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WARP BEAM FOR LOOMS

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FIG. 1

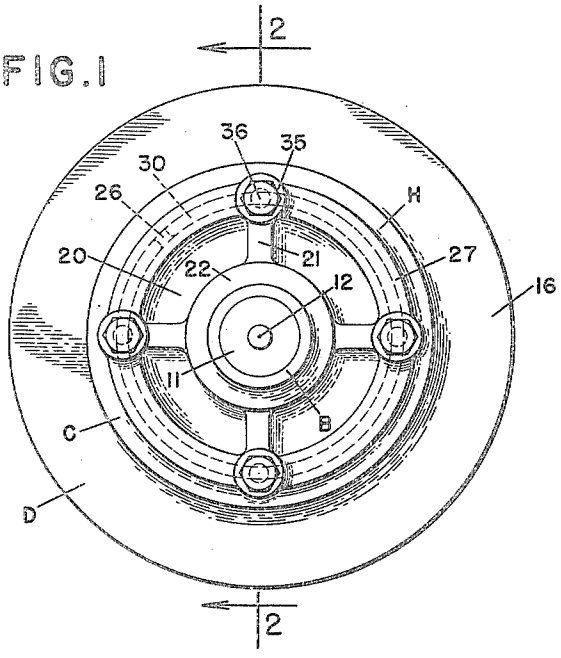


FIG. 2

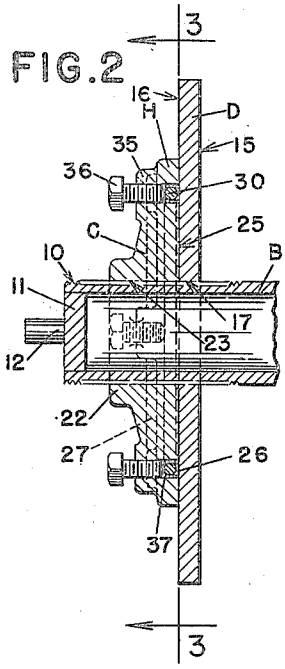


FIG. 3

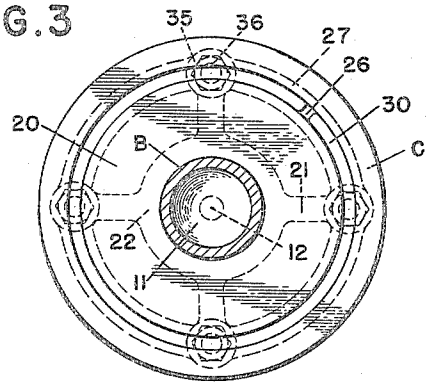
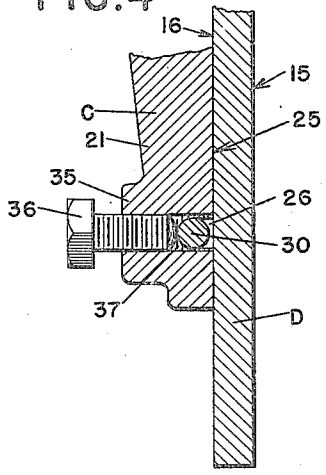


FIG. 4



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WARP BEAM FOR LOOMS

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7 Claims. (Cl. 242—124)

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This invention relates to improvements in warp beams for looms and it is the general object of the invention to provide a compact warp head held in accurate position on the barrel of a warp beam.

The warp supply of a loom is generally mounted on a warp beam located behind the loom and regulated by a letoff mechanism to supply warp as needed for the weaving operation. The beam usually comprises a barrel having warp heads mounted thereon for adjustment therealong to vary the width of the warp space. When fine count warp threads are used it is important to mount the warp heads so that the planes of their surfaces which define the warp space shall be truly perpendicular to the axis of the barrel. The warp head should occupy a minimum of space lenythwise of the barrel to provide maximum space for the warp.

It is an important object of the present invention to provide a compact warp head made of two parts both threaded internally to fit threads on the warp barrel and so related that one part can serve as a clamp to hold the other in fixed position on the barrel.

It is another object of the invention to provide a warp head having a disk or flange to engage the warp threads and having also a reinforcing and clamping member provided with pressure means for effecting slight adjustments of the disk. These adjustments are preferably made by means of a ring-like pressure element forced against the disk by a series of adjusting screws on the clamping member.

