J. WILD & E. HEY.

Spooling and Doubling Machine.

No. 167,375. Patented Aug. 31, 1875.

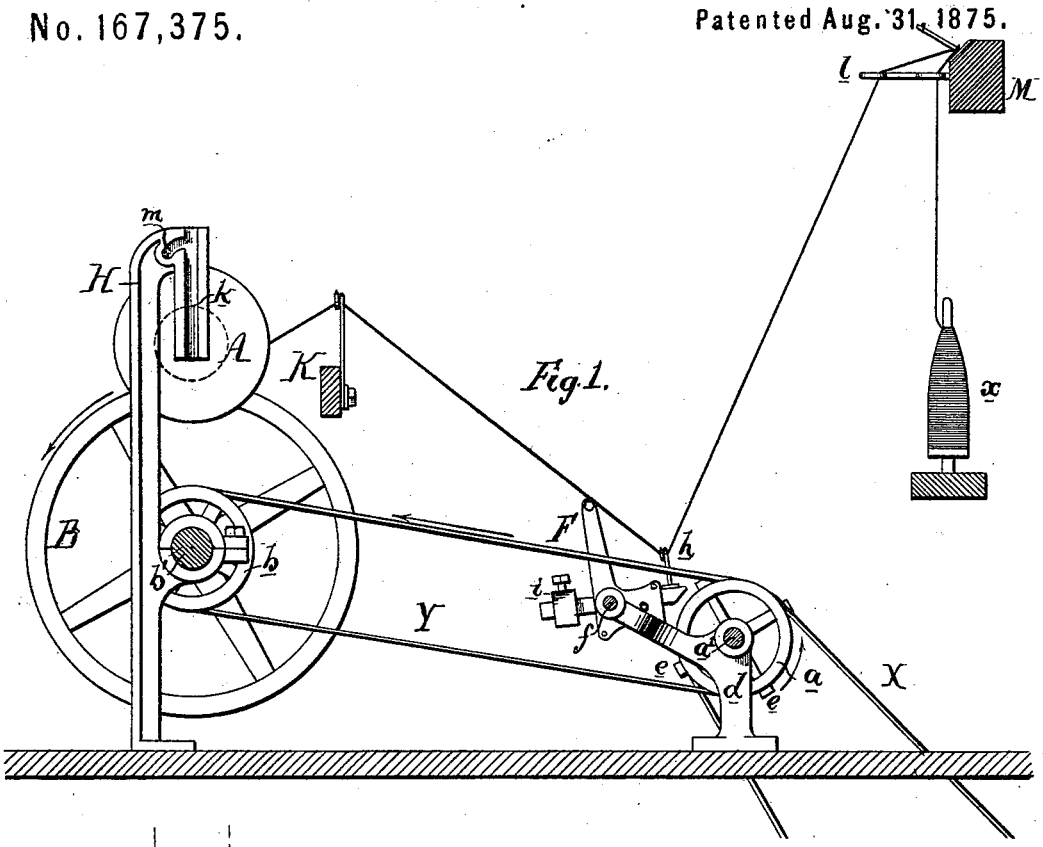

Fig. 1.

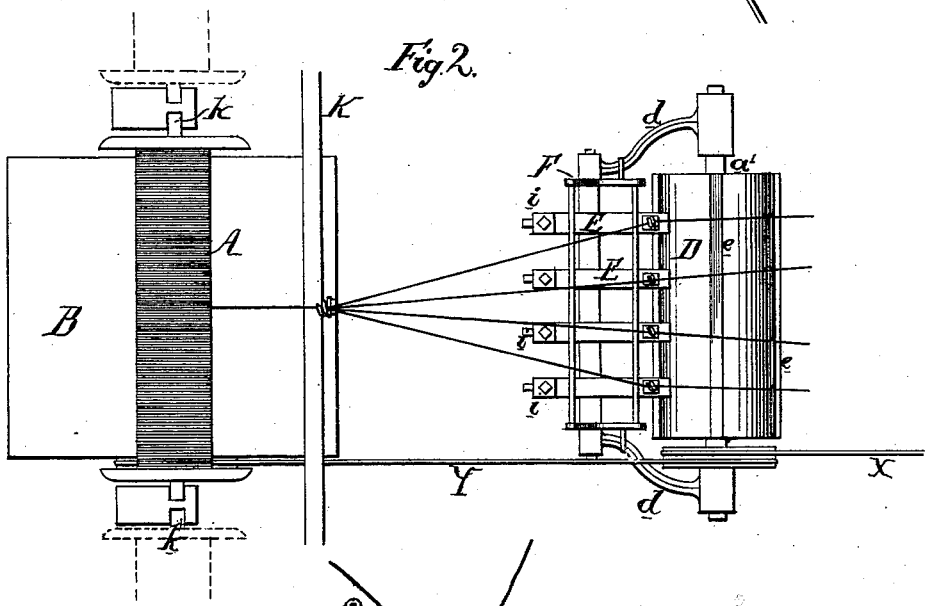

Fig. 2.

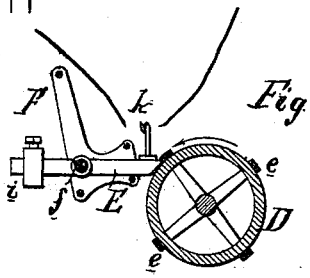

Fig. 3.

