(No Model.)

H. O. FARRAR.

MACHINE FOR BEAMING WARPS.

No. 532,546. Patented Jan. 15, 1895.

Fig. 1.

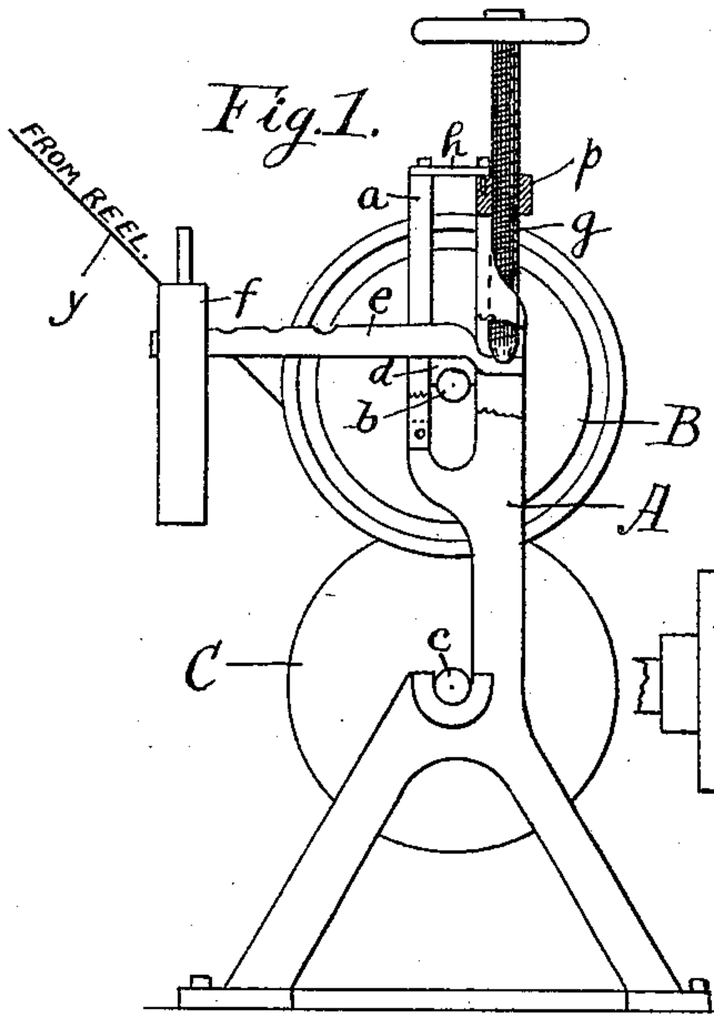


Fig. 2.

