R. G. PRATT.
HEADLESS QUILL FOR YARN WINDERS AND METHOD OF MAKING THE SAME.
APPLICATION FILED JAN. 25, 1917.

1,285,372. Patented Nov. 19, 1918.

Fig. 1

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Inventor
Robert G. Pratt

By Chas. H. Kennedy
Attorney
HEADLESS QUILL FOR YARN-WINDERS AND METHOD OF MAKING THE SAME.

UNITED STATES PATENT OFFICE.

ROBERT G. PRATT, OF WORCESTER, MASSACHUSETTS.

SPECIFICATION OF LETTERS PATENT.

Henry Pratt,Repository at
Worcester, in the county of Worcester and
Commonwealth of Massachusetts, have invented a new and useful Improvement in Headless Quills for Yarn-Winders and Methods of Making the Same, of which the following, together with the accompanying drawings, is a specification.

The present invention relates to the construction and method of manufacturing an improved form of quill or tube for use with winding machines, more particularly such machines as are employed for winding material to be used on narrow fabric looms.

The invention resides in the production of a quill or tube of the same general form and mechanical construction as the wood tubes now in ordinary use, but having a winding surface of increased hardness, so as not to become grooved or roughened in continued use. More particularly, the invention resides in the production of such a quill or tube with a winding surface composed of hardened fiber, metal, or the like, whereby its strength and wearing properties are materially increased, in comparison to the tubes heretofore used.

The essential features of my invention, including the manner in which such a tube may be cheaply and readily produced, without special shop practices or changes in existing machines, are fully set forth in the following description, reference being had to the accompanying drawings, in which.

Figure 1 shows in perspective, a machine illustrating the use of one of the headless quills or tubes with which my invention is concerned.

Figs. 2, 3, 4 and 5 illustrate various forms assumed by the parts constituting my improvement in the successive steps of its manufacture.

Referring briefly to Fig. 1, it will be understood that the finished product resulting from my invention is a cylindrical tube or quill, of the general form disclosed in Fig. 5, the same being adapted for disposal on the spindle 1 of the winding machine and having at each end a transverse slot for engagement with a spline or projection 2 formed on said spindle. In the present instance the thread or yarn shown as being supplied from a spool 3 is carried through the usual stop motion mechanism 4, before being wound, by the traversing laying member 5, upon the revolving quill or tube. The latter is rotated in conjunction with the spindle 1 through the engagement of the spline or projection 2 with one of the transverse slots in its ends, it being common practice to slot both ends so that it is immaterial which end is presented to the spline 2 when placing the tube in winding position.

As heretofore manufactured, such headless tubes or quills for use on the spindles of a wide variety of winding machines, have been composed wholly of wood, the piece being bored centrally to fit the standard spindle and then cut into the desired lengths, each tube so formed being thereafter slotted at each end for the purpose above described. The necessity for tubes of a more substantial construction has long been felt, the wood tubes in ordinary use being very easily broken and being susceptible to wear on their winding surfaces, which latter become roughened and scored with the result that the tube must very soon be discarded. Any previous proposal to substitute a harder material, such as fiber, for the wood of these tubes, has been met with the objection of greatly increased expense, since the boring of a solid fiber bar or rod to fit the spindle 1 is a very delicate operation, oftentimes resulting in splitting, and thereby destroying the entire piece.

However, fibrous material is manufactured for commercial purposes in a tubular form, with comparatively thin walls, as shown by the section 6 in Fig. 3, the bore 7 of which is of relatively large diameter. Such a bore is obviously unsuitable for receiving the spindle 1, being much too large for this purpose. My invention contemplates the utilization of this standard commercial fiber material in the manufacture of headless quills and tubes for use on standard winding machine spindles, and to this end I propose to employ the fiber section 6 as a cover for a wood section 8, Fig. 2, having a bore 9 of the proper size to fit a winding machine spindle 1. In the manufacture of my improved quill or tube, the wood section 8 cut to the desired length, is made of a diameter to fit easily within the bore 7 of the fiber section 6, the latter being cut to the same length. The wood section is thus insertible easily within the fiber section as
shown in Fig. 4, without danger of splitting said fiber section and without requiring said parts to be driven into place.

The two part structure illustrated in Fig. 4 is then sawed transversely at its ends, the saw kerfs forming the slots 10, 10 which enable the completed quill or tube thus formed to be driven by the spline or projection 2 of spindle 1, from either end. The simultaneous sawing of the wood section 8 and fiber section 6 causes a certain adherence between their adjacent surfaces within the saw kerf, the materials of the two sections being thus brought into sufficiently intimate contact by the action of the saw to bind the two together.

The article thus produced offers all the advantages of a quill or tube made of fiber instead of wood, the same being practically indestructible and unbreakable by crushing, and presenting a winding surface which successfully resists any scoring or grooving by the thread or yarn.

It is to be understood that while I prefer to use hardened or vulcanized fiber in the manufacture of the tubes or quills constituting my invention, still I am in no sense limited to such use, since any other suitable material, such as metal, of sufficient hardness and strength, may be employed as a covering for the wood core.

I claim,

1. As a new article of manufacture, a headless quill or tube, comprising a wood core and a hardened fiber outer surface, the ends of said parts being slotted transversely, whereby the exposed fibers of each part are intermingled, to bind said parts together.

2. As a new article of manufacture, a headless quill or tube, comprising a tubular fiber section, a tubular wood section telescoped within said fiber section, and means for retaining said sections together, comprising a saw kerf formed simultaneously in the corresponding ends of said telescoping sections.

3. The herein described method of making a headless quill or tube, including the insertion of a tubular wood section within a tubular hardened fiber section, and forming a transverse saw kerf simultaneously in the corresponding ends of said telescoping sections.

ROBERT G. PRATT.

Witnesses:
PENELLOPE COMBERBACH,
NELLE WHALEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."