

(No Model.)

2 Sheets—Sheet 1.

E. R. BULLOCK.
DOUBLING DRUM SPOOLER.

No. 490,822.

Patented Jan. 31, 1893.

Fig. 2.

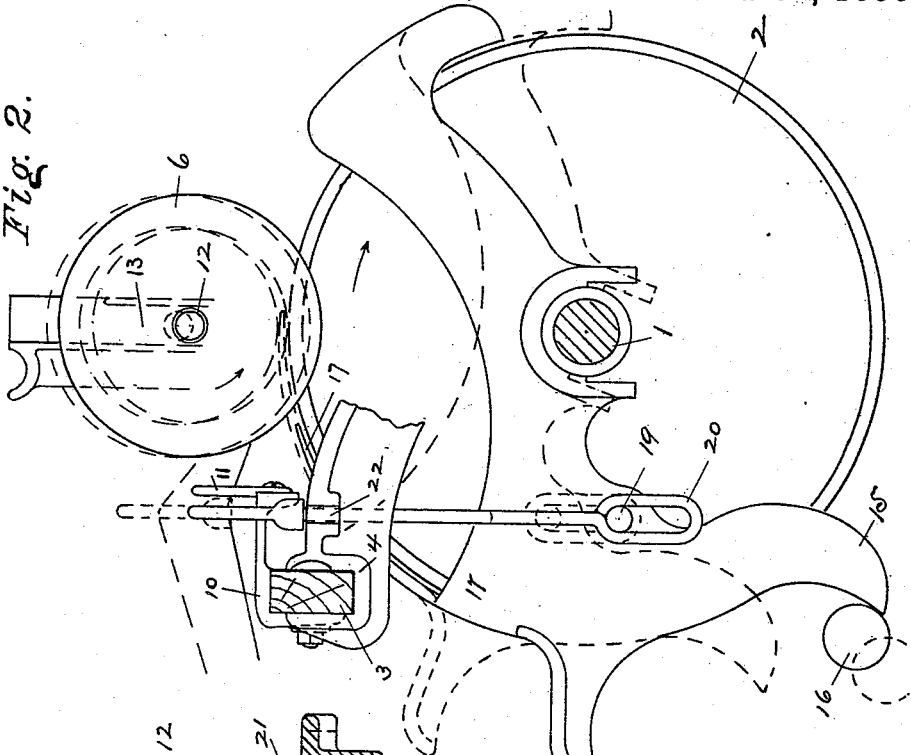
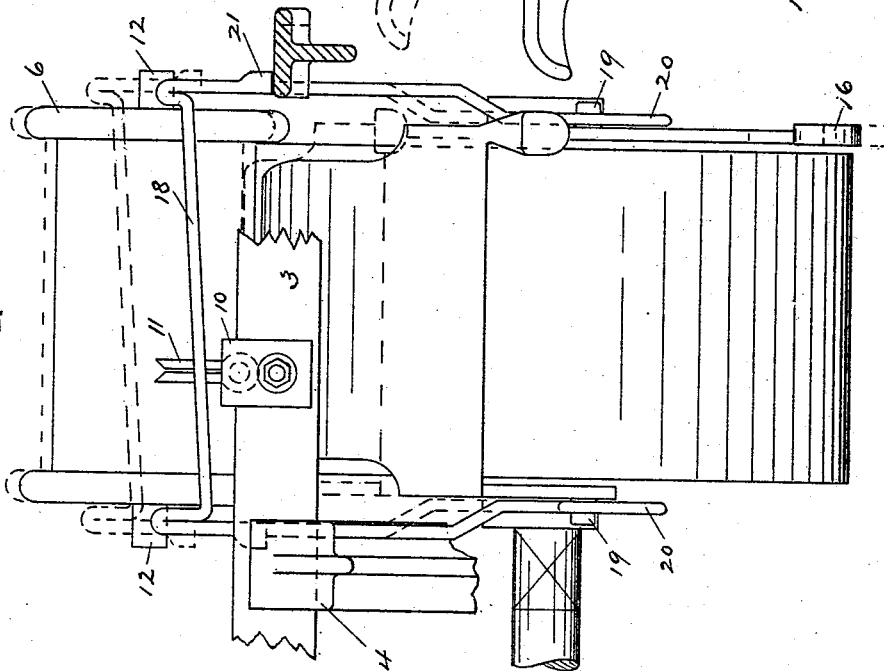


Fig. 1.



