

April 16, 1929.

J. B. BOLTON

1,709,766

YARN CARRIER

Filed Sept. 16, 1926

Fig. 1.

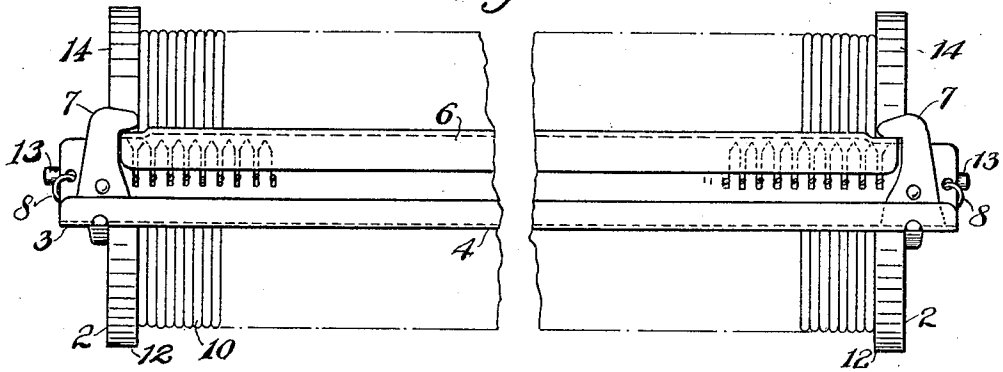


Fig. 2.

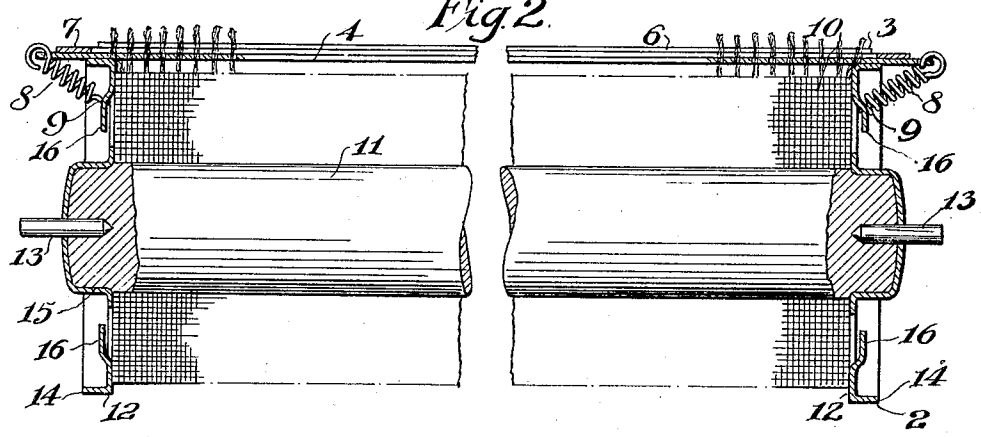


Fig. 3.

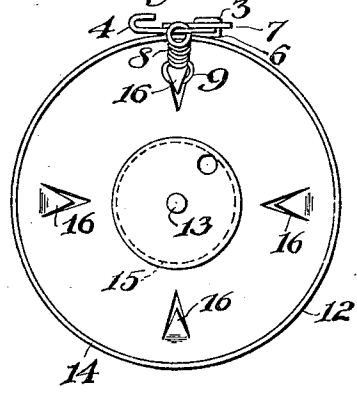


Fig. 4.

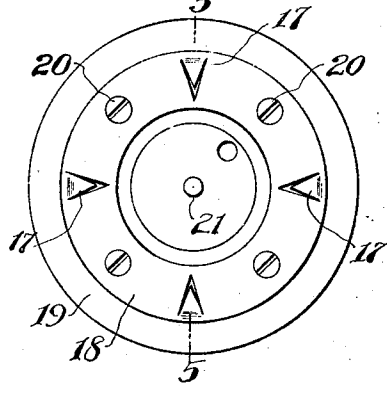
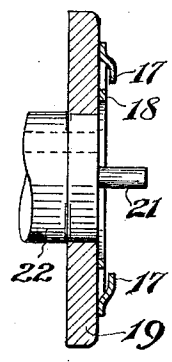


Fig. 5.



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YARN CARRIER.

Application filed September 16, 1926. Serial No. 135,750.

This invention relates to yarn carriers, and is especially intended for use in connection with tuft weaving as it is practiced in the manufacture of Axminster rugs or carpets although applicable to yarn-carriers for other kinds of work.

Heretofore in the packaging of yarn for use in Axminster tube frames and the like, it has been customary to wind the different colors of yarn, arranged in a predetermined order, on the spool or beam to produce the desired pattern in the fabric being woven. The individual strands or yarn elements are kept from overlapping or crossing one another until they are threaded into the tuft tubes of the tube-frame by means of a comb or toothed guide between whose teeth the yarn elements pass as they are being wound on the spool. After the winding of the yarn on the spool a clamp is applied to the separated yarn elements so as to hold them in regular spaced order, and such clamp is attached to the spool by means of connecting members at its opposite ends which are engaged by the spool-journals, as shown in the United States Patent to Lea No. 1,153,870 dated Sept. 14, 1915.

In practice, however, the endwise shifting of the clamps along the spools often leads to the clamp being disconnected from the spool-journal, thus causing confusion and trouble.

The present invention is intended to obviate such trouble and does so by providing the spools with means outside of the journals of the spool which afford a positive anchorage for the clamp-connecting elements that are not subject to release by endwise shifting of the clamp in relation to the yarn-spool or beam.

In the accompanying drawings I have illustrated a simple and convenient construction embodying the present improvement by which the difficulties heretofore experienced are overcome.

