No. 735,745. PATENTED AUG. 11, 1903.

G. A. FREDENBURGH.

THREAD DRESSING MACHINE.

APPLICATION FILED JAN. 14, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

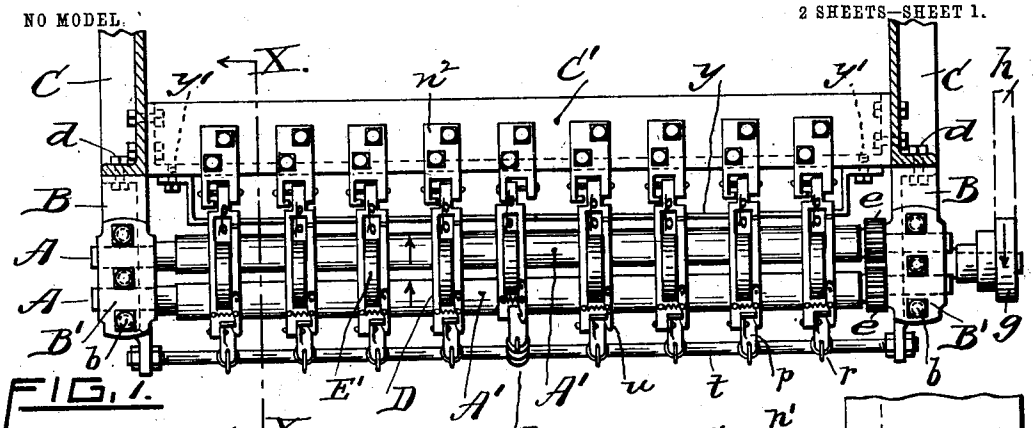

FIG. 1.

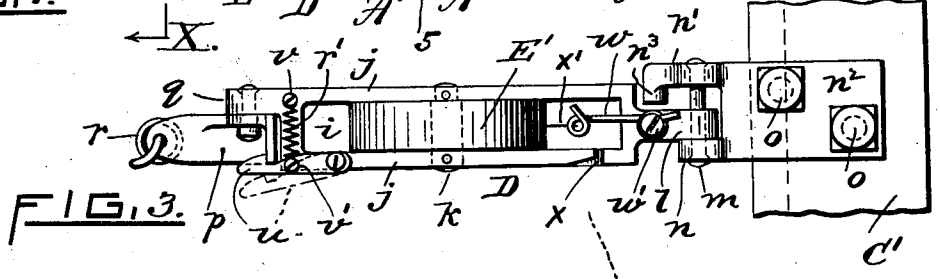

FIG. 3.

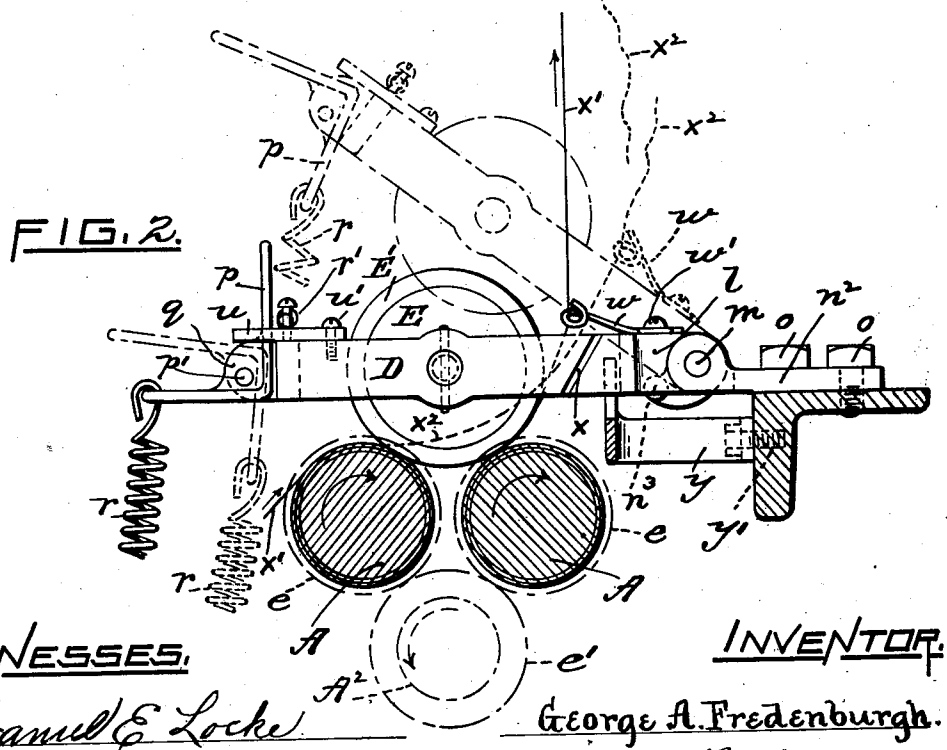

FIG. 2.

