T. Lyle,

Cord Machine.

No. 5851. Patented Oct. 17. 1848.

Fig. 2.

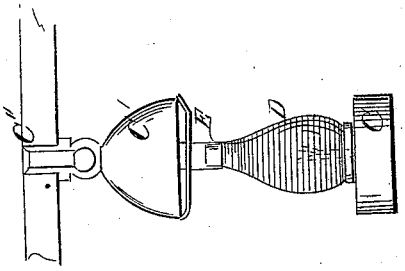
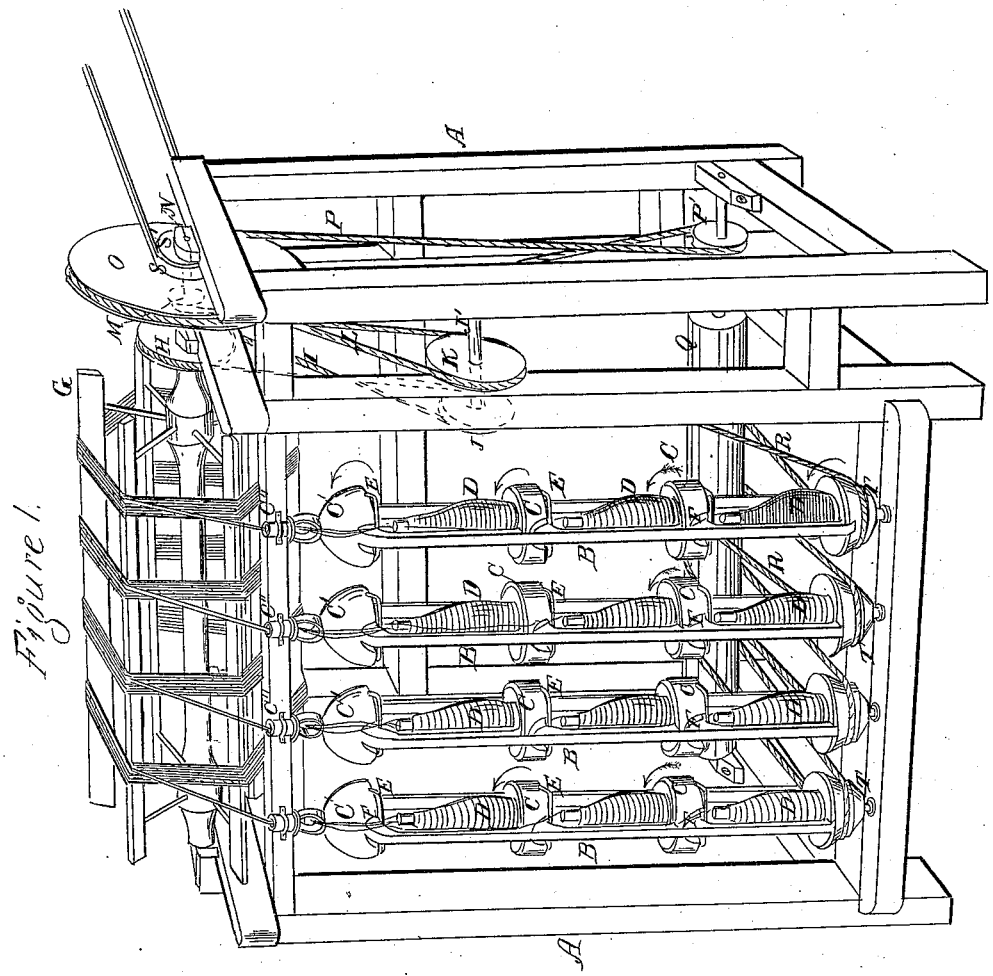


Figure 1.



UNITED STATES PATENT OFFICE.

THOMAS LYLE, OF COLLINSVILLE, PENNSYLVANIA.

MACHINERY FOR DOUBLING AND TWISTING YARN.

Specification of Letters Patent No. 5,851, dated October 17, 1848.

To all whom it may concern:

Be it known that I, THOMAS LYLE, of Collinsville, in the county of Blair and State of Pennsylvania, have invented a new and useful Improvement in Machines for Doubling, Twisting, and Reeling Thread, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a perspective view of the machine. Fig. 2, is a vertical section through the center of one of the fliers.

Similar letters in the figures refer to corresponding parts.

The nature of this invention and improvement consists in a peculiar construction of a flier, for the reception of several bobbins of thread to the doubled, twisted and reeled, arranged one above the other in the same vertical axis, revolved simultaneously, in combination with a revolving reel upon which the thread is wound after passing from the several bobbins, over guide wires, and through the hollow journal of the spindle in which the required doubling and twist is imparted to the threads.

