BEARING ARRANGEMENT FOR A WRAP BEAM OF A WEAVING MACHINE

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Inventor:
Erich Wall

By K.H. Mayr
Attorney.
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BEARING ARRANGEMENT FOR A WARP BEAM OF A WEAVING MACHINE

Erich Wall, Winterthur, Switzerland, assignor to Sulzer Freres, S.A., Winterthur, Switzerland, a corporation of Switzerland
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The invention relates to a bearing arrangement for a tubular warp beam of a weaving machine.

Conventional bearing arrangements for the warp beam of a weaving machine include a bushing or pin rigidly connected to the warp beam tube and rotating therewith, the bushing or pin rotating in a stationary bearing and usually having a diameter smaller than that of the warp beam tube.

Bearing arrangement according to the invention comprises a bearing having a running surface having a diameter substantially equal to the diameter of the tubular warp beam, the latter rotating directly on said running surface. The warp beam tube itself rests in the bearing and no additional parts are required. With this arrangement the warp beam tube may be pushed through the bearing so that it can be adapted to different widths of the warp. The edge of the warp should always be as close as possible to the mechanism for inserting weft threads into the shed formed by warp threads. This can be effected for warp widths of different widths without changing the warp beam if the warp beam is long enough to support the warp of the greatest desired width. Of course, one warp beam bearing and/or one warp beam flange must be axially displaceable.

Since the warp beam diameter is greater than the diameter of the bushings or pins usually employed for rotational support of the warp beam, the specific bearing pressure is much reduced if the warp beam tube itself rests in the bearings and heavy warp beams of a diameter of more than 800 mm, can be satisfactorily rotatably supported in this manner.

If a warp beam tube is too short to extend through one or both of the warp beam bearings and still accommodates a warp of the desired width, a flange or bushing can be mounted on the end of the shaft of the warp beam which extends from one end of the warp beam tube, the outside diameter of the flange being the same as the outside diameter of the warp beam tube so that, by mounting the flange, the warp beam can be adapted for considerably narrower widths. If desired, a flange or bushing of like configuration may be provided also at the opposite end of the warp beam.

The novel features which are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, and additional objects and advantages thereof will best be understood from the following description of an embodiment thereof when read in connection with the accompanying drawing, wherein:

FIG. 1 is a longitudinal part-sectional view of a warp beam end and bearing thereof.

FIG. 2 is a longitudinal part-sectional view of a warp beam end adapted for support by a bearing outside of the warp beam tube.

Referring more particularly to the drawing, numeral 7 designates a tube forming the warp beam proper. A split bushing 27 is clamped to the tube by means of bolts 26. A gear 14 for driving the warp beam is held to the bushing 27 by screws 28 of which only one is visible. The tube 7 rests in a stationary bearing 24 mounted on the frame of a weaving machine, not shown. The outside diameter A of the warp beam tube 7 corresponds to the diameter M of the bearing surface and the tube 7 rotates in the bearing 24.

If it is desired to use the entire length of the tube 7 for supporting warp, a shaft 6 of circular or angular cross section is made to project from the end of the tube 7 and is held in position coaxial of the tube by a hub 29 which is made fast to the tube, for example, by welding. Axial movement of the shaft 6 in the hub 29 is prevented by a screw 31. A flange 18 having a cylindrical surface coaxial of the tube 7 is mounted on the shaft 6 and held thereto by a screw 17. The flange includes a tubular portion 61. The diameter P of the cylindrical surface of the flange is substantially equal to the diameter M of the running surface of the bearing 24 which rotatably supports the flange 18 and thereby the warp beam. The driving wheel 14 is placed on the flange 18 and held thereto by the clamping bushing 27.

If, in case of a relatively narrow warp and long warp beam tube, the tube 7 extends through the bearing 24 as shown in FIG. 1, the shaft 6 is unnecessary and may be removed.

The driving wheel 14 and the bushing 27 need not be placed inside of the bearing 24 as shown in the drawing but may be placed outside thereof, i.e., at the right side of the bearing 24. The tube 7 or the flange 18 must then extend sufficiently far to the right of the bearing 24.

The bearing, not shown, at the left end of the warp beam is preferably like the bearing 24. If the warp beam is too short to extend into the left bearing, a flange 18 is provided at the left end of the warp beam in the same manner as is shown in FIG. 2 for the right end of the warp beam. If the warp beam is very long or consists of a plurality of coaxial parts one or more intermediate bearings may be arranged according to FIG. 1, i.e., the warp beam tube extends through or the adjacent ends of tube parts extend into a bearing 24. The intermediate bearing or bearings may be adapted to be mounted in different axial positions on the loom frame to enable use of warp beams of different lengths and of warps of different width.

The outside bearings and the inside bearing or bearings, if any, are so constructed that they can be opened and the upper part removed or swung out of the way of the warp beam when the latter must be rolled out of or into the bearings.

I claim:

1. A warp beam and bearing assembly for a weaving machine, comprising a warp beam tube, a shaft placed inside and coaxial of said tube and connected thereto, said shaft having an end portion projecting from said tube, a flange mounted on said end portion and having a cylindrical surface coaxial of said tube and having a diameter equal to the diameter of said tube, and a bearing hav-
2. A warp beam and bearing assembly as defined in claim 3 wherein said flange is axially movably mounted on said shaft and means are provided for fixing said flange to said shaft in a selected position.

3. A warp beam and bearing assembly for a weaving machine, comprising a rotatable warp beam tube, a solid shaft placed inside and coaxial of said tube and connected thereto, said shaft having an end portion projecting from said tube, a flange mounted on said end portion and having a cylindrical surface coaxial of said tube and having a diameter equal to the diameter of said tube, and a bearing having a bearing surface fitting around said cylindrical surface for rotatably supporting said flange.

4. A warp beam and bearing assembly for a weaving machine, comprising a rotatable warp beam tube, a solid shaft placed inside and coaxial of said tube and connected thereto, said shaft having an end portion projecting from said tube, a flange mounted on said end portion and having a cylindrical surface coaxial of said tube and having a diameter equal to the diameter of said tube, and a bearing having a bearing surface fitting around said cylindrical surface, the axial position of said tube and of said flange relative to said bearing being changeable for selectively rotatably supporting said tube and said flange by said bearing.

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