WITNESSES.

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NO MODEL. 2 SHEETS—SHEET 2.

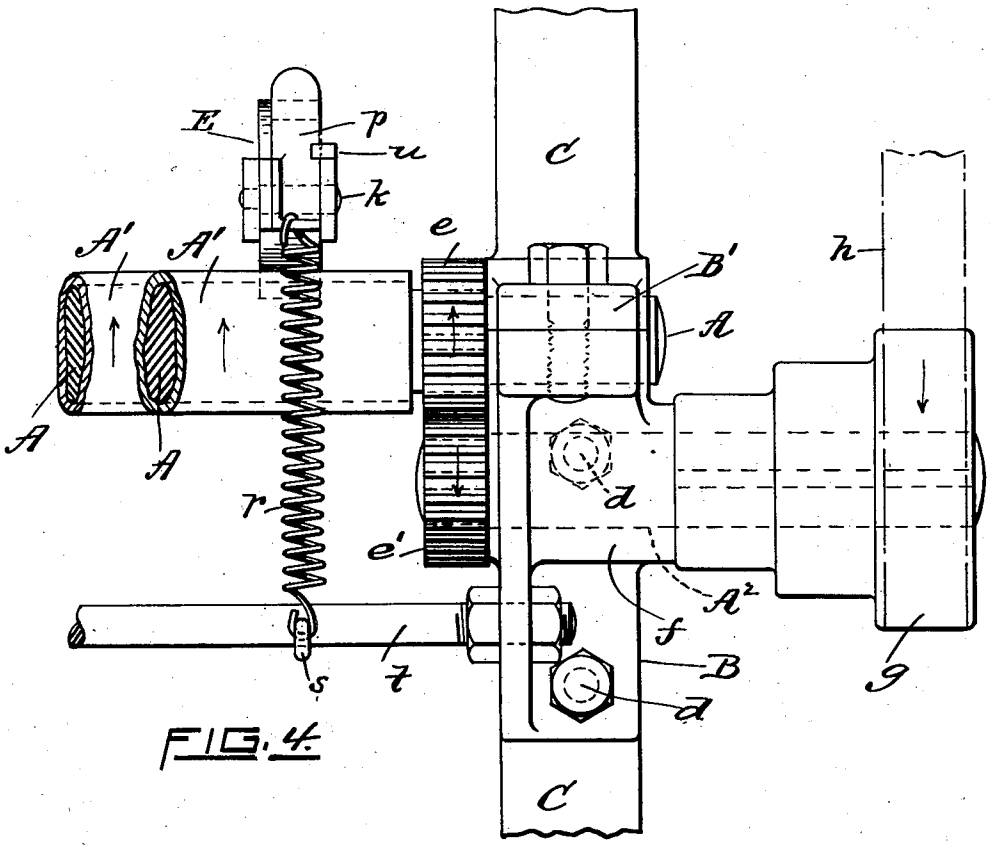

FIG. 4.

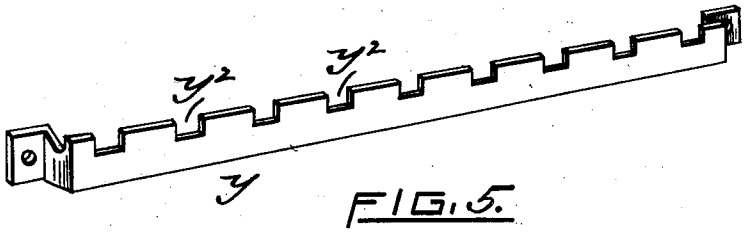

FIG. 5.

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No. 735,745. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

GEORGE A. FREDENBURGH, OF PAWTUCKET, RHODE ISLAND.

THREAD-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 735,745, dated August 11, 1903.

Application filed January 14, 1903. Serial No. 139,065. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. FREDENBURGH, a citizen of the United States, residing at the city of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Thread-Dressing Machines, of which the following is a specification.

My invention relates to a thread-feeding mechanism adapted for a thread-dressing machine; and the object of my invention is to provide cloth-covered shafts adapted to feed the thread, said shafts rotatably mounted on the said machine and driven by suitable means thereon, and a series of similarly-arranged spring-controlled devices mounted on the frame of the machine, each of said devices carrying a roller adapted to engage the thread upon the surface of the said cloth-covered shafts and each of said devices provided with means for the ready insertion of a thread in case of breakage during the operation of the feeding mechanism.

The invention consists of the novel construction and combination of the several parts, as hereinafter described and specifically set forth in the claims.

