(No Model.)

L. E. LEIGH.

Device for Stretching and Smoothing Thread.

No. 235,261. Patented Dec. 7, 1880.

Fig: 1.

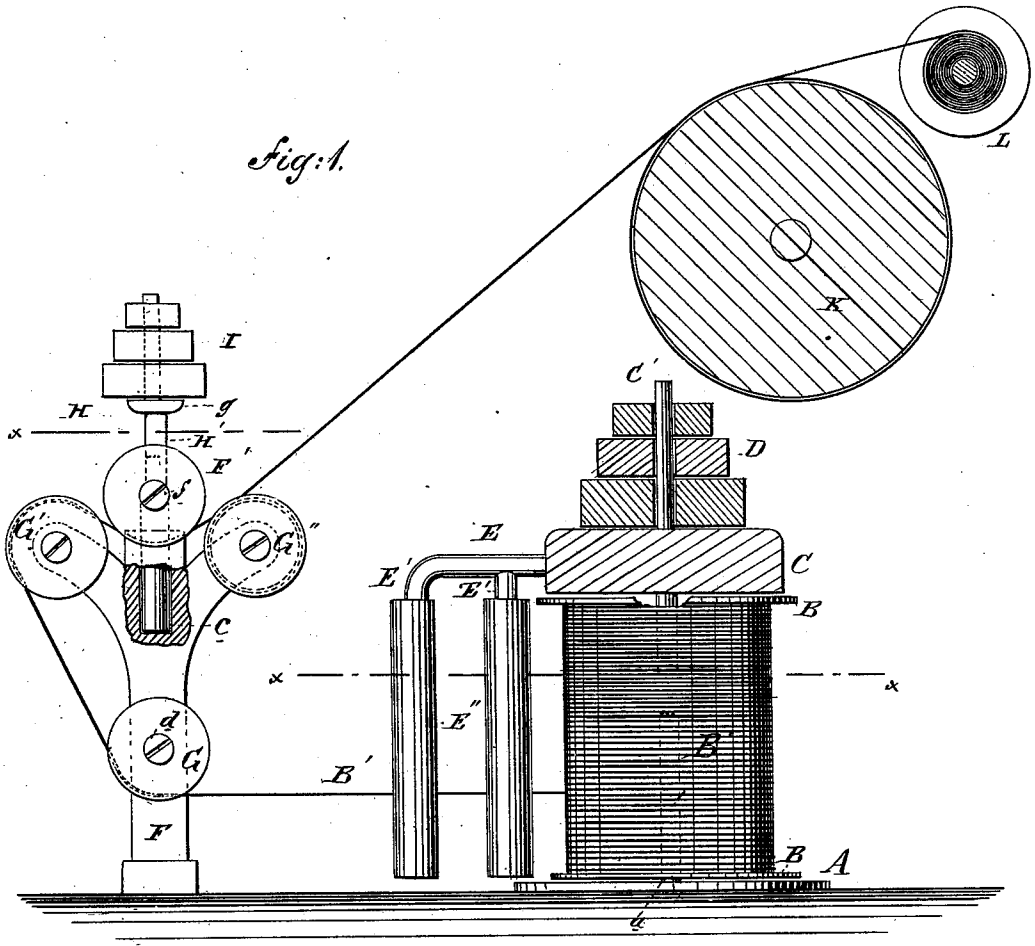
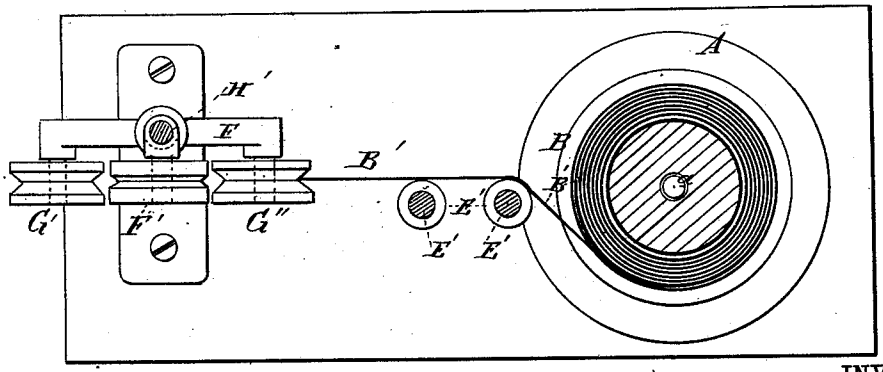


Fig: 2.



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LEWIS E. LEIGH, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF AND LEWIS LEIGH, OF SAME PLACE.

