O. E. WAIT.

Spool and Bobbin.

No. 217,655. Patented July 15, 1879.

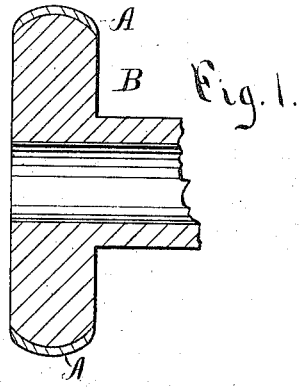


Fig. 1.

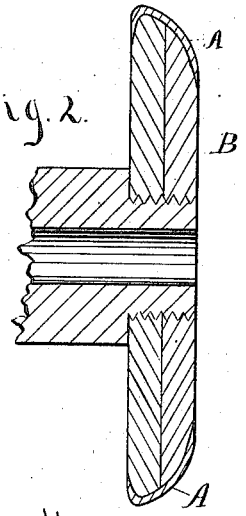


Fig. 2.

Fig. 3.

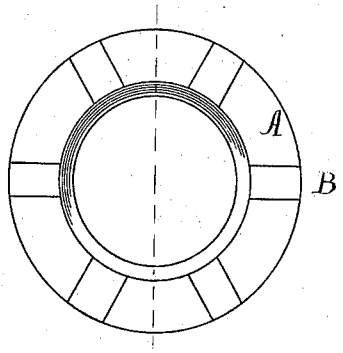


Fig. 4.

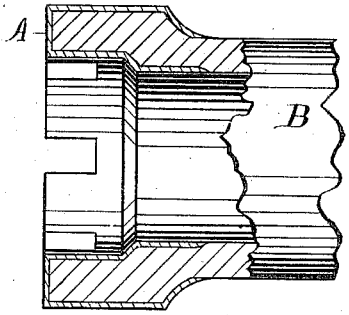
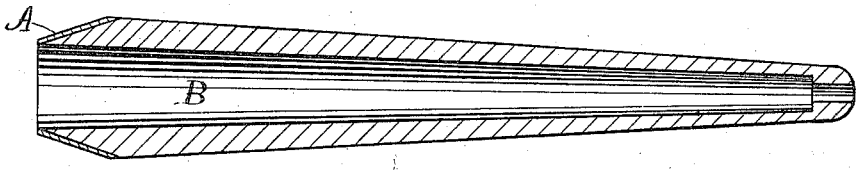


Fig. 5.



Witnesses.

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IMPROVEMENT IN SPOOLS AND BOBBINS.

Specification forming part of Letters Patent No. **217,655**, dated July 15, 1879; application filed March 9, 1878.

To all whom it may concern:

Be it known that I, OSCAR E. WAIT, of Rockport, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Spools and Bobbins, of which the following is a specification.

Prior to my present invention wooden bobbins and spools have been protected by thread, wire, &c., wound around some parts of the bobbins, more particularly the barrel. They have also been protected by a rawhide covering, and in a prior patent, No. 208,774, of my own, a coating of fiber and gelatine is described and claimed. It has also been customary to finish these various spools and bobbins with a coat of varnish.

The object of my invention is to protect and strengthen wooden spools and bobbins at various points, either outside or inside, or both, with a strong and elastic covering having a permanently smooth, glossy, and hard surface. The class of spools and bobbins designed to be thus protected is that used in the manufacture of textile fabrics.

My invention consists of coating and protecting wooden spools and bobbins by covering the parts requiring special protection with a thick coat composed of mixed glue and glycerine or equivalent softening material when in a plastic or semi-plastic state, and hardening the same thereon. I also cover the coat of softened glue with a finishing coat of unsoftened glue, to give a smooth, hard, and glossy surface. I also consider the wooden spool or bobbin which is the product of the herein-described process as my invention.

In the accompanying drawings, Figures 1 and 2 are sectional views of spool-heads with a coating applied to their edges in accordance with my invention. The spool-head in Fig. 2 is made of two pieces of wood glued together. Fig. 3 is an end view of a speeder-bobbin coated in accordance with my invention. Fig. 4 is a longitudinal section of the same; and Fig. 5 is a longitudinal section of another style of bobbin which embodies my invention.

Bobbin-heads of the style represented in Fig. 2 are sometimes so thin as to easily split when made of one piece, and consequently they are made of two or more pieces glued together, with the grain crossing each other. These pieces will shrink and swell unevenly, leaving a rough edge, and oftentimes they will split or splinter, thereby causing much loss of yarn by its snarling and breaking. A proper protection for the edges of these heads, or for the periphery of any spool head or barrel, should possess a strong tendency to contract under the influences of a dry atmosphere, and at the same time it should be somewhat elastic, so that, whether the wood shrinks or swells, the covering will always be snugly bound thereon—that is to say, the protecting-coat must shrink sufficiently to follow up all shrinkage of the wood, and at the same time it must be elastic enough to expand with the wood when it expands.

No protective substance is practicable which does not adhere firmly to the wood, possess a strong contracting or shrinking power, have sufficient strength to hold the wood from splintering or splitting, have elasticity enough to prevent small indentations or bruises in the coating from becoming permanent, and possess durability and hardness of surface, so as to be permanently smooth and resist chafing wear.

