

J. NORTROP.
CLOTH BEAM FOR LOOMS.
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973,134.

Patented Oct. 18, 1910.

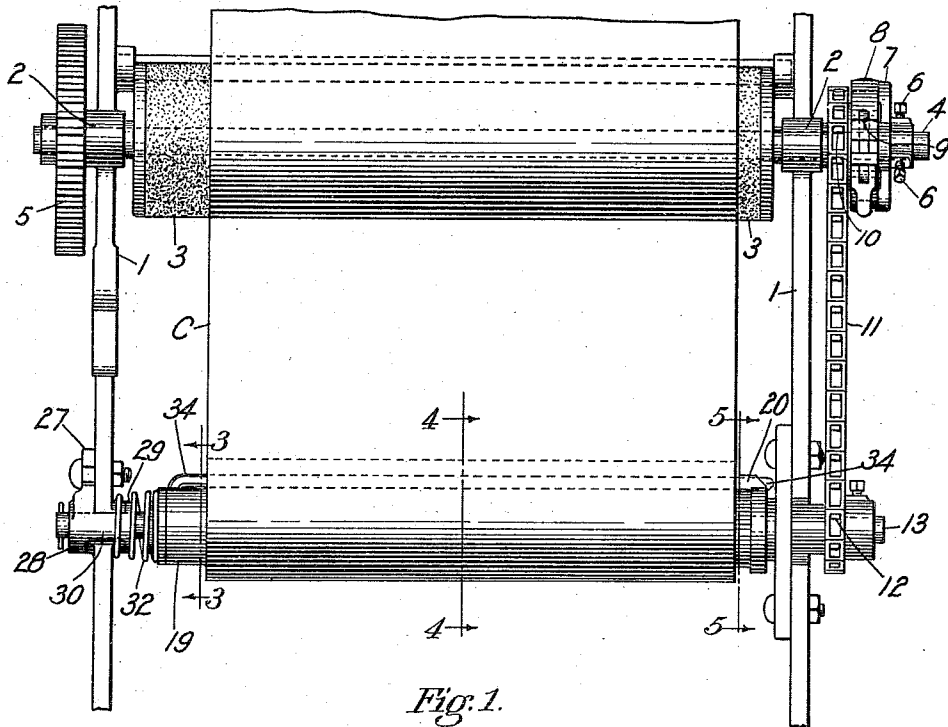


Fig. 1.

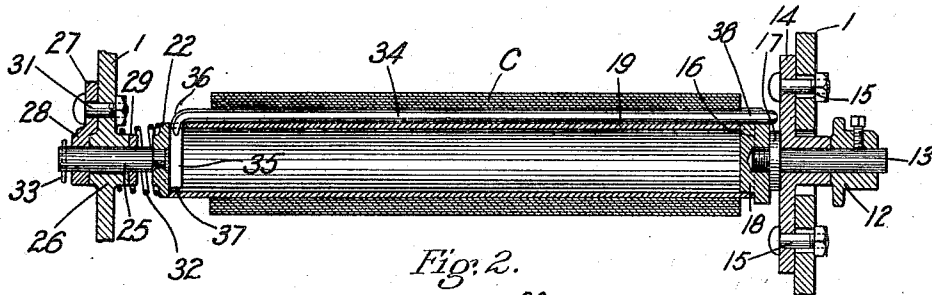


Fig. 2.

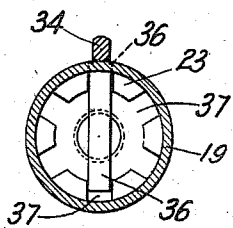


Fig. 3.

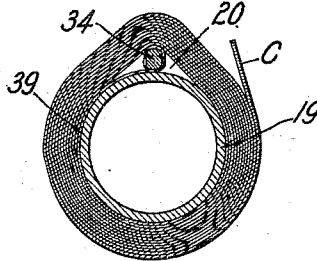


Fig. 4.

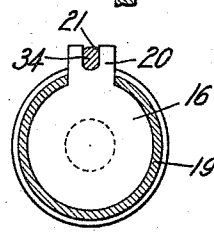


Fig. 5.

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UNITED STATES PATENT OFFICE.

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CLOTH-BEAM FOR LOOMS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JONAS NORTHROP, a citizen of the United States, residing at Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Cloth-Beams for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The invention to be hereinafter described relates to cloth beams for looms.

The aims and purposes of the present invention are primarily to provide means whereby the present difficulty experienced in removing the cloth from the beam on which it has been wound as it was woven may be overcome.

Other objects of the invention will later appear in connection with the following description and accompanying drawings of one form of means for carrying the invention into practical effect.

