Aug. 9, 1949. K. KADISH 2,478,763

YARN CLAMP FOR WARP BEAMS

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Fig. 1

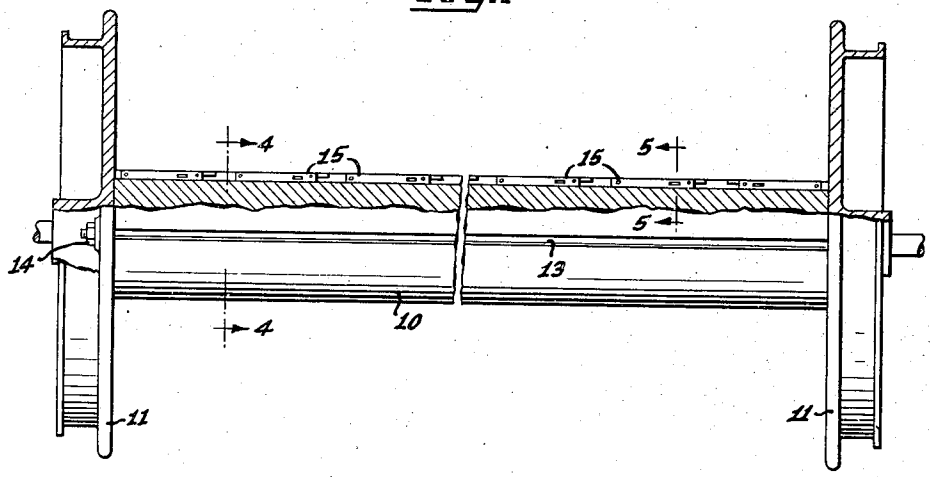


Fig. 2

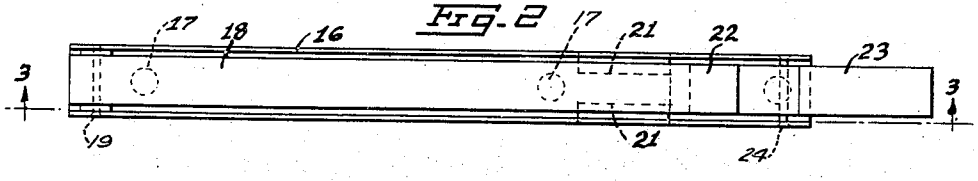


Fig. 3

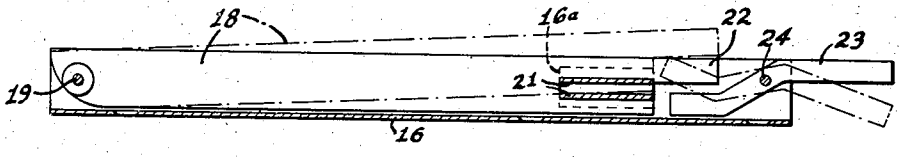


Fig. 5

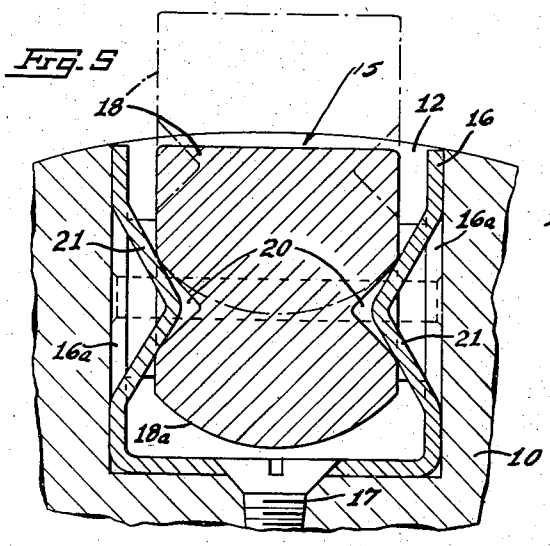
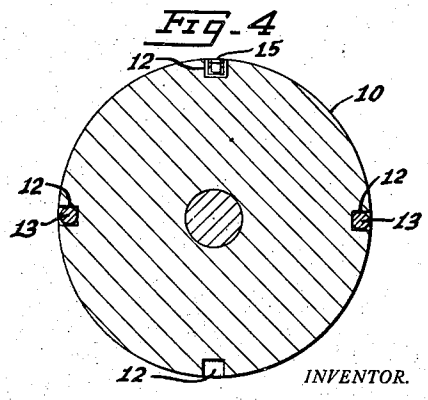


