Feb. 19, 1924. 1,484,155

B. A. PETERSON

WARP BEAM

Filed Jan. 18, 1922

Fig. 1

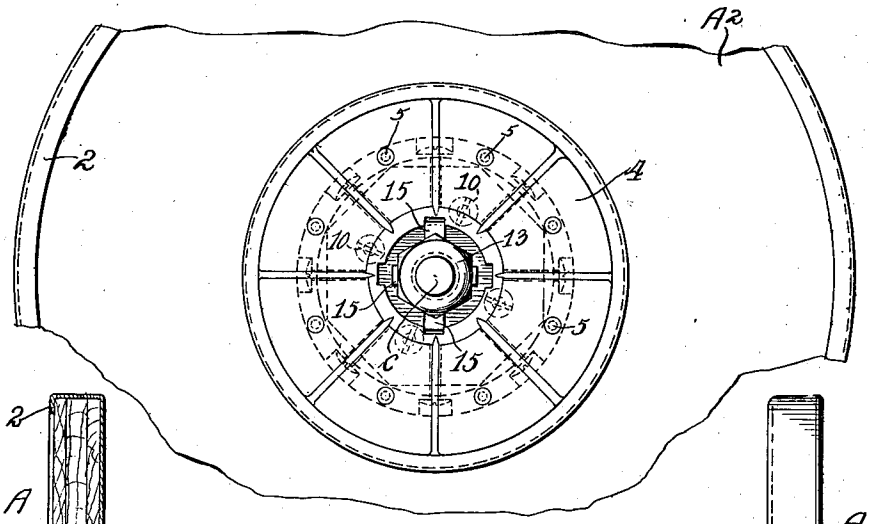


Fig. 2.

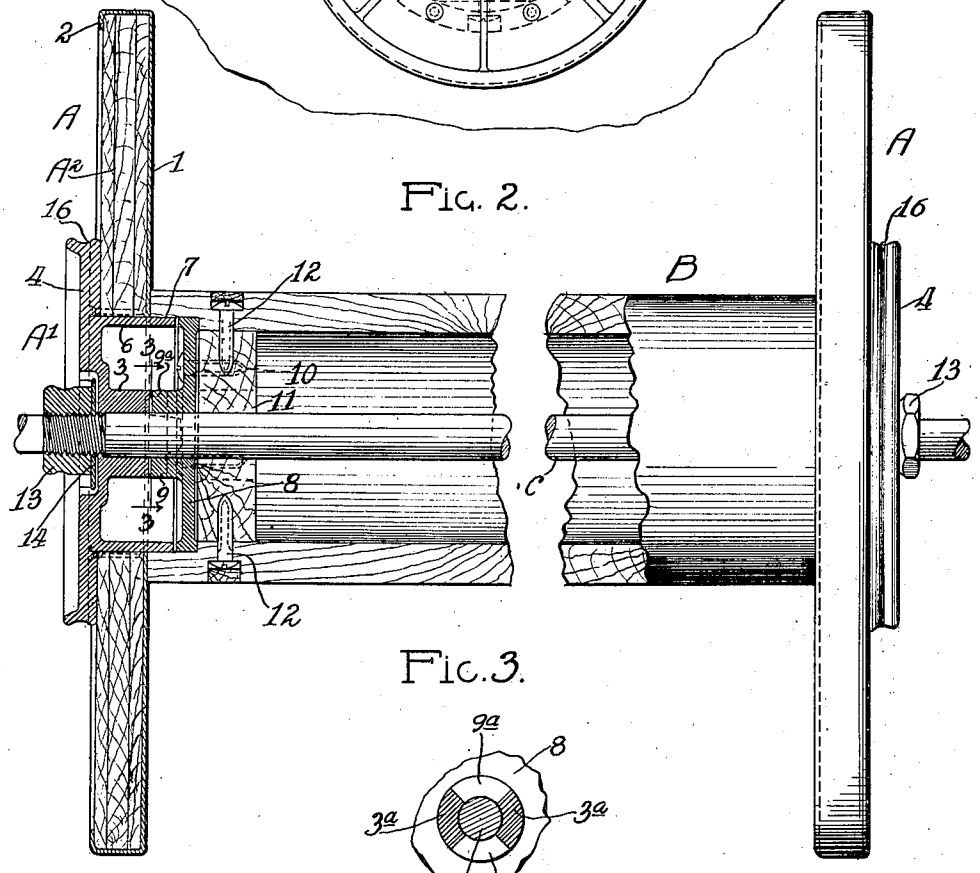


Fig. 3.

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BURT A. PETERSON, OF ROCKFORD, ILLINOIS, ASSIGNOR TO EDGAR S. NETHERCUT, OF EVANSTON, ILLINOIS.

WARP BEAM.

Application filed January 18, 1922. Serial No. 530,078.

