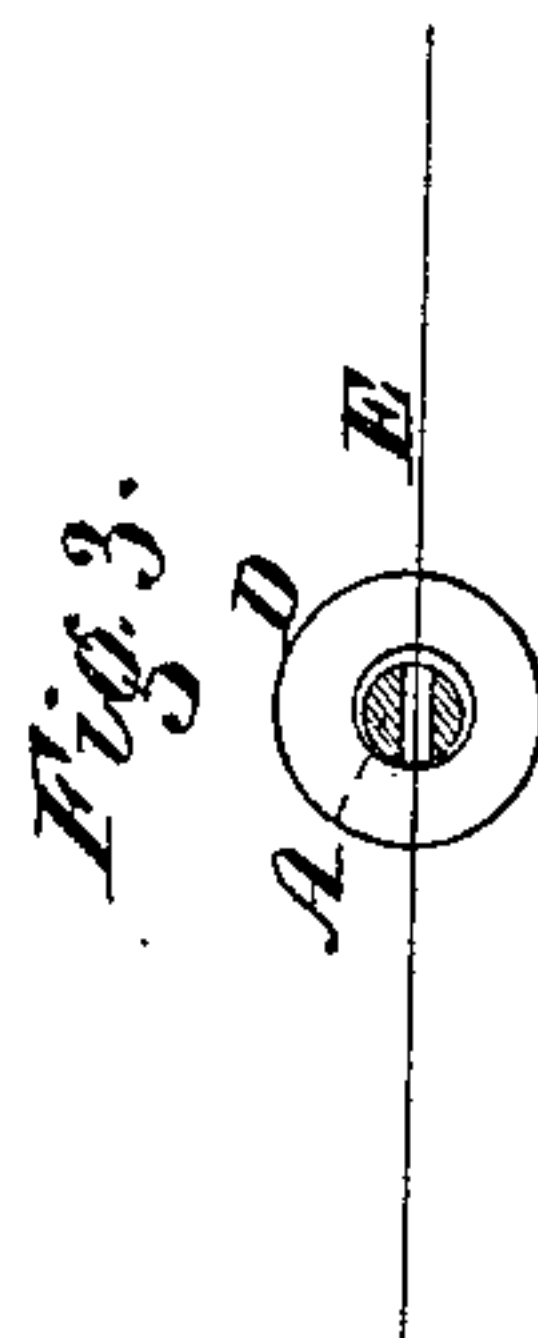
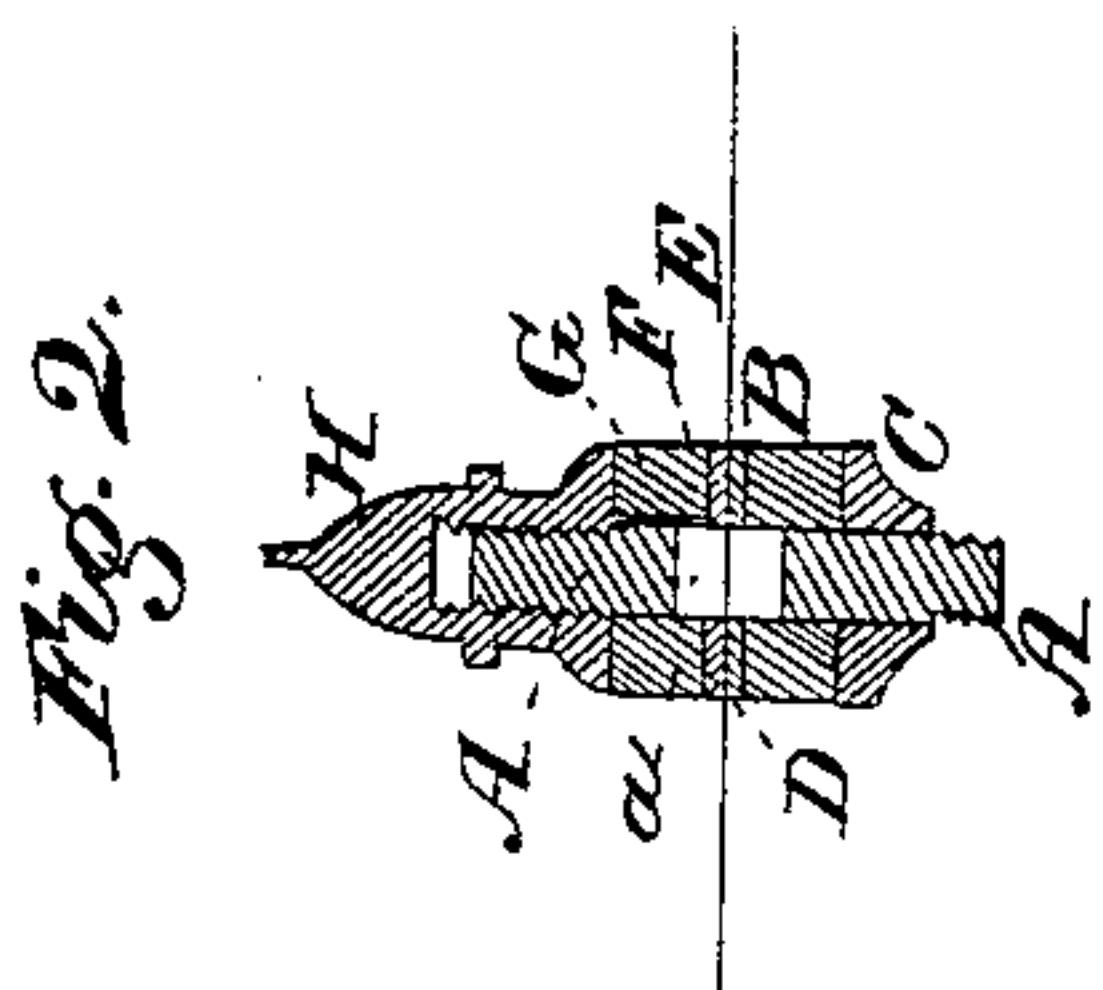
