Sheet 1, 2 Sheets.

Tilt & Skimmer.

Mach. for Dressing Thread.

No. 3,155. Patented Jul. 8, 1843.

Fig. 1.

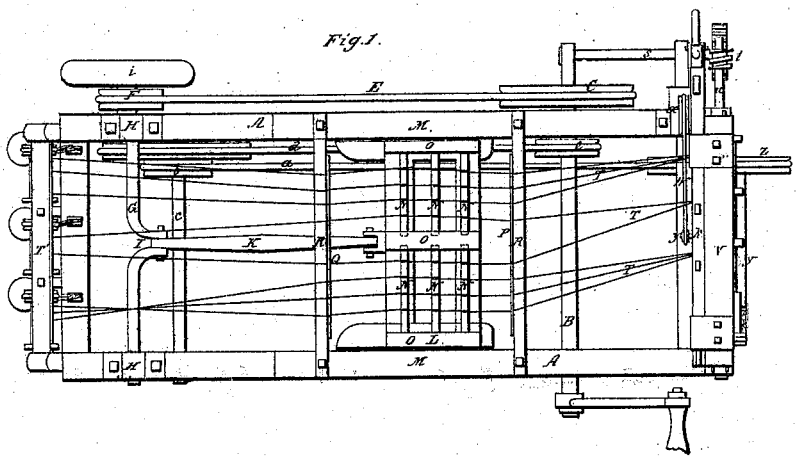
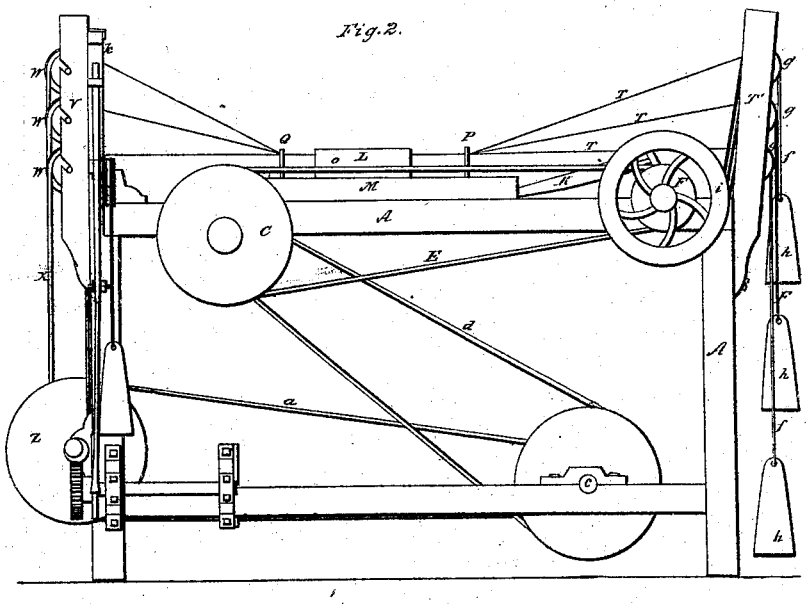


Fig. 2.



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Sheet 2, 2 Sheets.

Tilt & Skinner.

Mach. for Dressing Thread.

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Fig. 4.

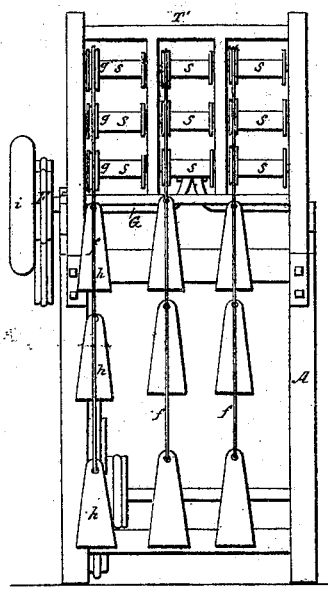


Fig. 5.

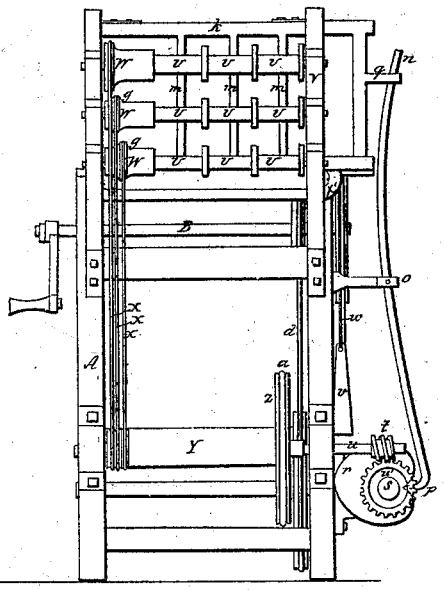


Fig. 3.