Witnesses;

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Henry H. Davison.

Inventor.

E. R. Bullock

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Fig. 3.

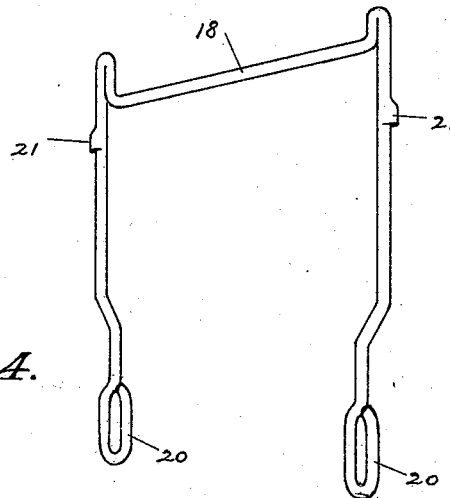
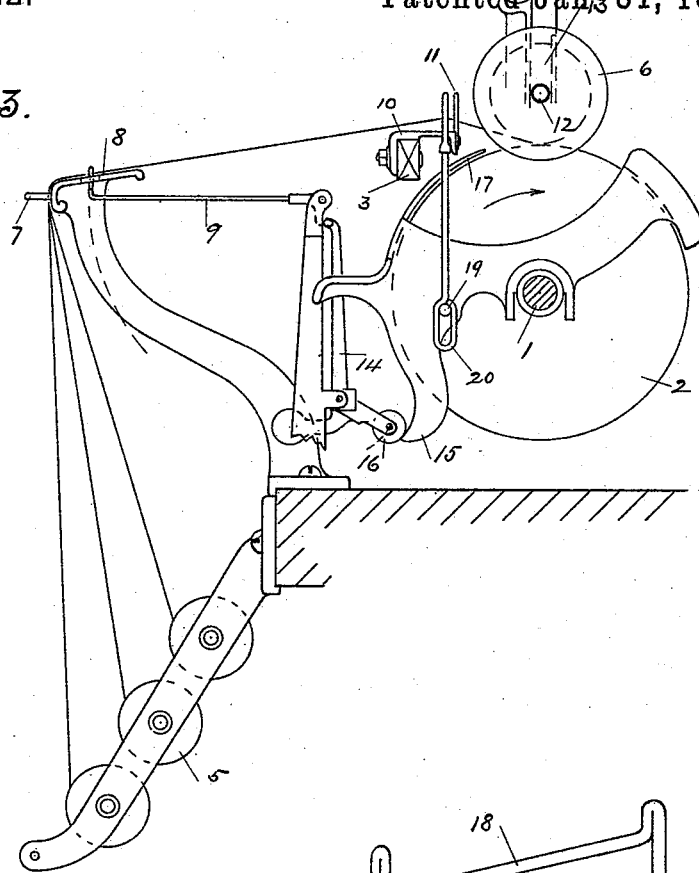


Fig. 4.

Witnesses;

Clarence E. Reiser.

Henry H. Davison.

Inventor.

E. R. Bullock

UNITED STATES PATENT OFFICE.

EDWIN R. BULLOCK, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR TO THE
J. & P. COATS, LIMITED, OF PAISLEY, SCOTLAND.

DOUBLING-DRUM SPOOLER.

SPECIFICATION forming part of Letters Patent No. 490,822, dated January 31, 1893.

Application filed September 8, 1892. Serial No. 445,336. (No model.)

To all whom it may concern:

Be it known that I, EDWIN R. BULLOCK, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Doubling-Drum Spoolers, of which the following is a specification.

My invention relates to an improvement in that class of doubling drum spoolers in which the winding spool rests upon the drum and is driven by it; and the object of my improvement is to prevent injury to the yarn by the chafing action of the guide upon the strands of those spools which have come to rest. I attain this object by the simple device illustrated in the accompanying drawings, in which—

Figure 1 is a front view of one drum and spool showing also my improved guide and relief-wire. Fig. 2 is an end view of the same. Fig. 3 is another end view of the same at a reduced scale and showing the lower spools and drop-wire stop motion. Fig. 4 is a perspective view of my automatic relief-wire.

