

March 9, 1926.

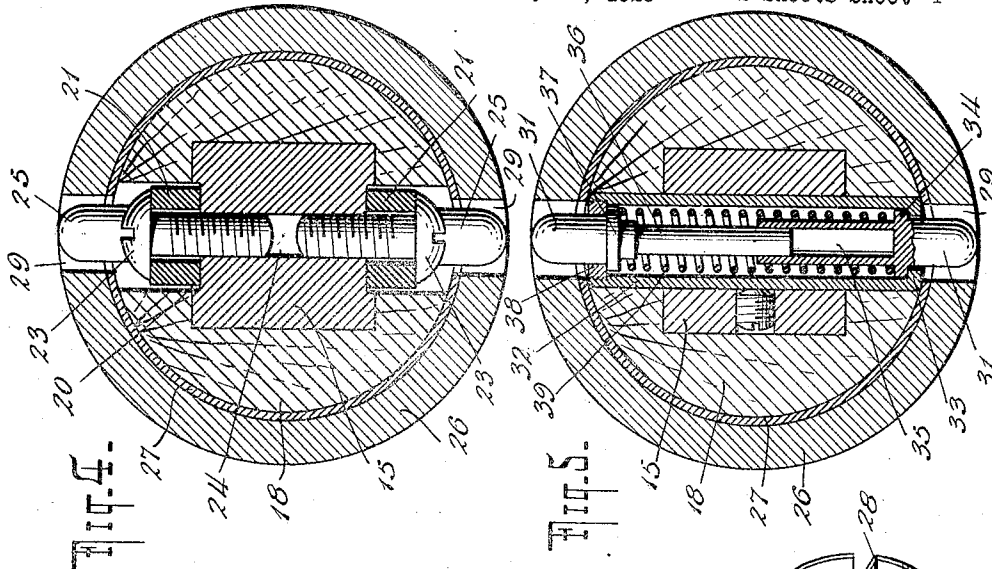
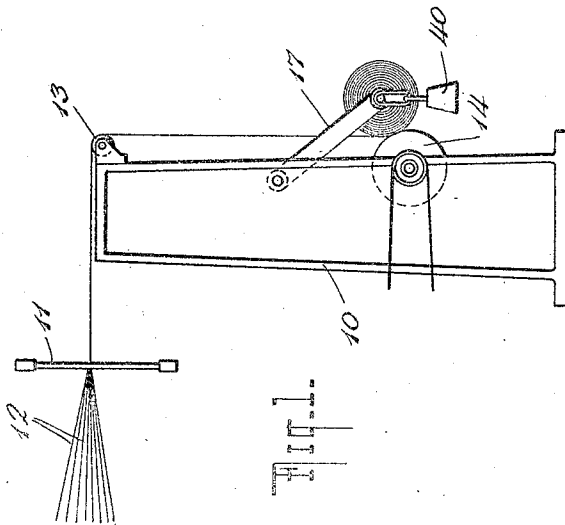
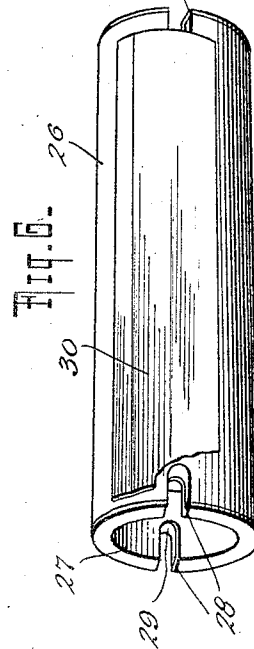
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A. HASLER ET AL

