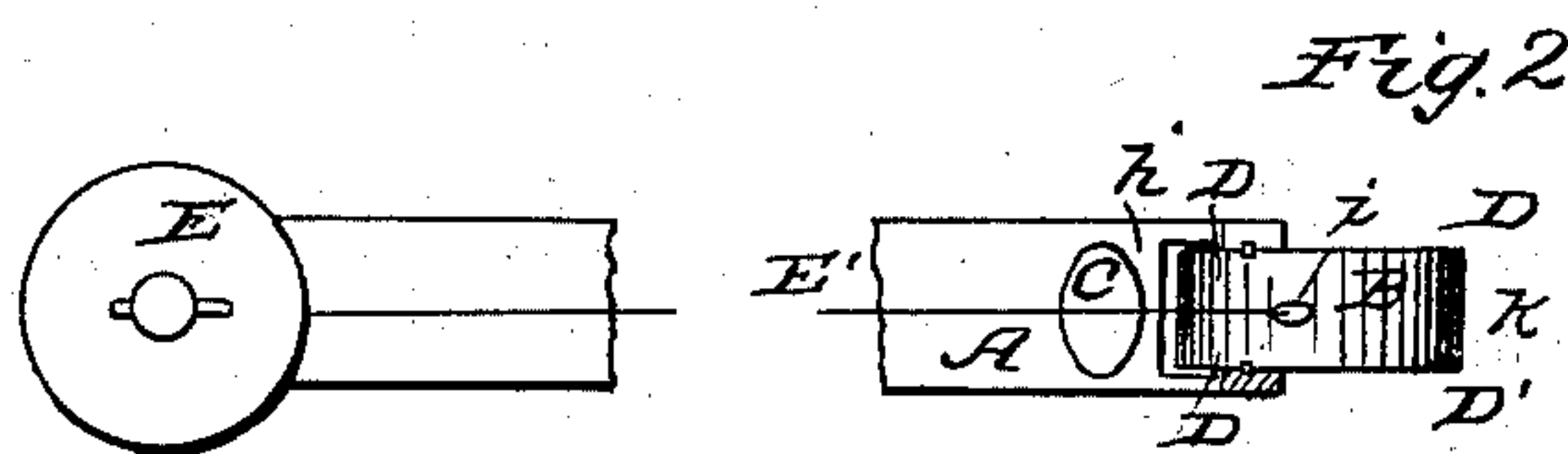
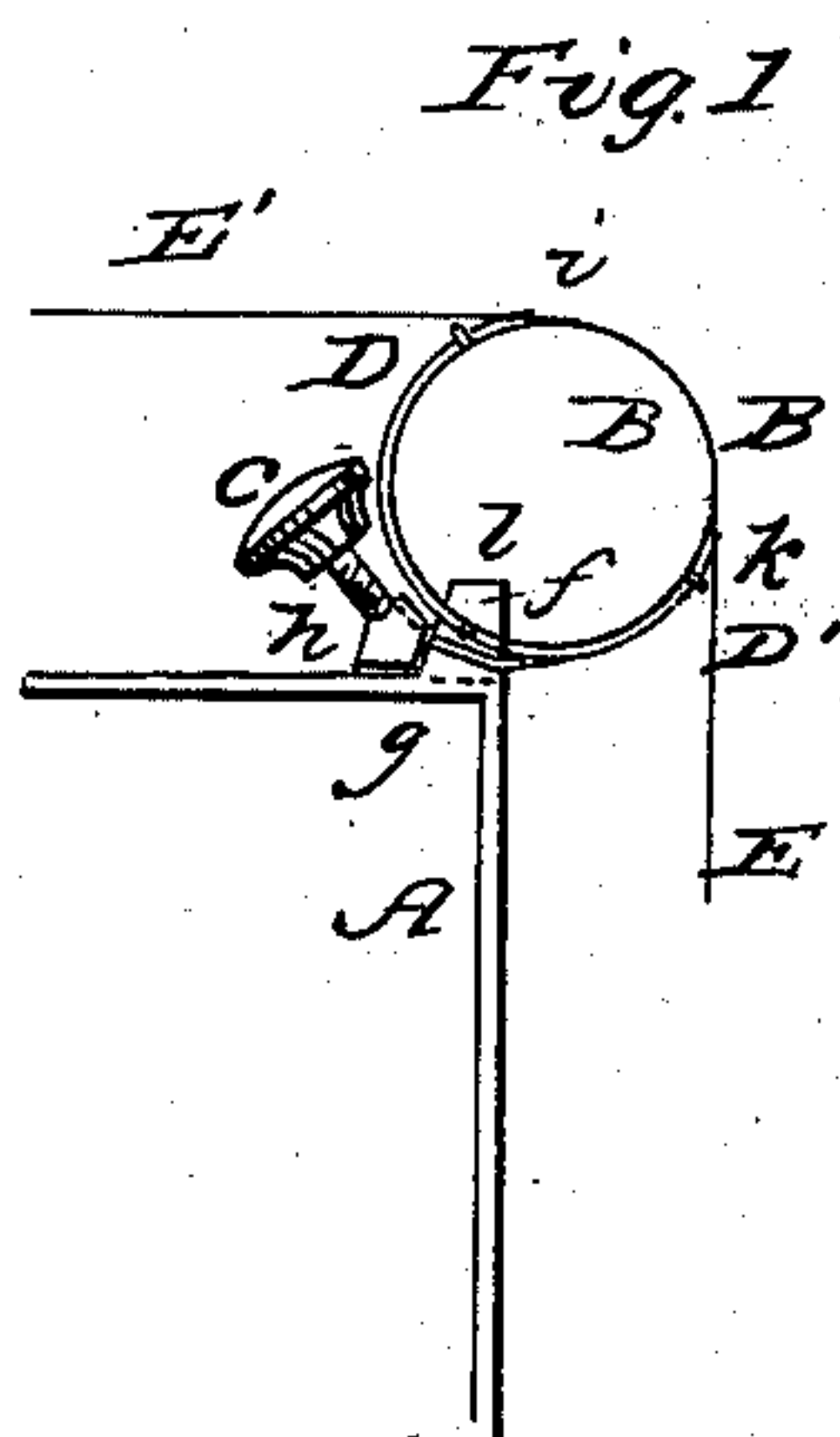


