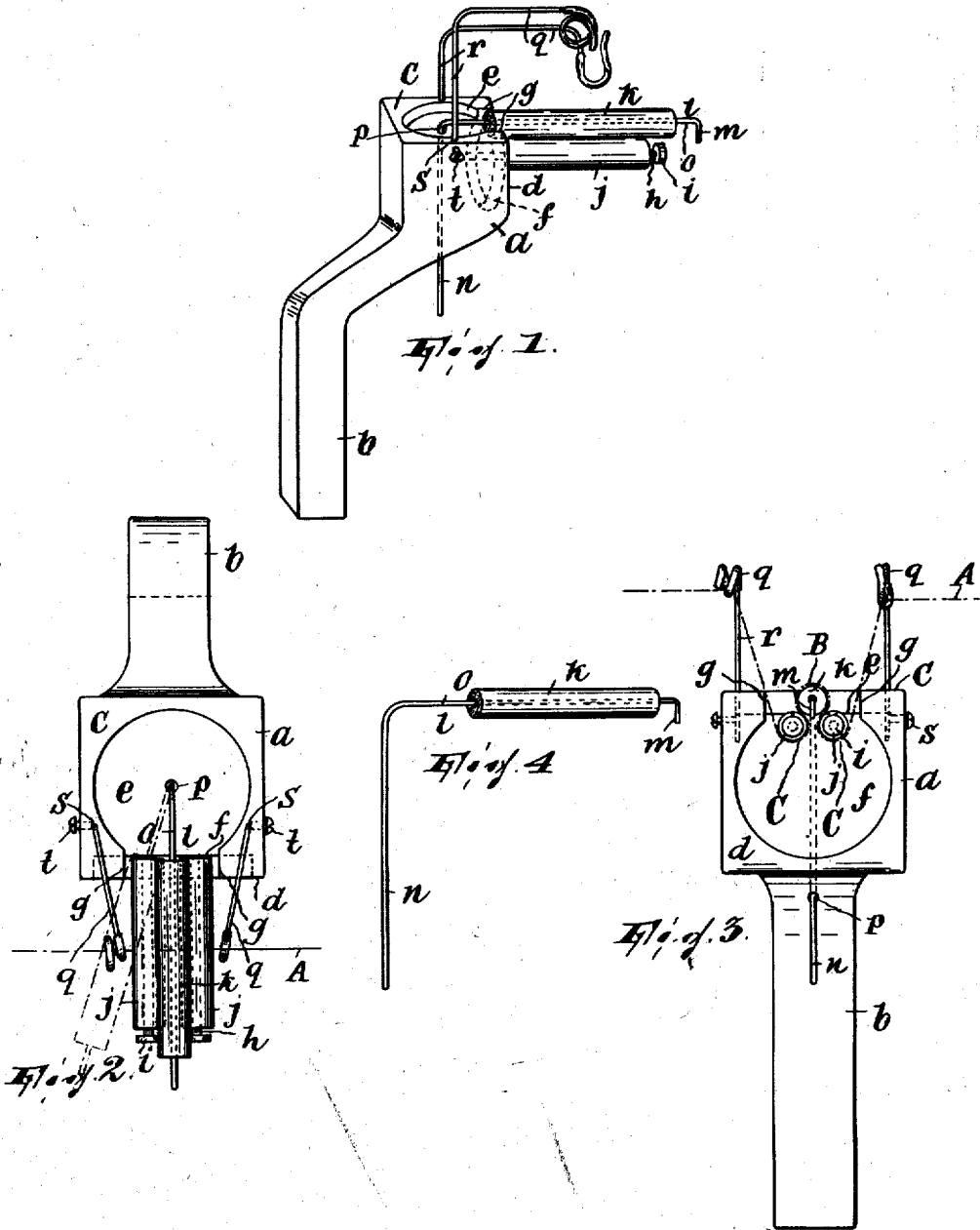


X. MIGLIORA & F. ROLKER.
TENSION DEVICE.
APPLICATION FILED APR. 27, 1911.

1,011,986.

Patented Dec. 19, 1911.



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XERUS MIGLIORA, OF WEST HOBOKEN, NEW JERSEY, AND FREDERIC BOLKER, OF NEW YORK, N. Y.

TENSION DEVICE.

1,011,986.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, XERUS MIGLIORA, a subject of the King of Greece, residing at West Hoboken, county of Hudson, and State of New Jersey, and FREDERIC BOLKER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Tension Devices, of which the following is a specification.

Our invention relates to a tension device to be used in the winding of thread, yarn or the like, for instance in quilling or similar winding machines, and it consists in certain improvements in such devices whereby a high degree of uniformity of tension may be secured and a tension device produced which is susceptible of use in connection with the winding of thread or yarn widely differing in tensile strength and other characteristics and substantially regardless of the speed at which the winding proceeds.

Referring to the accompanying drawing, wherein our invention is fully illustrated, Figure 1 is a perspective view of the improved device; Fig. 2 is a top plan view and Fig. 3 a front elevation thereof; and, Fig. 4 illustrates a detail.

a is a suitable bracket or supporting member having a stem *b* serving as a convenient means whereby to attach it to the frame of the machine in which the device is used. This bracket has its top face *c* and front face *d* arranged in planes at right angles to each other and, said faces having recesses *e* and *f*, respectively, communicating with each other, it is provided with opposed shoulders *g* resulting from the cutting away or removal of the material of the bracket to produce the said recesses (Figs. 2 and 3).