Fig. 4



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YARN CLAMP FOR WARP BEAMS

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9 Claims. (Cl. 242—125)

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This invention relates to beams on which yarns are wound, to be used, for example, as the warp in a weaving operation to be carried out on a loom. More particularly, the invention is concerned with a beam provided with novel means for securing in place the ends of the yarns that are to be wound thereon. The new yarn holding means may be readily operated, may be used repeatedly without requiring repairs or adjustment, and may be installed in new or old beams rapidly and at low cost.

At the present time, the beams in use commonly include a wooden core having flanges at its ends and the core may have a lengthwise row of depressions in its surface. A screw or nail is driven into the bottom of each depression to lie with its head even with or just below the surface of the core and the ends of the yarns forming the sections of the warp are wound around the screws or nails to secure the yarns to the core preliminary to winding the yarns on the beam. Occasionally, the screws or nails become dislodged or driven in too far to be used and when that happens, other nails are driven into the surface of the core and the yarn ends wound about them. The driving of nails into the surface of the core is likely to damage the core and produce splinters on which the threads catch. Altogether, the means heretofore employed for securing the ends of the yarn to the core have been unsatisfactory but their use has continued for many years.

The present invention is, accordingly, directed to the provision of a beam having means for securing the ends of yarns thereto, which are not subject to the objections above set forth. The new securing means operate with a clamping action and grip the yarns firmly, but without injury thereto. A plurality of the new clamping devices are mounted on the core of the beam and they are so installed that, when, in operative condition, they do not project beyond the surface of the beam. The devices are easily closed and released and they present no parts to the yarns on which the latter can become caught.

For a better understanding of the invention, reference may be made to the accompanying drawing in which

Fig. 1 is a view partly in elevation and partly in vertical section of a beam embodying the invention;

Fig. 2 is a plan view of a clamping device used on the beam shown in Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is an enlarged sectional view on the line 4—4 of Fig. 1; and

Fig. 5 is an enlarged sectional view on the line 5—5 of Fig. 1.

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The beam illustrated in Fig. 1 includes a core 10, usually of wood, and a pair of flanges 11 at opposite ends of the core. The core is provided with a plurality of channels 12 in its surface extending from end to end of the core and tie bolts 13 are mounted in a diametrical pair of the channels and extend through the flanges, the bolts having nuts 14 on their ends exposed beyond the flanges.

Clamping devices 15 are mounted in one of the channels and each device includes a member 16 of U-shaped cross-section and preferably made of metal. The member 16 is seated in the channel and secured in place by a plurality of screws 17 which are threaded through openings through the member 16 into the bottom of the channel. A clamping bar 18 is pivotally mounted at 19 within the member 16 near one end thereof and the bar has a rounded bottom 19a and longitudinal recesses 20 in its opposite sides. The side walls of the member 16 may be slit vertically at 16a near their free ends to provide spring fingers 21, which are bent inwardly and enter recesses 20 to hold the bar in clamping position, when it is swung downwardly between the side walls of member 16.

At its free end the bar 18 is undercut to provide an overhanging end portion 22, which lies above one end of a lever 23, which is pivotally mounted on a pin 24, the ends of which enter openings in the side walls of member 16. The other end of the lever projects beyond the end of member 16 and, when the bar is in clamping position, the upper surface of the exposed end of the lever lies at about the level of the top of the side walls of member 16.

The clamping devices are mounted in a row in their channel and extend from end to end of the core between the flanges with only small spaces between successive devices.

