P. PRYIBIL.

Tension Regulator for Sewing Machines.

No. 35,542. Patented June 10, 1862.

Fig. 2

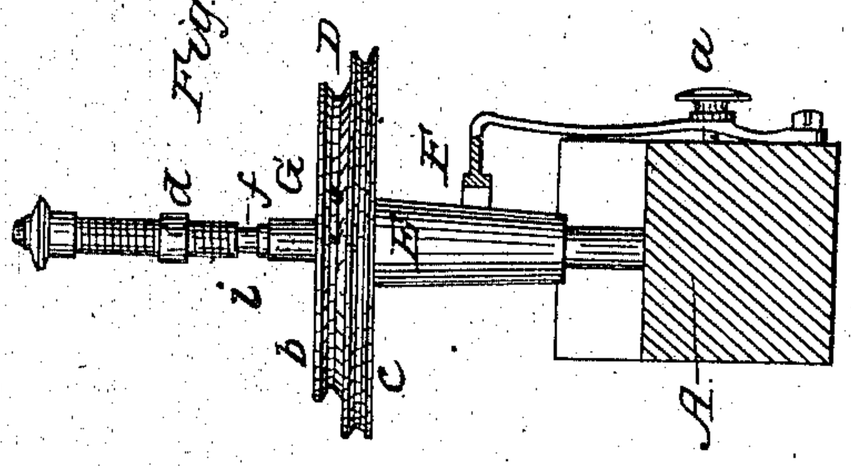


Fig. 1

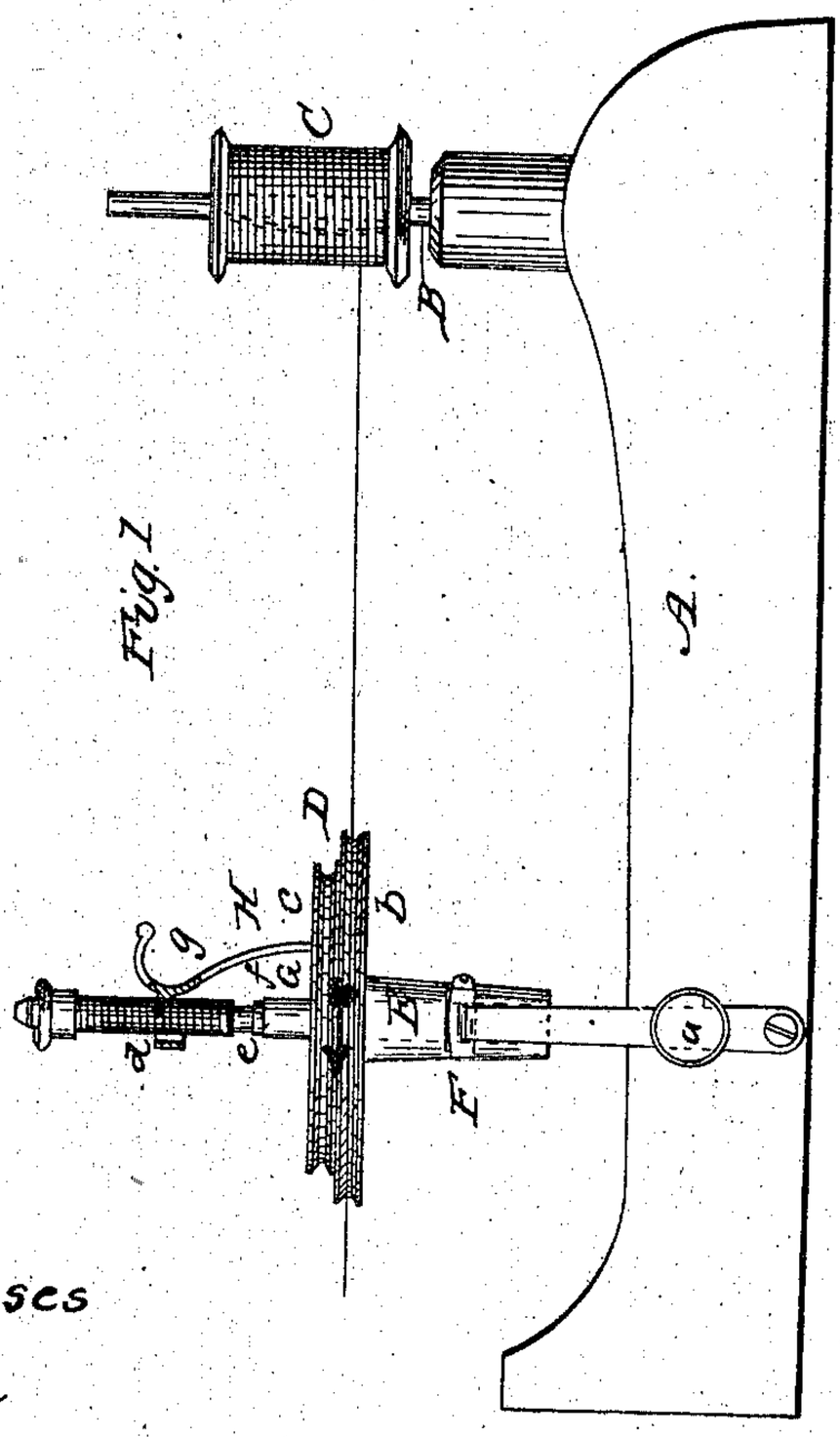
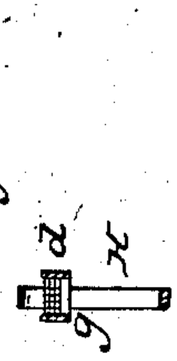


Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE.

