

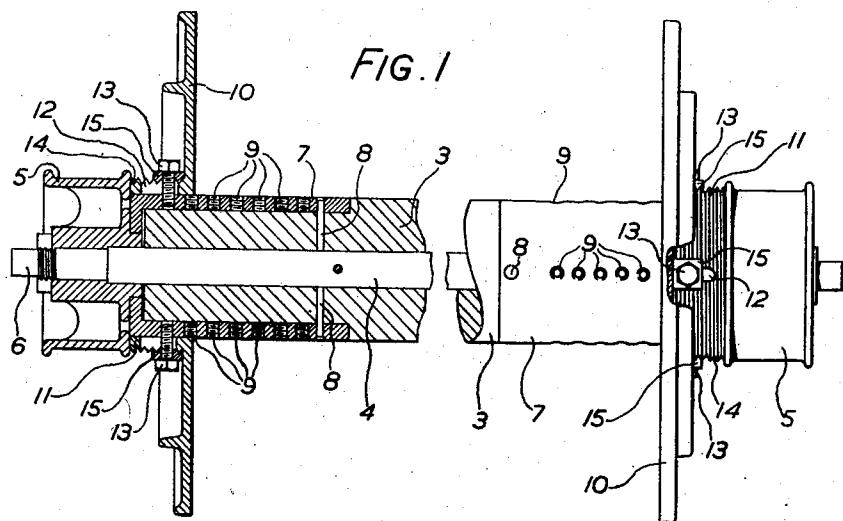
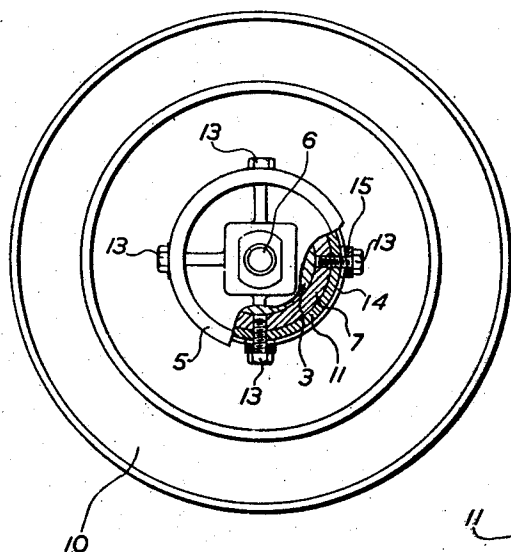
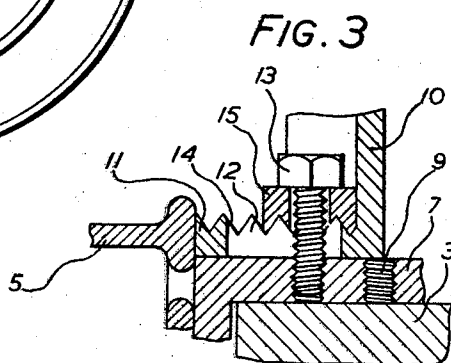
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WARP BEAM

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WARP BEAM

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3 Claims. (Cl. 242—124)

The invention relates to textile apparatus and is concerned more particularly with an improved warp beam.

The invention has for its object to provide a warp beam which can quickly and without difficulty be adapted for the winding of sheets of warp threads of different widths.

The warp beam according to the present invention comprises a barrel formed with a plurality of radial holes along its length, a flange movable along said barrel and having a boss formed with a radial hole that is elongated in the direction of the length of said barrel, the surface of said flange boss being threaded or serrated circumferentially, a bolt or like member adapted to pass through the hole in the boss into a hole in the barrel in registry therewith, and a washer having a serrated face for engagement with the serrated surface of said boss and adapted to be disposed between said surface and the head of said bolt to allow said flange to be secured in finely adjusted position on said barrel.

In this manner the flange can be fixed in any one position along the length of the barrel, and on withdrawing the bolt the flange can be slid along the barrel from one position to another in accordance with the width of the warp sheet to be wound, and can be secured in the new position by passing the bolt through the hole in the boss and into a convenient registering hole in the barrel.

The elongation of the hole in the flange boss in the direction of the axis of the flange allows of finer adjustment of the flange on the barrel than is allowed by the distance between the adjacent holes by permitting slight adjusting movement of the flange after the bolt passing through the boss has been inserted in the nearest convenient hole in the barrel, the bolt being formed, of course, with a head for nipping the boss to the barrel in the finely adjusted position. Likelihood of slippage between the bolt and the flange lengthwise of the barrel under the pressure of the warp threads wound on the beam is reduced by forming the boss with grooves or serrations and inserting the washer having a similarly grooved or serrated face between the bolt head and the surface of the boss. Tightening of the bolt thus nips the serrations of the washer in engagement with the serrations of the boss and ensures tight gripping of the flange to the barrel in the finely adjusted position.

