

S. R. BALLARD & GEORGE W. BALLARD.

Improvement in Spinning Machines.

No. 115,676.

Patented June 6, 1871.

Fig. 1.

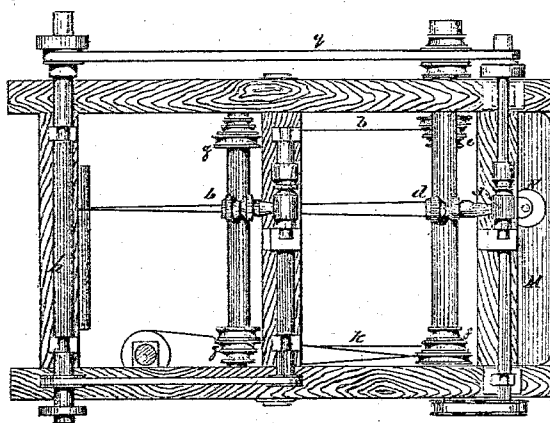


Fig. 2.

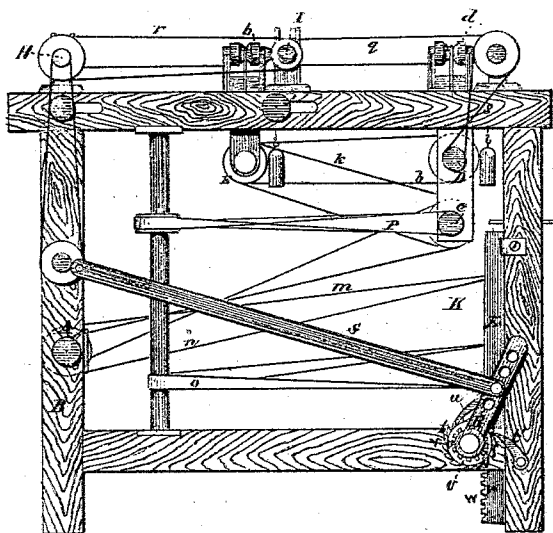


Fig. 3.

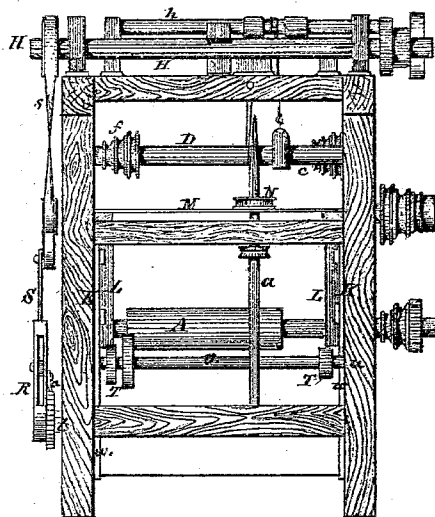


Fig. 4.



Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

SETH R. BALLARD AND GEORGE W. BALLARD, OF COLD WATER, MICHIGAN.

IMPROVEMENT IN SPINNING-MACHINES.

Specification forming part of Letters Patent No. 115,676, dated June 6, 1871.

To all whom it may concern:

Be it known that we, SETH R. BALLARD and GEORGE W. BALLARD, of the city of Cold Water, in the county of Branch and State of Michigan, have invented certain new and useful Improvements in a Continuous Spinner for Making Yarns for domestic purposes; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a plan or top view of our improved continuous spinner, showing one set of the reverse-motion twisting-tubes for intermediate spinning or twisting between the draft-rollers. Fig. 2 shows a side elevation of the machine with the arrangement of various bands and shafts for communicating motion to the draft-rollers, twisting-tubes, &c., and the ratchet mechanism for taking up the yarn and forming the cop on the spindle. Fig. 3 shows an end view of the same. Fig. 4 shows a section through one of the rear or left-motion twisting-tubes. Fig. 5 is a similar section through the front or right-motion twisting-tube.

Our invention relates to wool-spinning for domestic manufacture and use; and the object of our improvement is to facilitate the winding operation; and it consists in the construction, arrangement, and combination of the mechanism for building up the yarns on the cops or bobbins.

To enable others to make and use our improvement, we will describe it more in detail, referring to the drawing and the letters thereon.

We make the frame of our spinner of hard wood, of such proportions and size as will accommodate ten or twelve spindles, more or less, with the band-cylinder A for driving the vertical spindles *a a* attached to two of the posts B B. Other shafts, C D E, with their gangs of pulleys *e f g*, are so arranged as to drive the twisting-tubes *b* and *d* and the three sets of draft-rollers H I J by means of certain bands, and give them the proper speed, so that the roving on our continuous carded wool-roll is fed in and partially twisted or spun by the tubes *b* and *d* revolving in opposite directions in the spaces between the drawing

and feed rollers, so that when it is conveyed to the vertical spindle *a* to complete the twisting of the yarn it is in the most perfect and uniform condition.

The intermediate twisting or partial spinning given to the wool between the draft-rolls equalizes the fibers, so that there are no weak places, and a very superior article of yarn is produced, and the spinning requires much less attention, as there is scarcely any liability of the wool-roll pulling apart or the yarn breaking.

The twisting-tubes *b* and *d*, as shown in Figs. 4 and 5, are very simple in their construction, each being formed with a band-pulley and journals, and with a conical opening, X, through each longitudinally, and slender yielding shrugs *y y* to clamp the wool-roll or slightly twisted yarn as it passes to the vertical spindle *a*.

The mechanism herein shown for building up the yarn and forming the cop or bobbin on the spindle is very simple and efficient. It consists of two sliding vertical frames, K and L, working one in the other, the frame K being provided with racks W W, operated by pinions *v v* and a ratchet *t*, pawl *u*, lever R, and coupling-bar S to give the gradual rise to the rail M to guide the successive layers of yarn higher and higher upon the spindles. The sliding frame L is provided with a rail, M, on which the projecting ring-guides N are secured, and is moved up and down by the cams T T on the shaft U to distribute the yarn evenly to form the conical layers on the spindle *h*, which pass up through the table or rail M and ring N.

What we claim as our invention, and desire to secure by Letters Patent, is—

The arrangement of the sliding frames K and L, rail M, the racks and pinions W and *v*, the ratchet mechanism R *t*, the coupling-bar S, and the cams T T, substantially as and for the purposes specified.

In testimony whereof we hereunto subscribe our names.

SETH R. BALLARD.
GEO. W. BALLARD.

Witnesses:

SILAS W. GILBERT,
OZRO A. BOWEN.