

(No Model.)

J. W. FOSTER.

TUBE HOLDER FOR THREAD WINDING MACHINES.

No. 514,886.

Patented Feb. 13, 1894.

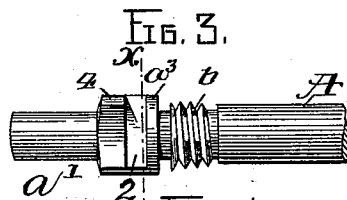
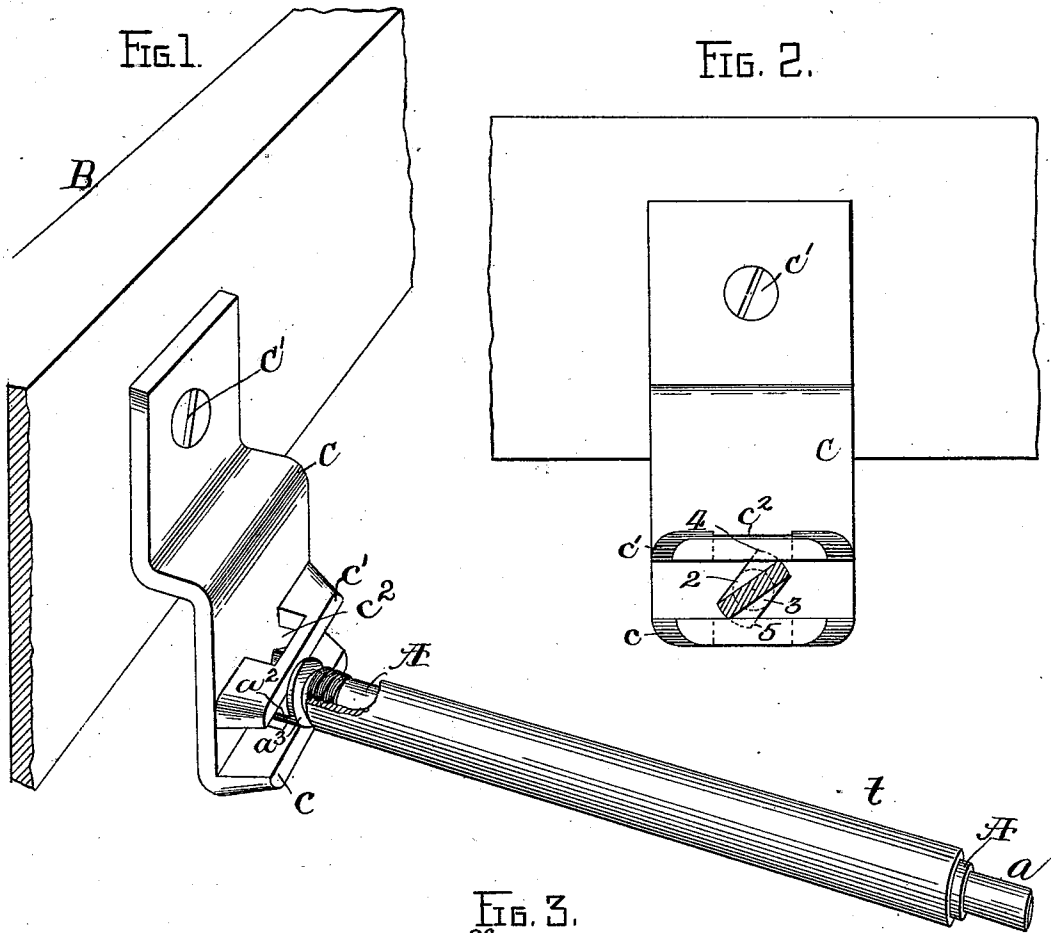
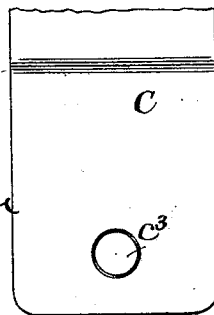


FIG. 4.



WITNESSES:

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JOHN W. FOSTER, OF WESTFIELD, MASSACHUSETTS.

TUBE-HOLDER FOR THREAD-WINDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 514,886, dated February 13, 1894.

Application filed October 30, 1893. Serial No. 439,514. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. FOSTER, of Westfield, county of Hampden, State of Massachusetts, have invented an Improvement in Tube-Holders for Thread-Winding 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.