The radial holes in the barrel may be formed at any suitable intervals and may extend along the whole length of the barrel or along a portion

of the length only, the distance along the barrel between the first hole and the last being determined in accordance with the width of the warp sheets usually wound on a beam, as will be well understood by those skilled in the warp beam art.

When employing the warp beam according to the invention for winding threads capable of exerting high pressure on the flange, e. g., when winding large warps of artificial silk threads, the flange may be adjustably secured to the barrel by a plurality of bolts. Thus the barrel may be formed with a plurality of rows (e. g., four) of holes spaced equidistantly round the circumference of the barrel, and the flange boss formed with radial holes corresponding in number and position to the number and position of the rows of holes in the barrel.

The invention enables adjustment of the warp beam within fine limits to be effected rapidly and repeatedly without detrimental wear of the barrel and flange. The warp beam has the further advantage of robustness and ability to withstand heavy usage without appreciable variation in the distance between the flanges. The simple nature of the component parts of the beam enable the beam to be produced at low cost, the components being inexpensive and readily replaceable in the event of excessive wear or breakage.

By way of example the application of the invention to a wooden warp beam with both flanges adjustable will now be described in greater detail with reference to the accompanying drawing, of which

Fig. 1 is a part cross-sectional front elevation of a beam having two adjustable flanges, the greater part of the barrel being eliminated for convenience of illustration;

Fig. 2 is an end view of Fig. 1, part in section; and

Fig. 3 is a detail of Fig. 1 to a larger scale.

Referring to Fig. 1 the warp beam comprises a wooden barrel 3 supported on a central metal shaft 4, the greater part of the length of which is of square cross-section, in order to prevent slippage between the shaft and the barrel. At its ends, the shaft 4 supports brake drums 5 and is formed with cylindrical journals 6 in the manner well known in the warp beam art.

The barrel 3 is cut away circumferentially at its ends to receive metal sleeves 7 which are securely fixed flush with the barrel by pins 8 passing diametrically through the sleeves and the barrel and through the central shaft 4. Each sleeve 7 is formed with four rows of radial holes 9 threaded for the reception of bolts, the rows

being disposed at 90° intervals round the sleeve.

A flange 10 is slidably mounted on each sleeve 7, each flange being formed with a boss 11 having four elongated holes or slots 12, the holes being arranged so as to register with the rows of holes in the barrel 3 in order to enable securing bolts 13 to pass through the boss and into the holes 9.

By removing the bolts 13, sliding the flanges 10 along the sleeves 7 to different positions with the holes 12 in registry with holes 9 in the sleeves, and replacing the bolts, the flanges can be adjusted any desired distance from each other along the barrel, fine adjustment of the flanges relatively to the bolts being allowed by the elongated nature of the holes 12, the length of which is slightly greater than the distance between two adjacent holes 9.

In order to ensure firm gripping of the bosses by the bolts 13 the surface of each boss is formed with threads 14 so as to be serrated circumferentially, and a stout rectangular washer 15 having a similarly serrated face is interposed between each bolt head and the face of the boss. The tightening of the bolts 13 locks the serrations of the washer 15 in engagement with the serrated surface 14 of the boss 11 and prevents any appreciable movement of a flange relatively to the barrel when the beam is in use.

When serrated bosses and washers are employed, the degree of fineness of flange adjustment depends, of course, on the pitch of the serrations (i. e., the distance from the crest of one

serration to the next). Thus, where serrations having a pitch of $\frac{1}{8}$ " are employed, the flange can be adjusted to the nearest $\frac{1}{8}$ ".

Having described our invention, what we desire to secure by Letters Patent is:

1. A warp beam comprising a barrel formed with a plurality of radial holes along its length, a flange movable along said barrel and having a boss formed with at least one radial hole that is elongated in the direction of the length of said barrel, the surface of said flange boss being serrated circumferentially, a bolt or like member adapted to pass through the hole in the boss into a hole in the barrel in registry therewith, and a washer having a serrated face for engagement with the serrated surface of said boss and adapted to be disposed between said surface and the head of said bolt to allow said flange to be secured in finely adjusted position on said barrel.

2. Apparatus according to claim 1, wherein the barrel is formed with a plurality of rows of radial holes, and wherein the flange boss is formed with radial holes corresponding in number and position to the number and position of the rows in the barrel, so that the flange can be secured to the barrel in any position by a plurality of bolts.

3. Apparatus according to claim 1, wherein the beam comprises two flanges each adapted to be adjusted in position along the length of the barrel.

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