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NEW SERIES

## Victory's Wool Spinner.

The ordinary operation of spinning wool by the jack is intermittent, as on the old-fashioned hand spinning wheel. The sheet of wool, as it comes from the last card, or condenser, is split by suitable mechanism into narrow bands, which, without being twisted at all, are, by being gently rolled back and forth between the surfaces, loosely felted into small tender rolls or roving, somewhat similar to the rolls prepared by hand cards for spinning on a hand wheel. These rolls, wound upon long spools, are placed upon the jack, which spins them into yarn. The spindles

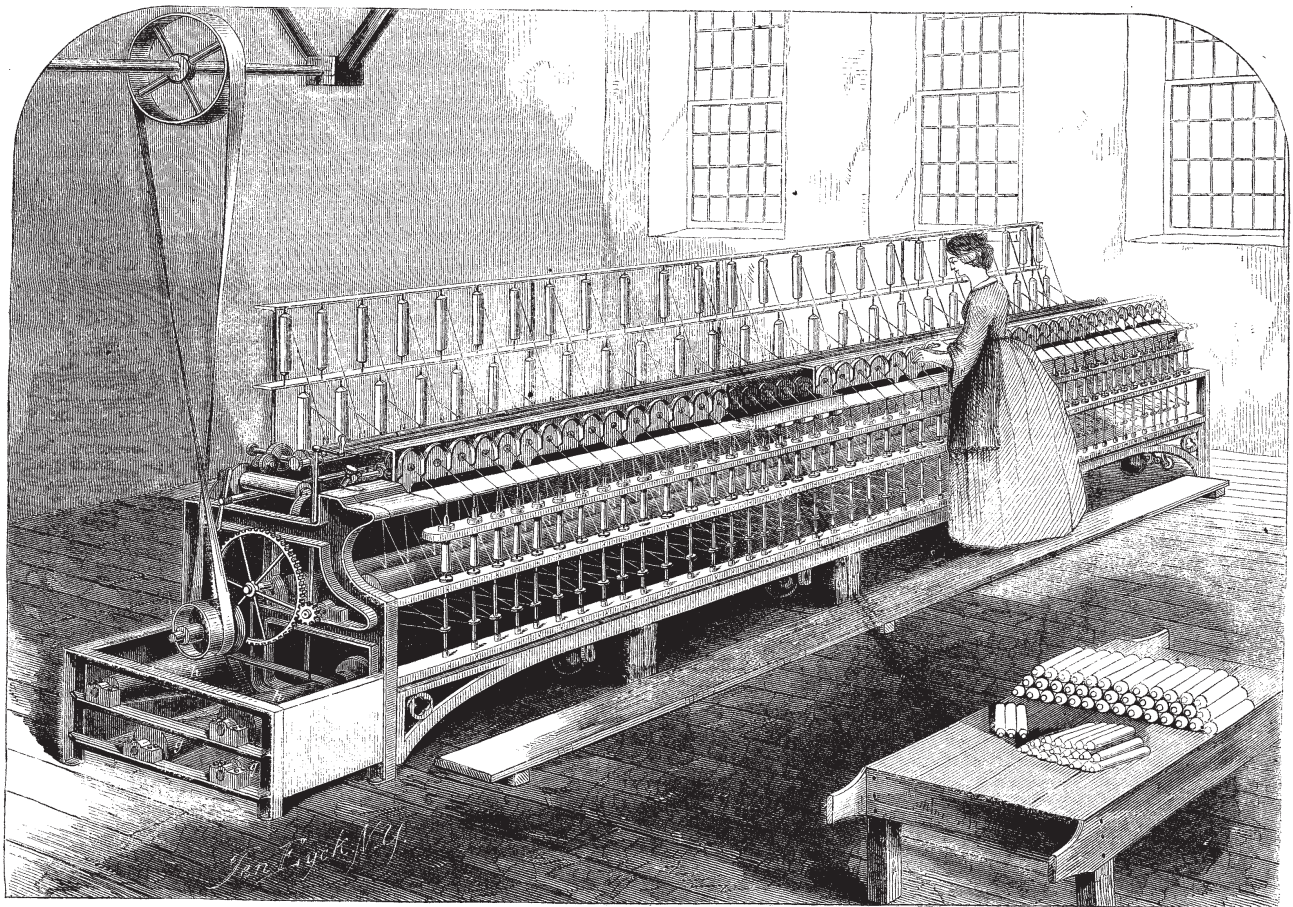
riage bearing the spindles has receded to the end of its track, and when the yarn is sufficiently twisted, the turning of the spindles ceases, and the carriage is run back to its place, a sufficient motion being given to the spindles during the return to wind up the twisted yarn upon them. A second supply of wool is then fed forward, and the operation is repeated, the spinning being thus intermittent.

