2 Sheets—Sheet 1.

J. WILD.

STOP-MOTIONS FOR SPOOLING-MACHINES.

No. 191,738. Patented June 5, 1877.

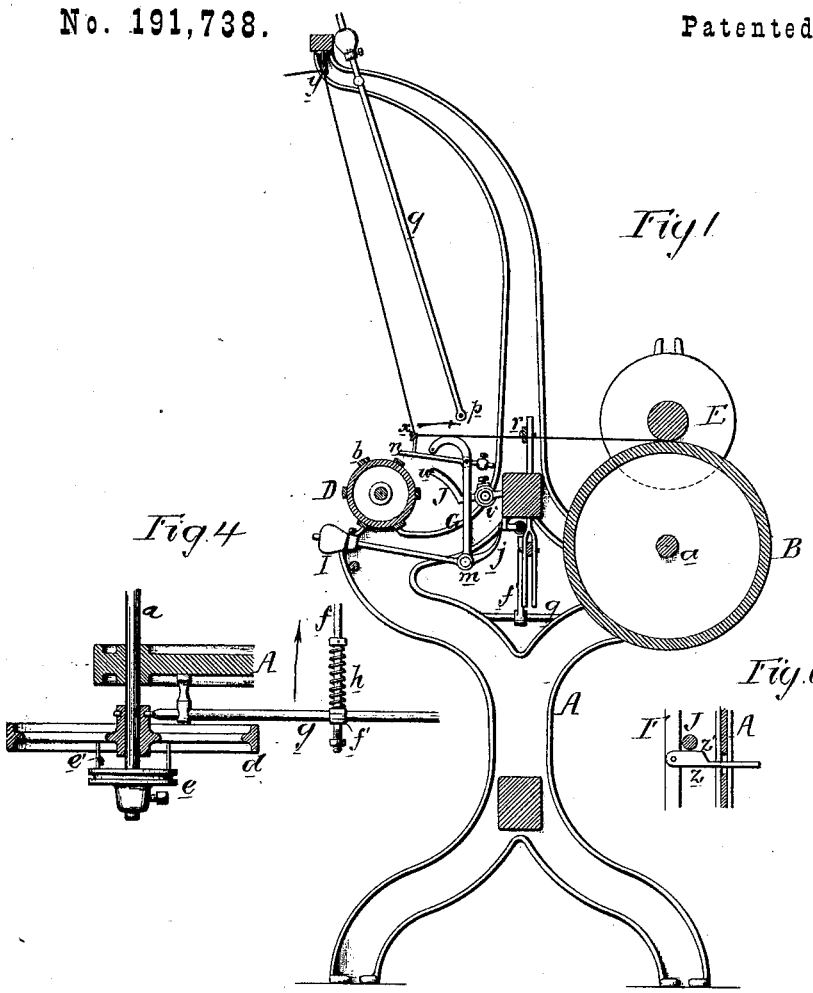

Fig. 1

Fig. 4

Fig. 6.

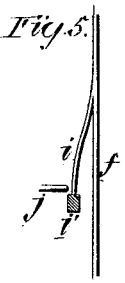

Fig. 5.

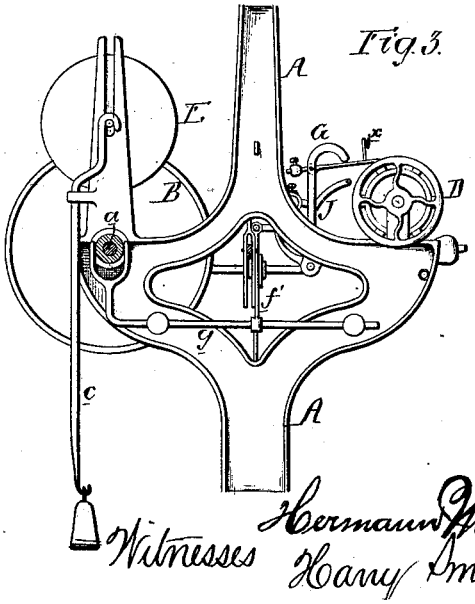

Fig. 3.