In the accompanying drawings, Figure 1 represents a top plan view of my improved thread-feeding mechanism as applied to the frame of a thread-dressing machine. Fig. 2 is an enlarged cross-sectional view of the cloth-covered shafts, taken in line X X of Fig. 1, together with a side elevation of one of the spring-controlled roller devices as in operation upon the machine and also showing in dotted lines the position of said device when a thread is to be tied after breakage of the same. Fig. 3 is a top plan view of a spring-controlled roller device secured to the frame of the machine. Fig. 4 is a front elevation of the driving arrangement for rotating the cloth-covered shafts and also showing a spring-controlled device in position upon the same, and Fig. 5 is a perspective view of the bracket for retaining the frame of the roller devices in position during the feeding of the thread.

Like letters indicate like parts.

Referring to Fig. 1, A A represent two horizontal shafts of equal size and having their end portions mounted in brackets B B, which are secured to the end frames C C of the machine by bolts *d d*. Each of the shafts A A is covered by cloth A′ A′, stitched or otherwise secured in place and extending to a point near to each of the said brackets B B. *e e* are two spur-gears of equal size and diameter. Each of said gears is keyed to the shafts A A and abuts the inner side of one of the brackets B. The shafts A A, constructed as described, are mounted in boxes of the brackets B B and are held in position thereon by bolts *b b*, which enter through caps B′ B′. One of the brackets B has an integral hub *f* (see Fig. 4) situated centrally of and beneath the two shafts A A. This hub is provided with a circular opening to receive a short shaft A^2, on one end of which is made fast a spur-gear *e′*, which meshes with each of the aforesaid gears *e e*, and on the opposite end portion of the said shaft A^2 is keyed a cone-pulley *g*, which is driven by a belt *h*, having connection with another cone-pulley (not shown) mounted on the main or driving shaft of the machine. The gears *e e* of the cloth-covered shafts A A are situated apart from each other. Hence the gear *e*, revolving in the arrow direction, drives each of the said gears *e e* in the reverse direction, as indicated by the arrows in Fig. 2. This construction and arrangement of parts as described comprises the means for carrying or feeding the thread upon the cloth-covered shafts as it comes up from the sizing-box (not shown) and which means forms a part of my improvement, operating in conjunction with a secondary attachment or device for engagement with the said cloth-covered shafts to permit of the proper tension of the thread and provided with means for the insertion of the thread in case of breakage during the operation of its feeding mechanism. The construction of this device I will now proceed to explain.

Referring to Figs. 2 and 3, D represents a frame provided with a rectangular opening *i*, and centrally of the walls *j j* of said frame is secured a stud *k*, upon which is mounted a circular disk or roller E, whose peripheral surface is made to contact upon the cloth surface of each of the shafts A A. The frame D has an ear *l*, integral at the rear portion thereof, by which ear the frame is pivotally connected with a pin *m*, which is se-

cured in ears n and n' of a support n^2, which support is secured in position by bolts o o, that enter through that portion of the machine-frame C' which extends longitudinally with the cloth-covered shafts A A. At the opposite or front end of the frame D is provided a knee-lever p, pivotally mounted on a pin p', which is riveted to an ear q, integral of the said frame. r is a coil pull-spring, one end of which is connected to an arm of the said knee-lever p and having its opposite end attached to a hook s of a shaft t, which extends parallel with the cloth-covered shafts A A, and having its ends secured in the brackets B B in the manner as shown in Figs. 1 and 4. The purpose of the pull-spring r is to make the roller E bear against the cloth-covered shafts, so that the proper tension is obtained upon the thread during its feeding movement from between the said roller and said covered shafts and the twister mechanism (not shown) above, and at the same time this roller E serves to squeeze out the sizing, which is carried by the thread from a size-box (not shown) below, leaving only an amount sufficient to saturate the thread prior to finishing. A latch u is pivoted on the frame D at a point u', and a pull-spring r' has one end connected to said latch, as at v', and its opposite end connected to said frame, as at v, and said spring serves to engage the latch with an arm of the knee-lever p and hold the same in position during the time the roller E is in contact with the cloth-covered shafts. A thread-guide w is secured by a screw w' to the ear l of the frame D. The other end of said thread-guide is circularly bent and situated centrally of the face of the roller E. The frame D, which carries said roller, is provided with a slot x, formed through one of its walls for the insertion of the thread x'. The thread x', which comes up from the sizing-box, passes over the surface of the front rotating cloth-covered shaft A, under and in contact with the circular surface of the roller E, over the surface of the rear rotating cloth-covered shaft A, from whence it passes up through the eye of the thread-guide w to be directed to the twister mechanism above. y is a bracket extending longitudinally of the frame c' and has its ends secured to the same by bolts y' y', as seen in Figs. 1 and 2. Said bracket is provided with a series of vertical openings y^2 y^2, formed in the upper portion of its wall, (see Fig. 5,) and of a size to receive the width of the rear portion of the frame D. Said bracket is arranged to retain the frame D in its relative position when its roller E is in contact with the covered shafts A A. Now if perchance the thread should break during its operation of feeding all that is necessary on the part of the operator is to move the latch u from its engagement with the arm of the knee-lever p, which movement will cause the main pull-spring r to swing the said lever to the position indicated by dotted lines in Fig. 2, after which the frame is tilted up by the hand of the operator to the position shown in dotted lines in said figure. A space is provided between the ear l of the frame D and the ear n' of the support n^2, so that when the frame is carried to the position aforesaid it may be forced toward the left to the position shown at 5 in Fig. 1, and the amount of movement provided by this space is to allow the ear l of the frame D to pass directly over an inwardly-projecting lug n^3, integral of the ear n', and said lug n^3 acts as a support to hold the roller-frame in a tilted position during the time required for tying together the ends of a broken thread, as shown in dotted lines in Fig. 2. The broken ends x^2 x^2 of the thread are now tied together. The thread is passed through the slot x and carried through the circularly-bent end of the thread-guide w, after which the frame D is brought from its resting-place upon the lug n^3 and allowed to swing down until its roller E finds its normal position upon the cloth-covered shafts. To reduce the wear upon the surface of the roller E by the movement of the thread, the said roller is provided with a band E', made of bronze or other suitable hard material.

