Jan. 15, 1935. H. D. CLINTON 1,987,991

SPOOL AND BOBBIN

Filed March 20, 1934

Fig.1.

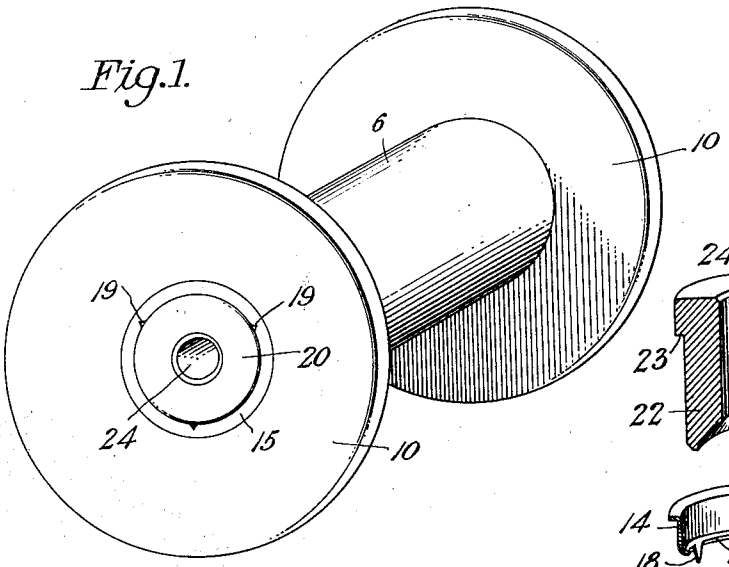


Fig.2.

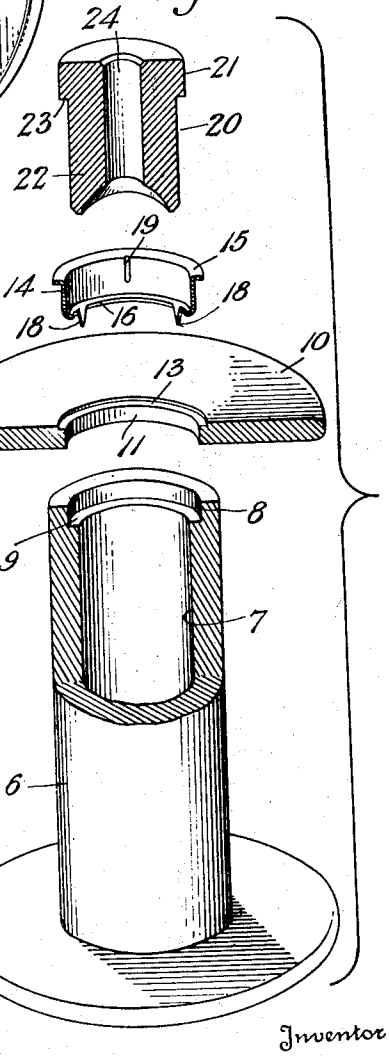


Fig.3.

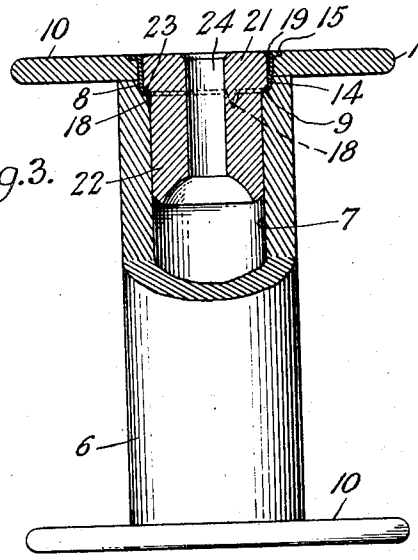


Fig.4.

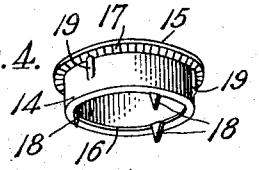
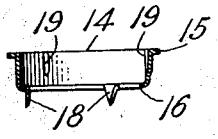


Fig.5.



