

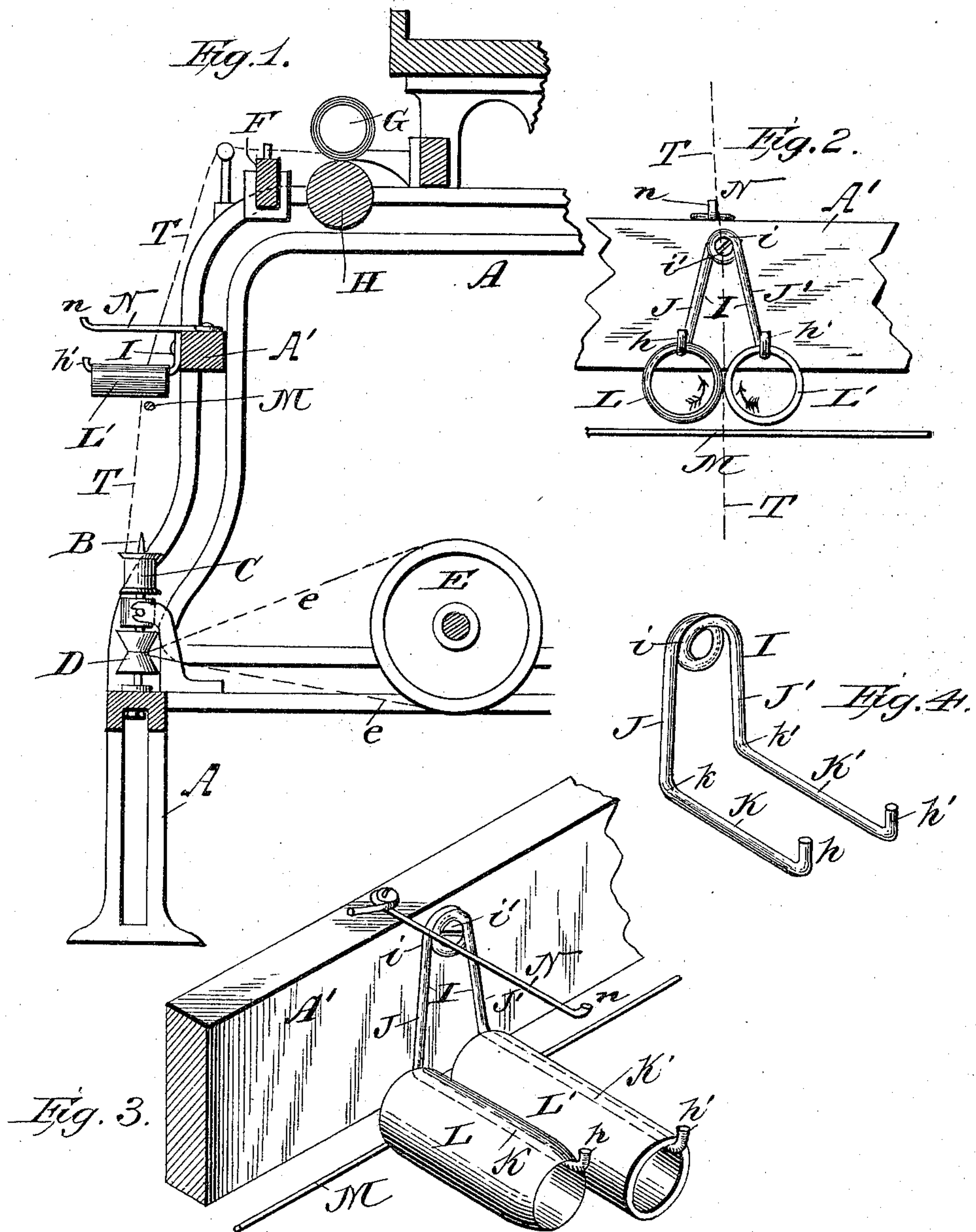
(No Model.)

G. SINGLETON.

TENSION DEVICE FOR SILK TWISTING MACHINES.

No. 533,238.

Patented Jan. 29, 1895.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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TENSION DEVICE FOR SILK-TWISTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 533,238, dated January 29, 1895.

Application filed April 16, 1894. Serial No. 507,717. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SINGLETON, a citizen of the United States, and a resident of Dover, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Tension Devices for Silk-Twisting Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents, in sectional elevation, so much of a silk-twisting machine as is necessary to illustrate the construction and application of my improved tension-device. Fig. 2 is a front elevation of the tension-device. Fig. 3 is a perspective detail view of my improved tension-device, illustrating, more clearly, the manner of fastening said device upon the frame of the machine above the spindle; and Fig. 4 is a detail view of the duplex wire-support or bearing upon which the hollow tension-cylinders are supported and revolve.

Like letters of reference designate corresponding parts in all the figures.

This invention relates to an automatic gravity tension-device for silk-twisting machines or other twisting machines, or wherever a tension is required on a thread while passing from one spool to another, or from a spool to a skein; and has for its object the giving an even tension on the thread while being transferred from one spool to another; either in the process of twisting, or for any other process where a tension on a thread is required, at the same time providing against too great, as well as too little, tension-strain upon the thread as it passes from the spindle-bobbin or spool to the receiving-spool or bobbin, or skein.

With these objects in view, my invention consists in the improved automatic gravity-tension device which will be hereinafter more fully described, and in the combination with a twisting-machine of said improved tension device.

