

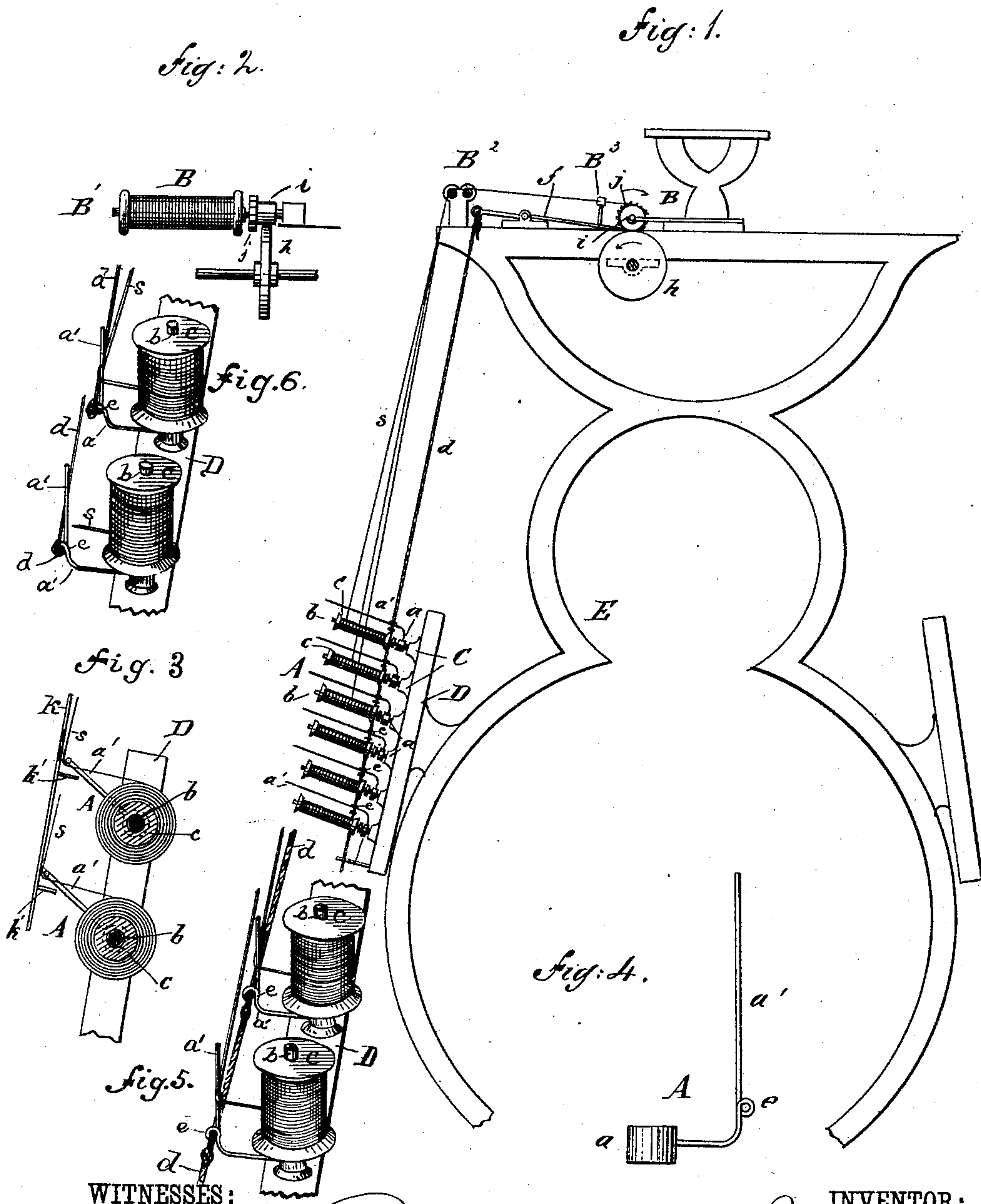
(No Model.)

JOHN NIGHTINGALE & JOSEPH NIGHTINGALE.

STOP MOTION FOR DOUBLING MACHINES.

No. 341,597.

Patented May 11, 1886.



WITNESSES:

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JOHN NIGHTINGALE AND JOSEPH NIGHTINGALE, OF PATERSON, N. J.

STOP-MOTION FOR DOUBLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 341,597, dated May 11, 1886.

Application filed April 24, 1885. Serial No. 163,306. (No model.)

To all whom it may concern:

Be it known that we, JOHN NIGHTINGALE and JOSEPH NIGHTINGALE, both of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Stop-Motion for Doubling-Machines, of which the following is a full, clear, and exact description.

Our invention consists in the construction, combination, and arrangement of parts, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 shows a silk-doubling machine with our invention applied thereto, only so much of the machine being shown as is necessary to illustrate our invention. Fig. 2 is a detailed view showing the receiving-bobbin, means for revolving it, and the ratchet for stopping the bobbin in case a thread breaks. Fig. 3 is a detailed sectional view of the spindles and spools, showing a modification; and Fig. 4 is an enlarged side elevation of one of our new gravity take-ups removed from the creel-spindle. Fig. 5 is a perspective view on an enlarged scale, showing two of the spools *c* on their spindles, the take-ups, and a modified manner of connecting a cord, *d*, therewith, the ends of the plate *D* being broken away. Fig. 6 is a similar view to Fig. 5, but showing a separate cord for each take-up arm.