A is the frame, made of suitable size and form for the purpose intended.

B are the fliers, arranged in a row on one side of the frame, turning in steps at their lower ends and supported at their upper ends by hollow journals turning in suitable boxes in the frame.

C are division plates, secured equidistant from each other, and from the caps and lower plates of the fliers.

D are the bobbins, arranged one above the other, in the same vertical axis, between the division plates and cap and lower plates of the fliers, and held in their places by vertical pins or shafts, rising from the centers of the upper surfaces of the lower, and division plates, and entering corresponding openings in the lower ends of the bobbins.

E are wire rods below the lower sides of the caps and division plates, and secured to the same at one end and bent upward at the other end to prevent the threads which pass over said wires in their passage from the bobbins to the reel from being thrown off the wires during the revolutions of the fliers.

F are inclined channels formed in the lower sides of the caps and division plates of the fliers, and extending from the edges of said plates toward the centers of the same, at right angles to the wires for guiding the threads.

G is a horizontal reel, turning in boxes at the top of the frame.

H is a pulley secured near the end of the reel shaft.

I is a crossed band passed around said pulley, and around a smaller pulley J, on the end of a horizontal shaft J′, turning in boxes in the frame.

K is another pulley also secured on the shaft J′.

L is a crossed band, passed around the last mentioned pulley, and around a small pulley M, on the main horizontal shaft N, at the upper part of the frame.

O is a drum secured on the last mentioned shaft, around which is passed a cross band P, also passing around a small pulley P′ on a horizontal shaft, turning in boxes at the lower part of the frame.

Q is a cylinder or drum secured on the last mentioned shaft, around which are passed bands R, also passing around pulleys T on the fliers, below the lower plates of the same.

S is a whirl or pulley on the main shaft, around which is passed the band for giving motion to the several parts of the machine.

S′ is a loose pulley arranged alongside the last mentioned.

Operation: The machine being properly adjusted, and the fliers A, supplied with filled bobbins of thread, to be doubled, twisted, and reeled, and the several threads conducted from the end of the bobbins D, over the guide wires E and up through the channels F in the division plates C, and caps C′, and hollow journals C″ and thence to the reel G, is set in motion by any convenient power, applied to the axle of the main driving pulley O. The crossed band P passing around this pulley, and the small pulley P′, on the axle of the drum Q, causes it to turn, and to give motion to the fliers, by the agency of the bands R, passed around the drum, and pulleys T on the lower ends of the fliers, causing them to turn in the direction of the arrows, and thus to double and twist the threads together in the hollow journals C″, at the same time that they are drawn from the bobbins, by the rotary motion of the reel G upon which they are wound in cuts and hanks in the usual manner, the rotary motion of the reel being produced by means of a band L, passed around

a small pulley M, on the angle of the main pulley O, and extended around another pulley K on a horizontal axle J′, carrying another pulley J, around which a band I is passed, that extends around a pulley H on the axle of the reel, or by any other convenient means. When a bobbin becomes empty it can be readily seen on account of being placed on a central vertical line of the open flier, instead of a horizontal line with the old arrangement of bobbins, and can be replaced by a filled bobbin by simply bearing against the flier, and arresting its movement for a moment, or by stopping the motion of the machine. And likewise when a thread breaks it can be readily seen from the same cause, and mended by stopping the motion of the flier for a moment in the same ways—which is a different operation in the old machines—besides possessing the advantage desired from not arresting the motions of the other fliers while mending a thread or supplying a bobbin to a flier,—beside doing away with the backward and forward movement of the spindles as in the use of the old Billy, Jenny or mule.

Another advantage which this machine possesses over others for the same purpose, is, that of greater speed, which the fliers are susceptible of receiving, owing to their peculiar form and location.

Another advantage is that of having the several threads of each flier brought together in a hollow journal C″ or tube before the twisting operation takes place which renders the yarn more perfect when twisted.

I do not claim doubling, twisting, and reeling thread or yarn, &c., by means of combined revolving spools and reel, but,

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

Constructing the flier with several divisions, or spaces, for the reception of as many bobbins as there are threads to be twisted one arranged over another in the same vertical axes, having grooved division plates, guide wires, and hollow journal, through which the several threads from the bobbins are passed to be doubled, twisted and reeled, in combination with the reel upon which the threads or yarns are reeled as fast as they are doubled and twisted, the whole revolving simultaneously in the manner and for the purpose herein fully set forth, whether the several parts be combined and arranged precisely in the manner described, or in any other mode which is substantially the same.

In testimony whereof I have hereunto signed my name before two subscribing witnesses this 14 day of January A. D. 1848.

THOS. LYLE.

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