Referring to the accompanying drawings, the reference letter A denotes so much of the

frame of a silk-twisting machine as is necessary to properly illustrate and explain my invention; B, the spindle; C, the spindle-spool or bobbin from which the thread is to be unwound; D, the spindle-pulley; E, the driving cylinder with its belt, *e*; (shown in broken lines;) F, the traverse bar; G, the receiving-spool or bobbin; and H the driving-roll. As these several parts do not differ in their construction, relative arrangement, or operation, from the usual and well-known construction and arrangement, they will require no further description here.

Upon the transverse rail, A', of the machine-frame, A, is fastened, above and registering with each spool or bobbin, a duplex bearing or tension-support, I, made preferably of twisted wire, and of the peculiar construction and configuration illustrated more clearly in Fig. 4. By reference to this figure, it will be seen that this bearing consists of a piece of smooth wire, which is first twisted so as to form an eye or loop, *i*, through which a fastening-screw, *i'*, may be inserted, and then bent to form two parallel arms, J and J', the free ends of both of which are bent to form elbows, *k* and *k'*, from which the ends of the two wires are again bent or deflected at right angles to the arms, J and J', so as to form the outwardly-projecting parallel bearings or supports, K and K'. The extreme outer end of each arm, K and K', is turned up at right angles so as to form a stop, as shown at *h* and *h'*. Upon each of these arms or bearings, K and K', is hung loosely a hollow metal cylinder, L and L'. In practice, I prefer to make these cylinders of steel, nickel-plated and with a very smooth and highly-polished exterior finish; but they may be made of any other suitable metal; or of glass; or any other suitable material sufficiently hard and capable of receiving a very smooth finish. The distance between the bearings, K K', is less than the diameter of the cylinders, so that when the cylinders are hung loosely upon them, and in consequence of the bearings being less in diameter than the cylinders, as aforesaid, the two surfaces of the cylinders will be brought together, as shown in Fig. 2, so as to exercise a constant and even pressure on the thread.

Below the cylinders, L L', is the transverse

guide-wire, M, which runs horizontally the entire length of the frame A and rail A', and serves to prevent the thread, shown by the broken line marked T, from being carried endwise off of the cylinders as it passes up to the winding-bobbin outside of said guide-rod or wire, M. Above the cylinders, L, L' is another thread-guide, N, which consists of a short rod or piece of smooth wire, bent into an eye at its inner end, so that it may be conveniently fastened upon the top of the rail A' by means of a screw inserted through the eye, and, extending outwardly parallel to the axis of the tension-cylinders, is bent at its outer end into a hook, n. I desire it to be understood, however, that instead of fastening this upper guide-wire, N, upon the machine-frame in the manner described, its inner end may be made screw-threaded, so that it may be screwed into the rail of the machine, thus dispensing with the use of a separate screw for fastening it to the rail; and it will also be obvious, that, while I prefer (for the sake of cheapness and convenience) to construct the duplex cylinder-bearing or support, I, with a screw-eye, i, for its attachment to the frame of the machine by a screw inserted through said eye, other means of fastening said bearing to the frame of the machine may be employed, if desired.

The operation of this device will be readily understood on reference to the drawings, and is briefly as follows: The strand, T, as it comes from the spool or bobbin, C, is passed outside of the transverse guide-wire or retaining-guard, M, and in between the two cylinders, and then up to the receiving-bobbin across the upper traverse bar, F; being prevented from slipping off from between the cylinders by the transverse guard, M, and hooked guide-wire, N, which latter also keeps the strand in its proper position on its upward passage between the two cylinders. As it passes between the two loosely-hung and movable cylinders on the arms, K K', which are a less distance apart than the diameter of the cylinders, as aforesaid, the two cylinder surfaces are brought together, producing automatically the proper tension, without undue rubbing upon or friction against the thread, as both cylinders revolve upon their respective supports, K and K', as the strand passes between them, as indicated by the arrows in Fig. 2.

By changing the cylinders for weightier ones, or by compressing the bearings, K' K', the amount of tension will be increased proportionately to the increased gravity of the cylinders; while, reversely, the amount of tension desired may be reduced by substituting cylinders of lighter weight.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A tension device for silk twisting and other machines, comprising two bearings between the winding and unwinding spools, and the two hollow cylinders loosely supported upon said bearings, the distance apart of the said bearings being less than the combined radii of the two cylinders, so that the surfaces of the cylinders are pressed against each other.

2. A tension device for silk twisting and other machines comprising two bearings between the winding and unwinding spools, consisting of a piece of wire formed with a central coil, two downwardly extending arms, and two outwardly extending arms at right angles thereto having their ends bent upwardly forming stops, and two hollow cylinders loosely supported upon said bearings, the distance apart of said bearings being less than the combined radii of the two cylinders, so that the surfaces of the two cylinders are pressed against each other, substantially as described.

3. The combination in a silk or other twisting machine, of the unwinding spool C and winding spool; hollow tension cylinders L and L', the tension support I having bearings K and K', upon which said cylinders are loosely hung, the distance apart of said supports being less than the combined radii of the two cylinders so that the surfaces of the two cylinders are pressed against each other; the lower transverse guide wire M; and upper hooked guide wire N, projecting from the frame of the machine above the tension cylinders and parallel to their axes, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

GEORGE SINGLETON.

Witnesses:

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