It is still another object of the invention to provide the disk with two parallel surfaces each finished so as to be suitable for engaging warp threads to the end that the disk may be reversed on the barrel if one of the surfaces should become damaged. The aforesaid pressure element is so constructed as to distribute pressure over a relatively large area of the disk without mutilating it, so that upon reversal the surface previously engaged by the pressure element will be smooth and not abrade the warp threads.

With these and other objects in view which will appear as the description proceeds, our invention resides in the operation and arrangement of parts hereinafter described and set forth.

In the accompanying drawings, wherein a convient embodiment of our invention is set forth,

Fig. 1 is an end elevation of a beam made according to our present invention,

Fig. 2 is a vertical section on line 2—2 of Fig. 1,

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Fig. 3 is a vertical transverse section on line 3—3 of Fig. 2, and

Fig. 4 is an enlarged section similar to the lower part of Fig. 2 showing one of the adjusting screws and pressure element.

The beam has a barrel B which may be a steel tube having external screw threads 10 cut on each end thereof. Since both ends of the beam are alike only one end is illustrated in the drawing. A plug 11 secured internally of the barrel B is provided with a gudgeon 12 by means of which the beam may be mounted in either a winding machine or a loom. Any convenient means of providing the beam with the gudgeon may be employed and we do not wish to be limited to the particular means shown in Fig. 2.

The warp head H is made of two parts one of which is a disk or warp engaging flange D and the other of which is a clamping or holding member C, both mounted on the cylindrical barrel B. The disk is preferably made of flat material such as steel and has inner and outer parallel finished surfaces 15 and 16 each of which is suitable for engagement with warp threads. The disk is provided with internal threads 17 which fit closely the threads 10 on the beam barrel, and may be of relatively large diameter to accommodate a large amount of warp.

The clamp member C is of general circular form of smaller diameter than disk D and has a web 20 provided with radial reinforcing ribs 21. A hub 22 integral with web 20 extends along the barrel and is provided with an internally threaded bore 23 which closely fits the thread 10 of the beam barrel.

The clamp member C has a face 25 for engagement with the adjacent side of disk D, and has a circular groove 26 formed therein opening toward the disk. A reinforcing circular rib 27 located around the groove strengthens the web 20.

A pressure member 30 is located within the groove 26 and in the present instance is shown as a piece of wire bent to fit the groove. If desired the wire can have a diameter either slightly less than or greater than the diameter of the groove and be sprung into the latter to be held in position by its resilience. The groove has a depth slightly greater than the width of the pressure member so that when the ring is seated in the bottom of groove 26 that surface thereof adjacent to the disk D will be spaced slightly therefrom, see Fig. 4.

The radial ribs 21 are formed with bosses 35 which receive adjusting screws 36 tapped into screw threaded holes 37 which cross the groove 26.

The adjusting screws 36 are for the purpose of forcing the pressure ring 30 against the disk member D.

In assembling the head, the disk D is first threaded on to the threads 10 of the beam barrel to the position it is ultimately to occupy. The clamp member C is then likewise threaded on to the barrel after the ring has been placed into the groove with the screws 36 backed off sufficiently to permit the ring to seat deeply in the groove, as shown in Fig. 4. While the disk is held against further rotation the clamp C is turned until its surface 25 establishes close engagement with surface 16 of the disk D. When tightened, clamp C has the effect of a check nut to hold the disk D firmly in position against rotation on the beam barrel, and the outer rim of web 20 reinforces the disk.

When the two heads of the beam are thus assembled the distance between the inner surfaces of the disks D can be measured and if any slight inaccuracy exists one or another of the screws 36 can be tightened to force the adjacent parts of the pressure ring 30 against the disk to move it until true alignment is attained. When the parts are made accurately in the first instance there is not likely to be much requirement for adjustment by the screws 36, but if for any reason either of the parts C or D is slightly inaccurate correct alignment can be attained by the screws.

It should be noted that the pressure ring 30 has a smooth surface which as set forth in Fig. 2 can be forced against surface 16 of the disk without mutilating or damaging it as would be the case if the screws had direct engagement with the disk D. If for any reason, therefore, it should become desirable to reverse the disk, as by damage to surface 15, the surface 16 will still be smooth and can present an acceptable surface to the warp threads.