Projecting from the recessed portion of the front face of the bracket are two studs *h* (preferably of wood) having heads *i* and arranged parallel with each other. On these studs are journaled cylindrical rollers *j*, preferably formed of glass, the heads *i* of the studs retaining the ends of said rollers always more or less within the recess *f*. Resting on the rollers *j* is another cylindrical roller *k*, also preferably of glass, the same approximating in diameter the diameter of the rollers *j*. The roller *k* is retained in operative relation to the rollers *j* as follows: *l* is an axial support therefor consist-

ing, in the adaptation shown, of a piece of wire having one end *m* bent off to form a head or stop and an appreciable part thereof including its other end bent off at right angles to form a stem or pivot-portion *n*. This wire, on the body part *o* of which the roller *k* is journaled, has its stem *n* received by a vertical hole *p* extending down through the bracket *a* centrally from its recess *e*, the hole being appreciably larger in diameter than the stem, so that the stem stands perfectly free therein. The thread *A*, in the present adaptation, extends under one roller *j*, over the roller *k*, and then under the other roller *j*, so that a bend *B* is maintained therein. Bends *C* of more or less degree, as the circumstances may require, may be maintained in the thread where it extends around the roller *j* in any suitable manner, in the present instance guides *q* being used for this purpose. These guides are shown situated relatively above the three rollers and one at one side and the other at the other side thereof, each guide being L-shaped in side elevation and having its stem *r* extending into a suitable hole *s* formed in the top of the bracket and held for vertical and rotative adjustment by a set screw *t* or any other convenient expedient. It will be understood that by rotatably adjusting either or both of the guides, or by adjusting either or both of them vertically, various degrees of tension will result, principally because such adjustments alter the character of the bends in the thread at *C*.

In operation, the thread is kept within the control of the rollers at all times by the guides *q*. The rollers *j* are mounted on fixed bearings *h h*, whereas the roller *k* is free not only to rotate but to vibrate, so that in action it may assume a variety of positions relatively to rollers *j j*; its normal position is that shown in Fig. 3, in which position regarding either of the rollers *j j* the other and member *l* tend always to retain it. Any tendency for roller *k* to move laterally in its vibrations so far as to fail properly to coact with rollers *j j* is usually prevented by the thread itself; but such movement is positively prevented in the device as herein particularly shown and described by the shoulders *g g*, the dotted outline in Fig. 2 indicating the limit of lateral movement thus afforded roller *k*. Endwise movement of roller *k* is limited by

stop *m* and the bracket *a*. It will be noted that the ends of the rollers *j j* and *k* which adjoin the support *a* are received in the recess *f*. This insures the thread against working over these ends of the rollers and perhaps snarling about the studs *h* and member *i*. In adjusting the thread or yarn to the tension device the operator, holding the thread with both hands, passes the intervening part of the thread over the projecting free or outer end-portion of the roller *k* (Fig. 2), then between and under the rollers *j j* to form the bends *C*, and then engages the thread with the guides *g*.

In practice it has been found that our tension device is well adapted, because of its capability of automatically adjusting itself to varying conditions, such as wide differences in speed of winding and various tensile strengths and other characteristics of the material to be wound, for use universally in the control of thread or yarn in the winding and similar operations, and that, while it serves at all times to preserve the tension uniform and regular in character, it is also calculated not to produce breakage of the thread.

We do not wish to be limited to the employment of three thread-engaged members, nor to the members used being each cylindrical, nor to their being each rotary, as these are not indispensable features of the invention, what we claim being:

1. In combination, means for maintaining reverse bends in the thread including two normally contacting tension members arranged on substantially parallel axes crossing the thread line, one of said members being movable out of parallelism with the other but being normally forced into parallelism therewith by the thread, and one of said members being rotary, and means for supporting said members in coöperative relation with each other, substantially as described.

2. In combination, means for maintaining reverse bends in the thread including two normally contacting tension members arranged on substantially parallel axes crossing the thread line, one of said members being movable out of parallelism with the other but being normally forced into parallelism therewith by the thread, and being also movable to and from the other member, and one of said members being rotary, and means for supporting said members in coöperative relation with each other, substantially as described.

3. In combination, means for maintaining reverse bends in the thread including three tension members arranged on substantially parallel axes crossing the thread line and each member normally contacting with the other two members, one of said members being movable out of parallelism with the other two members but being normally forced into parallelism therewith by the thread, and means for supporting said members in coöperative relation with each other, substantially as described.

4. In combination, means for maintaining reverse bends in the thread including three tension members arranged on substantially parallel axes crossing the thread line, one of said members resting upon the other two members and being movable out of parallelism but being normally forced into parallelism therewith by the thread, and means for supporting said members in coöperative relation with each other, substantially as described.

5. In combination, with a support, a tension member carried by the support, a vibratory thread-controlled roller arranged with its axis of rotation horizontal and normally held bearing down on the tension member by the thread, the thread being adapted to extend between said tension member and the roller and around the latter, and a controlling part for said roller affording an axis therefor and movable in the support vertically and also around a substantially vertical axis, substantially as described.

6. In combination, with a support, a pair of tension members carried by the support, a vibratory thread-controlled roller arranged with its axis of rotation horizontal and normally held bearing down on said tension members by the thread, the thread being adapted to extend first between one of the tension members and the roller, then around the latter and then between the other tension member and the roller, and a controlling part for said roller affording an axis therefor and movable in the support vertically and also around a substantially vertical axis, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

XERUS MIGLIORA.
FREDERIC ROLKER.

Witnesses:

JOHN W. STEWARD,
WM. D. BELL.