DEVICE FOR STRETCHING AND SMOOTHING THREAD.

SPECIFICATION forming part of Letters Patent No. 235,261, dated December 7, 1880.

Application filed August 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. LEIGH, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and Improved Device for Stretching and Smoothing Thread, of which the following is a specification.

The object of this invention is to obtain an even tension of any desired degree upon all threads in the different processes of manufacture and winding, especially upon silk threads in twist, sewings, floss, embroidery, organzine, tram, and all threads used for sewing, weaving, and covering.

Figure 1 is a side elevation of the device in operation, partly in section. Fig. 2 is a plan of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents a bobbin-stand, supporting on its spindle *a* a bobbin, B, which holds the unstretched thread B′.

The weighted cap consists of a circular plate or disk, C, set on top of the bobbin B and held in place thereon by a spindle, C′, that passes vertically and centrally through said disk C into the bore of the bobbin B, and extends above the disk C, to receive and hold what weights, D, may be required for increasing the pressure of the said cap C upon the bobbin B. Projecting horizontally forward from the disk C is an arm, E, having one or more fingers, E′, that extend downward parallel with the barrel of the bobbin B, and as far as the bottom thereof, and on these fingers E are preferably fixed the revolving sleeves E″. In front of these fingers E′ is rigidly secured an upright Y-shaped standard, F, provided with a vertical socket, *c*, in the crotch between the spreading-arms. On the face of this standard F a sheave, G, revolving in a vertical plane, is secured on screw bolt or pin *d*, with its edge toward the fingers E′ and bobbin B, and on the extremity of each arm of said standard F a vertically-revolving sheave, G′ G″, respectively, is secured in the same manner.

The regulator H consists of a rod, H′, provided with a collar, *g*, entered vertically in the socket *c* of the standard F, and having pivoted on its face, by a screw or pin, *f*, a sheave, F′, that revolves in a vertical plane, while weights I are set over and upon the upper end of said rod H and rest upon the collar *g* thereof.

K represents a drum, revolving at a higher elevation than are the parts above described, and L represents a bobbin, spindle, or spool, on which the stretched thread is wound.

The operation of the device is as follows: The bobbin B, with the rough unstretched thread B′, is placed in position on the stand A, as shown, and the cap C, with its auxiliary parts, is set on the top of said bobbin B. The thread B′ is then passed across the faces of the sleeves E″, thence under the sheave G, and over the sheave G′ and around the sheave G″, around the drum K and the bobbin, spindle, or spool L, as shown. Motion being then given to the drum K and spindle or spool L, the thread B′ is wound upon said spool or spindle L; but throughout the operation the said thread B′ is subjected to a tension or strain that may be measured by the frictional resistance of the bobbin B in turning, by the "drag" or pressure of the fingers or sleeves E′ E″ against the said thread B′, and by the frictional resistance of the sheaves G G′ G″; and if this tension or strain upon the thread B′ be properly adjusted, the said thread will be suitably stretched and smoothed.

To increase the strain or tension upon the thread, weights D D are placed upon the cap C, so that the frictional resistance or inertia of the bobbin B is increased and the lateral drag or pressure of the fingers E′ E′ augmented. The sheave F′ of the regulator H also rests upon the thread B′ as said thread is unwound from the bobbin B, said regulator H rising as the strain upon the thread is increased from any cause, and falling as the strain diminishes.

When it is desired still further to increase the strain or tension upon said thread B′, weights I may be added to the regulator H, as shown.

I do not confine myself to the precise construction of the bobbin-cap and attachments as herein shown, as in some instances and for some purposes the arms thereof, with or without sleeves, may be differently arranged and increased in number, and the cap itself may be used without added weights.

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

1. An improved device for stretching and smoothing threads, constructed substantially as herein shown and described, consisting of the bobbin-stand, cap C, provided with arm and fingers E E′, socketed standard F, with revolving sheaves G G′ G″, and regulator H, provided with sheave F′, arranged as set forth.

2. In a device for stretching and smoothing threads, the combination of the cap C, provided with spindle C′, and arm E, provided with fingers E′, substantially as herein shown and described.

3. The regulator H, having sheave F′, in combination with the sheaves G′ G″ G‴ and the socketed standard F, as and for the purpose set forth.

4. The combination, with stand A, provided with spindle *a* and the sleeves E″, of the sheaves G G′ G″, regulator H, having sheave F′, and socketed standard F, all arranged substantially as shown and described.

5. The combination, with the cap C, provided with arm and fingers E E′, of the sleeves E″, substantially as herein shown and described.

LEWIS E. LEIGH.

Witnesses:
DAVID STROUSE,
JAMES A. WOODS.