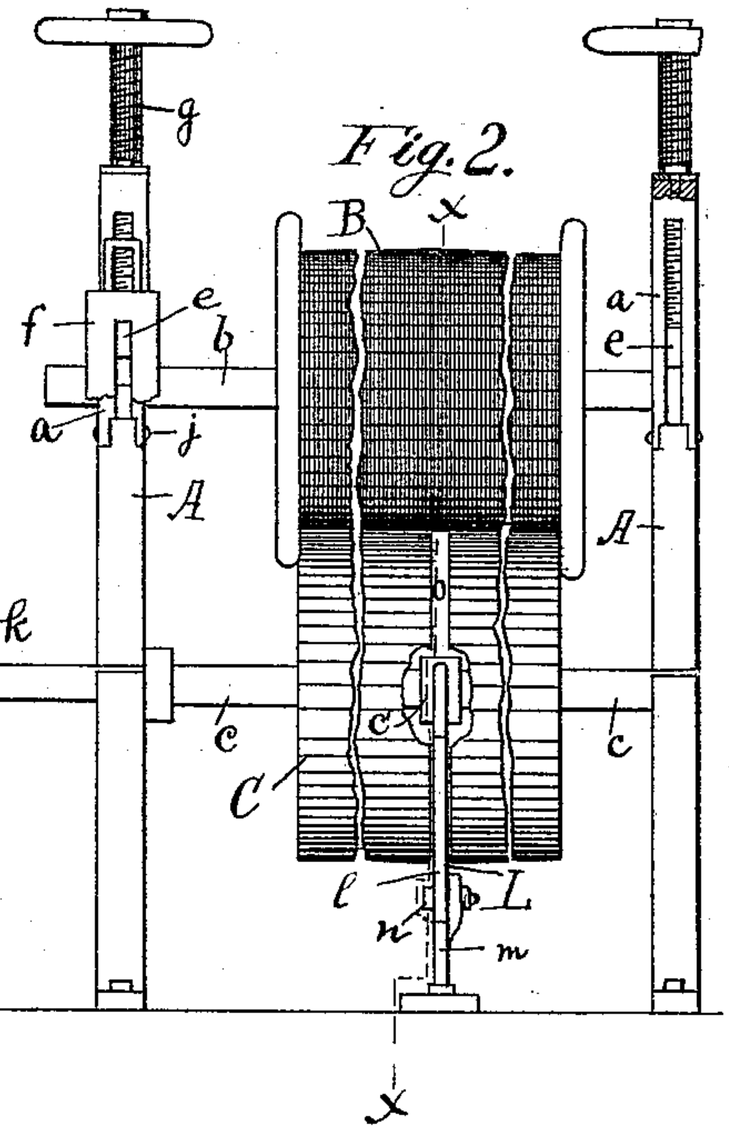
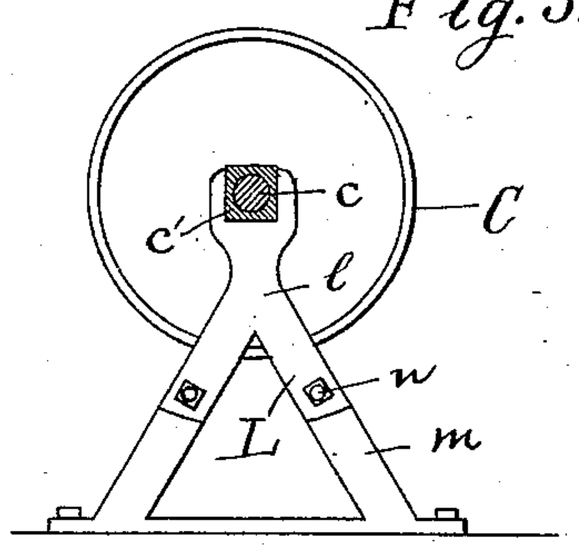


Fig. 3.



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UNITED STATES PATENT OFFICE.

HORACE O. FARRAR, OF OAKLAND, MAINE, ASSIGNOR OF TWO-THIRDS TO GEORGE H. WINEGAR, OF SAME PLACE, AND THOMAS P. CURTIS, OF NEWTON, MASSACHUSETTS.

MACHINE FOR BEAMING WARPS.

SPECIFICATION forming part of Letters Patent No. 532,546, dated January 15, 1895.

Application filed May 3, 1894. Serial No. 509,946. (No model.)

To all whom it may concern:

Be it known that I, HORACE O. FARRAR, a citizen of the United States, and a resident of Oakland, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Machines for Beaming Warps; and I hereby declare the following to be a full, clear, and exact description of the said invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a machine for winding warps on the warp beam, to be used in connection with looms for weaving cotton, woolen or other fabrics.

Hitherto the warp has been wound on the beam from a reel to which friction was applied, and the tension of the yarn caused by this friction was relied upon to wind it tightly and compactly on the beam. In order to get as much yarn as possible on the beam and to have it of uniform tension, all the friction was placed on the reel that the warp would bear, and the result of this was that the threads of the warp often broke in beaming, and the warp was comparatively loose on the beam after winding.

The object of my invention is to wind the warp as tightly as possible on the beam, and at the same time put it under less strain than by the old method, and in my device I apply the principle already made use of in these machines of having a pressure roll run in contact with the warp as it winds on the beam.

My invention has special application to woolen and other warps requiring long beams.

In my beamer I use a positively driven pressure roll on which the warp beam rests and turns, weights being applied to the ends of the warp beam journal. In order to provide for the bending of the beam by reason of the heavy weights applied to its journal, I crown the pressure roll slightly and support it in the center by a bearing applied to its journal, an annular opening being formed to admit the support or bracket on which this bearing rests. These features of my invention are devised to overcome the practical difficulty of getting perfect contact at all points between long warp beams heavily weighted as is necessary and the pressure rolls on which they rest. The importance of getting as long a warp as possible on each beam is apparent. The production of the mill is increased on account of the fact that new warps do not have to be put into the looms as often, the waste at the beginning and end of each warp is lessened, saving is effected in "drawing in" and in many other ways.

