

(No Model.)

W. F. DRAPER & A. E. RHOADES.
SPOOLING MACHINE.

No. 578,140.

Patented Mar. 2, 1897.

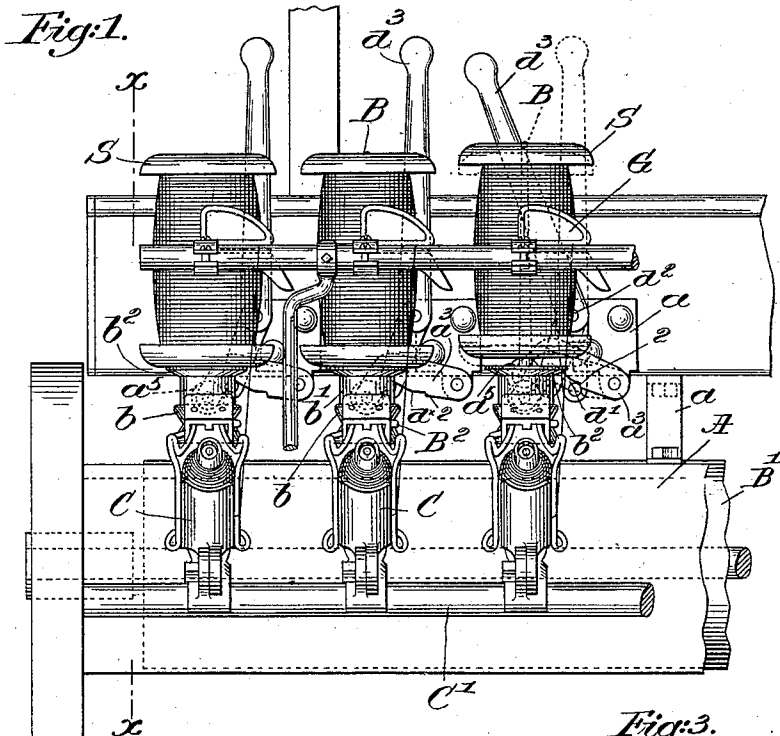


Fig. 2.

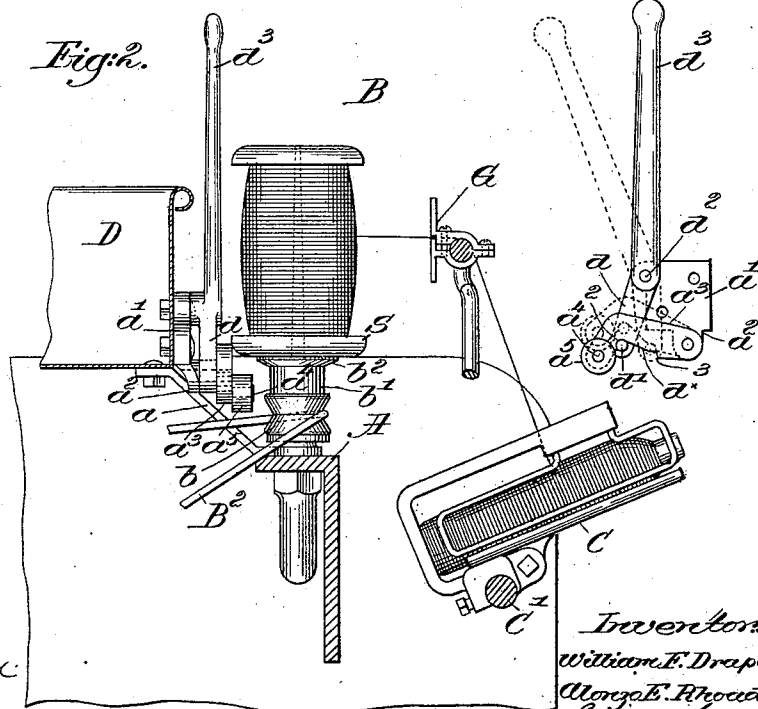
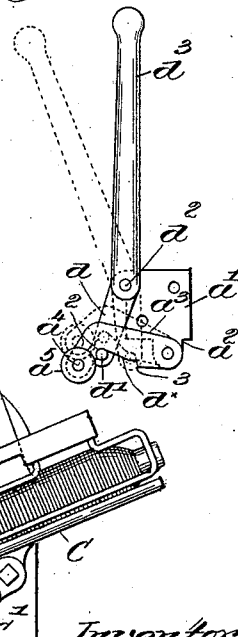


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM F. DRAPER AND ALONZO E. RHOADES, OF HOPEDALE, MASSACHUSETTS, ASSIGNORS TO THE HOPEDALE MACHINE COMPANY, OF SAME PLACE.

SPOOLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 578,140, dated March 2, 1897.

Application filed November 12, 1895. Serial No. 568,727. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. DRAPER and ALONZO E. RHOADES, of Hopedale, county of Worcester, State of Massachusetts, have
5 invented an Improvement in Spooling-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 In the use of spooling-machines intended to wind the yarn off from a plurality of cops or bobbins onto a large spool the end of yarn on a fresh bobbin must be united to that of the preceding bobbin. The spooler-tender
15 ties a knot joining the two threads, and as the spool-supports are continuously rotated the tender, while tying a knot, must keep the spool from rotating with its spindle by holding it from rotation with her hand. It
20 will be evident that this interferes seriously with the tying of a proper knot, and, in fact, becomes a positive disadvantage when it is expected or required that the operator shall tie a "weaver's knot," which requires the
25 free use of both hands and is much the best knot as regards the effect upon the future weaving operation.