Similar numerals refer to similar parts throughout the several views.

The main working parts of the spooler to which my improvement applies, consist of two shafts 1 lying in the same horizontal plane and parallel with each other, running lengthwise of the machine and carrying the drums 2. They are geared together at one end of the frame and driven by a pulley and belt. At the other end of the frame they are geared to a device which acts upon the guide bar 3 and imparts to it a reciprocating longitudinal motion in the ways 4 which support it.

Fig. 3 shows half the width of the machine without legs or framework.

It is the work of this machine to lay together, and spool, without twisting, a given number of strands of yarn,—in the drawings three strands are shown.—and the operation is as follows. The spools 5 of yarn are placed on skewers in the positions shown; an end of yarn from each is brought up between separating pins 7 over the arm 8 each end passing under a separate dropwire 9 over the guide holder 10 and through a guide at 11 onto the spool 6. This spool starts to fill with its barrel lying upon the drum 2 which drives it, and

it rises as it fills, its projecting bushings 12 entering grooves 13 at the ends of the spool keep it in position over the drum. (The grooves are omitted from Fig. 1 to save confusion.) The reciprocating longitudinal motion of the guide bar 3 carries the guide back and forth the length of the spool and lays the yarn uniformly upon it. When a strand breaks or a spool 5 is emptied the drop-wire 9 under which that strand of yarn passed, being no longer supported by the tension of the yarn, immediately falls and pressing the lever 14 Fig. 3, toward the drum liberates the horn 15 from the roll 16 and the weighted bonnet 17 rocks far enough back to raise the spool 6 clear of the drum thus stopping the spool and preventing the doubling from going on with one strand lacking and also preventing the yarn on the spool from being chafed by the drum. Now the guide 11 continues to traverse notwithstanding that the spool is stopped, and this causes the difficulty I have sought to overcome. The guides at 11 are now made of sheet metal slotted, and traverse back and forth with the yarn in their slots, one end of the yarn being held stationary by the spool 6 and the other being slightly weighted by the drop-wires 9 it will be seen that the yarn must become chafed at the part against which the guide continues to rub.

The above briefly describes the operation of the machine without my improvement. It also sets forth the difficulty which my improvement is designed to overcome, and which it does overcome in the following manner. First by using a guide 11 of hard smooth wire of the form shown or of any other convenient form. Second by introducing what may be called a relief-wire 18 which is connected with and operated by the bonnet 17 thus becoming automatic in its operation. When the spool is winding, this relief-wire occupies its lower position and the yarn passes over it, through the guide 11 and onto the spool 6 but the instant the spool 6 stops the relief-wire assumes its raised position lifting the yarn out of the guide 11 and holding it above the same as shown in Fig. 2 by dotted lines, thus effectually preventing it from becoming chafed and worn by the guide 11.

The construction of my relief-wire is clearly

shown in the drawings. The cross-bar 18 is not horizontal but one end is raised enough above the other to give the yarn vertical traverse in the guide 11 and so prevent it from scoring the guide and thus becoming chafed in the scores. The lower ends of the wire are formed into links 20 which allow freedom of motion for the pins 19 by which it is connected with the bonnet 17. The lugs 21 serve to keep the relief-wire in position when the bonnet is pressed down to start the spool and they may be formed either by fastening metal to the wire or by bending the wire enough to accomplish the purpose. The grooves 22 in the frame guide the wire in its vertical motion.

Having in the above specification clearly set forth the nature of my improvement, I now claim as my invention and desire to secure by Letters Patent

1. The combination in a doubling drum spooler with the drum for rotating the spool, the yarn guide, and the bonnet for stopping the spool, of the relief-wire 18 linked to and operated by the bonnet, substantially as described.

2. In a doubling drum spooler the combination with the drum for rotating the spool, the bonnet for stopping the spool, and the relief-wire 18 linked to and operated by the bonnet, of a yarn guide 11 constructed of hard smooth wire so as to form a narrow vertical slot open and enlarged at the top, substantially as shown and for the purpose set forth.

EDWIN R. BULLOCK.

Witnesses:

CLARENCE E. PEIRCE,
G. BION ALLEN.