The plan of stretching a thread as it is twisted to make it of uniform size, has been practised from remote antiquity, but its adaptation to machinery was the great invention of Hargreaves—the first step in

copying one-third the room, and requiring less skill in the operator than the jack.

It is essentially an adaptation of the cotton spinning frame with the ring traveler to the spinning of wool. The spinning, though continuous, consists of two operations, the first being a slack temporary drawing twist, effected between the feed and drawing rolls by giving the latter, in addition to their rotation on their axes, a rotation at right angles to this, while the second operation consists in twisting the yarn by the spindles.

Fig. 1 of the engravings is a perspective view of the



VICTORY'S WOOL SPINNER.

of the jack are arranged in a carriage, which runs back and forth upon a railway a distance of about seven feet, the yarn being spun as the carriage runs out, and wound upon bobbins on the spindles as it returns. After the carriage has run out a portion of the distance (say two or three feet) a stop comes down upon the roving, grasping it firmly, and confining the remaining portion of the operation to the length already fed forward; then as the spindles continue to recede, the yarn is stretched or drawn as it is twisted. As the twist in a thread always tends to run into the small parts, and as the large untwisted parts yield most easily to the stretching strain, these large parts are drawn down, and a thread of uniform size is produced by this operation. After the car-

riage bearing the spindles has receded to the end of its track, and when the yarn is sufficiently twisted, the turning of the spindles ceases, and the carriage is run back to its place, a sufficient motion being given to the spindles during the return to wind up the twisted yarn upon them. A second supply of wool is then fed forward, and the operation is repeated, the spinning being thus intermittent. The plan of stretching a thread as it is twisted to make it of uniform size, has been practised from remote antiquity, but its adaptation to machinery was the great invention of Hargreaves—the first step in

whole machine, and fig. 2 is a section of the drawing rolls and head. The feed rolls are of the ordinary construction, and the drawing rolls, *e*, besides rotating on their axes, are carried around at right angles by the rotation of the drawing head, *A*, in which they are secured. The disk, *M*, is fixed upon the end of a hollow shaft, *n*, upon which is the pulley, *d*, by which the rotary motion is imparted to the head, the thread passing through the hollow shaft, *n*. Upon this shaft, *n*, is a loose gear wheel, *o*, meshing into a similar wheel, *p*, upon the shaft of which is the worm, *i*, that imparts the rotary motion upon their axes to the drawing rolls, *e*. The revolutions of the gear wheel, *o*, are controlled by means of the gear, *C*, which has the beveled pinion, *D*, upon the opposite

end of its shaft; the pinion D meshing into the pinion E, upon the long shaft, F, which extends the whole length of the frame, and thus controls the motion of the drawing rolls, *e*, in all of the heads.

As wool of short staple requires more twist than that of which the staple is long, a machine, in order to be practically useful, must be adjustable in this respect, and in the machine here described this adjustment is secured in the most complete and simple manner. The long shaft, F, is driven by a pair of cone pulleys, *g g*, fig. 1, so that the speed of the shaft, and consequently the speed of that rotation of the rolls, *e*, which twists the roving, may be varied at will. The speed of the feed rolls is also regulated by a pair of cone pulleys, *h h*, fig. 1, and thus drawing the twist between the feed and draft rolls, can be adjusted with the greatest ease and precision while the machine is in operation; and when once arranged for the kind of wool used and of the thread desired it remains fixed, requiring no further care of the operator. The spinning twist is regulated by changing gears in the usual manner. The machine now running at Utica is tended by the usual help of a cotton spinning frame, and operates in the most perfectly satisfactory manner in every respect.

In this description we have presented the essential features of the invention, omitting several details, but the practical objections have all been considered and obviated. For instance, to prevent the yarn in case of a break from winding around the feed rolls, a metallic shield is placed in front of them, fitting them closely, and having a hole for the passage of the yarn.—

And to prevent the end of a broken thread from flying in contact with those near it, a fender is placed in front of the rolls. This fender is made to turn down in sections, one of which is shown in fig. 1 thus turned down. The distance between the back and front rolls is also adjustable, to accommodate the machine to wool of different lengths of staple, this adjustment being effected while the machine is in motion. In short, the machine was invented by a practical man, and has satisfied intelligent and disinterested manufacturers that it must come into general use, and effect a revolution in the mode of spinning wool. The frame shown in fig. 1 has spindles on only one side, but the design is to make the frames double, with spindles on both sides.

Patents for this important invention have been secured in the United States and in the principal countries of Europe, the American patent bearing date May 8, 1860.

Further information in relation to it may be obtained by addressing George W. Wiggins, at Watertown, N. Y.

