





# UNITED STATES PATENT OFFICE

WILLIAM JOSLIN, OF WATERFORD, NEW YORK.

## IMPROVEMENT IN MACHINES FOR MAKING CORDAGE.

Specification forming part of Letters Patent No. 8,825, dated March 23, 1852.

*To all whom it may concern:*

Be it known that I, WILLIAM JOSLIN, of Waterford, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Machinery for Making Cordage, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine. Fig. 2 is a top view showing the machine as in operation. Fig. 3 is a sectional view on the line *c d* of Fig. 2, showing the exterior of the capstans for drawing the strand. Fig. 4 is a sectional view on the line *a b* of Fig. 2, showing the interior of the capstans. Fig. 5 are two halves of a drawing-capstan. Fig. 6 is an end view showing the pulley on the end of the shaft turning in the hollow journal of the flier, and the pulley on the end of the fan, also the endless band around the same.

The arrows show the direction of the movement of the several rotating portions of the machine.

As the improvements which I have made in the rope-making machine for which I now solicit Letters Patent relate to two parts only—viz., the drag-fan and the split capstans—I shall make the description of the rest of the machine very brief.

A is the frame; B, spools containing the yarn to be laid and twisted into a strand; C, perforated guide-plate through which the yarns pass; D, tube; E, hollow journal of the flier; F F, drawing-capstans geared together by the gears G G, so as to bring the larger diameter of one of the capstans opposite the smaller diameter of the other; H, reciprocating guide for laying the strand evenly upon the spool; I, right-and-left screw for moving the guide to the right and to the left; J K L, gears for turning said screw; M, spool for winding the strand; R, the flier; S, stationary cog-wheel, around which the cog-wheel T, attached to the flier, revolves for putting in motion the bevel cog-wheels U V, and pinion W, engaged with one of the cog-wheels G for revolving the drawing-capstans; X, drum or pulley fixed to the end of the flier, around which passes a band Y, leading to the driving-power.

The following portion of the description re-

lates to that part of the machine which I claim as new: N O P Q, gears for turning the spool or bobbin, said bobbin having two motions, one over endwise with the flier and the other on its own axis. *e* is a revolving shaft passing through the hollow journal or bearing of the flier, having on its inner end the pinion Q, which turns with the shaft *e* independently of the flier, and a large pulley *f* on its outer end, around which passes an endless band *g*, leading around a small pulley *h* on the end of shaft *i* of a fan *j k*, made in two parts, so as to be capable of folding in order to diminish or increase the size of the fan when required to diminish or increase the resistance of the air. *l* are the boxes or bearings of the axle of the fan.

The drawing-capstans F are divided at the center into two equal parts F F, which are attached to the face of the gear-wheels G G by dowels or pins projecting from the face of the gear-wheels and entering corresponding holes in the end of the capstans, said sections or parts of the capstans being confined to the gears by clamp-nuts *n n*, screwed upon the shafts *s s* of the gear-wheels.

The reason for dividing the capstans at their diameter is to enable the operator to change the capstans at pleasure for larger or smaller diameter ones, according to the kind of strand to be drawn, without the necessity of deranging or removing any part of the machinery in order to effect the change, and the two capstans, (forming a double one), projecting as described from the wheels G G, and made (each one) of tapering or diminishing diameter—the large diameter of the one opposite the small diameter of the other—serve, without undue stretch, most efficiently to feed or draw the strand, which, in commencing its wind over the large diameter of the first capstan, has a tendency and gradually slips or slides toward the smaller end of the same, thereby feeding the second capstan over its largest diameter, and as the strand inclines toward the smaller diameter of it (the second capstan) the feed is similarly performed or facilitated for supply to the reciprocating guide H; also, the two capstans so constructed, arranged, and operating maintain the strand in a straight line, or nearly so, through the machine.



The fan, before referred to as a drag or "take-up," acts in the following manner: The velocity of the flier always being the same, and the draft on the strand of necessity constantly increasing as the cop wound on the bobbin M enlarges in diameter, it becomes necessary to obviate the increase of strain on the strand to which it is liable as the cop enlarges. The fan accomplishes this, as will be evident from the following explanation, accompanied by reference to the drawings: The flier R as it rotates is the driver of the fan through the pinions N O P, connected with the flier and bobbin, and pinion Q on the shaft e, operating the fan. Now as the cop begins to wind upon the bobbin the pinion Q but slowly moves or is almost stationary, but as the cop enlarges in diameter on the bobbin the velocity of the latter on its axis will necessarily be diminished as the leverage it has to wind at becomes greater, and during such enlargement of the cop and diminution in speed of the bobbin the motion of the fan is being uniformly accelerated thereby, giving increased resistance of the atmosphere to its

blades, which increasing resistance in being felt or thrown through the pinions N O P Q on the bobbin checks any tendency to increase of strain on the strand as the cop enlarges, the pinion P, in traveling round and being geared with Q, effecting this result.

The fan-blades, as before observed, may be or are made in halves, so as to lap, for the purpose of increasing or diminishing the area of resistance in the fan, to suit different kinds of work, or any other mode of adjusting the strength of the fan may be adopted.

What I claim as my invention, and desire to secure by Letters Patent, is—

The application of the fan *j k*, in combination with the pulleys *f h*, belt *g*, gears N O P Q, and bobbin M as a drag or take-up, as above described.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

WM. JOSLIN.

Witnesses:

WM. P. ELLIOT,  
A. E. H. JOHNSON.