

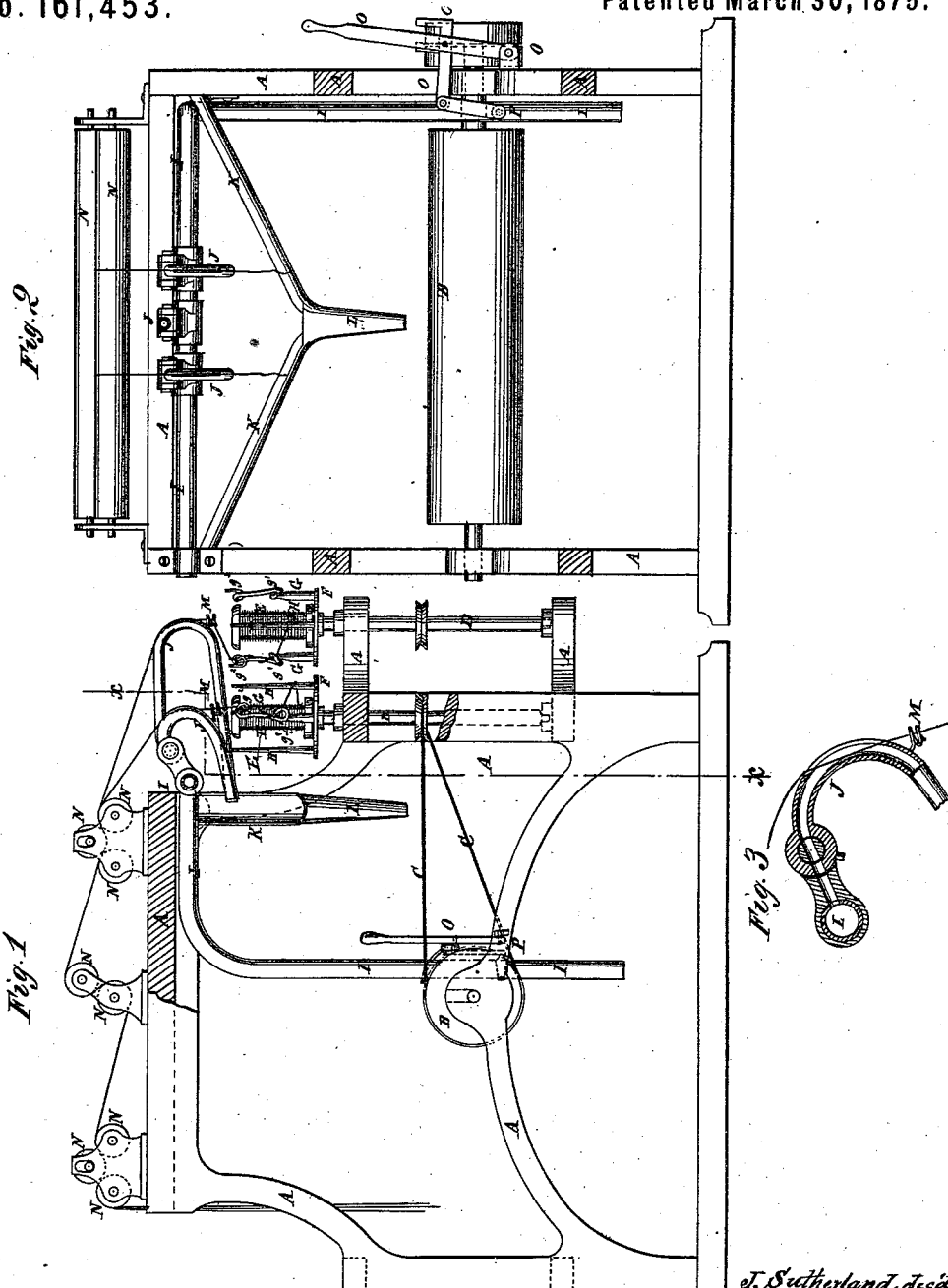
J. SUTHERLAND, dec'd.

LAVANCIA M. SUTHERLAND & T. GROVES, Admr's.

Twister for Making Thread, Twine, &c.

No. 161,453.

