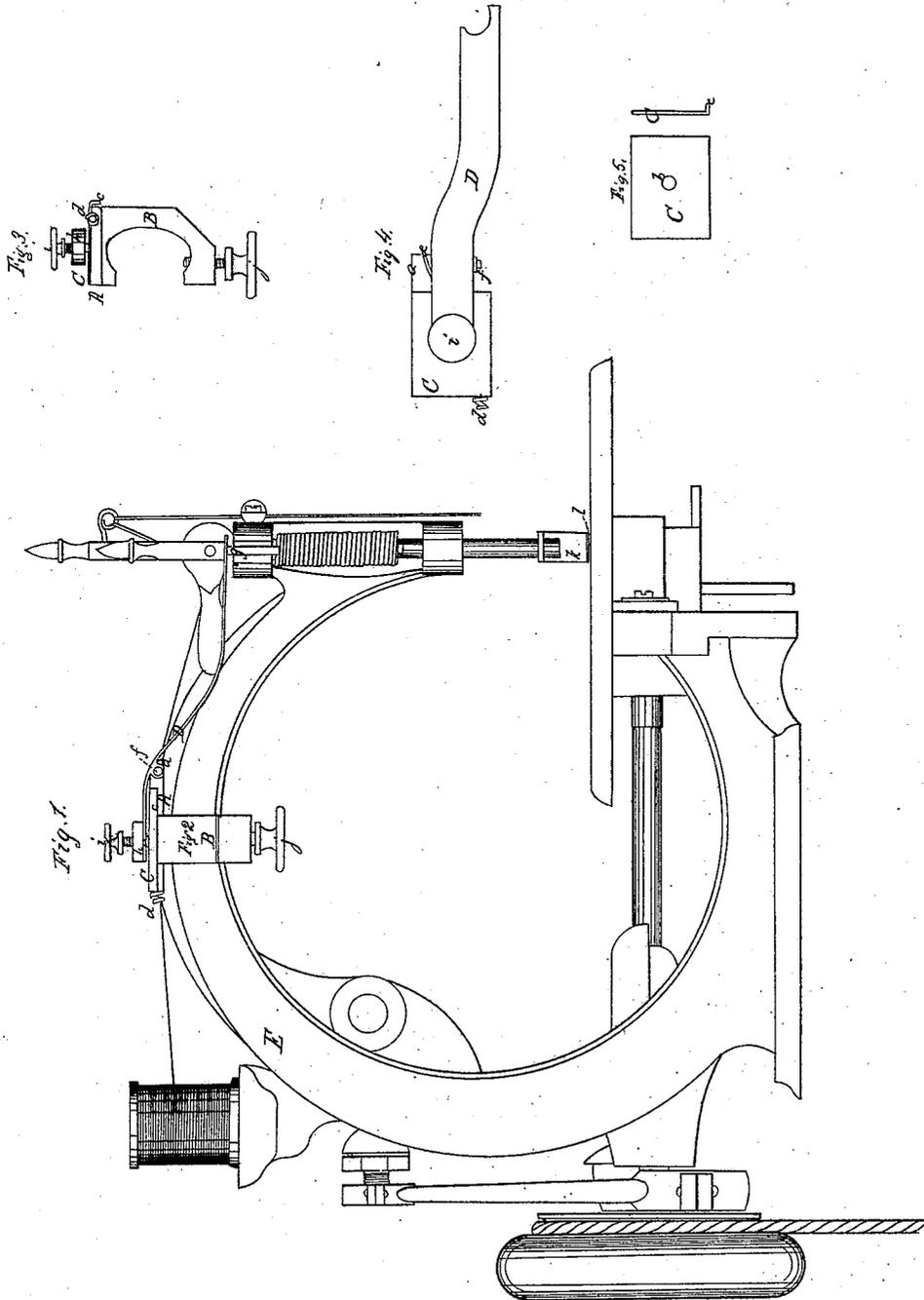


H. C. GOODRICH.
TENSION DEVICE FOR SEWING MACHINES.

No. 81,080.

Patented Aug. 18, 1868.



