

(No Model.)

O. S. PIERCE & A. J. McALLEN.  
WARP BEAM BRAKE FOR LOOMS.

No. 586,745.

Patented July 20, 1897.

**Fig. 1.**

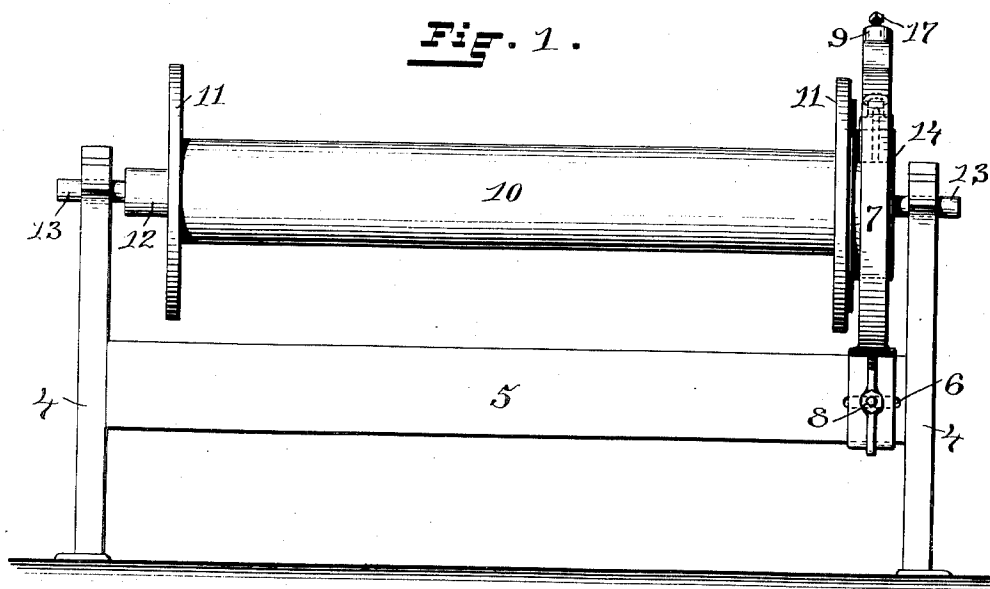


**Fig. 2.**

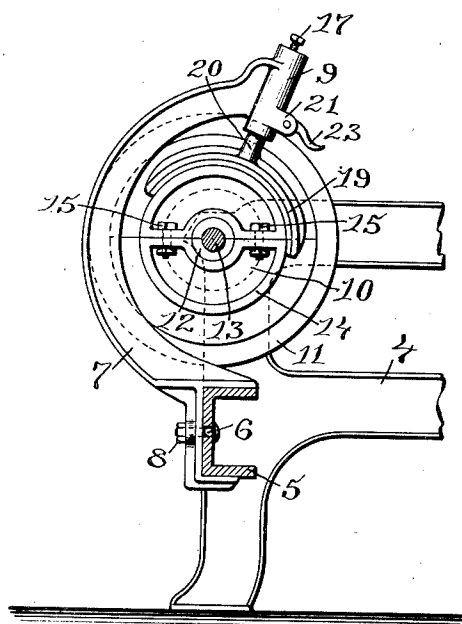
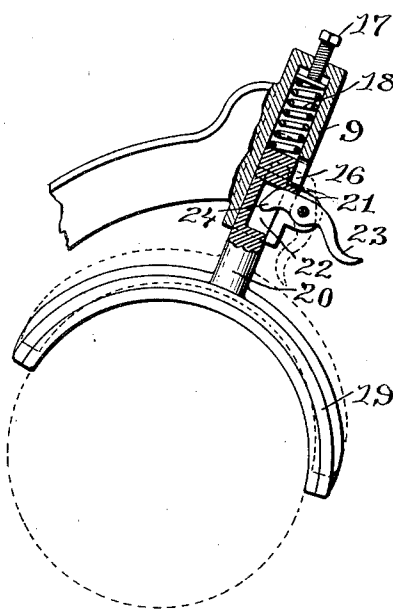


**Fig. 3.**



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

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## WARP-BEAM BRAKE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 586,745, dated July 20, 1897.

Application filed February 25, 1897. Serial No. 624,994. (No model.)

*To all whom it may concern:*

Be it known that we, OTIS S. PIERCE, of Pawtucket, and ARTHUR J. MCALLEN, of Central Falls, county of Providence, State of Rhode Island, have invented a new and useful improvement in Warp-Beam Brakes for Looms; and we hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The invention has reference to an improvement in brakes for the warp-beams of looms; and it consists in the peculiar and novel construction of the tension device, whereby the frictional resistance of the brake on the warp-beam can be adjusted and the adjustment retained, as will be more fully set forth hereinafter.

In a loom the warp-beam carrying the warp for the fabric to be woven is rotated partially from time to time and usually at each pick to let off the warp as the woven fabric is taken up. The warp-beams are usually provided with some kind of friction-brake, which may be adjusted to regulate the frictional resistance. When a new warp-beam was inserted into the loom, the tension required to be again regulated, so as to hold the warp taut during the forming of the shed and the beating up of the filling.