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SPOOL AND BOBBIN

Harry D. Clinton, Johnson City, N. Y.

Application March 20, 1934, Serial No. 716,531

5 Claims. (Cl. 242—124)

This invention is intended to provide an improvement upon the spool construction of my U. S. Patent No. 1,681,096, dated August 14, 1928, wherein a hard composition head is fastened to a wooden barrel by means of a metal bushing ring and plug.

The primary object is to make a still stronger fastening and spool that will be superior and more satisfactory in consequence, especially for certain purposes in use to which these spools are put in various textile mill operations. It is also desired to simplify the work and reduce the cost of manufacture which are items of considerable importance to the industry.

With this brief preliminary statement, it is believed the invention will be fully understood and its advantages recognized from the following description with reference to the attached drawing, illustrating a general embodiment of the same in an ordinary type of "loader" spool such as shown in the aforesaid patent.

In said drawing:

Figure 1 is an end view perspective of the spool, showing its outer face appearance;

Fig. 2 is an elevational perspective view partly in section, illustrating the spool with parts at one end in assembly relation;

Fig. 3 is a side elevation showing the finished spool partly in longitudinal section;

Fig. 4 is a perspective view of one of the parts; and

Fig. 5 is a cross-sectional elevation of said one of the parts.

In the illustrative embodiment, the barrel 6 is provided as usual by a wooden body of cylindrical shape. This barrel which is hollowed by an axial bore 7, has an open wider recess of moderate depth in each end formed by a counter-bore 8, leaving an internal annular shoulder 9 in its wall not far distant from the extremity. Said shoulder is formed wide enough to serve as an effectual abutment inside of the barrel without too greatly reducing the thickness of the surrounding wall, which for lightening purposes is made as thin as possible to still have the necessary strength.

The heads 10 applied to said barrel are composed of hard vulcanized fibre or the like in conventional flat plate form of a thickness to prevent ready breakage. These are provided with a central orifice 11 to register with the open recess or counter-bore (8) in the end of the barrel and are beveled on the peripheral edges as shown, to have a smooth well-rounded rim 12. They may also have a counter-sink 13 in the outer surface around said central orifice for a purpose which will later appear, although this is not necessary and in some cases will not be desired.

Means uniting the heads to the barrel is provided by a bushing 14 at each end. Said bushing in this instance comprises a ring of light thin metal fitting through the central orifice (11) of the head into the open recess or counterbore (8) of the barrel, and having an outturned flange 15 at one end overengaging the head around said orifice and an inturned flange 16 at the other end bearing against the shoulder (9) in the barrel. The outturned flange (15) of this ring is advantageously milled on its under side, as indicated by 17 (see Fig. 4), to bite in the head surface deep enough to prevent its turning on the barrel, and may be accommodated by a counter-sink (13) in the head so as to lie flush with its surface as shown in Fig. 3. The inturned flange (16) is provided with a plurality of prong projections 18, numbering three in this instance at triangular disposal, on its edge engaging or impressing axially into the wall of the barrel behind said shoulder on which it bears, so as to prevent the ring from turning in the barrel end. On the sides of the ring are a plurality of wedge-like ribs or projections 19, also numbering three in this instance disposed between the aforesaid prongs and formed advantageously by stamping out of its walls, which engage in the orificial edge of the head to tighten the bind therewithin and further assure against turning.

A plug 20 at each end fastens said bushing ring with the head in place. This plug, formed preferably of wood, has a head portion 21 conformatively fitting in the ring and a reduced extended shank portion 22 fitting into the axial bore (7) of the barrel, with a shoulder 23 between said two portions bearing upon the inturned flange (16) of the ring. An axial bore 24 therein advantageously adapts it to serve as a spindle bearing for the spool in addition to fastening the parts in place, while the shank end edges are desirably beveled as shown to facilitate its insertion into the barrel. Said plug is pressed to position through the bushing ring, forcing the latter to place with its inturned flange seating on the opposed inner shoulder (9) of the barrel and the prongs (18) engaging in the wall of the same, and thereby forcing the head tight against the barrel end with the outturned flange (15) of the ring pressing upon its face and the ribs (19) engaging in its orificial edge. In such position the plug is secured within the the barrel against loosening or extraction, preferably by a hard-drying cement or glue ap-

plied to its outer surface and/or to the inside of the barrel.