Witnesses.
C. A. West.
Albert F. Allen

Inventor.
Harry C. Goodrich

United States Patent Office.

HARRY C. GOODRICH, OF CHICAGO, ILLINOIS.

Letters Patent No. 81,080, dated August 18, 1868.

IMPROVEMENT IN TENSION-DEVICE FOR SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HARRY C. GOODRICH, of Chicago, in the county of Cook, and State of Illinois, have invented a new and useful Self-Adjusting Tension-Device for Sewing-Machines; and I do declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a back view of a sewing-machine with my device, marked Figure 2, attached.

Figure 3, an end view of the device, ready for attachment.

Figure 4, a top view.

Figure 5, a detached view of the upper plate.

It is well known that in using sewing-machines, the required tension of the thread depends upon the thickness of the fabric to be sewed, and that the operator, to do good work, must adjust the tension of the thread as often as there is a change in the thickness of the work, whether such change be occasioned by the use of fabrics of different thickness, or by varying the number of layers or thicknesses of cloth in the machine; and the object of my invention is to provide a tension-device which shall be self-adjusting, as hereinafter described.

To enable others skilled in the art to make and use my invention, I proceed to describe the construction and operation of the device.

A is a plate, about three-fourths of one inch wide, and about one inch long, having also an extension, *a*, at one end. This plate may be of metal, glass, or any other suitable material, and its upper surface is perfectly smooth. It is permanently attached to the clasp or body B. C is another plate similar to the one described, having its under surface smooth, with a countersink, *b*, in the centre of the upper surface. One edge of this plate may have a flanch, *c*, to keep it in position. *d* is a hook or other suitable device, to receive the thread before it is passed between the two pressure-plates A C. *e* is a groove in the extended part of the under plate A, in which the thread passes. The plate C is of the same size as A, without the extension. D is a spring, pivoted at *f* upon a pivot attached to the extension *a*. One end of this spring rests upon *g*, a projection from the bar or rod to which the pressure-foot is attached, and the other end is provided with a female screw, *h*, to receive the screw *i*, the lower end or point of which rests in the countersink *b* in plate C. My device is secured to the arm E, being the pressure-foot arm, by means of the thumb-screw *j*, as shown in fig. 1.

In operation, the thread is passed from the spool through the guide *d*, then between the plates A C, and from the plates to the needle, in the usual manner. The tension of the thread is then to be adjusted to a single thickness of the fabric to be sewed, by the use of the screw *i*. The device is then ready for use.

If now one or more additional layers or thicknesses of cloth be passed between the pressure-foot *k* and the feed *l*, the tension of the thread must be correspondingly increased, because the spring D, arranged as described, is in fact a lever, having its fulcrum at *a*, the end of the long arm resting on the pressure-foot rod or bar at *g*, and the short arm practically resting on the plate C at *c*. When, then, the thickness of the work is increased, the long arm of the lever is raised, and the pressure of the plate C upon the thread is increased. If the thickness of the work be diminished, the pressure upon the thread will be diminished. I thus have a self-regulating tension-device, simple in construction, and sure in operation.

The plate A may be permanently attached to or made part of the arm E. It is evident that the lever or spring may be pivoted at the other end of the plate A, the point of the screw remaining in the position before described. When so arranged, the tension of the thread must be first adjusted for the greatest thickness likely to be used, and if that be decreased, the tension will be correspondingly decreased, the device remaining self-adjusting as before.

The spring D should not be very stiff, and the degree of stiffness required will depend somewhat upon the machine to be used, and the relative length of the two arms of the lever; it may be straight or curved. A lever having no elasticity may be used, if it be made to rest upon a spring attached to the bar or rod to which the pressure-foot is attached. This will not change the principle of my device. In the case last mentioned, a coil-spring might be used, attached to the pressure-foot rod or bar, and made adjustable.

My device may be used either with single or double-threaded machines, but with the latter only the upper thread will be self-adjusted.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—
The plates A and C, in combination with the pivoted spring or lever D, and set-screw *i*, constructed and arranged to operate with the presser-shank, substantially as specified.

HARRY C. GOODRICH.

Witnesses:

E. A. WEST,

ALBERT H. ALLEN.