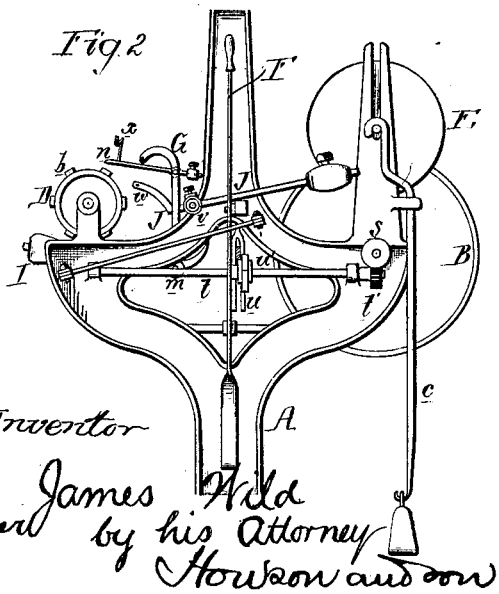

Fig. 2

Witnesses
Hermann Groesser
Harry Smith

Inventor
James Wild
by his Attorney
Howson and Sons

2 Sheets—Sheet 2.

J. WILD.

STOP-MOTIONS FOR SPOOLING-MACHINES.

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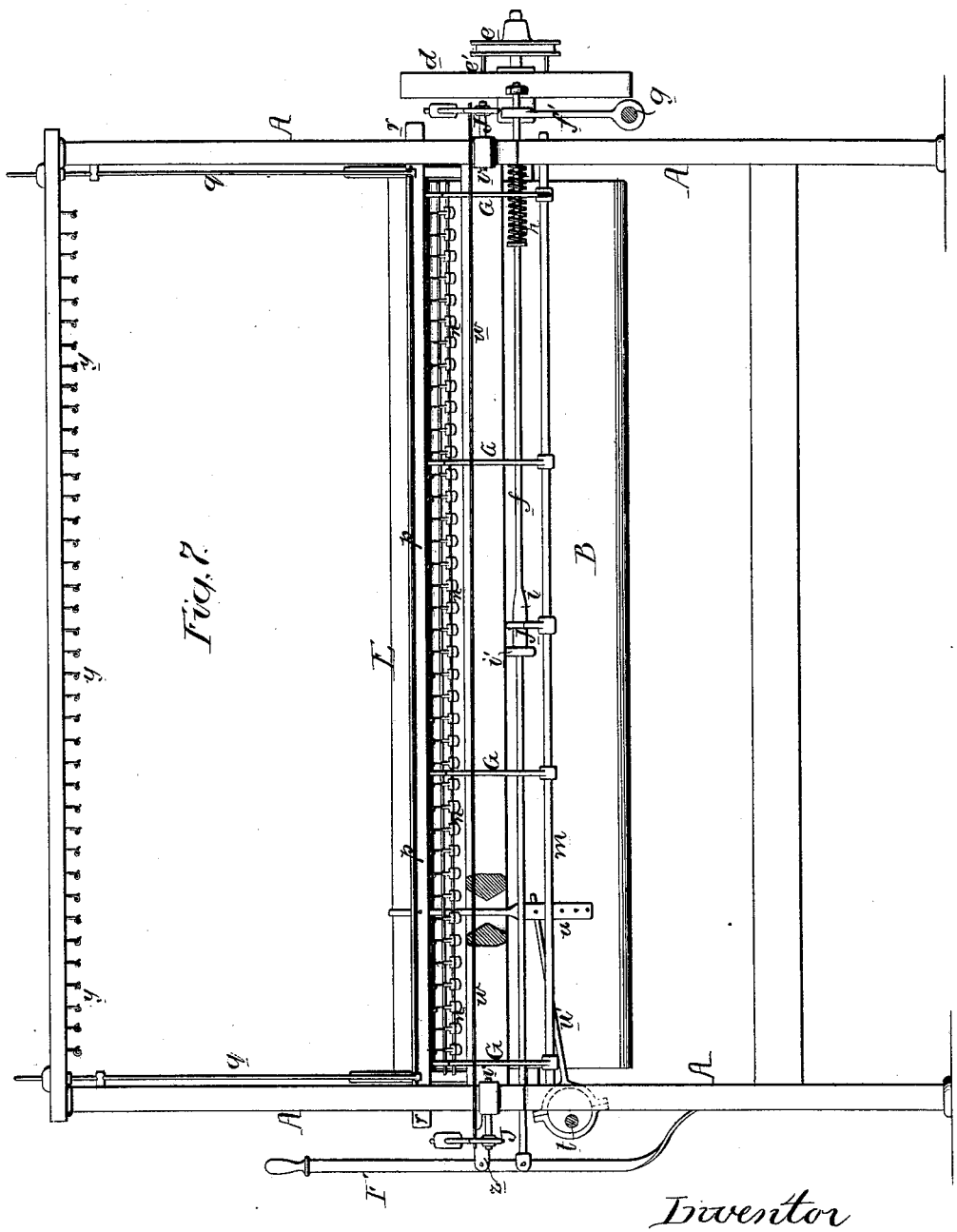