Patented March 30, 1875.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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BROOKLYN, NEW YORK, ADMINISTRATORS OF JAMES SUTHERLAND,  
DECEASED.

## IMPROVEMENT IN TWISTERS FOR MAKING THREAD, TWINE, &c.

Specification forming part of Letters Patent No. 161,453, dated March 30, 1875; application filed  
January 4, 1875.

*To all whom it may concern:*

Be it known that JAMES SUTHERLAND, of Leeds, in the county of Greene and State of New York, did invent a new and useful Improvement in Twister for Making Thread, Twine, Cord, &c., of which the following is a specification:

Figure 1 is a side view of a twister to which this invention has been applied, part being broken away to show the construction. Fig. 2 is a vertical cross-section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a detail view of one of the thread-wetting pipes.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claims.

A represents the frame of the machine. B represents the cylinder or drum around which pass the bands C that drive the spindles D, that work in bearings in the forward part of the machine, and upon the upper ends of which the bobbins E are placed. The bobbins E rest upon the disks F attached to the spindles D, and to which, upon the opposite sides of the bobbins E, are attached arms G. In the middle part and the upper end of each of the arms G are formed eyes  $g^1 g^2$ , through which the strand passes as it comes from the bobbin E. The eyes  $g^1 g^2$  are formed by bending the arm G around upon itself, so that the strand can be passed into them laterally and without passing its end through them. To the disk F, upon the opposite sides of the bobbin E, and midway between the eye-arms G, are attached straight pins or arms H, which I prefer to make tapering, and around which the strand is passed before it is passed through the eyes  $g^1 g^2$ . Only one of the arms G and one of the arms H are used at a time, the other two arms being simply designed to balance the fliers and cause them to revolve uniformly. The strands as they unwind from the bobbins move up and down upon the pins H, so as never to draw diagonally across said bobbins, and thus have always a uniform tension, whether they are unwinding from their upper, lower, or middle part. The two eyes  $g^1 g^2$ , formed upon the same arm G,

and one above the other, enable the tension to be regulated by giving the strand one or more turns around the arm G, between the said eyes  $g^1 g^2$ . This construction also renders unnecessary the eye usually formed in the upper end of the spindle D, and from which the strand had necessarily to be withdrawn in removing the bobbin from the spindle, and through which the end of the strand had to be passed every time a new bobbin was placed upon the spindle. I is a pipe leading from a tank or other water-supply, and which is led across the upper front part of the frame A, a little in the rear of and above the fliers. To the pipe I are jointed as many bent pipes J as there are fliers in such a way that when the bent pipes J are turned upward the flow of water through them will be prevented, and when they are turned down to their places the water will again flow through them.

The water from the lower ends of the bent pipes J flows into the spouts K, by which it is conducted into the waste-pipe L.

To the pipes J, just below their bends, are attached eyes M, through which the strands pass. The strands pass from the eyes M through longitudinal slits in the outer side of the bends of the pipes J, so as to pass through the water flowing through said pipes while being twisted. The joints in the pipes J enable them to be turned up out of the way when the bobbins are to be removed from the fliers. From the bent pipes J the strands pass between and around sets of rollers N placed at the top of the frame A, and each succeeding set of which may be driven at a greater speed than the previous set, so as to stretch the strands uniformly and to any desired extent. The strands, after passing from the rollers N, are twisted into cords of any desired number of strands in the usual way. O is the belt-shifter, by which the belt that drives the drum or cylinder B is shifted from the fast to the loose, or from the loose to the fast, pulley, according as the machine is to be stopped or started. With the belt-shifter O is connected the handle of the stop-cock P, placed in the water-pipe I,

so that the flow of the water through said pipe may be stopped and started as the machine is stopped and started, and by the same operation.

Having thus described the invention, we claim as new and desire to secure by Letters Patent—

1. The slitted bent pipes J, hinged or jointed to a water-pipe, I, and interposed between the fliers and the tension-rollers for wetting the strands while being twisted, substantially as herein shown and described.

2. The combination of the cock P of the water-pipe I, that supplies water to wet the

strands, with the ordinary belt-shifter O of the machine, substantially as herein shown and described.

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Witnesses:

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