In the drawings:

Figure 1 is a plan view of a fully wound tuft-yarn spool with its yarn-holding and spacing clamp connected therewith to maintain proper order and separation of the individual yarn elements before they are drawn in to the tuft-tubes of a tube frame.

Figure 2 is a vertical longitudinal section of the construction shown in Figure 1.

Figure 3 is an end elevation of the same.

Figure 4 is an end elevation showing a modified construction of spool head.

Figure 5 is a longitudinal section of the end portion of the spool shown in Figure 4.

In the practice of this invention, according to the form shown in Figures 1 to 3 of the drawings, I employ a longitudinal cylindrical spool 11, having end heads 2, of pressed metal comprising disks 12, formed with peripheral flanges 14 and with a center offset hub 15, which engages the barrel 11 to which the two heads are firmly secured in any suitable manner. Journals 13 are inserted axially in the ends of the barrel to rotatably support the spool in the tube frame to allow unwinding of the yarn.

At some convenient point between the journal and the periphery of each head, I provide anchoring means so constructed and arranged as to afford an anchorage for the clamp-attaching or connecting elements so as to form a positive interlocking engagement with the clamp-connecting elements that is not affected by longitudinal shifting of the clamp on the spool. In the form shown in Figures 1 to 3 these anchoring members are in the form of hook-like tongues or spurs struck out from the flat disk portion of the spool heads 2, and pointing inwardly so as to receive and retain the connecting members which, in this case, comprise helical spring elements 8 provided with eyes or loops 9, at their free ends to permit them to be slipped over the inwardly turned spurs or hooks 16, when the spring is distended.

The clamping member itself is similar to that shown in the Lea patent aforesaid and comprises a comb member 4 and a trough-like cover 6 which closes the slots in the comb when slipped over the outer ends of the teeth, said cover being kept in place by means of the hook members 7 overlapping the opposite ends of the cover element of the clamp. The projecting ends of the comb member are provided with perforations into which the elastic attaching element is hooked.

It will be observed that as the springs 8 are under tension, such tension tends to draw the eyes or loops 9 of the spring toward the base of the hook member 16 and away from the points thereof. Furthermore, as these hook members are disposed to so engage the free ends of the distensible connecting elements, not only is the disengagement of such springs from their anchorages along the spool

prevented, but as these anchoring elements 16 serve to resist longitudinal movement, as well as outward movement of the clamp, the accidental shifting of the clamp along the 5 spool is reduced to a minimum.

The same principle is also applicable to the spools having wooden heads, and in Figures 4 and 5 I have shown a convenient means for applying the improvement to a spool with 10 wooden heads. In this case the barrel 22 carries wooden heads or disks 19 to whose outer faces is secured a pressed steel ring or disk 18, having anchoring fingers or hooks 17, struck out from the body thereof. This metal 15 disk 18 may be secured directly against the face of the wooden head by means of attaching screws 20, or in any convenient manner.

The above described construction permits the yarn-wound spools, with their yarn-holding and spacing clamps, to be transferred 20 from one part of the mill to another for storage or for use without endangering the separation of the yarn-clamp from the spool, and thus removes a great source of trouble and loss heretofore experienced. 25

What I claim is:

1. A yarn carrier embracing in combination a longitudinal spool barrel and its yarn-retaining end-heads, axially disposed journals 30 for rotatably supporting the spool in suitable bearings, and means located intermediate the spool axis and the periphery of the end head to form anchorages for clamp-attaching elements to retain a yarn-clamping member against accidental detachment from 35 the spool.

2. A yarn carrier embracing in combination a yarn spool comprising a cylindrical barrel, end-heads and axially disposed journals, a yarn-separating and holding clamp 40 having endwise distensible attaching elements for connecting the clamp to the spool, and anchoring members projecting from the ends of the spool intermediate the spool journals and the end head peripheries to engage 45 the clamp-attaching elements and hold them against detachment against longitudinal and outward stresses.

3. A yarn carrier embracing in combination a yarn-spool having end heads and axial- 50

ly disposed journals, anchoring spurs arranged in offset relation to the outer faces of the end heads by which the spurs are carried and having their free ends pointing inwardly to permit distensible attaching elements of a yarn-spacing and retaining clamp 55 to be readily hooked thereto and held thereby against longitudinal and outward displacement.

4. A tuft-yarn spool comprising a longitudinal barrel, axial journals and metallic end heads secured to said barrel, the end heads being formed with integral hook-like members projecting inwardly around the journal and adapted to afford retaining members 60 for the attachment of contractile attaching elements of a longitudinal yarn clamp whereby both longitudinal and outward displacement of such clamp is resisted and accidental disengagement of the attaching elements 65 from the spool is prevented. 70

5. A yarn-spool for tube frames embracing a longitudinal barrel, axial journals and end heads, a plurality of hook-like members located between the journals and the peripheral 75 portions of the spools and projecting from the end heads to form positive anchorages for yarn-clamp attaching elements by which said attaching elements are retained against longitudinal and axial stresses and are prevented 80 from being accidentally detached from the spool.

6. A yarn-carrier embracing in combination a spool comprising a longitudinal barrel, axial journals and yarn-retaining end-heads, a yarn-clamp adapted to retain the ends of the yarn elements wound on the spool in proper spaced relation, attaching elements secured to the ends of the clamp to connect the clamp with the spool and anchoring means 85 on the spool for engaging and retaining said clamp-attaching elements, said anchoring means being disposed to resist both axial and radial stresses exerted by the attaching elements, thereby preventing disengagement of 90 said elements from the spool through longitudinal or radial displacement of the clamp. 95

In witness whereof, I have subscribed the above specification.

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