The object of this invention is to so construct the brake that warp-beams may be exchanged without readjusting the tension on the brake and to secure a more reliable frictional resistance on the warp-beam and more uniform tension on the warp.

Figure 1 is a view of so much of the rear end of a loom as is required to illustrate the invention. Fig. 2 is a sectional view of the rear end of a loom, showing the friction-brake. Fig. 3 is a side view of the friction-brake, shown partly in section.

Similar numbers of reference indicate corresponding parts in all the figures.

In the drawings, 4 4 indicate the side frames of a loom; 5, the rear strut or beam, extending horizontally and connecting the rear ends of the side frames. In this horizontal beam 5 the slot 6 is formed. The bracket 7 has its lower end formed into a socket inclosing three

sides of the beam. The bracket is secured to the beam by the bolt 8, extending through the slot 6, so that the bracket can be adjusted laterally.

The bracket 7 is curved, as shown in Fig. 2, and terminates at its upper end in the cylinder 9, the axial line of which is radial from the center of the warp-beam 10, which is, as usual, provided with the end flanges 11 11 and the bosses 12 12 on opposite ends thereof. The warp-beam is supported on the shaft 13, resting in suitable bearings formed in the side frames.

To one end of the warp-beam the brake-wheel 14 is secured. We have shown in the drawings the brake-wheel secured to one of the end bosses 12 of the warp-beam, as this method secures exact concentricity of the brake-wheel with the warp-beam, but the brake-wheel 14 may be secured to the end of the warp-beam in some other well-known manner. In Fig. 2 the brake-wheel is shown as made in two halves, secured together by the bolts 15 15, so as to firmly secure the brake-wheel to the warp-beam.

The lower end of the cylinder 9 has the slot 16. The upper end of the cylinder has the adjusting-screw 17, by which the tension of the coiled spring 18, inclosed in the upper end of the cylinder 9, may be adjusted. The brake 19 has its bearing-surface formed to closely fit the brake-wheel 14. The brake is provided with the cylindrical post 20, which fits the bore of the cylinder 9 with a sliding fit. The post 20 is provided near its upper end with the projection 21, which extends through the slot 16 of the cylinder 9 and has the cavity 22, formed below the projection 21, into which the end of the lever 23 extends. The lever 23 is pivotally supported between two lugs projecting one on each side of the slot 16. By pressing on the lever 23 the brake 19 and brake-post 20 are raised off from the brake-wheel 14 into the position shown in broken lines in Fig. 3.

The operation of the device is as follows: When the brake-wheel is secured to the warp-beam and they are in the proper position in the loom, the pressure of the brake on the surface of the brake-wheel is regulated by the screw 17 until the desired uniform tension

on the warp is secured. When, now, the warp on the beam is exhausted, a full beam is either provided with a brake-wheel of the exact diameter as the brake-wheel on the warp-beam in the loom or the brake-wheel on the empty warp-beam is removed and secured to the full warp-beam, and before making the exchange the lever 23 is depressed, so as to raise the brake 19 off from the brake-wheel. The brake is supported in this position by the cam end of the lever 23 against the pressure of the coiled spring 18. After the full warp-beam has been placed in the loom the raising of the outer end of the lever 23 permits the coiled spring 18 to press the brake on the brake-wheel with exactly the same pressure and the same frictional resistance on the warp-beam and warp as existed under the previously-adjusted conditions, and the readjustment, which takes up so much time of the weaver, is not required. By this construction any number of warp-beams may be successively used and woven into cloth having throughout the same uniform condition of the warp and a close even surface.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a loom, the combination with the frame of the loom, the warp-beam and a friction-wheel secured to the warp-beam, of the bracket 7 having the cylindrical end 9, the

brake 19 bearing on the brake-wheel, the post 20 supported in the cylindrical end 9, the coiled spring 18, the adjusting-screw 17 and a lever pivoted on the cylindrical end 9 and engaging with the post 20, whereby the brake may be raised off from the friction-wheel without altering the adjustment of the coiled spring, as described.

2. In a loom, the combination with the warp-beam, a friction-wheel detachably secured to the warp-beam and a bracket adjustably secured to the frame of the loom and forming the support of the friction-brake, of the cylinder 9 supported by said bracket having the slot 16, the brake 19, the post 20 extending from the brake, a projection on the post extending into the slot 16, the cavity 22 in the post, the lever 23 pivoted to projections on the cylinder 9 and provided with the cam end 24, the coiled spring 18, and the adjusting-screw 17, whereby the tension of the spring is adjusted and one warp-beam may be exchanged for another without changing the adjustment of the spring and frictional resistance, as described.

In witness whereof we have hereunto set our hands.

OTIS S. PIERCE.  
ARTHUR J. MCALLEN.

Witnesses:

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M. F. BLIGH.