Fig. 1.

Witnesses
John M. Deemer
Harry Smith

Inventor
James Wild
by his Attorneys
Howson and Howson

UNITED STATES PATENT OFFICE.

JAMES WILD, OF CLIFTON HEIGHTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO EMANUEL HEY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN STOP-MOTIONS FOR SPOOLING-MACHINES.

Specification forming part of Letters Patent No. **191,738**, dated June 5, 1877; application filed November 6, 1876.

To all whom it may concern:

Be it known that I, JAMES WILD, of Clifton Heights, Delaware county, Pennsylvania, have invented a new and useful Improvement in Spooling-Machines, of which the following is a specification:

My invention relates to certain improvements in the spooling-machine for which Letters Patent of the United States, No. 167,375, were granted to myself and Emanuel Hey on the 31st day of August, 1875, the object of my present improvements being to apply the invention described in said patent to spooling-machines in which a large number of threads are wound upon a reel or spool. This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical section of my improved spooling-machine; Fig. 2, an end view of the same; Fig. 3, an opposite end view; Figs. 4, 5, and 6, detached sectional views of different parts of the machine; and Fig. 7, Sheet 2, a front view of the machine with the ribbed cylinder removed.

A A are the opposite end frames of the machine, in which are formed bearings for a driving-shaft, *a*, carrying a drum, B, and for the shaft of a cylinder, D, the face of which is provided with a number of longitudinal ribs, *b*, as in the former patent.

Immediately over the drum B is placed the spool E, the spindle of which is adapted to vertical slots in the end frames of the machine, and carries at each end a weighted bar, *c*, the tendency of which is to maintain the threads wound on the spool in contact with the surface of the drum B, which thus serves to impart an even and regular movement to the threads whether the spool be full or nearly empty.

The shaft *a*, instead of being driven from the shaft of the cylinder D, as in the former patent, has a loose driving-pulley, *d*, Fig. 4, which can be clutched to, or released from, the shaft by means of a disk, *e*, secured to the shaft, and having pins *e'* adapted to the spaces between the spokes of the driving-pulley.

The movement of the driving-pulley, so as to cause the clutching of the same to, or it release from, the shaft, is effected by means of a lever, F, having a connecting-rod, *f*, attached to the end of an arm, *f'*, carried by a bar, *g*, which is pivoted to studs on the end frame of the machine, and which is bent upward at the rear end, where it is forked and adapted to a groove in the hub of the pulley *d*.

The connecting-rod *f* of the operating lever F is acted upon at the end opposite said lever by a spring, *h*, Fig. 4, the tendency of which is to move the said rod in the direction of the arrow, so as to throw the shaft *a* out of gear with the driving-pulley. This movement is prevented, however, when the machine is in gear, by means of a spring-arm, *i*, Fig. 5, on the rod *f*, the end of this arm resting against a lug, *i'*, on the cross-bar of the machine.

Immediately adjacent to the end of this spring-arm *i*, at the side of the same, is a finger, *j*, carried by a shaft, *m*, which is provided with a number of arms, G—four, in the present instance—these arms carrying at their upper ends a rod, upon which is hung a series of fingers, *n*, corresponding in number to the number of threads to be wound upon the spool E. The outer end of each finger projects over the cylinder D, and is provided with an eye, *x*, the opposite end having an adjustable weight by which the finger may be balanced to suit the varying strength of different classes of yarn.