In the handling of threads in connection with the manufacture of textile fabrics, the said threads are commonly wound upon spools, which are rotated by many different devices. I have devised machines for spooling thread, and in said machines I employ a mandrel having at its opposite ends journals to be supported in bearings of a yoke. In the use of my spooling machine I wind the thread onto tubes, preferably of paper, and these tubes for the best results should be so secured on the mandrels that they will not slip. In United States Patent No. 499,667, granted to me, June 13, 1893, I have shown a mandrel as provided with devices to hold a conical shell in place during the winding thereon of the thread. In this my present invention I have invented a mandrel which is adapted to hold a small tube. My improved mandrel has journals at its opposite ends, and between its ends and near one journal I have scored the mandrel so as to leave an edge or edges to engage the interior of the tube when being put in place on the mandrel, said scoring being preferably in the form of a short screw thread, the tube being engaged therewith by rotating the tube on the mandrel. I have also further improved said mandrel by providing it between its scored part referred to and the journal-end nearest to it, with an enlargement which is shaped to present slots and projections to co-operate with a socket plate, the latter preventing the mandrel from being rotated when the tube is being applied or removed.

Figure 1, in perspective, shows a bar or rail of a spooling machine showing a socket attached thereto with a mandrel in position to be held against rotation, the tube on the mandrel being partially broken out to show the scoring. Fig. 2 is a section on about the line $x-x$ Fig. 3. Fig. 3 shows that end of the man-

drel which is hid in Fig. 1, and Fig. 4, a rear side view of the socket.

The mandrel A has at its opposite ends journals a , a' , and near the inner end of journal a' the said mandrel has an enlargement a^2 which is cut away to leave a flange a^3 the formation of the flange leaving notches 2, 3, and lugs 4, 5, the notches and lugs being arranged in pairs at opposite sides the longitudinal center of the mandrel. The mandrel at the side of the flange nearest the middle of the length of the mandrel is scored as at b to leave edges or projections adapted to cut into and engage the interior of the tube t , preferably of paper, said tube filling said mandrel from end to end.

The rail B may form part of a spooling machine, and the socket C may be attached thereto by a suitable screw C' . This socket has two lips c , c' , each provided with a like notch c^2 and the socket has a hole c^3 , through which passes the journal a' .

In operation, let it be supposed that a tube is to be applied to the mandrel. The mandrel while preferably in the hand of the operator will have a tube slipped upon it from that end having the journal a , and then the journal a' will be inserted into the hole c^3 of the socket in the position shown in Fig. 1, and the operator grasping the tube will rotate the same on the mandrel in the direction with relation to the pitch of the scoring to effect the drawing of the tube toward the flange a^3 , this operation being continued until the tube is in working position. During this operation the rotation of the mandrel will be prevented by the contact of parts of the enlarged head between the lips c , c' , of the socket. The tube having been applied, the operator will remove the end of the mandrel from the socket and will put the mandrel provided with a tube fixed thereon into the yoke of the spooling machine. When the thread has been wound onto the tube the mandrel is lifted from its bearings in the yoke and the journal a' is again inserted as before into the socket, and the operator, holding the mass of yarn in his hand, will turn the same in the direction to unscrew the tube from the mandrel, and at the same time will pull outwardly upon the mass of yarn, but the mandrel will not by

such strain be pulled from the socket for the lugs 4, 5, of the enlarged part of the mandrel will enter the notches 2, 3, of the flanges *a*³ and prevent outward movement of the mandrel. The yarn load having been removed, the operator may supply the mandrel with a fresh tube, while yet in the socket, turning the tube onto the mandrel as before described. It will be noticed that the scored or threaded portion is left by cutting away a portion of the body of the mandrel at one side of the flange located near the journal *a'*, and that the acting edges of said scored threads lie substantially level with the periphery of the mandrel, such location of the screw threads or projections *b* enabling them to engage the interior of the paper tube, and yet not cut into the same sufficiently to mar or injure the tube.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A spooler mandrel having journals at its opposite ends and provided between its ends with an enlargement having lugs 4, 5, and also with a flange, and scoring *b*, to co-operate with and hold a tube, substantially as described.

2. A spooler mandrel having journals at its

opposite ends and provided between its ends with an enlargement having lugs 4, 5, and also with a flange and scoring *b* to co-operate with and hold a tube, combined with a socket piece having notched lips to receive said lugs, to operate, all substantially as described.

3. A spooler mandrel having journals *a, a'*, at its opposite ends and provided near one of said journals with a scored portion *b* adapted to engage and hold one end of a tube, and also provided with a lug and with a flange, said flange being located between said lug and said scored portion, substantially as described.

4. A spooler mandrel having journals *a, a'*, at its opposite ends and provided near one of said journals with a flange, a portion of the body of the mandrel being cut away near said flange to form a scored thread the edges of which are substantially in the line of the circumference of the mandrel, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN W. FOSTER.

Witnesses:

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