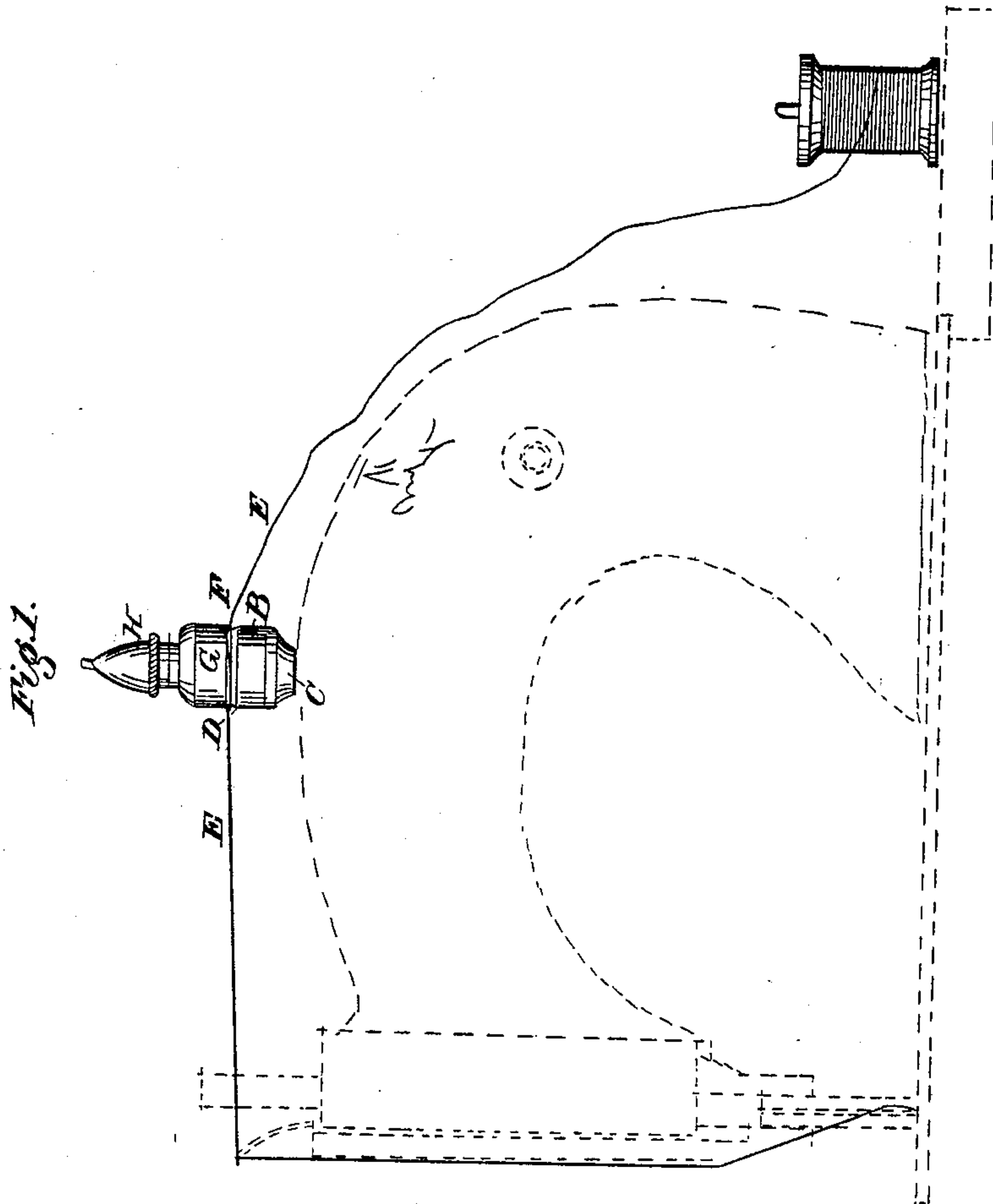