Tension Device for Sewing Machines.

Patented Dec. 20, 1859.



witnesses
Benny Buntline
 R. B. H. H.

Inventor
E L Pratt.

UNITED STATES PATENT OFFICE.

E. L. PRATT, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THREAD-TENSION FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 26,537, dated December 20, 1859.

To all whom it may concern:

Be it known that I, E. L. PRATT, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Tension Device for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation, and Fig. 2 a top view, of the same, like letters in the different figures indicating the same parts.

In the drawings, A represents the base upon which the said tension device is supported and by which it is attached to the usual needle-bar or other suitable part of the machine; B and B', the spring-coils; C, the adjusting thumb-screw; D and D', the intervening transverse strips between the coils, and E the spool from which the thread E' is drawn.

The base A, I make so that it can be conveniently secured to the usual needle-bar, or to a yielding "take-up," or other suitable part of a sewing-machine. It has a projection, *l*, in which two slots, *f* and *g*, are cut obliquely. In the upper one, *f*, of these slots one end of the elastic strip which constitutes the coils B and B' is fixed in contact with another part of the same, so as to produce a circle, B, while the opposite end of the strip is carried around, over, and in contact with the said circle B through the lower slot, *g*, and fastened to the block *h*, which is made to fit against the one side of the projection *l*, substantially as shown in Fig. 1. A small hole is made obliquely through this block *h*, and in this hole the thumb-screw C is adapted to rotate and bear against the said projection *l* in such a manner that when it is screwed forward, its end bearing against the said projection *l*, the coil B' will be drawn tightly around the inner coil, B. Two oval-shaped perforations or holes, *i* and *k*, are made through the outer coil, B', and near these perforations the strips D and D' are inserted transversely between the outer and inner coils, so as to separate and leave a clear space between only at and near the said perforations *i* and *k*, and so that the thread E' can be readily passed through the perforation *i* out between the coils B and B', and thence into the space between the said coils, near D', through

the hole *k*, and finally to the needle in the usual manner, when by drawing on the said thread it is caused to slip in between the coils B and B' from perforation *i* to perforation *k*, as required.

Operation: The outer coil, B', is adjusted (by simply operating the screw C) so as to produce the required degree of its approximation toward a pressure upon the inner one, B, to cause the two to bear upon a sufficient length of the thread along between the perforations *i* and *k* to effect the tension required, and in inserting or changing the thread it is only necessary to first pass it through the holes *i* and *k*, and then between the coils B B' by pulling the thread, as before described, a readjustment of the coils not being required for the purpose, nor for substituting and using a thread of a different size or number.

The friction produced upon the thread by this device can be increased or diminished to the most minute degree of accuracy by simply rotating the thumb-screw C, and the friction on the thread E' in passing between the coils B and B' is necessarily perfectly smooth and uniform, while the yielding of the two coils together upon the base A, during the pull of the thread E' in sewing, effectually guards against the thread's being broken by the suddenly changing action of the needle-lever; and the peculiar elastic character of the said spring-coils, arranged together as described, makes their frictional or tensile action upon the thread perfectly compensating in relation to any variation of the thickness or numbers in the different threads, and so dispenses with the necessity of any readjustment of the said coils B and B' for the purpose.

The device described is simple in its construction, not liable to derangement from use, and, being light, is especially applicable to a take-up as well as to the needle-bar, or any other suitable part of a sewing-machine for the purpose.

I am aware that a tension device consisting of a spring-pressure pad or flat spring made to press the thread against a solid substance has been used to produce friction. Therefore I do not claim, broadly, the use of spring-pressure for producing the required friction on the thread in sewing-machines; but,

Having fully described the construction and

operation of my improved tension device, what I claim as new, and desire to secure by Letters Patent, is—

Separating and holding the coil B' at the openings through which the thread E' passes in and out from between it and its fellow B or support by means of the strips D and D', or their substantial equivalents, for the purpose of allowing a free passage of the said thread

without causing friction on the openings, and for the better adjusting or changing the thread while the spring remains at the proper working tension, as described,

E. L. PRATT.

Witnesses:

BENJ. MORRISON,
R. B. KITT.