# B. Saunders.

## Spooler.

No. 50,392. Patented Oct. 10, 1865.

Fig. 2.

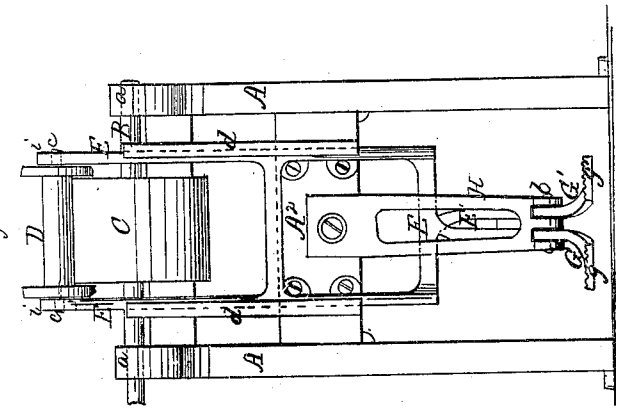
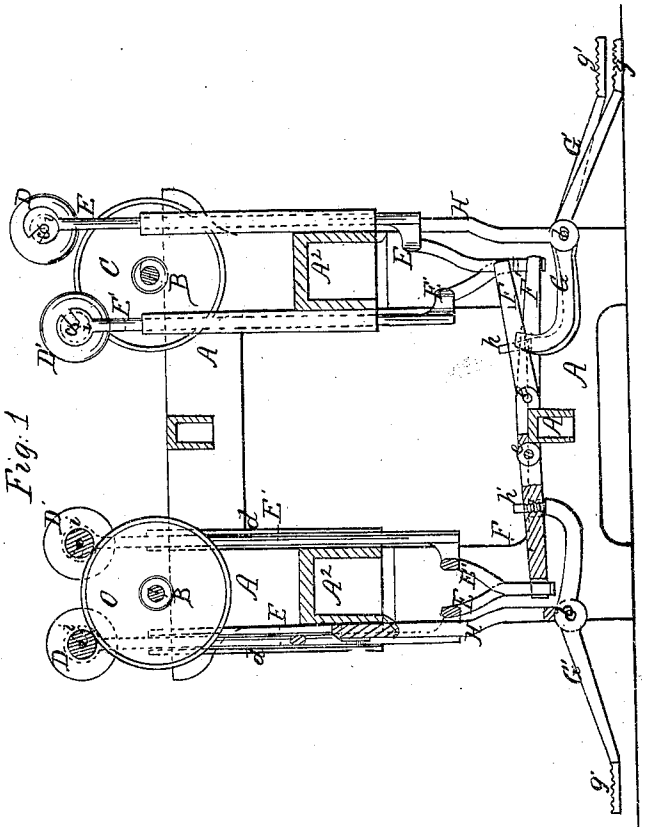


Fig. 1.



Witnesses.

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# UNITED STATES PATENT OFFICE.

BENJAMIN SAUNDERS, OF NASHUA, NEW HAMPSHIRE.

## IMPROVEMENT IN SPOOLERS FOR WINDING YARN FOR BEAMING, &c.

Specification forming part of Letters Patent No. **50,392**, dated October 10, 1865.

*To all whom it may concern:*

Be it known that I, BENJAMIN SAUNDERS, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Spoolers for Winding Yarn on Spools for Beaming and for other purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a transverse vertical section of a spooler with my improvement. Fig. 2 is a side view of a sufficient portion of the machine to illustrate my invention.

Similar letters of reference indicate corresponding parts in both figures.

In spooling yarn for beaming, the contents of several bobbins are required to fill one spool, and every time the yarn on a bobbin gives out and the empty bobbin is removed and replaced in the spooler by a full one the relative spool has to be raised up from its driving-cylinder to permit the end of the yarn on the bobbin to be joined to that of the yarn on the spool. The same necessity for raising the spool occurs to permit the ends of the yarn to be joined whenever it breaks and whenever a full spool has to be replaced by an empty one. In the spoolers heretofore used this manipulation of the spools has had to be performed by hand.

My invention consists in connecting the bearings of the spools with treadles, which, being operated by the foot of the attendant to raise the spools, leaves both the hands free to piece or join the ends of the yarn, and thereby enables the piecing or joining to be performed more expeditiously, and saves much time in spooling.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A A′ $A^2$ indicate the framing of the machine, constructed in the usual or any suitable manner, and of suitable length for the application on each side of any desired number of spools and their driving-cylinders, operating-treadles, and other appurtenances; but Fig. 2 only shows it of sufficient length to illustrate the invention. On the top of this framing, near each side, are the bearings *a a* for two parallel horizontal shafts, B B, on which are firmly secured the driving-cylinders C C for producing the rotary motion of the spools D D′, by which the spooling is effected. These shafts have continuous rotary motion given to them by any suitable means. Each of said cylinders serves to drive two spools, and is made of such length that the heads of the spools lap over its ends, as shown in Fig. 2, and permit the bodies of the spools or the yarn thereon to bear directly on the periphery of the cylinder, that the driving of the spools may be effected by the frictional contact with the cylinders. One of the two spools, D, bears upon the cylinder some distance outside of its vertical axial plane, and the other one, D′, bears upon it some distance inside of the said plane.

The journals *c c* of each of the two spools D D′ are placed in open bearings *i i* in the upper parts of the sides of one of the two frames E E′, which slide in vertical guides *d d* secured firmly to the side rails, $A^2$ $A^2$, of the framing, and the lower parts of the said frames are each connected with one of two levers, F F′, which work on fulcrum-pins *e e* secured to or in the lower central rail, A′, of the framing, and each of these levers bears on the inner end of one of two treadles, G G′, which work on fulcrum-pins *b b* in rigid hangers H H, secured to the side rails, $A^2$ $A^2$, of the framing, and the outer ends or foot-pieces, *g′ g′*, of which project a convenient distance out from the sides of the framing to allow the feet of the attendant to be conveniently applied for the purpose of depressing them and thereby lifting up the spools out of contact with the cylinder C, the treadle G and lever F serving to raise the frame E and spool D, and the treadle G′ and lever F′ serving to raise the frame E′ and spool D′.

The height to which the spools are raised is regulated by set-screws *h h′*, which are screwed into the levers F F′, and which form the bearings of the said levers upon the inner ends of the said treadles. These screws, by being adjusted lower or higher, permit the outer ends of the treadles to be raised higher, or prevent them from being raised so high from the floor by the weight of the levers F F′. The frames E E′, and the spools, and the height to which the said ends are permitted to rise regulates the height to which the spools are raised by

depressing the foot-pieces of the treadles to the floor.

The spool-frames E E′, applied as above described, hang on the spools when the latter bear on the cylinders, and by that means the said frames, being made of proper weight, are made to produce the necessary pressure on the spools. The said frames, sliding in vertical guides, operate much more steadily than the hinged spool-frames which are commonly employed, and which are loaded with weights or have springs applied to produce the pressure.

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

1. Connecting the bearings *i i* of the spools of a spooler with treadles, substantially as and for the purpose herein specified.

2. The spool-frames E E′, sliding in guides *d d*, in combination with the levers F F′, or their equivalents, and treadles G G′, substantially as and for the purpose herein described.

3. The adjusting-screws *h h′*, in combination with the levers F F′ and treadles G G′, substantially as and for the purpose herein set forth.

BENJN. SAUNDERS.

Witnesses:
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