A center wrap beam support for a loom having an integrally formed pocket for reception of a coupling element which interconnects the ends of two warp beam shafts. The support includes a cam controlled locking lever selectively movable between an inactive position and one which engages the coupling element for maintaining the connected shafts in axial alignment.

2 Claims, 4 Drawing Figures
LOOM WARP BEAM DEVICE

BACKGROUND OF THE INVENTION

In looms adapted to weave fabric of exceptionally wide width, it is common practice to draw warp yarn from more than one yarn beam. These yarn beams are disposed in axial alignment at the back of the loom in the usual yarn beam location. The ends of adjacent yarn beams are normally located in close proximity with one another with some form of so-called center support for axially aligning the yarn beams.

U.S. Pat. No. 2,798,513 discloses an apparatus for supporting and axially aligning more than one yarn beam in a loom which locates adjacent bearing surfaces of yarn beams by means of annular grooves and a pivotal cap member that is adapted to be pivoted to a position where it is bolted to secure the location of the ends of adjacent warp beams.

It is desirable that adjacent yarn beams in a loom be located as close to one another as possible and with large diameter beam heads the limited space therebetween often makes it difficult to quickly and without effort position and fix said adjacent yarn beams in axial alignment.

The loom warp beam device according to the present invention provides an improved yarn beam center support having a cam controlled locking lever which is easily and simply actuated for locking or unlocking the yarn beam shafts in an axially aligned position.

SUMMARY OF THE INVENTION

The loom warp beam device comprising the invention includes a yarn beam center support having an integrally formed pocket for supporting the coupled ends of adjacent yarn beam shafts. The support includes a rearwardly directed extension to which one end of an elongated locking lever is pivotally attached. A cam element is carried by the extension directly below and in contact with the underside of the elongated locking member. This cam member is movable longitudinally along a portion of the length of the locking member by a screw element on which it is assembled and which is carried by the rearwardly directed extension.

The turning of this screw element in one direction will cause the cam to move rearwardly and its contact with the underside of the locking lever will cause the free end of the latter to pivot upwardly to a position of locking engagement with a coupling which interconnects adjacent yarn beam shafts. By turning the screw in the opposite direction the cam is caused to move forwardly and the locking lever is released from its position of locking engagement with the coupling referred to above. Although this locking lever is shown and described as fixing the position of adjacent yarn beam shafts, it should be understood that it would perform its intended function equally as well on a single shaft upon which two yarn beams were assembled.

It is a general object of the invention to provide an improved yarn beam center support for looms which draws its warp yarn from more than one yarn beam.

Another object of the invention is to provide a yarn beam center support having a cam controlled locking device which is readily assessable and which can be quickly and easily moved to and from positions for maintaining adjacent warp beams in axial alignment.

These and other objects of the invention will become more fully apparent by reference to the appended claims and as the following detailed description proceeds in reference to the figures of drawing wherein:

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a yarn beam center support showing the cam controlled locking device according to the invention applied thereto;

FIG. 2 is an elevational view of a portion of two adjacent yarn beams showing the means by which they are interconnected;

FIG. 3 is a detailed view and partially in section showing two adjacent yarn beam shafts interconnected by the coupling member shown in FIG. 2, and FIG. 4 is a view in side elevation of the yarn beam center support showing by means of full and phantom lines the inactive and locking position respectively of the cam controlled locking device.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As the general construction and operation of the mechanism for feeding warp yarns from yarn beams to a loom to which the present invention is applicable, is well known and familiar to those conversant in the art, and as the invention is entirely concerned with a center support for adjacently disposed yarn beams in a loom, it is only considered necessary here to illustrate and describe those parts which are directly concerned with a preferred form of the present invention.

In FIG. 2 a portion of two warp yarn beams are shown with the one on the left being identified by numeral 10 and that on the right by numeral 11. These yarn beams are mounted for controlled rotation upon supporting shafts or so-called yarn beam shafts with that for yarn beam 10 being depicted by numeral 12 and the one for yarn beam 11 by numeral 13. FIG. 2 shows yarn beams 10 and 11 disconnected and FIG. 3 the same beams assembled by means of a coupling 14. Referring again to FIG. 2, the opposed ends of the yarn beam shafts 12 and 13 are identified by numerals 15 and 16 respectively. End 16 of shaft 13 is of reduced diameter and is adapted to assemble in a counterclockwise 17 provided in the end 15 of yarn beam shaft 12. In assembled position, as shown in FIG. 3, coupling 14 is positioned on the end 15 of shaft 12 and a set screw 18 in said coupling 14 is adapted to be tightened so as to pass through a hole 19 adjacent the end of shaft 12 where it is then tightened into locking engagement with end 16 of shaft 13. A washer 20 and lock nut 21 on set screw 18 is tightened against the outer surface of coupling 14 (FIG. 3) and serves to maintain yarn beam shafts 12 and 13 in coupled relation.