By having the shafts A A mounted in boxes it will be observed that they can be readily taken out to be re-covered by cloth when the occasion requires. By the arrangement of the roller device the proper tension is obtained upon the thread during its feeding movement, and at the same time the use of the roller permits of no more sizing to be carried by the thread in its movement from the feed-rolls or cloth-covered shafts than is necessary. The slot arrangement of the lifting device allows a ready insertion of a thread in case of breakage. Furthermore, by the compact construction of the roller attachment it will be understood that a large number of these devices can be mounted on the frame of the machine for feeding a large number of threads to be finished or dressed.

This invention is an improvement upon the thread-dressing machine shown and described in Letters Patent of the United States No. 702,786, issued to me June 17, 1902.

I claim as a novel and useful invention and desire to secure by Letters Patent—

1. In a thread-dressing machine, the combination of two brackets secured upon the end frames of the machine, each of said brackets provided with a box; two horizontal shafts of equal size and having their ends mounted in the boxes of said brackets; a gear made fast upon each of said shafts and abutting the inner side of one of said brackets, each of said shafts covered by fabric; a shaft mounted in one of said brackets and extending parallel with and centrally of the first-named shafts; a gear made fast upon one end of said shaft and engaging the gears of the first-named shafts; a cone-pulley rigid upon the opposite end of said shaft and arranged to receive power to rotate the said first-named

shafts in the same direction; and a series of similarly-arranged spring-controlled devices each carrying a roller adapted to contact with the fabric of the said first-named shafts and having a slot for the insertion of a thread, substantially as shown and described.

2. In a thread-dressing machine, the combination of two horizontal shafts properly mounted on the machine-frame, said shafts located one in front of the other and each covered by cloth, means to rotate each of said cloth-covered shafts in the same direction, a tension device, consisting of a frame pivotally mounted on the machine-frame, extending transversely over the said cloth-covered shafts and provided with a slot, a circular roller pivotally mounted on the frame of said device and adapted to squeeze out a portion of the size carried by the thread during its movement between said roller and said cloth-covered shafts, a knee-lever pivotally mounted on the front end of the frame of said device, a spring-controlled latch pivotally mounted on the frame of said device to hold said lever in its normal position, a pull-spring connected to said lever and arranged to hold the said roller in contact with the said cloth-covered shafts, a thread-guide secured upon the frame of said device, and means for permitting a sliding movement of the frame of said device to hold the same in a tilted position, substantially as set forth.

3. In a thread-dressing machine, the combination of two shafts rotatably mounted on the machine-frame, each of equal size and arranged so that their axial centers are in a horizontal plane, each of said shafts covered by cloth, a gear rigid upon each of said shafts and separated from each other, means mounted on the machine-frame for rotating said shafts in the same direction, a support rigid upon the machine-frame and having an inwardly-projecting lug, a frame having one end pivotally mounted on said support and arranged to have lateral movement thereon whereby its lug can hold it in a tilted position, said last-named frame provided with a slot, a knee-lever pivotally mounted on the other end of said last-named frame, a spring-controlled latch to hold said lever in its normal position, a roller pivotally mounted on the said last-named frame and arranged to engage its peripheral surface with each of the peripheral surfaces of the said cloth-covered shafts, a coil-spring arranged to hold said disk in contact with said cloth-covered shafts, and a bracket secured upon the machine-frame and provided with one or more openings of a size to receive the frame of said roller, substantially as shown and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. FREDENBURGH.

Witnesses:
DANIEL E. LOCKE,
EUGENE E. THOMAS, Jr.