Dec. 20, 1938. J. L. DETERS 2,140,497

BOBBIN

Filed June 7, 1937

Fig. 1.

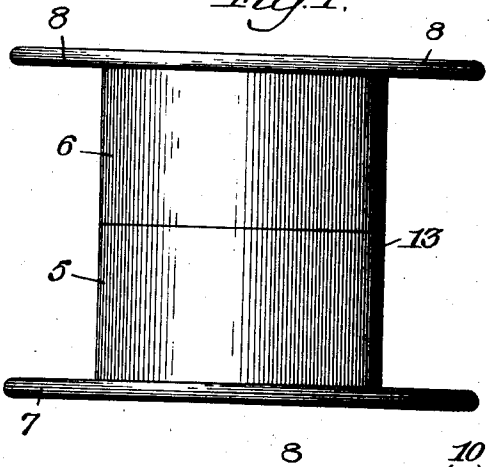


Fig. 2.

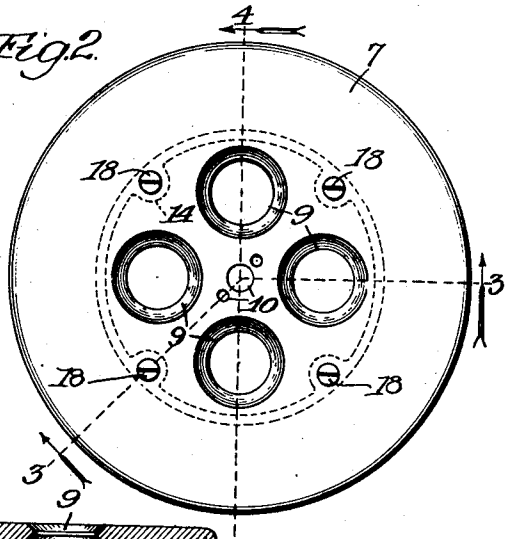


Fig. 3.

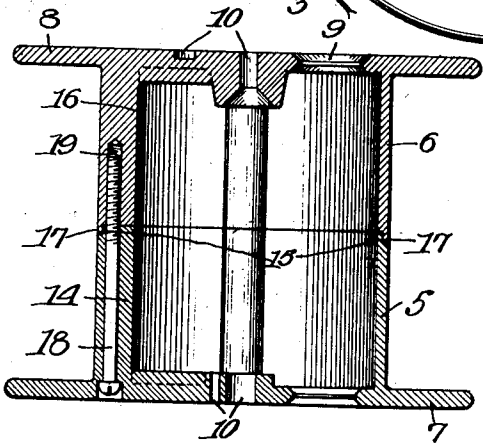
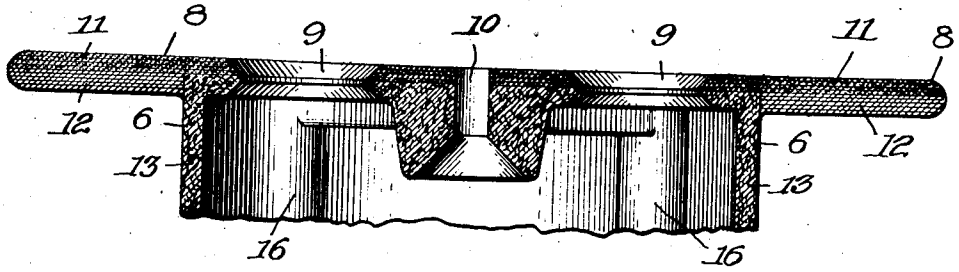


Fig. 4.



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BOBBIN

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Application June 7, 1937, Serial No. 146,937

1 Claim. (Cl. 242—119)

This invention relates to bobbins and more particularly to a bobbin having end flanges made of laminations of material impregnated with a varnish, such as "Bakelite", the mass being compacted and hardened under heat and pressure.

