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DEVICE FOR PREPARING AND PRESENTING NEW WARP TO A WEAVING LOOM

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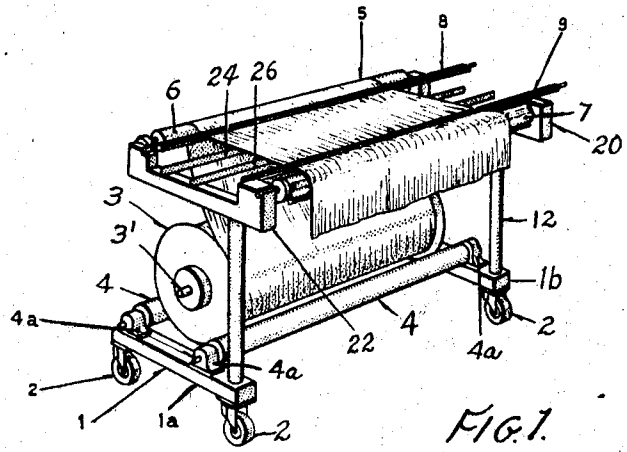


FIG. 1.

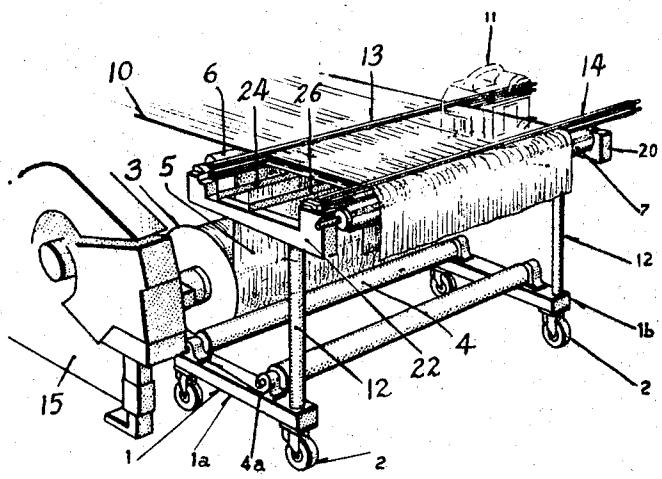


FIG. 2.

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DEVICE FOR PREPARING AND PRESENTING NEW WARP TO A WEAVING LOOM

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U.S. Cl. 28—49 4 Claims
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ABSTRACT OF THE DISCLOSURE

A device for supporting a new warp beam to permit preparation of the warp end is described in relation to a loom. The device includes means for stretching the end of the new warp prior to its placement on a loom which includes a supporting frame which also provides support for the new warp beam with the new warp wound thereon. The device is constructed so that it may be pushed toward the operating loom which has been operated to a point at which the old warp thread has been substantially completely unwound from its beam and the beam is to be replaced. The supporting device for the new warp beam with the new warp threads thereon carries spaced frame elements for supporting stretching devices so that the new warp threads may be oriented in a stretched condition at which they may be placed directly beneath the old warp. The device includes means for stretching the old warp threads over the new warp threads in a position so that a twisting-in device may be manipulated across the frame to easily join the threads together so that the new warp beam may be positioned on the loom in place of the old beam.

The apparatus of the invention which is described includes a wheeled frame having a spaced set of horizontally disposed supporting rollers providing a cradle between which a warp beam with the new warp material thereon is supported. In addition, the apparatus includes at its upper end a twisting-in frame which carries stretching devices so that the end of the new warp may be stretched above its associated warp beam and oriented in a position so that the frame may be moved to the loom and arranged below the end of the old warp material which is stretched on the twisting-in frame above the new warp end so that the twisting-in device may be easily operated to twist-in the two warp ends.

The apparatus makes it possible to prepare the new warp at a location away from the loom and to keep it ready until it is time for the twisting-in operation at which time the frame is advanced to the loom and the new warp beam is substituted on the loom in place of the old warp beam. The prepared end of the warp is then arranged in association with the end of the warp material already on the loom and the twisting-in operation is carried out easily in a known manner.

The disclosure includes drawings indicating the twisting-in frame construction of the invention and its use in association with a loom in preparing the end portions of the old and new warp prior to twisting-in.

Summary of the invention

Prior to the present invention it was normal to employ conventional twisting-in frames for the stretching of the finished warp and the new warp looms in a predetermined position relative to one another in order to allow the actual twisting-in operation to be carried out in contact with the stretched warps. The working cycle normally included the bringing together of the twisting-in frame with

the stretching means and the loom where the empty unwound warp beam had already been replaced by a full warp beam. In addition, the beginning of the new warp is prepared. In the next stage, the end of the old unwound beam is prepared by means of clamping and stretching devices provided for this purpose but after the actual twisting-in operation is carried out. On the completion of the twisting-in operation, the twisting-in frame is removed from the loom so that the weaving can be continued with the new attached warp.

In order that each of the operations referred to above be carried out, the loom must remain at a standstill throughout the entire period required to prepare both the old and the new warp and also for the twisting-in operation itself. Looms may have to be stopped for a period between 15 to 30 minutes or even longer, depending on the method of preparation and the work it involves. This is, of course, highly undesirable and it has an unfavorable effect on the economical operation of the loom.

