O. D. LOMBARD.

Warp-Beam.

No. 167,180. Patented Aug. 31, 1875.

Fig. 1.

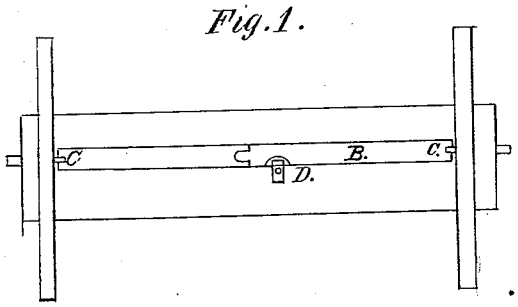


Fig. 3.

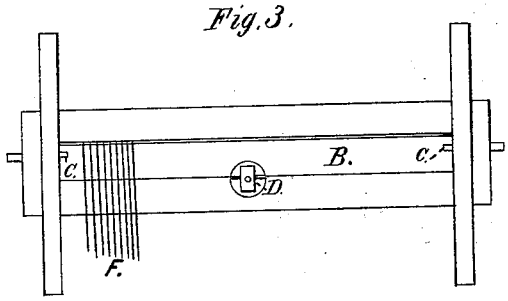


Fig. 2.

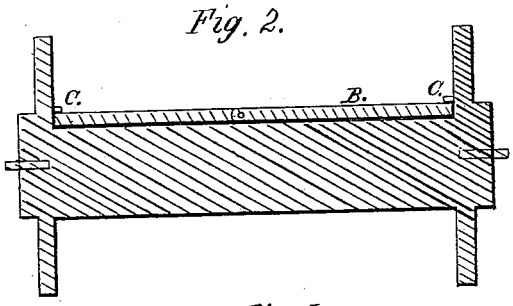


Fig. 4.

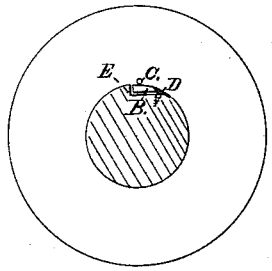


Fig. 5.

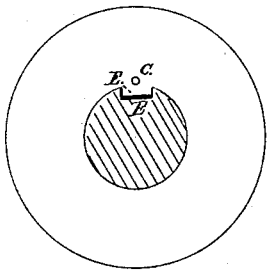
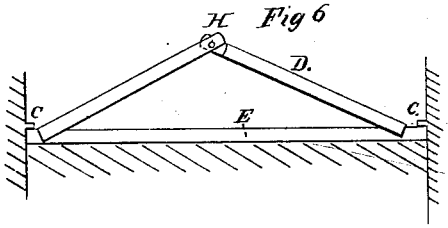


Fig 6



Witnesses.
Nathaniel Hill,
Earl Amri Thissell

Inventor.
Oliver D. Lombard

UNITED STATES PATENT OFFICE.

OLIVER D. LOMBARD, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO EARL AMRI THISSELL, OF SAME PLACE.

IMPROVEMENT IN WARP-BEAMS.

Specification forming part of Letters Patent No. **167,180**, dated August 31, 1875; application filed March 17, 1875.

To all whom it may concern:

Be it known that I, OLIVER D. LOMBARD, of Lowell, State of Massachusetts, have invented an Improved Warp-Beam, of which the following is a specification:

The object of my invention is to hold the warp more securely than heretofore upon the warp-beam, when it is nearly drawn from the beam in the process of weaving, by the combination, in a warp-beam, of the bar B and the locking device, consisting of the studs C C and the button D, as shown in the accompanying drawing, Figures 3 and 4, and also with modified form of bar in Figs. 1, 2, and 6.

The studs C C are placed on the disks, forming the ends of the beam, and immediately over the slot E of the warp-beam, and are placed at a distance from the edge of the slot rather less than the thickness of the bar B, so that the bar B may be removed from under them by turning it up edgewise. The button D is placed about midway of the beam, and so near to the bar that an end may be turned onto the bar to secure the bar in position when desired.

Figs. 1, 2, and 6 show a hinged bar, which may be removed by lifting the bar near the hinge, when the parts will turn about the joint, and thus the ends of the bar will be withdrawn from under the studs C C. This form of bar permits the slot to be made of the form shown in Fig. 5.

The warp is placed on the beam, with the ends slightly overlapping the slot E, and the bar B is placed under the studs C C and locked by the button D. The warp is then laid back toward F, as shown in the drawing, and wound upon the beam, preparatory to the operation of weaving, the locked bar holding it securely until wholly unwound, when the button will be again uncovered, and may be turned by the hand of the operator, and the bar then released.

In the ordinary warp-beam the warp is held in the slot E and upon the beam by the friction of the bar B in the slot, which is usually of the form shown in Fig. 5. The bar, when so held, usually becomes loosened while there are still from one to three turns of warp on the beam, and the warp so remaining on the beam becomes waste, as it cannot be woven, from lack of the necessary tension. In my improved warp-beam this loss in waste is wholly obviated.

What I claim as my invention is—

The combination, in a warp-beam, of the bar B, the studs C C, and the button D, substantially as and for the purpose described.

O. D. LOMBARD.

Witnesses:
NATHANIEL HILL,
JOHN BARTLETT.