To all whom it may concern:

Be it known that I, BURT A. PETERSON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Warp Beams, of which the following is a specification.

The object of this invention is to produce a beam which may safely be rotated at the high speed at which the Barber-Colman warper is designed to run, which shall be strong enough to withstand the rough handling which warp beams are apt to receive, and which shall be sufficiently rigid to resist the pressure of the yarn load and the pressure applied by the anti-bounding mechanism of the Barber-Colman warper.

In the accompanying drawings, Figure 1 is a fragmental end view of a warp beam embodying my invention. Fig. 2 is a fragmental side view of the beam, certain portions being shown in central longitudinal section. Fig. 3 is a section on line 3—3 of Fig. 2.

In the form herein shown, the beam comprises two heads A, a wooden barrel B and a central shaft C. The ends of the latter constitute trunnions.

While the head A may be constructed in various ways, I have herein shown it as comprising a cast-metal central portion A^1 and a wooden body A^2. The wooden body A^2 is preferably constructed of laminated wood to ensure against warping and cracking, and its inner surface and periphery are provided with a sheet-metal covering 1, the metal being spun over the edge of the head so as to form an annular retaining flange 2 lying against the outer face of the head.

The central portion A^1 comprises a sleeve or hub 3 which is mounted upon the central shaft C, and a disk 4 which overlies the central portion of the wooden body A^2. The metallic central portion A^1 and the wooden body A^2 may be secured together in any preferred manner as by means of rivets 5, the inner ends of which are covered by the metallic sheathing 1. The disk 4 may be provided with stiffening ribs upon its outer surface, as shown in Fig. 1. Upon the inner side of the disk 4 is an annular flange 6 which fits into a relatively large central opening in the wooden body A^2. The flange 6 fits within a counterbore 7 in the outer end of the wooden barrel B and thus assists to support the barrel in concentric relation to the shaft C.

The means for preventing relative rotation between the head A and the barrel B comprises a cast-metal head 8 which also fits within the counterbore 7 in the barrel B and thus serves to center the barrel with relation to the spindle C. The head 8 has a hub or sleeve 9 fitting upon the spindle C. The head 8 is secured to the barrel by means of screws 10 extending through said head into a wooden head 11, the latter in turn being fixed to the barrel by means of screws 12. The hubs 3 and 9 are provided with interengaging clutch jaws 3^a and 9^a, respectively, as shown in Figs. 2 and 3.

The beam head A is clamped tightly against the end of the barrel B by means of a nut 13 turned on a screw-threaded portion of the spindle C. Clearance is provided between the flange 7 and the head 8 and between the clutch jaws 3^a and 9^a, so that the wooden body A^2 may be clamped solidly against the end of the barrel. To lock the nut 13 against rotation, a washer 14 is interposed between the nut and the hub 3, said washer having lugs 15. Two of the lugs 15 lie in recesses in the disk 4, the remaining lugs being bent into engagement with the perimeter of the nut.

The necessary belt race may be provided in various ways—as, for example, by forming a groove 16 in the periphery of the disk 4.

It will be apparent that the beam head construction herein shown provides the necessary strength to ensure against breakage in operation and in handling. The metallic sheathing for the inner face of the head provides a smooth, plane surface free from splinters or other projections which might injure the yarn. The overlap between the cast-metal central portion and the wooden body of the head stiffens the head and prevents it from yielding to the pressure of the yarn mass.

When the beam is in place in the warper, the mechanism which places pressure upon the yarn mass is connected to the trunnions or projecting ends of the central shaft C. The pressure applied in the Barber-Colman warper being very great, as compared with that used in connection with other warpers, it will be seen that the pressure-applying mechanism tends to bend the shaft C and

thus tends to cause a sort of rocking movement between the heads and the barrel. These bending and rocking stresses are effectively resisted in the construction herein shown, it being noted that the hub 3 of the cast-metal central portion of the head is relatively long, that the annular flange 6 is of considerable diameter, and that said flange extends into the end of the barrel.

I claim as my invention:

1. A warp beam having, in combination, a barrel, a central shaft and a head, the latter consisting of a cast-metal central portion and a wooden body, the metallic central portion consisting of a disk which overlies the central portion of the wooden body, an inwardly-extending hub which fits upon the central shaft, and an annular flange which fits within a central opening in the wooden body and a counterbore in the end of the barrel; and means for securing the head and the barrel together.

2. A warp beam having, in combination, a barrel, a central shaft and a head, the latter consisting of a metallic central portion and a wooden body, the metallic central portion consisting of a disk which overlies the central portion of the wooden body, a hub which fits upon the central shaft, and an annular flange which fits within a central opening in the wooden body and supports the end of the barrel; and means for securing the head and the barrel together.

In testimony whereof, I have hereunto affixed my signature.

BURT A. PETERSON.