machines, of which the following is a specification.

Tension devices have been made for sewing-machines in which the thread passes through holes, and according to the number of holes through which the thread may be passed so the tension will be greater or less, and in other instances the thread has passed around projections; but it is difficult to adjust the tension, and in those automatic tension devices in which the thread is alternately clamped and released the tension is not well adapted to different sizes of thread, and the thread becomes flattened and does not work well in the sewing mechanism, and such tension devices are not easily regulated or managed by the ordinary operator.

The present tension device is especially adapted to ordinary sewing-machines, in which the thread has heretofore been passed through between friction-plates, as my tension device can be substituted for such friction-plates, the ordinary attaching screw or pin being available for my tension mechanism, or such improved tension device can be applied at any desired part of a sewing-machine and attached by suitable means. I make use of a short cylindrical base, through which the screw or other attaching device passes, and projecting from this base is an arm with an eye forming a thread-guide, and the thread is laid in the slightly-grooved periphery of this cylindrical base in a zigzag direction between projecting pins and around an inclined finger, and thence to the ordinary guide-eyes on the needle-bar or other portion of the sewing-machine, and this tension device can be adjusted by partially rotating the cylindrical base upon its attaching-screw to adapt the tension to the peculiarities of the sewing-machine.

In the drawings, Figure 1 is an elevation of my improved tension device, and Fig. 2 is a plan view of the same.

The short cylinder A has a central perforation for the screw B or other device that is used for attaching the cylinder A to the sew-

ing-machine, and, as before mentioned, this screw B may be the usual screw provided for the frictional plates or disks in the ordinary tension, so that my improved tension may be substituted for the frictional or automatic tension.

Projecting from the periphery of the cylinder A is an arm C, having an eye or thread-guide at its outer end, and there are pins or projections D D around the cylinder A and a finger E, set at an inclination to the radial line and approximately parallel to the arm C, and the thread from the spool F passes through the eye at the end of the arm C, is led around the cylinder in a zigzag direction between the respective projections D, and then passes around the finger E, and this finger being at an inclination the loop or bite of thread draws down against the surface of the cylinder A, and by turning the cylinder A upon its screw or attachment in either one direction or the other the angle at which the thread passes around the finger E is varied. When the finger is brought nearer to a vertical line passing centrally through the cylinder A, the angle is less and sharper than it is when the cylinder A is turned so that the finger is brought nearer to a horizontal line passing through the center of the cylinder, and in this manner the tension can be varied according to the angle at which the thread passes around the finger, and in practice I find that after the cylinder A has been properly placed to suit the thread and the other parts of the machine the tension applied to the thread is nearly uniform, and the stitches are drawn up properly, regardless of the size of the thread or the material that is being sewed, and, furthermore, the friction exerted to hold the cylinder A in place by the attaching device is sufficient to prevent the cylinder being turned by the thread itself; but if the operator discovers the tension to be either too much or too little it is only necessary to partially revolve the cylinder A either in one direction or the other by hand, and this can usually be done without loosening the attaching-screw. Hence this tension is well adapted to the ordinary conditions under which the sewing-machine is operated. It will also be apparent that the tension will be varied but little by inequalities in the size of the thread,

because the tension is principally derived from the angle at which the thread passes around the finger instead of being dependent upon any clamping action between yielding
5 surfaces.

I find it preferable to make use of wire for forming the arm C with the eye at the end, the pins D, and the inclined finger, as such wire forms smooth rounded surfaces against which
10 the thread draws without injury.

I claim as my invention—

1. The tension device for sewing-machines, composed of a cylinder A, having an arm and thread-eye, a range of pins or projections
15 around its periphery for the thread to be passed between, and from one of which the thread passes to the needle, and means for attaching the said cylinder to the sewing-machine, and upon which it may be rotated
20 to vary the degree of tension, and by which

means the said cylinder is clamped in place when the required tension is secured, substantially as specified.

2. The tension device for sewing-machines, composed of a cylinder A, having an arm and
25 thread-eye, a pin or projection from which the thread passes to the needle, and means for attaching and firmly clamping the said cylinder to the sewing-machine, and upon which it may be rotated to vary the angle of
30 the pin to the thread which passes around it to the needle and thereby regulate the degree of tension previous to being clamped in place, substantially as specified.

Signed by me this 15th day of February, 35
1890.

GEORGE H. FOUNTAIN.

Witnesses:

FRANK H. GARDNER,
W. F. ARNOLD.