In the use of the beam, the lever 23 of the first clamping device at one end of the core is swung to free the clamping bar of the device from the spring fingers. The bar is then swung upwardly and the ends of the yarns forming the first section of the warp are laid across the member 16 of the device and beneath the bar. The yarns are spread out along the member 16, after which the bar is swung downwardly between the side walls of the member 16 to clamp the yarns between the bar and member. When the bar is forced fully down, the spring fingers 21 snap into the recesses in the sides of the bar to hold the bar in clamping position. When the ends of the yarns in all the sections have thus been clamped to the core, the winding operation may be started. When the yarns have been unwound from the beam, the clamping devices are exposed and the yarns may be quickly released by operation of the levers 23 of the de-

vices. The beam is then ready to be wound again.

All parts of the clamping devices lie within the channel when the devices are in operative condition, so that there are no exposed parts on which yarns may catch. In the use of the devices, there is no wear on the core and no damage done thereto, so that a beam provided with the devices may be used for indefinite periods without attention.

The beam illustrated is of fixed length but it will be apparent that the clamping devices may be installed with equal facility in the core of a beam having flanges movable lengthwise of the core to vary the effective length of the beam.

I claim:

1. In a beam having a core with a longitudinal channel, a warp yarn clamp comprising a member of U-shaped cross-section seated in the channel, a clamping member mounted adjacent one end within the first member for pivotal movement about an axis transverse to the first member, the clamping member being movable into and out of the first member, and means on one of the members engaging the other to hold the clamping member within the first member.

2. In a beam having a core with a longitudinal channel, a warp yarn clamp comprising a member of U-shaped cross-section seated in the channel, a clamping member pivotally mounted adjacent one end between the legs of the first member to swing about an axis transverse to said members, the clamping member being movable into and out of the first member, and means on the first member engageable with the clamping member to hold the latter within the first member.

3. In a beam having a core with a longitudinal channel, a warp yarn clamp comprising a member of U-shaped cross-section seated in the channel, a clamping member pivotally mounted adjacent one end between the legs of the first member to swing on an axis transverse to the members and movable into and out of the first member, and spring means on the first member engageable with the clamping member to hold the latter within the first member.

4. In a beam having a core with a longitudinal channel, a warp yarn clamp comprising a member of U-shaped cross-section seated in the channel, a clamping member mounted adjacent one end between the legs of the first member to swing about an axis transverse to the first member and movable into and out of the first member, means on one of the members engaging the other to hold the clamping member within the first member, and means mounted adjacent the free end of the clamping member for swinging said end upwardly.

5. In a beam having a core with a longitudinal channel, a warp yarn clamp comprising a member of U-shaped cross-section seated in the channel, a clamping member pivotally mounted within the first member to swing lengthwise thereof and

movable into and out of the latter, means on one of the members engaging the other to hold the clamping member within the first member, and a lever pivotally mounted adjacent the free end of the clamping member and operable to swing said end upwardly.

6. A beam which comprises a core having a longitudinal channel in its surface, flanges mounted at opposite ends of the core, and a plurality of separately operable clamping devices mounted within the channel in spaced relation lengthwise of the core, each device including a member seated in the channel and a second member pivoted on the first member to swing lengthwise thereof and movable to and from clamping relation with the first member.

7. A beam which comprises a core having a longitudinal channel in its surface, flanges mounted at opposite ends of the core, and a plurality of separately operable clamping devices mounted within the channel in spaced relation lengthwise of the core, each device including a member of U-shaped cross-section seated in the channel, a clamping bar pivoted at one end within the member to swing lengthwise thereof, and means on the member engageable with the bar to hold the latter in clamping relation to the member.

8. A beam which comprises a core having a longitudinal channel in its surface, flanges mounted at opposite ends of the core, and a plurality of clamping devices mounted within the channel in spaced relation lengthwise of the core, each device including a member of U-shaped cross-section seated in the channel, a clamping bar pivoted at one end within the member, means on the member engageable with the bar to hold the latter in clamping relation to the member, and means pivotally mounted within the channel and operable to raise the free end of the bar out of the channel.

9. A warp yarn clamp for mounting within a longitudinal channel in the core of a warp beam, which comprises a member of U-shaped cross-section adapted to be seated wholly within said channel, a clamping bar pivotally mounted at one end within the member to swing lengthwise of and into and out of the latter, and cooperating means on the member and bar lying below the level of the top of the member for holding the bar within the member.

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