D. HARRIS.
Sewing Machine.

No. 19,141.

Patented Jan. 19, 1858.



UNITED STATES PATENT OFFICE.

DANIEL HARRIS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,141, dated January 19, 1858.

To all whom it may concern:

Be it known that I, DANIEL HARRIS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Producing Tension or Friction upon the Thread in a Sewing-Machine, the nature and operation of which I hereby declare to be fully set forth in the following specification, reference being had to the accompanying drawings, to which this specification and letters refer.

The invention consists in an improved manner of regulating the delivery of the thread from the spool or other source to the needle by a tension-clamp located at any convenient intermediate point.

Figure 1 of the drawings represents a side elevation of the "tension-clamp" as applied upon "goose-neck," where I generally prefer to place it. Fig. 2 is a vertical section of the clamp, and Fig. 3 a horizontal section of it.

A in the drawings denotes a screw pin or spindle applied on top of the goose-neck, or located in any other convenient place.

B is a piece of rubber or gum-elastic tubing placed on the spindle and resting upon a plate or base, C, or directly upon the goose-neck or plate to which the spindle may be applied. Upon the top of this tubing a washer, D, made large enough in diameter to cover or nearly cover the tubing B, is placed, as seen in Figs. 1 and 2. This washer I generally prefer, for wear, to make of parchment, as this is tough and yielding, while it is smooth and somewhat oily, and permits the thread to run easily when pressed against it. It may, however, be made of any smooth, dry, and somewhat yielding material that will keep properly in place, wear well, and prevent the rubber from touching the thread. Over this disk, and through an aperture, *a*, in the spindle, the thread F passes, a parchment disk, G, covered by a rubber or gum-elastic tube, H, being placed over the thread, as seen in Fig. 2. On top of the spindle a screw cap or nut, I, is fixed, the requisite pressure being produced upon the thread by rotation of this nut, said pressure being upon the length of thread between the disks.

In sewing with thread fed directly to the needle from a common spool the thread is delivered too fast, being all taken from the spool at each stitch, when, in order to make the stitch-

ing tight, it should be partially taken from the slack of the previous loops or stitches. To remedy this the thread is generally rewound from the common spool onto a large bobbin, from which it cannot run so easily. Sometimes friction is applied to the spool to keep it from rotating too fast. Thus applied, however, the thread cannot be uniformly fed off on account of the unevenness with which the thread is wound upon the spool or the liabilities of its adhering in some parts to the spool or adjacent thread. My method allows the thread to be taken from any spool or from a reel, and produces a more even strain upon the thread than can be obtained by any of the methods in use. In sewing the chain-stitch much depends upon the tightness with which the stitches are drawn into the cloth, as when the sewing is loose it easily unravels. Unless the "looper" or beak has a strong spring thrown forward in taking each loop, so as to take up the slack of the preceding loop, the tension must be continually varied in order to produce the proper draw upon this next preceding loop or stitch. This spring-throw is very apt to break the thread. When the stitches are very long, all or nearly all of the thread taken from the spool by the stitch; but as the stitch is shortened so much needle in its descent is required to form the thread is not needed, while the needle in its descent takes the same length from the spool. This leaves the stitch loose, and to overcome this the needle at its next descent shoves down part of its thread from this previous slack, and to make it do so such variable pressure must be applied to the thread back of the needle in the different stitches as to cause the needle to take its thread from previous slack, instead of from the spool, until the stitch is properly drawn in, when it will take the rest from the spool. To do this without producing a "jerk" upon the thread sufficient to break it, as is often the case where the looper has a spring-throw given to it, the thread for this purpose is passed between the two rubber springs or tubes, contact with the rubber to unduly bind the thread being prevented by the intervention of the smooth and yielding disks, the pressure being varied according to the stitch by the screw-cap.

I claim—

The specific device herein described for ap-

plying tension to the thread during its passage from the bobbin or spool to the needle—that is, causing it to run through the eye of the spindle and between two disks of parchment when said disks are placed upon the spindle between two india-rubber tubes or cylinders, which are liable to be compressed in the direction of the axis of the spindle to any

degree of intensity required, substantially as set forth.

In testimony whereof I have hereto set my signature this 26th day of June, A. D. 1857.

DANL. HARRIS.

Witnesses:

N. A. DYER,

FRANCIS GOULD.