Large size bobbins, whose flange diameter may be in some cases 33 inches and whose barrel portion is sometimes 16 inches, have heretofore been made of wood such as hard maple. At the present day it is difficult to find suitable hard maple for making such bobbins and there is a marked demand, also in the smaller sizes, for material which will not surface raise because of moisture absorption and which is not affected by chemicals which are found in certain yarns. In cotton yarn a chlorine wash is sometimes used and in rayon, sulfuric acid, sodium sulfate, and magnesium sulfate may be present in sufficient quantities to injure a wooden bobbin.

An object of the invention is to provide a bobbin whose end flanges are formed integrally with the barrel portion so that there will be no crack or seam at the ends of the bobbin to catch material wound thereon. In bobbins heretofore used this was a source of great difficulty as the end flanges had a tendency to warp away from the barrel portion but this difficulty is completely overcome by the present invention.

Another object of the invention is to provide a flange whose laminations are disposed at right angles to the axis of the bobbin and is provided with outside laminations of woven fabric impregnated with a binder which hardens under heat and pressure giving high tensile strength and resistance to fracture. The inner laminations may be of paper impregnated with the same binder which hardens under heat and pressure and gives maximum smoothness and resistance to wear.

A further object of the invention is to form a bobbin in two parts which may be manufactured without difficulty and can be joined with overlapping flanges in a manner that will leave no open cracks in the barrel portion to catch yarns, or the like.

The invention is illustrated in a preferred embodiment in the accompanying drawing, in which:

Figure 1 is an elevational view of a bobbin embodying the invention; Fig. 2 is a bottom end view of the same; Fig. 3 is a sectional view, taken as indicated at line 3—3 of Fig. 2; and Fig. 4 is a fragmentary sectional view on an enlarged scale, taken as indicated at line 4 of Fig. 2.

In the embodiment illustrated the bobbin is made up of a lower half 5 and an upper half 6. The lower half 5 is provided with an integrally formed end flange 7 and the upper half is provided with a similarly formed end flange 8. The end flanges may be provided with suitable finger holes 9 to facilitate handling, and openings 10 to receive parts of the spindle of a machine.

As best shown in Fig. 4, the end flanges are formed by a series of outer laminations of woven fabric 11 impregnated with a suitable binder, such as "Bakelite" varnish which hardens under heat and pressure, and the inner laminations 12 may be made of paper impregnated with the same binder. In the embodiment illustrated, the barrel portion 13, inner portion of the flanges, and the inner portion of the hub, are formed of macerated material, such as scraps made in forming the end laminations 11, and the assembly has been consolidated under a pressure of about 1500 pounds per square inch and held at a temperature of from 150° to 175° C. While it is preferred to use macerated material in the barrel portion of the bobbin, laminated material may be used, as will be readily understood.

The molding operation is well understood in the art and need not be described in detail. After the assembly has been consolidated to transform the binder into a hard, infusible and substantially insoluble condition, the laminations of paper are practically invisible but the woven fabric in the outer lamination may be seen clearly. The arrangement of laminations provides a flange with a tough outer surface which is very resistant to fracture and a smooth inner surface which may be given a high polish and is further polished by use.

As shown in Figs. 2–4, inclusive, the inner portion of the hollow barrel portion of the member 5 is provided with axially disposed ribs 14 and a connecting end flange 15. In like manner the member 6 is provided with ribs 16 adapted to register with the ribs 14 and has a flange 17 adapted to overlap with the flange 15 and make an interfitting connecting between the parts. The ribs 14 are drilled and countersunk to receive screws 18 and the ribs 16 are drilled and tapped, as indicated at 19, to receive the ends of the screws and enable the two parts to be drawn together snugly.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claim should be construed as broadly as permissible, in view of the prior art.

I claim:

A bobbin comprising two separable parts, each

of said parts having an end flange integrally formed with a hollow barrel portion, said barrel portion having axially disposed inner ribs, said flange having outer laminations of woven fiber and inner laminations of paper, said laminations being disposed at right angles to the axis of the bobbin and impregnated with a binder which hardens under heat and pressure, said barrel portion being formed of macerated material impregnated with the same kind of binder, each end flange and a portion of the barrel having been consolidated under heat and pressure to transform the binder into an infusible and substantially insoluble condition, and the barrel portions of said bobbin parts being provided at their inner end portions with overlapping flanges which are drawn together by screws inserted in said ribs.

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