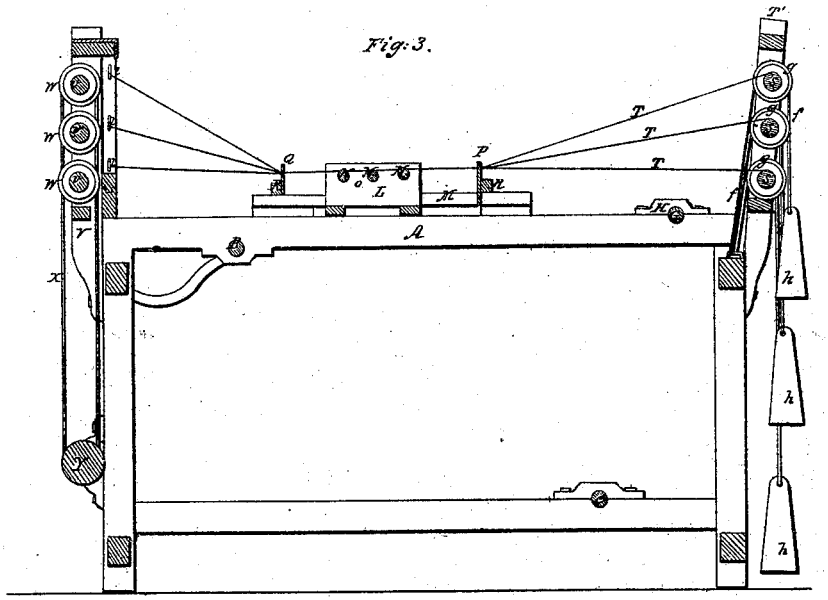
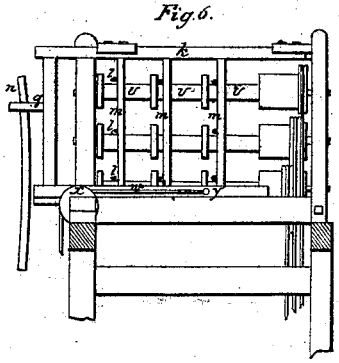


Fig. 6.



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UNITED STATES PATENT OFFICE.

BENJN. B. TILT AND JAS. SKINNER, OF ROXBURY, MASSACHUSETTS.

MACHINERY FOR DRESSING OR FINISHING WORSTED OR OTHER THREADS OR CORDS.

Specification of Letters Patent No. 3,155, dated July 8, 1843.

To all whom it may concern:

Be it known that we, BENJAMIN B. TILT and JAMES SKINNER, both of Roxbury, in the county of Norfolk and State of Massachusetts, have invented a new and useful improvement in machinery for dressing or finishing worsted or other threads or cords or removing therefrom the fibers which usually extend in lateral directions from their surfaces after the spinning process is completed, the said improved mechanism being represented in the accompanying drawings, and described in the following specification, which taken together constitute a full and exact description thereof.

Figure 1 of the drawings above mentioned represents a top view of the machine; Fig. 2, a side elevation of the same; Fig. 3, a longitudinal and vertical section, taken through the center of one of the side ranges of bobbins; Fig. 4 an elevation of the end supporting the bobbins from which the threads are removed, and Fig. 5, is an elevation of the opposite end, or that supporting the bobbins upon which the threads are wound after the operations thereon of the rubber or roller frame have been effected.

The operating parts of the machinery are supported upon a suitable frame A Figs. 1, 2, 3, 4, 5, of wood or metal and the power which moves them is applied by a hand crank or pulley to one end of a horizontal shaft B which extends across the frame and is supported in proper boxes secured to the lower sides of the top rails of the frame. A large pulley C is fixed on the opposite end of the shaft B, a belt or cord E proceeding from said pulley to and around a smaller one, viz: F, placed upon or near one extremity of another horizontal shaft G which is arranged transversely in boxes H, H, fixed upon the upper side of the top rails of the framework. A bell crank I of the shaft G has a connecting rod K extending therefrom to the rubber or roller frame L, to which said connecting rod is jointed in a similar manner. This rubber or roller frame consists of a rectangular frame of wood or metal I, Figs. 1, 3, the ends of which are supported in suitable guides or grooves formed in pieces M, M, applied to the frame A, so as to admit of a reciprocating rectilinear movement of the frame L in a longitudinal direction. The frame L supports any proper number of transverse rollers or cylinders N, N, N, which are sustained in position by and revolve in vertical standards or pieces O, O, O, Figs. 1, 2, 3, applied to the said frame. Guide plates P, Q, are arranged vertically upon transverse bars R, R, which are secured upon the top rails of the main frame A, as seen in the drawings, the said guide plates consisting of pieces of metal, having a number of holes bored through them, just below their upper edges.