In the drawings, Figure 1 is a front view of the cloth beam and so much of the associated loom parts as are desirable to make clear the present invention; Fig. 2 is a vertical longitudinal section passing centrally through the cloth beam and its supports; Fig. 3 is a transverse section on the line 3-3, Fig. 1; Fig. 4 is a transverse section on the line 4-4, Fig. 1; and Fig. 5 is a transverse section on the line 5-5, Fig. 1.

The loom frame may be of any usual or desired character and as shown the stands 1 at either side of the loom are provided with bearings 2 for the sand roll 3 mounted on the shaft 4, which may be driven from any suitable source of power transmitted through the gear wheel 5 secured to said shaft, or by any desired form of power transmitting mechanism. The shaft 4 has secured thereto, as by the set screws 6, Fig. 1, one member of a friction clutch, the other member of said clutch being provided with driving connections with the cloth beam, to the end that the cloth beam may be frictionally driven, as will be clear. In the present instance one convenient form of such clutch comprises a member 7 fast to the shaft in the manner stated, the other member 8 being frictionally engaged therewith, as by the

adjusting device 9, and having the sprocket wheel 10 which is engaged by the sprocket chain 11 passing about another sprocket wheel 12 secured to the stud shaft 13, Figs. 1 and 2. Obviously the connection between the shaft 4 and the stud shaft may be variously changed and other forms of frictional drive for the stud shaft be employed within the true scope of the present invention.

The stud shaft 13 is preferably carried by a bearing member 14 adjustably connected to one of the stands 1, by means of bolts 15 or otherwise, and has secured thereto a cloth beam driver. In its present form, this driver is shown as a disk or member 16 screw-threaded or otherwise suitably fixed to the stud shaft 13 to rotate therewith, a spacing collar 17 being interposed between it and the member 14. The driver 16 has a bearing portion 18 which extends into the interior of the cloth beam 19 when the beam is in winding position, and a lug portion 20 which extends through the slotted end of the cloth beam, Figs. 2 and 5, and has a recess 21 for a purpose presently to be described. At its opposite end the cloth beam, when in winding position, is supported by a disk 22 having a portion 23, Fig. 3, to extend into the end of the cloth beam, said disk 22 being sustained on a pin 25 carried by a bearing 26. The pin 25 may be sustained in any suitable manner, but as one convenient support to prevent binding there is provided a bracket 27 having an outer and an inner bearing portion 28 and 29, Figs. 1 and 2, through which the pin may pass, said portions 28 and 29 being joined by a connecting web 30. A bolt 31 may conveniently maintain the bracket 27 in supporting position on the stand 1. A spring interposed between a fixed part, such as the stand 1 and the disk 22, normally maintains said disk pressed toward the driver 16 at the opposite side of the loom frame, a pin 33, or other means, serving to limit the movement responsive to the said spring.

From the construction thus far described it will be noted that the cloth C, Fig. 1, after passing about or over the sand roll 3 is wound on the cloth beam, which is itself driven by suitable friction driving means in

order that as the roll of cloth increases in size on the cloth beam the surface speed or winding action may accommodate itself to the rate of cloth production. It will likewise be noted that the cloth beam may be readily put in and taken from the loom by simply placing one end against the yielding disk 22, forcing the beam endwise to the left, in the illustration, until the opposite end may be seated on the driver 16, whereupon the spring 32 maintains the beam on its supports and driver.

As well understood by weavers and those skilled in the art, much difficulty is experienced and much time lost in removing the cloth roll from the cloth beam after it has been wound thereon. The present invention contemplates a simple expedient whereby the cloth may be easily and readily taken from the cloth beam without being unwound therefrom, one form of which is indicated in the drawings.

Extending longitudinally of the cloth beam when it is in winding position is a cloth releaser or rod 34, the cross-sectional dimensions of which in two directions are unequal, Figs. 3, 4 and 5. That is to say, the releaser or rod 34 is more or less flattened so that the diameter in one direction is less than the diameter in another direction. At one end the releaser or rod 34 has a portion 35 which extends transversely of the cloth beam 19 when the parts are assembled, as in Figs. 2 and 3, said portion 35 passing through a slot 36 in the end of the cloth beam and preferably engaging any one of a series of cross recesses 37 in the disk 22, the construction being such that the portion 35 of the cloth releaser or rod 34 serves to lock the cloth beam and disk 22 from relative rotation. The opposite end 38 of the releaser or rod 34 preferably extends beyond the opposite end of the cloth beam and engages the notch 21 in the lug 20 of the driver 16, Figs. 2 and 5, the construction being such that the driver 16, the beam 19, and the end of the releaser 34 are maintained in fixed position and are locked so that they rotate together.