Witnesses,
E. H. Eckfeldt
Harry Smith

James Wild
and Emanuel Hey
by their Attorneys
Howson and Sons

UNITED STATES PATENT OFFICE.

JAMES WILD, OF SPRINGFIELD TOWNSHIP, DELAWARE COUNTY, AND EMANUEL HEY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SPOOLING AND DOUBLING MACHINES.

Specification forming part of Letters Patent No. **167,375**, dated August 31, 1875; application filed March 24, 1875.

To all whom it may concern:

Be it known that we, JAMES WILD, of Springfield township, Delaware county, Pennsylvania, and EMANUEL HEY, of Philadelphia, Pennsylvania, have invented certain Improvements in Spooling and Doubling Machines, of which the following is a specification:

The object of our invention is to stop the bobbins or spools of a doubling and winding machine when the strands break, and especially to effectually and instantly stop a spool appertaining to a broken strand without disturbing the neighboring spools; and this object we attain in the manner which we will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of a spooling-machine illustrating our improvements; Fig. 2, a plan view of Fig. 1, and Fig. 3 a detached view of a portion of the same.

It should be understood in the outset that although we have shown our invention only as applied to a single spool or bobbin, it is intended to be applied to each spool carried by the frame of the machine.

The driving-belt X passes around a pulley, *a*, on a shaft, *a'*, this pulley imparting motion, through the medium of an endless band, Y, to a like pulley, *b*, attached to a shaft, *b'*, which carries a drum, B, whose width is equal, or nearly equal, to the length of the spool A, which is driven by the drum B, in a manner and for a purpose explained hereafter. The shaft *a'* is supported at its opposite ends by standards *d d*, and to this shaft *a'* is connected a cylinder, D, on the circumference of which are formed a series of longitudinal ribs, *e*, four being shown in the present instance, although a greater or less number may be employed, if desired. The outer ends of the standards *d d* are connected together by a rod, *f*, on which are hung, in the present instance, four fingers, E, the outer ends of which are furnished with counterbalance-weights *i*, while their inner ends are provided with eyes *h*, through which the strands pass. Plates F are also hung to the rod *f* outside of the fingers E, these plates being braced by suitable cross-bars, and serving to retain the said fingers in their proper lateral position. The opposite ends of the spindle of the spool or bobbin A are adapted to vertical slots *k* in the frame H, and the spool is driven by the contact of the drum on the thread as it is being wound, the vertical slots in the frame allowing the spool to rise as it is gradually filled until the winding is complete, when the ends of the spindle fall into the recesses *m*, the spool being then removed by an attendant prior to the introduction of an empty one. K is the usual vibrating traverse-bar, through an eye on which the strands from the eyes *h* on the bars E pass, said traverse-bar serving, as usual, to spread the thread evenly on the bobbin. Each strand is drawn from a cop, *x*, arranged on a suitable stand, and passes first through an eye, *l*, on a stationary bar, M, thence through the eye *h* of one of the fingers E, and thence through the eye on the traverse-bar to the bobbin.

As long as the strands remain unbroken, as shown in Fig. 1, the fingers E will be maintained in an elevated position, and the ribbed cylinder D can revolve freely in the direction of the arrow; but the instant either of the strands breaks, the finger E, which it controls, will fall, and will come in contact with one of the ribs of the said cylinder, as shown in Fig. 3, the effect of this movement being to instantly stop the revolution of the cylinder and its shaft, and also that of the drum D and bobbin A, which it controls.

By isolating each spool in a frame from the rest, in the manner above described, and providing it with independent driving and stop mechanism, the stopping of one spool will in nowise affect the operation of the balance of the machine.

By applying the power directly to the threads by means of the drum B, the speed at which the said threads are drawn will always be uniform, no matter how fully the spool may be wound, and the tendency of the threads to be broken by uneven tension will be entirely obviated.

Although we prefer, and have shown, belts as the medium of driving the machine, it will be evident that the same could be driven by a cog-wheel placed between the pulleys *a* and *b*, and gearing into teeth formed on the same, the bars E in such case, however, being ap-

plied to the opposite side of the ribbed cylinder D on account of the change in the direction of its revolution which would result from this mode of driving.

It will be evident, also, that the ribs might be formed directly on the drum B, and the pivoted fingers applied to the same, the cylinder D being of course dispensed with in such case; or ratchet-teeth may be substituted for the ribs in either case without departing from our invention.

We claim as our invention—

1. The cylinder D, carried by a shaft, from which the spool is driven, and provided with one or more ribs, *e*, in combination with a series of fingers, E, each controlled by one of the threads, and suspended adjacent to said cylinder, whereby each finger, when depressed, is struck by one of said ribs, all as and for the purpose set forth.

2. The combination of the spool or bobbin, resting with its covered portion on the driving-drum B, the fingers E, controlled by the threads passing to the spool, and the ribbed cylinder D, from which motion is communicated to the drum, all as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES WILD.
EMANUEL HEY.

Witnesses:
HUBERT HOWSON,
HARRY SMITH.