In the accompanying drawings I illustrate the manner in which I prefer to carry out my invention.

In the drawings, Figure 1 represents an end view of my device. Fig. 2 is a front view, and Fig. 3 is a part section on the line *x x* of Fig. 2.

B is the ordinary warp beam; *b*, its journal. C is a pressure roll on which the warp beam rests when in position, and *c* is its journal.

The ends of the two journals are supported by standards A A. The journal *c* runs in bearings in the lower portion of the standards, and it is positively driven by any suitable means as the "beamer" in common use. I represents the clutch of such a "beamer" and *k* is a cross-head in engagement therewith on the end of the journal *c*.

The surface of the roll C may be of wood or any suitable material, but I prefer to clothe it with leather which produces the best friction with the warp.

Both the roll C and the warp beam may be made extensible in the well known manner to accommodate warps of different widths but as already stated my device is adapted particularly to long beams.

Heavy weights are applied to the ends of the journal *b* of the beam to produce the necessary pressure and friction. In order to apply these weights, I form a vertical slot in each standard, through which slot the ends of the journal pass, and in which they move up as the warp winds on the beam. A box *d* rests on the journal *b* and slides up and down in the slot. A lever *e* is fulcrumed on this box *d* and its short end is held down by an adjusting screw *g* which engages a nut *p* in the top

of the standard. The long end of the lever is provided with notches by which weights *f* are retained. As the box *d* is lifted by the increasing diameter of the beam, the screw *g* is raised from time to time so that the lever *e* will be approximately on a level.

When the beam is full, the lever *e* may be removed and the section *a* which forms one side of the slot is made removable so that the beam may be rolled horizontally out onto its truck. The lower end of the section *a* is secured by a pin and the upper end by a latch or hook *h*.

It has been found that when sufficiently heavy weights are applied to the journals of the beam there is a tendency for the beam to bend and throw the middle up and so prevent equal contact throughout the whole length of the roll as is necessary to the successful operation of the machine. To secure this contact I have crowned the roll slightly in the middle so as to accommodate it to the bend of the beam, and in order to secure a pressure in the center equal to that at the ends I support the center of the roll in such a way as not to interfere with its friction surface to any extent. This I do by providing a bearing or box *c'* which is applied to the middle of the journal, a narrow annular opening *o* being made in the roll opposite this bearing. A bracket or support L extends through this opening, and is removably secured to the floor. The support L is made in two parts *m* and *l* bolted together by bolts *n*. Thus when the roll C is removed to make room for another roll of different length, the support L may be separated by taking out the bolts *n*, the upper part *l* being withdrawn through the opening *o*.

y in Fig. 1 represents the warp as it comes from the reel which is not shown herein.

The standards A are designed to be attached to the floor in such a manner that they can be readily moved to support beams and rolls of different lengths.

From what has been said the operation of my machine will be understood.

The beam rests on the roll, the contact between the two being equal throughout their whole length by reason of the crowning of the roll. The rotation of the roll causes the beam to turn and the warp as it is wound on is firmly pressed onto the beam. The result is that the capacity of the beam is very greatly increased over the old method. The pressure roll being underneath the warp the latter can be readily reached by an operator from the back side of the beam.

I claim—

1. In a machine for beaming warps the combination of a positively driven pressure roll, having a diameter slightly larger in the middle than at the ends, and having an annular opening at or near its center, a removable support extending through said opening adapted to support the shaft of said pressure roll and a weighted warp beam resting on said pressure roll and driven by friction therewith, substantially as described.

2. In a machine for beaming warps the combination of a positively driven pressure roll, a warp beam adapted to rest thereon, standards for guiding said warp beam each having a vertical slot through which the ends of the warp beam journals pass, that portion of said support forming one side of said slot being removable, a bearing for said journal working vertically in said slot, a weighted lever resting on said bearing, a screw held vertically in said support, the lower end of said screw acting on the short end of said lever.

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Witnesses:
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