PAUL PRYIBIL, OF NEW YORK, N. Y.

IMPROVED TENSION-REGULATOR FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **35,542**, dated June 10, 1862.

To all whom it may concern:

Be it known that I, PAUL PRYIBIL, of the city, county, and State of New York, have invented a new and Improved Tension-Regulator for 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 a part of this specification, in which—

Figure 1 represents a sectional side elevation of my invention. Fig. 2 is a sectional front elevation of the same. Fig. 3 is a detached section of the nut.

Similar letters of reference in both views indicate corresponding parts.

The object of this invention is to increase the tension of the needle-thread of a sewing-machine in the same measure as the diameter of the bobbin in the shuttle decreases, and consequently the tension of the shuttle-thread increases.

The invention consists in the arrangement of a pulley with a long conical hub, said pulley being rotated by the action of the needle-thread, in combination with a screw-spindle acting on the conical hub in such a manner that during the operation of sewing and consequent decrease of the bobbin-thread in the shuttle the pulley, by the action of the screw, assumes a gradual downward motion, thereby bringing thicker and thicker parts of the conical hub opposite the spring-pad, and causing a corresponding increase in the tension of the needle-thread.

It consists, further, in connecting the tension-regulating pulley with the screw-spindle by an elliptical sleeve, which is attached to a spring, and the front portion of which is left smooth, while that portion of the same which is forced by the spring against the screw is furnished with a screw-thread in such a manner that by pulling back said spring the nut, and with it the pulley, is thrown out of gear with the screw-thread on the spindle, and can be moved up and down on the same at pleasure.

It consists, finally, in cutting away the thread in the lower part of said nut, and providing a recess and shoulder in the screw-spindle in such a manner that the tension-regulating pulley can be rotated on the screw-spindle while the screw-threads are out of gear, and hence are not liable to become injured or worn out.

To enable those skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A represents that portion of the frame of a sewing-machine which carries the pin B, on which the spool C rotates which carries the needle-thread. This pin is split open and made to produce a certain friction on the inside of the spool, so that the same does not rotate quite freely, and that it is not liable to drop off when the machine is turned upside down.

The tension of the needle-thread is produced by a pulley, D, which is provided with a long conical hub, E, that is subjected to the action of the spring-pad F. A set-screw, *a*, serves to regulate the pressure of the spring-pad on the hub. The pulley D rotates on a spindle, G, and the needle thread is wound round it once or twice, and as the operation of sewing proceeds the action of the needle-thread causes the pulley to rotate, and the tension is determined by the amount of pressure or friction exerted by the spring-pad, which opposes the rotary motion of the spring-pulley. Different speeds *b c* on the pulley permit the operator to vary the tension at pleasure. The upper portion of the spindle G is provided with a screw-thread, and a nut, *d*, which is secured to a spring, H, rising from the upper surface of the pulley, engages with the screw-thread on the spindle. This nut is oval, and the thread on the front portion of the same is cut away, so that by forcing the spring back the thread of the nut is thrown out of gear with that on the spindle, and the pulley can now be moved up and down quite freely.

When the nut *d* is in gear with the spindle, and the pulley D is rotated by the action of the needle-thread in the direction of the arrow marked upon it in Figs. 1 and 2, said pulley assumes a gradual downward motion, and the spring-pad F is thereby brought in contact with thicker and thicker portions of the conical hub E, and consequently the tension of the needle-thread increases. The screw-thread on the spindle G and the conical hub E are so arranged that the increase of the tension of the needle-thread produced by the action of said thread and conical hub is in proportion to the increase of the tension of the shuttle-thread occasioned by the decrease of the diameter of the bobbin. If it is desired to work

the machine without changing the tension of the needle-thread, the pulley D is moved down upon the spindle, so that the nut *d* comes below the screw-thread on said spindle; and, in order to save the screw-thread in the nut *d* from being injured by rubbing against the smooth surface of the spindle, a recess, *e*, is turned into said spindle, and a shoulder, *f*, below the recess catches into the lower part, *g*, of the nut *d*, in which the screw-thread is cut away entirely, as clearly shown in Fig. 3. By these means the nut *d* turns on the shoulder *f*, and the screw-thread in said nut is not injured.

This tension-regulator can be easily attached to every shuttle-machine, and if properly regulated the tension of the needle and shuttle thread is kept perfectly uniform and the work produced by the machine is more even and uniform than the work of ordinary sewing-machines, where no account is taken of the increasing tension of the shuttle-thread.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the friction-pulley D with the conical hub E, in combination with the screw-spindle G and spring-pad F, constructed and operating substantially as and for the purpose specified.

2. The arrangement of the elliptical nut *d* on the spring H, in combination with the screw-spindle G and pulley D, substantially as and for the purpose described.

3. The recess *e* and shoulder *f* on the screw-spindle G, in combination with the lower part, *g*, of the nut *d*, as and for the purpose set forth.

PAUL PRYIBIL.

Witnesses:
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