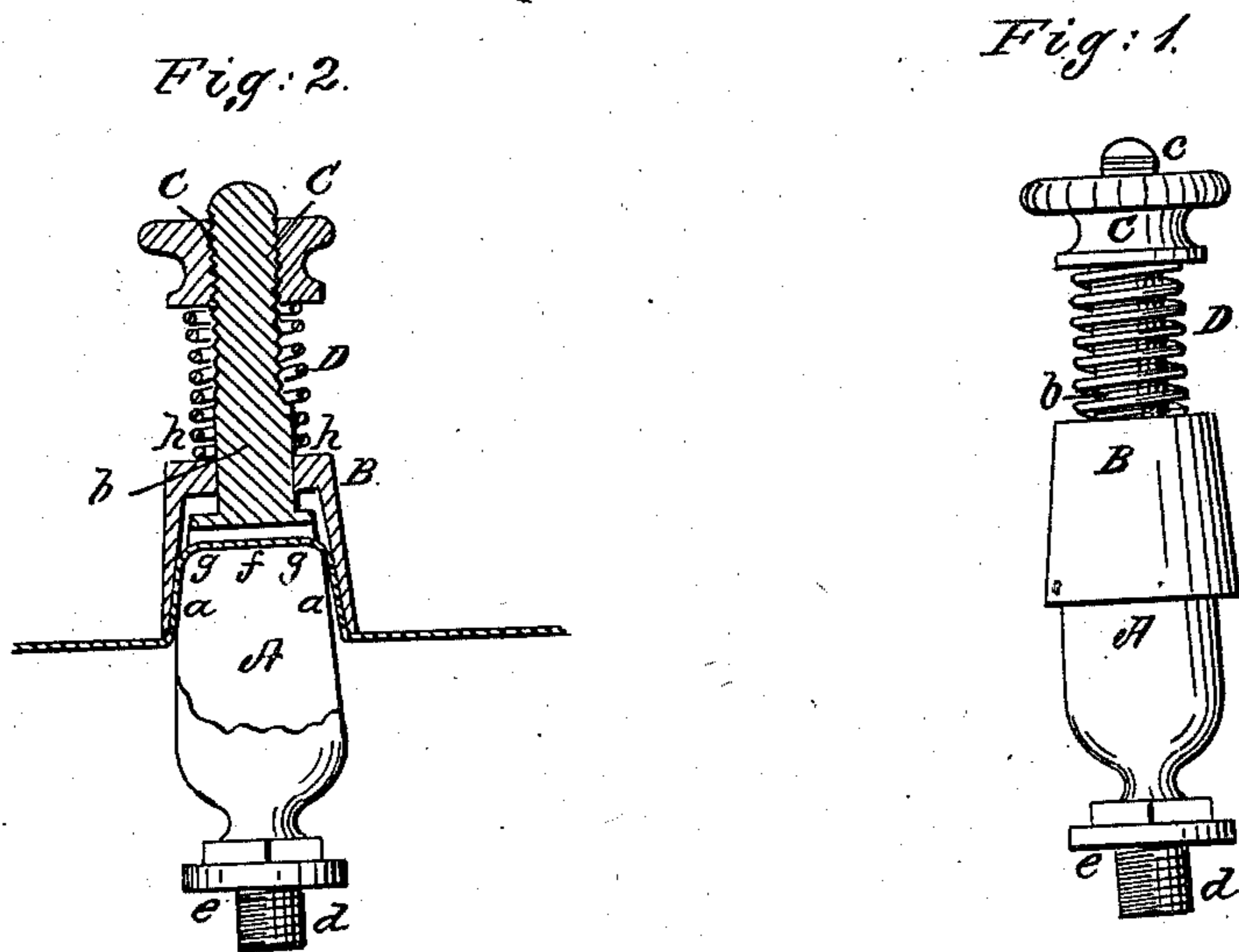


J. T. B. ROGERS.
Tension Device for Sewing Machines.

No. 21,398.