This invention has for its object the production of simple and convenient means for
30 positively raising the spool from its friction-seat on the spindle when a knot is to be tied, the spool being held out of contact with its rotating mechanism while the operative has the free use of both hands to tie the knot,
35 means being provided for permitting free retrograde rotation of the spool while so held.

Figure 1 is a front view of a sufficient portion of a spooling-machine to be understood with our invention applied thereto, one of the
40 spools being shown as held in inoperative or stationary position. Fig. 2 is a sectional view taken on the line *x x*, Fig. 1, looking toward the right; and Fig. 3 is a detached detail view of the spool-controlling device.

45 The spindle-rail A, spindles B, rotatably mounted therein, the driving-drum B', connected by bands B² to the spindle-whirls *b*, the bobbin or cop holders C, supported upon a rod C', and the thread or yarn guides G
50 and harness mechanism therefor may be and

are all as usual or well-known in spooling-machines.

The spindles B have secured at their bases hubs or collars *b'*, provided with disk-like flanges or tops *b²*, upon which the spools S
55 rest and are rotated by friction, the spindles extending through the barrels of the spools.

Brackets *a*, attached, as herein shown, to the spindle-rail A, support a box D at the rear of the spools, and stands *a'* are bolted to the
60 front of the box D, one for each spool. To a depending ear *a²* on the stand is pivoted a lifter-bar *a³*, bent downward at its outer end and having mounted thereon at *a⁴*, preferably, a friction-roll *a⁵*, normally below and
65 out of engagement with the base of the adjacent spool. On its under side the bar is cut away to present a cam-surface *d^x* and leave shoulders 2 3, which form limiting-stops
70 for a pin or stud *d'* on the outer side of the lower arm of a lever *d*, pivoted to the stand at *d²* and extended upwardly above the top of the spool to form a handle *d³*. Normally the handle *d³* occupies a substantially vertical position, as shown at the left of Fig. 1
75 and in full lines, Fig. 3, the pin or stud *d'* then resting against the shoulder 2 of the lifter-bar *a³*, the shoulder preferably being concaved, as shown in Fig. 3, to form a species of lock, the roll *a⁵* being at such time
80 held away from the spool-base.

When it is necessary to stop the rotation of a spool for any purpose, as to tie a knot in the yarn, the operative moves to the left, Figs. 1 and 3, the handle of the actuating-lever *d'*
85 of the particular spool into dotted-line position, Figs. 1 and 3. This moves the stud *d'* along the cam-surface *d^x* of the lifter-bar *a³*, raising the outer end of the latter until its roll *a⁵* bears against and lifts the base of the
90 spools S from the actuating-disk *b²*, (see dotted lines, Fig. 1,) acting as a brake to stop the rotation of the spool and maintaining it lifted and stationary as the stud *d'* bears against the shoulder 3 and the adjacent portion of the cam-surface *d^x*, the weight of the handle
95 *d³* then serving as a counterbalance to the weight of the spool and maintaining it raised. Any number of spools can thus be rendered inoperative and brought to a standstill until
100

the operative has tied the knots or performed any other necessary act, when by a slight push on the handle d^3 the spool-lifting mechanism is rendered inoperative and the spool
5 lowered upon its driving-disk b^2 .

In so far as the raising of the spool from its rest is concerned it would not make a great deal of difference whether the lifter-bar was provided with a roll, as a^5 , or not, for when
10 the operative moved the handle of the actuating-lever into proper position the spool would be lifted in either case. After the rotation of the spool is stopped, however, the operative must tie the broken ends together,
15 or, if the bobbin has run out, the end of a fresh bobbin must be united to the end left on the spool. To do this, it is absolutely necessary in practice that the thread on the spool be unwound for some distance in order that
20 the operative can get enough to tie or piece to the other end, and in order to do this the end on the spool is found and pulled therefrom, rotating the spool backward.

It will be obvious that without the roll on the lifter the spool would not rotate backward
25 simply by pulling on the yarn, as the latter would not be strong enough to overcome the friction; but with the roll the spool readily rotates by a pull on the yarn, even though
30 the yarn is very fine. The roll is therefore an absolute necessity in order to make the operation of piecing up rapid and convenient.

The mechanism shown is simple, efficient, and rapid in operation and enables the op-
35 erator to stop instantly the rotation of any

one or more spools without interfering with the others, and the lifting mechanism will remain in either operative or inoperative position until positively moved by the operative.

We claim—

1. In a spooling-machine, a rotating seat for the spool, a spool adapted to rest on and be rotated by frictional contact with said seat, a lifter-bar having a roll thereon and limiting-stops, and an actuating-lever provided with
45 a stud to engage and move said bar, to bring the roll into engagement with and to lift the spool from its seat, the stops limiting the movement of the lever, substantially as described.
50

2. In a spooling-machine, a rotating seat for the spool, a spool adapted to rest on and be rotated by frictional contact with said seat, a lifter-bar adapted at times to raise the spool
55 from its seat, limiting-stops on said bar and a cam-surface between them, and an actuating-lever having a stud to contact with and move over the cam-surface, to operate the lifter-bar, the stops limiting the movement of
60 the actuating-lever and retaining the lifter-bar in operative or inoperative position, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM F. DRAPER.
ALONZO E. RHOADES.

Witnesses:

GEO. OTIS DRAPER,
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