In the assembly of the parts, the head is simply placed on the barrel end with the bushing therethrough extended into the recess in the barrel, and the glue-coated plug is then applied to the described fastening position through the bushing under force compressing the parts firmly together. This relation of the parts in the assemblage is illustrated in Fig. 2. The head is joined securely to the barrel as a result of the squeezing action thereon with the flange of the bushing holding it tight against the end, and with the bushing itself engaging both in the head and in the barrel. The head, bushing and plug are thus positively locked together. There can, therefore, be no separation of the parts unless the spool is broken by excessive blows or stresses. The prongs on the inner flange of the bushing engaging in the barrel body prevent any turning on the barrel, while the ribs on the bushing prevent any turning of the head, aided by the milling on the underside of said flange.

This correlation of the parts provides an extremely simple and very strong construction which is quite inexpensive to make. In actual practice it has been shown that it is the strongest and probably the least expensive construction of any now found on the market. The spool has the added advantage of true "running" quality on a spindle. It is therefore most useful, and permits of economies in the manufacture of textiles, whether it is used as a mill spool or as a yarn shipping spool.

It will be understood that various modifications or changes in the form or arrangement of the parts may be made within the scope of this invention. For example the heads might be of some other material than hard vulcanized fibre, such as a light, fairly soft metal, or the bores of the barrel and the inner shoulder might be polygonal instead of annular and the other parts shaped conformatively thereto. The invention accordingly is not intended to be limited by the appended claims to the specific form or construction illustrated.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a spool or bobbin including a barrel, a bushing member securing the head to the barrel comprising a metal ring fitting into the end of the barrel within the head and having a flange at one end overengaging the head and another flange at the other end bearing against a shoulder in the barrel, together with prongs on the latter flange engaging in the body wall of the barrel.

2. In a spool or bobbin, a barrel, a head on the end of the barrel, a bushing fitted through the head into the barrel, and a plug fitted into the barrel through the bushing; said bushing comprising a metal ring having a flange at one end engaging over a part of the head and another flange at the opposite end bearing against a shoulder formed in the barrel, together with tooth-like projections from an edge of the last named flange engaging in the body wall of the barrel, and wedge-like projections at the sides between the two flanges engaging in the material of the head.

3. A spool or bobbin, comprising a barrel, a head on the end of the barrel, a bushing fitted within the head and a part of the barrel, and a fastening plug fitted into the barrel through and partly within the bushing; said bushing constituting a ring of material harder than the other parts of the spool and having a flange at one end engaging over a part of the head, a flange at the opposite end engaging under the plug against a shoulder in the barrel, prong projections from the last-named flange engaging in the body of the barrel around the plug, and rib projections at the sides engaging in the material of the head.

4. A spool or bobbin, comprising a barrel, heads on the ends of the barrel, bushings fitting through the heads into the barrel with portions overengaging the former and other portions abutting wall parts of the latter; said bushings having prong projections from the abutting portions extending in the direction of the barrel axis and engaging in the wall of the barrel and rib projections at the sides extending in the same direction and engaging in the heads; and plugs secured in the barrel ends with portions thereof fitting into the bushings so as to hold the same engaging the parts as described with the heads tight against said ends.

5. In a spool or bobbin, a barrel having a recessed end with an abutment shoulder therein, a head having a central orifice registering with the recess of said end, a bushing fitting in said orifice of the head and said recess of the barrel and having a flange at one end overengaging the head around the orifice and a flange at the other end bearing against said shoulder in the barrel, a plurality of prong projections from the last named flange engaging into the body of the barrel beyond the aforesaid shoulder, a similar plurality of rib projections at the sides of the bushing engaging in the orificial edge of the head, and a plug secured in the end with the outer portion thereof fitting into said bushing and pressing upon the second named flange thereof to hold it against said shoulder.

HARRY D. CLINTON.