The threads pass from the various bobbins, first through eyes *y* on a cross-bar at the top of the frame; thence through the eyes *x* of the fingers *n*; thence under a rod, *p*, at the lower ends of arms *q*, pivoted at the upper ends to the end frames; thence through eyes in a longitudinal bar, *r*, and finally to the spool E.

The bar *r* has a reciprocating motion imparted to it, so that it will distribute the threads evenly over the spool, and this movement is imparted by means of a worm, *s*, on the driving-shaft *a* through the medium of a shaft, *t*, having a worm, *t'*, and having a crank connected to the lever *u*, which carries the bar *r*, by means of a connecting-rod, *w'*, adapted to the forked lower end of said lever *u*.

The shaft *m* has a weighted arm, I, which

tends to depress the outer ends of the arms G, and thus prevent the fingers from rising above a certain height.

Above the shaft *m* is a shaft, *v*, which carries near each end a bell-crank lever, J, the long arms of which are weighted, while their short arms carry a rod, *w*, extending longitudinally beneath the fingers *n*.

When the machine is in gear these levers J are in the position shown in Figs. 1 and 2, their rod *w* being somewhat below the fingers, while the long arm of one of the levers rests upon the highest portion of an inclined plate, *z*, carried by the operating lever F. (See Fig. 6.)

The operation of the above machine is as follows, the parts being in the position shown in Figs. 1, 2, and 3, when the machine is running properly.

Should a thread break at any point between the bobbin and the spool its finger *n* will be released and fall, so that its end will lie in the path of the ribs on the revolving cylinder D. One of these ribs will strike the finger and move its arm in the direction of the arrow, Fig. 1, this movement being imparted to the shaft *m*, and causing such a movement of the finger *j* that the spring-arm *i* of the rod *f* will be released from the control of the lug *i'*, when the spring *h* will so operate the rod *f* as to cause a movement of the driving-pulley away from and out of gear with the disk *e* on the shaft *a*, the movement of which and of other operating parts of the machine is thus arrested.

This movement of the rod *f* is transmitted to the lever F, and causes the plate *z* to be so moved that its lowest portion is brought under the long arm of the lever J, which falls, and thus causes the rod *w* to rise and lift the fallen finger *n* out of the path of the ribs on the cylinder D.

If the break has occurred at such a point that a thread has been wound onto the spool the rod *p*, carried by the arms *q*, will be drawn forward, so as to take up the slack as the threads are unwound from the spool, until the end of the broken thread is recovered and spliced to the opposite end.

The lever F is now moved inward to an extent sufficient to start the machine, but not to raise the long arm of the lever J, and is held in this position until all the slack thread is taken up and the fingers are supported by the threads clear of the ribbed cylinder, when the movement of the lever is continued, so as to operate the lever J, depress the rod *w*, and cause the spring-arm *i* to engage with the lug *i'*.

If desired, all the fingers may be carried by one pivoted arm or frame, and in some cases a vibrating bar carrying a rib may be substituted for the revolving cylinder D.

We claim as our invention—

1. The combination, in a spooling-machine, of the ribbed cylinder D or equivalent device, as described, with the arm or arms G, the fingers *n*, and devices, substantially as described, whereby the movement of said arm or arms G is caused to throw the machine out of gear, as set forth.

2. The combination of the ribbed cylinder D, the shaft *m*, its fingers *j*, and arms G having fingers *n*, with the operating rod *f* having spring *h*, and spring-arm *i* arranged to abut against a lug, *i'*, on the frame, as set forth.

3. The combination of the ribbed cylinder D, the arms G, and their fingers *n*, with the levers J and their rod *w*, and a device substantially as described, for operating said levers, as set forth.

4. The combination of the ribbed cylinder D, the arms G and their fingers *n*, the levers J and their finger-supporting rod *w*, the operating-lever F and the cam-plate *z*, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES WILD.

Witnesses:
HERMANN MOESSNER,
HARRY SMITH.