From the construction described it will be seen that when the cloth beam and cloth releaser are in operative position in the loom, the end of the cloth 39, Fig. 4, passes about the releaser which is then supported with its greatest cross-sectional dimension extending outward or substantially radial of the cloth beam, with the portion 35 of the releaser passing transversely of the beam through the slot 36 and into one of the recesses 37 of the disk 22. The other end of the releaser engages the recess 21 of the lug 20 which extends through the notched edge portion of the beam. Upon rotation of the cloth beam in the manner hereinbefore described the cloth is wound tight about the cloth beam

and releaser, substantially as indicated by Fig. 4. When the beam has been sufficiently loaded or wound with cloth, it is pushed to the left, Fig. 2, the end adjacent the driver disengaged and carried outward and the beam with its load thus removed from the loom. The releaser is thereupon turned to present its least dimension radially of the beam, which slackens the cloth and permits the beam to be readily withdrawn lengthwise from the roll of cloth. One convenient way of manipulating the releaser is to raise the beam so that the projecting end 38 of the releaser may rest on the floor. A slight jar will then cause the releaser to move longitudinally to disengage the end portion 35 from the notch 36 in the end of the beam, whereupon the releaser can be readily turned by the use of the part 36 as a handle to bring the smaller dimension of the releaser radially of the beam to loosen the roll of cloth and permit endwise separation of the beam and cloth roll.

While the releaser, substantially as hereinbefore described, may be employed with a cloth beam of substantially uniform cross-sectional dimension, it has been found in practice that the beam may be made slightly tapering with good results, the smaller end being preferably adjacent the part 38 of the releaser when the parts are in assembled relation.

It will be noted, regardless of whether the beam is tapering or not, that the end portion 35 of the releaser not only serves to lock the disk 22 and beam rotatively, but prevents the releaser from turning and releasing the cloth roll at undesirable times; in other words, it serves as a lock for preventing turning movement of the releaser. Moreover, in the present invention the cloth releaser requires no special construction of cloth beam, and such releaser may be locked to the beam in its cloth distending position in various ways.

From the character of the invention herein described in connection with one embodiment thereof, it will be noted that the cloth roll releaser or rod, when in position on the beam, serves to clamp the end portion of the cloth against the plain surface of the beam; or, in other words, the surface of the beam is not countersunk or otherwise marred to receive the rod 34, and yet, by passing the end of the cloth about the rod, as described, all slipping of the cloth, when the beam is rotated, is overcome, the rod itself being locked to rotate with the beam.

What is claimed is:

1. In a loom, the combination of a cloth beam and a cloth roll releaser comprising a flattened rod extending longitudinally along the surface of the beam, and means for locking said rod in position with its larger transverse dimension extending outward from the surface of the beam and permitting the rod

to be unlocked and turned to release the cloth roll wound about the rod and beam.

2. In a loom, the combination of a cloth beam, means for turning said beam to wind the cloth thereon and a cloth roll releaser comprising a rod extending longitudinally of the beam and having different transverse dimensions, and means for locking the releaser in position with its greatest transverse dimension extending outward from the beam.

3. In a loom, the combination of a cloth beam, and a cloth roll releaser comprising a rod extending longitudinally of the cloth beam and having a cloth supporting portion, said rod being movable relative to the beam to project the cloth supporting portion outward beyond the surface of the beam and cause it to sustain a part of the cloth convolutions at a distance from the surface of the beam as the cloth is wound thereon and to retract said cloth supporting portion toward the beam to loosen the convolutions of cloth and permit the beam to be withdrawn endwise therefrom.

4. In a loom, the combination of a cloth beam, a cloth roll releaser comprising a rod extending longitudinally of the cloth beam and having a cloth supporting portion, said rod being movable relative to the beam to project the cloth supporting portion outward from the surface of the beam and cause it to sustain a part of the cloth convolutions at a distance from the surface of the beam as the cloth is wound thereon and to retract said cloth supporting portion to loosen the convolutions of cloth and permit the beam to be withdrawn endwise therefrom, and locking means to hold the said rod in its cloth sustaining position.

5. In a loom, the combination of a cloth beam, a cloth roll releaser comprising a rod extending longitudinally of the cloth beam and having a cloth supporting portion, said rod being movable relative to the beam to project the cloth supporting portion and cause it to sustain a part of the cloth convolutions at a distance from the surface of the beam as the cloth is wound thereon and to retract said cloth supporting portion to loosen the convolutions of cloth and permit the beam to be withdrawn endwise therefrom, and locking means to hold the said rod in its cloth sustaining position, said rod being movable longitudinally of the beam to unlock said means.

6. In a loom, the combination of a cloth beam, a rod having unequal transverse dimensions extending longitudinally of said beam, a lock for holding said rod with its greater transverse dimension extending substantially radially of the beam to support a part of the cloth convolutions away from the beam surface as the cloth is being wound thereon, and permitting the rod to be un-

locked and turned to present its less transverse dimension radially of the beam when the cloth has been wound thereon.