From the foregoing it will be seen that we have provided a simple form of warp head for a warp beam made in such manner as to occupy a small space lengthwise of the barrel B but constructed so as to hold the disk tightly on the barrel. It will be seen that this result is accomplished by utilizing a clamping member C more or less in the nature of a check nut and providing it with a relatively large web 20 which extends outwardly a considerable distance from the barrel to reinforce the disk D. The web has a groove 26 occupied by a pressure ring which can be forced against the disk D by the screws 36 without damaging the adjacent surface of the disk. It will further be seen that the disk is provided with two parallel surfaces 15 and 16 each suitable for engagement with warp threads, hence the disk can be reversed in the event of damage to surface 15.

Having thus described our invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and we do not wish to be limited to the details herein disclosed, but what we claim is:

1. In a warp beam having a cylindrical barrel provided with external screw threads, a warp engaging flat disk threaded onto said screw threads, a holding member having a hub threaded onto said threads and fitting tightly against said disk to resist rotation thereof relatively to the barrel, a web forming part of the holding member extending along the disk, and means carried by said web engageable with the disk to effect movement of part of the disk away from the web.

2. In a warp beam having a cylindrical barrel provided with external screw threads, a warp engaging flat disk threaded onto said screw threads, a holding member having a hub threaded onto said threads and fitting tightly against said disk to resist rotation thereof relatively to the barrel, a web forming part of the holding member extending along the disk, pressure means within the web engageable with the disk, and means on the holding member to force the pressure means against part of the disk to effect movement of the latter away from the web.

3. In a warp beam having a cylindrical barrel provided with external screw threads, a warp engaging flat disk threaded onto said screw threads, a holding member having a hub threaded onto said threads and fitting tightly against said disk to resist rotation thereof relatively to the barrel, a web forming part of the holding member extending from the hub along the disk and having a groove therein opening toward the disk, a pressure ring in said groove engageable with the disk, and means on the holding member to force the ring against the disk to effect movement of part of the latter away from said web.

4. In a warp beam having a cylindrical barrel provided with external screw threads, a warp engaging flat disk threaded onto said screw threads, a holding member having a hub threaded onto said threads and fitting tightly against said disk to resist rotation thereof relatively to the barrel, a web forming part of the holding member extending from the hub along the disk and having a groove therein of given depth opening toward the disk, a pressure ring in said groove of less width than said given depth and engageable with the disk, and means on the holding member to force the ring against the disk to effect movement of part of the latter away from said web.

5. In a warp beam having a cylindrical barrel provided with external screw threads, a warp engaging flat disk threaded onto said screw threads, a holding member having a hub threaded onto said threads and fitting tightly against said disk to resist rotation thereof relatively to the barrel, said holding member having a circular groove therein concentric with the axis of the barrel and opening toward the disk, a presure ring located in the groove and engageable with the disk, and means on the holding member to force the ring against the disk to effect slight bending on the part of the disk away from the holding member.

6. In a warp beam having a cylindrical barrel provided with external screw threads, a warp engaging flat disk threaded onto said screw threads, a holding member having a hub threaded onto said threads and fitting tightly against said disk to resist rotation thereof relatively to the barrel and having a circular groove therein opening toward the disk, a ring made of resilient material located in the groove and held therein by engagement of the ring with part of the web due to the resilience of the ring, and means on the holding member to force the ring against the disk to effect slight separation of part of the disk away from the web.

7. In a warp beam having a cylindrical barrel provided with external screw threads, a warp

engaging flat disk having two parallel surfaces on opposite sides thereof each suitable for engagement with warp threads, said disk being threaded onto said screw thread of the barrel, a holding member having a hub threaded onto said screw threads into tight holding relation with the disk to prevent rotation of the latter relatively to the barrel and having a web integral with the hub extending along the adjacent face of the disk, and pressure means on the holding member to exert a force on parts of the disk spaced from the hub to move said parts away from the web, said pressure means having a smooth surface engaging the disk and capable of exerting said force without mutilation of said disk, to the end that the disk can be reversed on the barrel to present for warp engagement the surface thereof previously engaged by said pressure means.

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