The coating hereinafter described possesses all of the above-named characteristics, and I know of no substances except glue or gelatine and rawhide which have the requisite shrinking and wearing properties.

If the spools or bobbins are to be used only with dry yarn or thread I use a cement composed of common glue toughened and softened by the addition of glycerine, molasses, or any other non-drying substance for which it has an affinity, being aware, of course, that glycerine and molasses have been mixed with glue in the manufacture of inking-rollers and other articles.

In case the spools or bobbins are to be subjected to moisture when in use, then I either render the mixture water-proof by the addition of linseed-oil, shellac, or any similar substance; or I cover the coating after it is applied and hardened with some water-proof varnish or cement.

I consider that the best way to prepare and apply the coating is to take strong glue and

dissolve in water, add glycerine or molasses in about the proportion of two or three parts, by weight, of the softening material to six parts of dry glue, then cook the mixture till the water is entirely expelled.

The proportions of the mixture may, however, be varied, according to the quality of the glue or the nature of the work to which the cement is to be applied; but in all cases the cement must be sufficiently hard to be handled when cold. I then put on a thick coat of the above-described compound, when hot, to the parts requiring special protection by the aid of a brush or other means, the consistency of the compound being stiff enough so that it will not run after being applied—that is, it is applied when in a plastic or semi-plastic state.

A designates the coating, and B the spools or bobbins. The spool with the coat thus applied is laid away for the compound to cool and harden, after which another and a thinner coat is applied, consisting of common glue prepared in the ordinary way without the softening material. This second coat of common glue gives a hard surface without any sticky property when dry, while the softer main coat gives the desired elasticity.

When the second coat is dry and hard the spool or bobbin is placed in a lathe and finished by turning or sandpapering, or both.

A light coat of shellac varnish over the whole makes a neat finish.

This compound of glue and molasses, or its equivalent, differs from that described for the coating of spools and bobbins in my former patent in the omission of the fibrous material and addition to the glue of the glycerine or molasses. In that case the fibrous material was relied on to give bulk or body to the coating; but in this application the coat of cement alone must be applied thick enough, when covering the edge of a head or sides of a barrel, to form a seamless band around the same, which band must have body enough to form an elastic cushion, and also to stick together and draw around the part covered, so as to practically render it hide-bound. A light coat so thin as to barely cover the wood is not sufficient to produce the desired result.

In some kinds of bobbins—as, for instance, those shown in Figs. 3, 4, and 5—it is preferable to dip the part to be protected in the mixture for the main coat, and when it has hardened dip it again in plain glue to give it the hard surface. It is also desirable to apply a coat of glue-sizing to the part or parts of the spool or bobbin designed to be coated previous to applying the main coat, as in some cases a more perfect union of the compound and wood may be effected.

In the bobbin shown in Figs. 3 and 4 the coating might be pressed upon the wood in a suitable mold after dipping, thereby bringing out the corners square and plump, and giving the parts the desired shape, which coating may cover the outside, inside, and bottom, which will save the corners and slots, and also somewhat lessen the concussion, thereby saving the whole bobbin.

The bobbin or quill shown in Fig. 5 has a tapering end, which fits into a correspondingly-shaped hole in a revolving cup. The coating A not only strengthens the end of the quill, but will enable it to fit more snugly the hole in the cup, especially if finished by pressure in a mold, so as to give them all a uniform taper. The coating may be applied to the taper only, or the end may be covered both outside and inside, as far as the taper extends, by dipping the same in the mixture.

The coating herein described has all the requisites of elasticity and a permanent smooth and hard surface. It can be applied in many places where it is inconvenient or impracticable to apply any other known protection, while it is cheaper, both in cost of material and its application, than anything heretofore employed. The compound or mixture when hardened can be turned and sandpapered very smooth in a lathe, the same as horn or other similar substance. In case the coating or any part of it ever becomes injured it can be easily repaired or recoated at a very trifling expense.

I claim as my invention—

1. The process herein described of coating and protecting wooden spools and bobbins, which consists in covering the parts requiring special protection with a thick coat composed of mixed glue and glycerine or its equivalent when in a plastic state, and hardening the same thereon, substantially as described, and for the purpose specified.

2. The process herein described of coating and protecting wooden spools and bobbins, which consists in covering the parts desiring special protection with a thick coat of mixed glue and glycerine or equivalent softening material when in a plastic or semi-plastic state, hardening the same, and then afterward covering it with a coat of glue without the softening material, substantially as described, and for the purpose specified.

3. A wooden spool or bobbin coated in whole or in part with a thick coat of mixed glue and glycerine or equivalent softening material, which compound forms an elastic cushion which is hide-bound on the wood, substantially as described, and for the purpose specified.

4. A wooden spool or bobbin coated in whole or in part with a thick coat of mixed glue and glycerine or equivalent softening material, which compound forms an elactic cushion hide-bound on the wood, and having said elastic coat covered with unsoftened glue, which forms a hard, smooth, and glossy surface, substantially as described, and for the purpose specified.

OSCAR E. WAIT.

Witnesses:
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