7. In a loom, the combination of a cloth beam having a locking notch in one end, and a cloth roll releaser comprising a rod of unequal transverse dimensions extending longitudinally of the cloth beam and having a cloth supporting portion to sustain a part of the cloth convolutions at a distance from the surface of the beam as the cloth is wound thereon, said rod having a portion to engage the locking notch in the beam to hold the rod in cloth sustaining position and permit the rod to be turned when said portion is disengaged from the locking notch.

8. In a loom, the combination of a tapering cloth beam, and a cloth roll releaser comprising a rod extending longitudinally of the cloth beam and having a cloth supporting portion, said rod being movable relative to the beam to project the cloth supporting portion outward beyond the surface of the beam and cause it to sustain a part of the cloth convolutions at a distance from the surface of the beam as the cloth is wound thereon and to retract said cloth supporting portion toward the beam to loosen the convolutions of cloth and permit the beam to be withdrawn endwise therefrom.

9. In a loom, the combination of a cloth beam, a rod independent of and extending longitudinally along said beam, said rod having a cloth supporting portion to project the cloth to a distance beyond the beam surface as the cloth is wound thereon and having one end extending beyond the end of the beam, and a lock for holding the rod in cloth sustaining position.

10. In a loom, the combination of a cloth beam having a tapering surface, a cloth roll releaser adapted to extend along the tapering surface of the beam and be inclosed with the beam by the convolutions of cloth as it is being wound, and means for supporting the beam and locking the cloth releaser in place when the beam is in winding position and permitting the cloth roll releaser to be removed when the cloth roll is taken from winding position.

11. In a loom, the combination of a cloth beam, and a rod having a flattened portion extending longitudinally of the beam, and provided at one end with a part disposed at an angle thereto, said beam having a notch to be engaged by the said angle portion to maintain the larger transverse dimension of the rod substantially radial of the beam to support convolutions of cloth wound about the beam and rod, the other end of said rod projecting beyond the end of the beam so that the rod may be moved longitudinally of the beam to disengage the angle portion from the notch and permit the rod to be turned and the beam removed

endwise from the roll of cloth wound thereon.

12. In a loom, a non-collapsible cloth beam, means for removably supporting the cloth beam in winding position, a driver for turning said cloth beam, a cloth roll releaser extending longitudinally of the cloth beam and having a cloth supporting portion movable toward and from the axis of the cloth beam, and means for locking the cloth roll releaser in position with said portion projected beyond the surface of the beam to support convolutions of cloth wound about the beam and releaser and permitting said cloth roll releaser to be unlocked with relation to the cloth beam and its cloth supporting portion to be moved toward the axis of the cloth beam to release the cloth convolutions when the latter is removed from winding position.

13. In a loom, the combination of a cloth beam, supports for sustaining the cloth beam in winding position, means for normally holding said supports in beam supporting position, and a cloth roll releaser extending longitudinally of the warp beam and having a cloth supporting portion projecting beyond the beam surface to support convolutions of the cloth wound about the beam and releaser, said releaser having its cloth supporting portion movable toward the axis of the cloth beam to release the cloth convolutions, said cloth beam supports and cloth roll releaser having interlocking portions to prevent such movement of the cloth supporting portions.

14. In a loom, the combination of a cloth beam, a cloth roll releaser of non-circular cross section extending longitudinally thereof, and means for holding the cloth roll releaser in position on the beam with its greater transverse dimension projecting outward from the beam to support the cloth as it is wound and permitting said releaser

to be moved to retract said cloth sustaining portion that the roll of cloth may be moved endwise of the beam.

15. In a loom, the combination of a cloth beam, having a plain uninterrupted cloth receiving surface, and a cloth roll releaser, about which the cloth is passed and by which it is clamped against the plain surface of the beam, and means for detachably locking the cloth releaser to the beam to cause it to rotate therewith when in cloth clamping position.

16. In a loom, the combination of a cloth beam having a plain uninterrupted cloth receiving surface, a cloth roll releaser between which and the plain surface of the beam the cloth is clamped, and having a cloth sustaining portion to support convolutions of the cloth away from the surface of the roll as they are wound thereon, said cloth sustaining portion being bodily movable transversely of the beam to slacken the convolutions of cloth thereon and permit endwise removal of the beam.

17. In a loom, the combination of a cloth beam, relatively yielding supports for engaging the end portions of the beam, and a cloth roll releaser non-circular in cross-section and having an angularly arranged end portion to lock the beam and one of the end supports in fixed relation and for maintaining the releaser with its larger dimension extending outward from the cloth beam surface, said releaser adapted to be turned relative to the beam to slack the convolutions of cloth and then movable longitudinally of the beam.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JONAS NORTHROP.

Witnesses:

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WENDELL WILLIAMS.