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BOBBIN

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ATTORNEYS.

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BOBBIN

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This invention relates to a bobbin and has for its object to provide a bobbin which will hold a greater quantity of yarn without increasing the outer dimension of the package by providing a shank portion with a reduced diameter.

A still further object of the invention is to provide a metal shank portion for the bobbin which may have a small diameter upon which the yarn may be wound and yet be of sufficient strength to well withstand the abuse to which bobbins are ordinarily subjected.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a diagrammatic view partially in section showing a shuttle in its relative position to the warp threads having a full bobbin with yarn thereon in the shuttle.

Figure 2 is a side elevation of my improved bobbin.

Figure 3 is a sectional view of the base portion with the spindle broken off a short distance therefrom.

Figure 4 is a sectional view of the bobbin on the line 4—4 of Fig. 3.

Figure 5 is a sectional detail of the means of securing the shank to the base portion.

Figure 6 is a sectional view showing the cap mounted on the base of the bobbin.

Figure 7 is a perspective view of the base end of the shank showing portions bent to extend into the slot at the base of the bobbin.

It is found in certain uses of bobbins such for instance as in a shuttle that the outside dimension of the bobbin with the yarn package thereon, is limited by reason of the side walls of the shuttle; the dimensions of the shuttle cannot be increased because of the added strains which would necessarily be placed on the warp threads in spreading them a greater distance apart. In order to increase the amount of the yarn which may be placed upon a bobbin to be used under such circumstances, I have provided a construction by which the shank of the bobbin upon which

the yarn is placed is materially decreased in diameter whereby a substantially greater amount of yarn may be placed on the bobbin. A large part of the bobbins in use are made of wood and in order that they may be of sufficient strength a relatively large sized wooden shank portion is provided and to improve this construction I reduce this shank portion by making the same of metal which in addition to being of a smaller diameter to accommodate a greater amount of yarn has the advantage of being much more durable under the ordinary uses to which a bobbin is subjected; for instance, oftentimes the point or front end of the bobbin is struck upon a bench or the like with considerable force in removing the last part of the yarn package therefrom which in time bruises or so abrades a wooden point as to cause it to rupture the thread. Then again, when the yarn remaining on the bobbin is cut therefrom by a knife or the like, its surface is often so bruised as to cause rupture of the yarn, all of which disadvantages are avoided by the invention hereinafter more fully described and illustrated in the accompanying drawings.

With reference to the drawings, 10 designates the base portion of a bobbin which is made of non-metallic material such as wood and is shaped generally frustro-conical having a bore 11 which is enlarged in diameter as at 12 near its large end. Within this bore a metal shank 13 is located which tapers generally from the portion 14 adjacent the smaller end of the base towards its point end 15. At spaced intervals along the portion of the length of the shank which extends beyond the end of the base, ribs 16 are provided which extend circularly of the shank and serve to strengthen the same and at the same time assist in preventing the lengthwise sliding of the yarn thereon. The end 18 of the base abuts the rib 17 on the shank to prevent a sliding of the base towards the point end of the shank and to further lock the base against movement relative to the shank, this shank is expanded as at 19 into the enlarged portion 12 of the bore and portions 20 of the shank are folded into the slot 21 which extends transversely in the end

of the base to serve for driving the bobbin for winding purposes. These folded portions 20 form a lining for the bottom wall of this slot to assist in preventing wear upon the bottom wall of this non-metallic or wooden surface of the base.

A cap 22 is provided over the end of the base and is secured in position by rolling its edges 23 inwardly over the shoulder formed by the recess 24 near the large end of the base. Portions 25 of this cap are bent inwardly to line and protect the side walls of the slot 21 as is clearly illustrated in Figures 3, 5 and 6.

By the above construction it will be apparent that the metallic shank is securely and rigidly locked in a non-metallic base upon which a yarn package illustrated by dotted lines and indicated at 26 may be placed. This package is of the same outer dimension as has heretofore been commonly used and limited by the side walls 28 of the shuttle, the cross section of which is illustrated at 27 in Figure 1 from which it will be apparent that a substantially greater amount of yarn is carried on the bobbin than where a larger wooden spindle is used and yet the construction is such that the bobbin will withstand a greater amount of abuse than the wooden shank bobbins which are in common use.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A bobbin comprising a non-metallic base with an axial bore therethru of two sizes, a tubular metal shank in said bore extending a substantial distance beyond said base, said metal shank being expanded in said bore at the point of enlargement to snugly sheath the bore in its two different sizes and assist in locking the shank in position in said bore.

2. A bobbin comprising a non-metallic base with an axial bore therethru and a slot in its end surface, a metallic tubular shank in said bore and extending a substantial distance beyond said base, said shank having portions folded into said slot to form a bottom lining therefor.

3. A bobbin comprising a non-metallic base with an axial bore therethru and a slot in its end surface, a metallic tubular shank in said bore and extending a substantial distance beyond said base, said shank having portions folded into said slot to form a bottom lining therefor, and a cap secured over the slotted end of said base with portions folded into the slot to form a lining for the side wall thereof.

4. A bobbin comprising a non-metallic base with an axial bore therethru and a slot in its

end surface, a metallic tubular shank in said bore and extending a substantial distance beyond said base, said shank having circular ribs on the portion extending beyond said base, the end of said base abutting against one of said ribs, a portion of said shank being folded into said slot at the opposite end of said base to lock the base and shank together.

5. A bobbin comprising a generally frusto-conical shaped base formed of suitable wood with an axial opening therethru, a tubular metal shank extending from said base and generally tapering from said base toward its pointed end, said metal shank extending thru said axial opening and in contact with the walls of said base which forms said opening, the walls of the opening thru said base expanding to form a longitudinal recess therein and said metal shank being expanded to sheath said recess and to assist in securing it to said base.

In testimony whereof I affix my signature.
FRANK MOSSBERG.