In accordance with the present invention, there is provided a twisting-in frame which is equipped with means for accommodating the new warp beam and for orienting the ends of the new and old warp beams in position so that they may be stretched one over the other and easily twisted-in. It is possible with such a device to prepare the new warp at a location away from the loom and to keep it ready until it is time for the twisting-in operation. Only then need the twisting-in frame be moved up to the loom to prepare the old warp on the twisting-in frame and to allow the twisting-in attachment to perform its function. Consequently, the loom is only at a standstill during the period of time required to prepare the old warp and to carry out the twisting-in operation which is shortened very considerably from the previously required standdown time for such looms.

Accordingly it is an object of the invention to provide a twisting-in frame which is equipped with means for accommodating a new warp beam so that the new warp end may be prepared away from the loom and wherein the twisting-in frame may be moved to permit substitution of the new warp beam for the old warp beam and the alignment of the ends of the new and old warps so that the twisting-in operation may be easily carried out.

A further object of the invention is to provide a twisting-in frame which is simple in design, rugged in construction and economical to manufacture.

The various features of novelty with characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated and described a preferred embodiment of the invention.

Brief description of the drawings

In the drawings:

FIG. 1 is a front perspective view of a twisting-in frame carrying a full warp beam and a newly prepared warp; and

FIG. 2 is a view similar to FIG. 1 showing the twisting-in frame with the warp beam loaded on the loom and the prepared old and new warps.

Detailed description

Referring to the drawings in particular, the invention embodied therein comprises a twisting-in frame including a stable wheeled base or frame generally designated **1** having traveling rollers or casters **2** mounted thereon to permit movement of the frame. The frame **1** includes side members or cross bar members **1***a* and **1***b* which support cross rollers or warp beam supporting rollers **4**,

4. The rollers **4**, **4** are arranged at spaced locations in the same horizontal plane and define a support cradle for the rotational support of a warp beam **3** having an axle **3'**. Vertical support means comprising uprights or column members **12**, **12** are secured to the respective cross base members **1***a*, **1***b* which carry longitudinally extending supporting beams **20** and **22** having block portions at each end which support stretching devices **8**, **9**, **13** and **14** and slide rails **22** and **24** along which a twisting-in attachment **11** is moved.

As indicated in FIG. 1, the warp beam **3** is rotatably mounted on the rollers **4**. A locking device (not shown) associated with bearings **4***a*, **4***a* which rotationally support the rollers **4**, **4** prevents the warp beam from rotating further after the length of warp required for stretching has been unwound therefrom and positioned around guide rollers **6** and brush beam **7**. As indicated in FIG. 1, the stretching devices **8** and **9** are placed in position over the unwound warp material. It should be appreciated that the roller supports **4** may take another form and comprise any sort of lateral supporting elements for the warp beams such as suitable brackets on each of the base members **1***a* and **1***b* for supporting the axle **3'** for rotation. With the new warp **5** positioned as indicated in FIG. 1, it can be prepared away from the loom before the old warp is applied thereto.

When it is time for the new warp to be joined to the old one, the twisting-in frame carrying the prepared new warp together with the warp beam **13** is moved up to the loom where the old warp beam is exchanged for the new full warp beam **3**. The end of the old warp **10** is then prepared at a suitable height above the new warp **5** and held fast by clamps **13** and **14**. The actual twisting-in attachment **11** is then able to engage the two vertically adjacent layers of the warp threads and to join pairs of warp threads together. After the fully joined warps **5** and **10** have been released from the clamps **8** and **9** and **13** and **14**, the twisting-in frame is ready to receive another warp beam.

It is of advantage as far as handling of the warp beam is concerned if the supports **4** are vertically adjustable so that there is no great difference in height to be overcome when the heavy beam is transferred from the twisting-in frame to the loom.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the inventive principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A twisting-in frame for stretching and clamping two layers of warp threads in separate substantially parallel planes for operation thereon by a warp-tying apparatus comprising a wheeled frame member including a base portion, a pair of warp beam supporting rollers arranged in spaced relationship on said base portion and defining therebetween means for supporting the periphery of a warp beam for rotation thereon, vertical support means extending upwardly from said base portion, frame means carried at the upper end of said vertical support means including a guide roller at one end of said frame means and a brush roller at the opposite end of said frame means, said warp being adapted to be draped over said guide roller and said brush roller, means carried by said frame means for stretching said warp in at least two parallel layers over said frame means, and rail means on said frame member for guiding a tying-in apparatus across each of said warp layers.

2. A twisting-in frame according to claim **1**, wherein said means for supporting said warp beam include vertically adjustable elements.

3. A twisting-in frame according to claim **1**, wherein said means for supporting said warp beam includes means permitting rotation of said beam on said support means for locking said support means against rotation.

4. A twisting-in frame according to claim **1**, including means on said frame means for supporting the old warp over the new warp in a position to overlie said new warp to permit the twisting-in attachment to be moved across said old and new warps.

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