A represents our new gravity take-up. It is, by preference, composed of the collar *a* and bent wire or rod *a'*, secured to the collar *a*. The collar *a* is made of a size to fit loosely upon the creel-spindles *b* below the spool *c*. The rod or wire *a'* is bent at right angles, so that the longer arm thereof stands parallel with and a little distance from the spool *c*, as shown clearly in the drawings, and the rod or wire is formed or provided with an eye, *e*, to receive the cord *d*, that is attached to the stop lever or pawl *f*, for stopping the revolution of the bobbin *B* and spindle *B'*, on which it is placed, in case a thread should break. The several cords *d* that connect the pawl with the eyes of the take-up arms may be tied to said eyes, or knotted after having been passed through said eyes. These eyes *e* prevent the cords from sliding laterally on the take-up

arms, thus rendering confusion by tangling impossible. The spindles *b* may be of any desired number, and are each attached to a plate or bar, *C*, that is adapted to be secured to the inclined plate *D*, attached to the main frame *E* of the doubling-machine, so that the spindles *b* will hold the spools *c* at an angle, as shown in Fig. 1, in the ordinary way. The spindle *B'* is revolved by the friction-wheels *h i* in the ordinary manner, and the spindle is provided with the ratchet-wheel *j*, with which the above-mentioned pawl *f* is adapted to engage in the ordinary manner for stopping the revolution of the spindle *B'* if any of the threads *s* break. It will be observed that the pawl *f* has a long and a short arm, the long arm extending adjacent to the ratchet-wheel *j*, and the cord *d* or the rod *k*, hereinafter described, is attached to the short arm of said lever. The spools *c* are placed upon the spindles *b*, so that the threads unwind from the top of the spools, and the thread is passed first under the wires *a'* and carried thence over the bars *B²*, then through the traversing eye *B³* to the bobbin *B*. In unwinding the thread from the spools *c* the friction of the spools upon the spindles *b* will cause each thread to lift its take-up *A* to or nearly to a level with the thread on the spool, as shown in Fig. 3, so that the whole weight of the take-up comes upon the thread and always holds it taut, and takes up any slack that may occur in the thread by reason of the spool turning too rapidly on spindle *c* or otherwise. In this manner a regular tension is kept upon the threads, causing them to be wound with uniform tightness upon the bobbin *B*.

Each take-up *A* is preferably connected to the end of the pawl *f* by a small cord, *d*, above mentioned, as indicated in Fig. 6. When the weight of the take-up is upon the thread, the cord *d* is slack; but in case the thread breaks the whole weight of the take-up will come upon the cord *d*, which will turn the pawl upon its pivot and cause its inner end to engage with the ratchet-wheel *j*, and thus instantly stop the revolution of the spindle *B'*. In the modification shown in Fig. 5 a single cord *d* extends through the several eyes of the take-up, and is knotted below each eye, so that, no matter which thread breaks, the cord

d may be readily operated by the falling of a take-up arm. The cord d is of course slack—that is, not under tension—when none of the take-up arms rest upon a knot to hold the
5 pawl engaged.

In place of a cord or cords d , we may use a single light plate or rod, k , attached to the pawl f , and provided with pins or projections k' , one for each take-up A , and arranged below the arm a' of each take-up, so that when a thread breaks the take-up will drop upon a pin, k' , which will draw the plate or rod k downward, and cause pawl f to engage with the ratchet j with the same results
10 as above described. With the latter construction the eye e will be omitted from the take-up arm a' .

The invention may also be applied with like advantage to a warping-machine.

20 Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the bobbin-spindle provided with a ratchet-wheel, means for
25 operating said spindle, and a pivoted pawl adjacent to but normally out of contact with said ratchet-wheel, of the creel-spindle, the take-up loosely mounted thereon and provided with an arm extending parallel with said spindle
30 to bear on the thread being wound, and a connection, substantially as described, secured at one end to the pawl and extending at its opposite end to the take-up arm to be operated

thereby, whereby when a thread breaks the said arm will fall, move the connection longitudinally, and throw the pawl into engagement with the ratchet-wheel, substantially as
35 set forth.

2. The combination, with the bobbin-spindle having a ratchet-wheel, means for operating the spindle, and the pawl f , having a long arm extended adjacent to the said ratchet-wheel, and a short arm, of the creel-spindle b , a take-up loosely mounted thereon and provided with an arm, a' , extended parallel with
40 the said creel-spindle and adapted to bear on the thread being wound, and a cord, d , connected to the short arm of the pawl and to the arm a' of the take-up, substantially as set forth.

3. The combination, with the bobbin-spindle B' , having a ratchet-wheel, means for operating the spindle, and the pawl f , normally out of contact with the said ratchet-wheel, of the series of creel spindles b , the take-ups A , loosely mounted on said spindles, and each
45 having an arm, a' , extended parallel with the creel-spindles and provided with eyes e , and a series of cords, d , all secured at their upper ends to the pawl, and each secured at their lower ends to an eye, e , substantially as set
50 forth.

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