The yarn beam center support is depicted generally in FIGS. 1 and 4 by numeral 22 and is fixed to a part of the loom's framework (not shown) by any suitable means.

The upper and forward portion of the support 22, which is that portion on the left as seen in FIGS. 1 and 4, is provided with an integrally formed arcuate pocket 23 which is adapted to receive coupling 14 to position shafts 12 and 13 and the yarn beams 10 and 11 carried thereby in axial alignment. Below and extending rearwardly from the pocket 23, the center support 22 is provided with a horizontal shelf 24 which terminates in an upwardly directed lug 25.

Lug 25 includes a centrally disposed and forwardly directed rib 26 which provides a means for the pivotal
attachment thereto of the bifurcated end 27 of a locking lever indicated generally by numeral 28. This locking lever 28 attaches to rib 26 by means of a pin 29 which passes through aligned holes not shown in the bifurcated end 27 and rib 26.

Intermediate the ends of shelf 24 a recess is provided which defines a raceway 30 within which a cam member 31 is selectively movable between the solid and phantom line positions shown in FIG. 4. Cam member 31 is selectively movable by means of a screw 32 which extends through a hole in the center support 22 below the rearward portion of shelf 24 and lug 25. The head of the screw 32 remains in contact with the end portion 33 of the center support and the threaded portion extends into the raceway 30 where it assembles in a threaded hole 34 provided in the cam member 31.

The underside of the locking lever 28 includes a cam engaging recess 35 (FIGS. 1 and 4) and has a configuration which causes the locking lever 28 to rest on the shelf 24 when the cam member 31 is in the solid line position shown in FIG. 4. When the cam member 31 is moved to the phantom line position in FIG. 4 by the turning of screw 32 the upper surface of said cam moves along the angularly directed surface of recess 35 and pivots the locking lever 28 to the phantom line position in FIG. 4.

A locking pin 36 assembles in and protrudes from the forward portion of shelf 24 and when the locking lever is in its lowermost position said pin is within an opening 37 provided on the underside of said locking lever and serves to prevent any possible lateral movement of the latter which could possibly interfere with either of the adjacent yarn beams 10 and 11.

Intermediate the ends of the locking lever, its upper surface includes an arcuated recess 38 and provides a means, when in its lowermost positions, of positioning the yarn beams prior to moving them into operating position or removing them from the loom.

To summarize the operation, the yarn beams are interconnected by the coupling 14 and with the locking lever in its lower position are rolled or guided into operating position which places said coupling within the pocket 23 of the yarn beam center support 22. At this time the outboard ends of each yarn beam are guided into known forms of bearing members (not shown) assembled on each side frame of a loom. In this position the adjacent yarn beams are in axial alignment and are locked in this position by the locking lever 28.

This is accomplished by turning screw 32 so as to move cam member 31 to the phantom line position in FIG. 4 which pivots the forward end of the locking lever 28 into locking engagement with the outer surface of the coupling 14. Although the present invention has been described in connection with a preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and the appended claims.

I claim:

1. For a loom having juxtaposed and axially aligned warp yarn beams from which warp yarn is drawn during weaving, an apparatus for positioning and maintaining adjacent yarn beams in axial alignment comprising:

   a. a supporting shaft for each yarn beam with a coupling member for interconnecting the ends of said supporting shafts;

   b. a bracket member having an integrally formed pocket for reception of said coupling member and for positioning the yarn beams in axial alignment;

   c. means defining a locking lever pivotally connected to said bracket member; and

   d. Cam means carried by said bracket member and operatively associated with said locking lever having manual means for selectively moving said cam means between positions for supporting and guiding said coupling member into and out of said pocket and for locking said coupling within said pocket.

2. The apparatus according to claim 1 wherein said bracket member includes a locating pin fixed thereon and engageable with said locking lever in its position for supporting and guiding said coupling member to prevent lateral movement thereof.

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