Patented Aug. 31, 1858.



Assigned in full to G. B. Sloan.

UNITED STATES PATENT OFFICE.

JOHN T. B. ROGERS, OF NEW YORK, N. Y., ASSIGNOR TO GEO. B. SLOAT, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN REGULATING THE TENSION OF THE THREAD IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 21,398, dated August 31, 1858.

To all whom it may concern:

Be it known that I, JOHN T. B. ROGERS, of the city, county, and State of New York, have invented a new and Improved Device for Producing Tension on the Needle-Thread in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an outside view of the device, represented on a larger scale than its natural size. Fig. 2 is a central section of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists of two conical surfaces—one which is concave and forms a cap to the other, which is convex—and an adjusting-screw and spring, the whole being combined in the manner substantially as hereinafter described, to produce upon the thread passing between the cones friction, which is sufficiently variable to produce a degree of tension on the thread which can be regulated with extreme delicacy.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A is a pin, made of steel, iron, or other metal, having a portion of its exterior *a a*, Fig. 2, turned truly to a conical shape, and having the portion *b*, next above the said conical portion, turned cylindrically smaller than this said conical portion, and having a screw-thread, C, cut on its upper part, the said conical, cylindrical, and screwed portions all being concentric to a common axis. The lower portion of the pin is also furnished with a screw-thread, *d*, with a shoulder, *e*, above, to enable it to be screwed into any suitable portion of a sewing-machine, or may be otherwise formed so as to provide for securing it to the machine. Through the upper, which is also the smaller, part of the conical portion *a a* of the pin there is drilled transversely a small hole, *f*, the lower edges of whose orifices are rounded, as shown at *g g*, Fig. 2, so that a thread passing through the said hole

may slide easily over the sides of the said conical portion *a a*, below the said hole.

B is a metal cap having its interior turned conically with the same degree of taper as the portion *a a* of the pin A, and having a hole through the center of its crown *h h*, of a size to fit the cylindrical portion *b* of the said pin.

C is a nut fitted to the screw-thread *c*, and D is a spiral spring arranged upon the screw C and cylindrical portion *b* of the pin, between the said nut and the crown of the cap B, the said spring having a tendency to extend itself longitudinally. The exterior surface of the conical portion *a a* of the pin A and interior surface of the cap B are polished or finished smoothly. The needle-thread, on its way from the spool or other device which supplies it to the needle, passes between the interior of the cap B and the conical surface *a a* directly, or nearly so, along the generating lines of the cones, and through the hole *f*, as shown in Fig. 2, where it is shown in red color, and has a pressure produced upon it between the convex surface *a a* and interior of the cap B by the pressure of the spring upon the cap. This pressure produces friction upon the thread as it is drawn between the surfaces by the act of sewing, and this friction produces tension upon the thread passing from under the cap B to the needle. It is obvious that as any movement of the concave surface of the interior of the cap toward the surface *a a* is parallel with the axis of the conical surfaces, the cap has to move a comparatively great distance to make the concave conical surface approach a very little nearer to the convex conical surface, and hence the nut C may be turned very perceptibly to increase the tension and pressure of the spring D, and yet produce a very slight increase of pressure, and hence an extremely easy and delicate adjustment is afforded for the tension on the thread, which renders this device very superior to the contrivances commonly used for the same purpose.

The convex and concave surfaces may be varied from a true conical form, but no variation will be advantageous, as the true cone is

the only form which will permit the uniform approach of the whole length of the surfaces with the adjustment of the cap.

The device may occupy the vertical position represented, or any other position.

I do not claim regulating the tension of the thread by graduated friction thereon, or by causing it to pass over variable angular surfaces; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, substantially as herein shown and described, of the cone A and conical cap B, for the purposes set forth.

JOHN T. B. ROGERS.

Witnesses:

J. W. COOMBS,
MICH. HUGHS.