The worsted threads T, T, T, to be dressed are wound upon bobbins S, S, Figs. 2, 3, 4, which are inserted and supported in a suitable vertical frame T′ applied to and extending above one end of the frame A. Each of the threads passes through one of the holes of the guide plate P, and from thence it is wound once around each of the rollers N, N, N, from the latter of which it passes to one of a series of receiving bobbins U, U, U, arranged in a vertical frame V. These bobbins are disposed upon horizontal shafts, each of which has a small grooved pulley W upon or near one of its ends, a belt X proceeding from said pulley to and around a horizontal axle or drum Y Fig. 5. A revolving motion is imparted to this axle and from thence to the drawing bobbins by a grooved wheel Z on the shaft of the drum Y, a belt *a* proceeding from said grooved wheel to another grooved wheel *b* on a horizontal transverse shaft *c*. The said shaft *c* is put in revolution by means of a belt or cord *d* which extends from the wheel *b* to a pulley *e* fixed upon the driving shaft B. Friction is applied to each of the bobbins S, S, by a cord *f*, which passes over a grooved pulley *g* of each bobbin, one end of the said cord being secured to the framework, and the other to a weight *h*. A fly wheel *i* may be placed upon the extremity of the shaft G as seen in the drawings.

Any suitable mechanism may be arranged to regulate the filling of the receiving bobbins. That which is here adopted consists of a frame *k*, arranged vertically and properly secured so as to slide back and forth transversely. This frame is elevated in rear of the receiving bobbins, or between the same and the guide plate Q. Fig. 6, exhibits a view of this frame, as detached from the apparatus. Each of the threads is passed through a small metallic eye *l* inserted in the side of one of the upright bars *m*, *m*, of the frame. From this eye it proceeds to the bobbin on which it is to be wound. The frame *k* is moved in a lateral direction or in

a plane parallel to the axes of the bobbins, by a bent lever *n*, *o*, *p* whose fulcrum is at *o* and whose upper end *n* is jointed to the frame or to an arm *q* extending therefrom, and whose lower end *p* is bent as seen in Fig. 5, and rests against the edge of periphery of a cam *r* situated upon a horizontal shaft *s*. The revolution of this cam actuates the lever or pushes the frame *k* forward laterally. The cam shaft *s* is caused to revolve by an endless screw *t* which is fixed on the end of the shaft *u* of the drum Y, and enters into or engages with the teeth of a spur gear wheel *u'*, fixed upon the shaft *s*. The frame *k* is drawn back by the action of a weight *v*, appended to a cord *w*, the said cord passing over a pulley *x* and being connected to a stud *y* of the frame *k*, as seen in Fig. 1.

The surface of each of the rollers N, N, N, should be "draw filed," or roughened in any other proper manner, as it is by the peculiar operation of the threads when wound over these rollers in connection with the roughened surfaces of said rollers, that the filaments of the threads are removed. The "draw-filing" prevents slipping of the filaments when they are grasped or held between the thread and surface of the roller and torn away from the thread by the combined action of the thread and roller. While the threads are passing over the space between the guide plates P, Q, the rubber frame is put in a rapid reciprocating rectilinear motion, and as each thread is wound once about or around each successive roller, the thread is alternately unwound from and wound upon each of the said rollers. Now as the thread departs from the roller, the filaments which stand out laterally from the thread are caught between the part of the thread which is being wound on the roller and the surface of the roller and are there grasped and firmly held, while that part of the thread to which they are attached departs from the roller, the consequence of which is the separation or tearing away of the said filaments from the part of the thread to which they are connected. As each roller performs such an operation to a greater or less degree, each thread after it has left the guide Q in its passage toward the receiving bobbins will be found to have been completely or sufficiently divested of all the filaments which originally projected therefrom, and to possess a peculiar "wiry feel" or finish. From what has been stated above, the mode of dressing threads or cords will be readily comprehended. Though the peculiar effect herein before set forth of rollers or a "rubber frame" in removing the filaments of a thread is well known, as the same has been in common use for some considerable time, yet as such a rubber frame has only been a hand instrument or tool operated by manual labor, while the threads or cords to be finished have been stretched between two fixed points, the amount of work accomplished by it has been very limited.

By the arrangement of frames of delivery and receiving bobbins, guides, and rubber frame, operating together as an automatic machine in the manner as before explained an immense amount of labor is saved and the threads are dressed in a much more regular and thorough manner, than is the case where the process is accomplished by the hand of the operative.

Having thus set forth the nature and principles of our improvements by which they may be distinguished from others of like character we shall now proceed to point out that which we claim to be our invention.

We claim—

The combination of the rubber frame with the delivery and receiving bobbins, also the combination of the guide plates with the said rubber frame and bobbins, the whole being arranged together and operating substantially as herein above explained.

In testimony that the foregoing is a true description of our said invention and improvements, we have hereto set our signatures this fifteenth day of June in the year eighteen hundred and forty three.

BENJN. B. TILT.
JAMES SKINNER.

Witnesses:
R. H. EDDY,
JOHN NOBLE.