WARPING MACHINE

Filed July 18, 1925

2 Sheets-Sheet 1



INVENTORS
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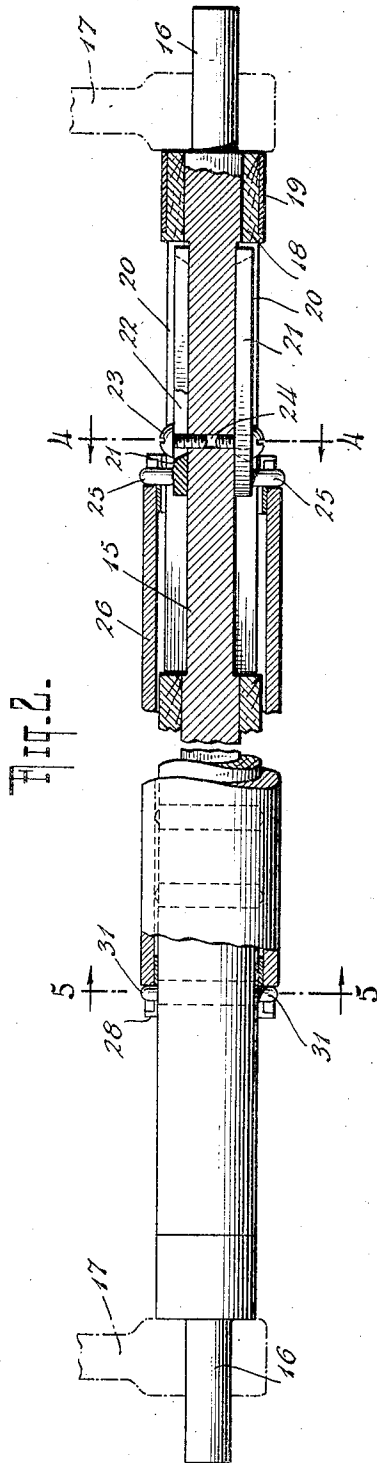
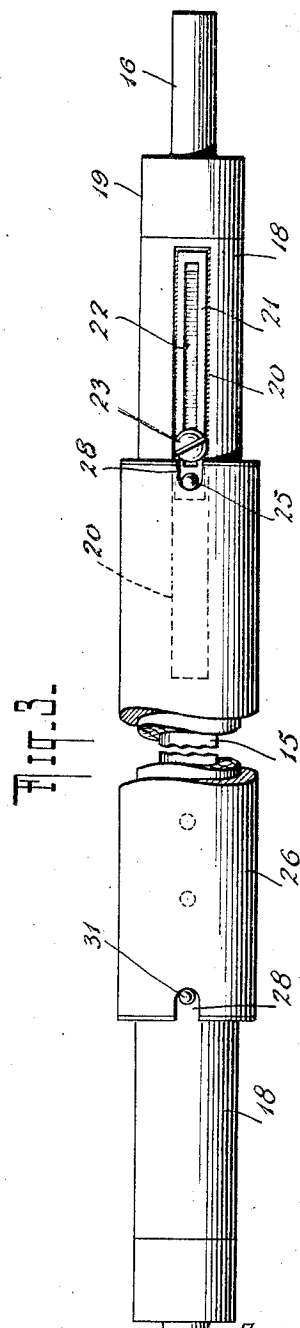
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INVENTORS
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UNITED STATES PATENT OFFICE.

ALBERT HASLER AND EZRA L. PROBERT, OF HAZLETON, PENNSYLVANIA, ASSIGNORS
TO DUPLAN SILK CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELA-
WARE.

WARPING MACHINE.

Application filed July 18, 1925. Serial No. 44,426.

To all whom it may concern:

Be it known that I, ALBERT HASLER, a citizen of the United States, residing at Hazleton, county of Luzerne, and State of Pennsylvania, and I, EZRA L. PROBERT, a citizen of the United States, residing at Hazleton, county of Luzerne, and State of Pennsylvania, have invented certain new and useful Improvements in Warping Machines, of which the following is a specification.

This invention relates to improvements in textile warping machines, and has particular reference to a beam and warp receiving cylinder therefor.

In warping machines, it has heretofore been customary to employ wooden top beams upon which the warp threads are wound. After the winding operation the beams are removed from the machine and crated for transportation. Usually these beams are placed in a crate with the beam trunnions protruding therefrom with the result that said trunnions are oftentimes bent during shipment. Consequently, if such damage is not rectified before placing the beam in a loom, said beam will run untrue resulting in an uneven tension upon the individual warp threads.

It is proposed, by the present invention, to dispense with the necessity of removing the beams from the warping machine for shipment to the looms by providing a beam upon which a warp receiving cylinder is removably mounted. Such cylinders, after the warp is wound thereon, may be easily and quickly detached from the beam and transported, and the construction and weight of such cylinders is such that the same may be packed and shipped at a very material saving from the cost of transportation of the beams.

Another object is to provide an improved beam of rigid construction upon which warp cylinders of various lengths may be centered and securely held against longitudinal movement thereon while the warp threads are being wound upon the cylinders.

A further object is to provide the warp receiving cylinder with means engageable with the ends of warp threads so as to securely retain said ends flat against the

surface of the cylinder at the beginning of the winding operation and thereby avoid slipping of said threads which might otherwise result in an uneven winding thereof upon the cylinder.

The above and other objects will appear more clearly from the following detailed description, when taken in connection with the accompanying drawings, which illustrate a preferred embodiment of the inventive idea.

In the drawings—

Figure 1 is a conventional illustration of a portion of a warping machine showing the manner of winding the warp threads upon the removable cylinder mounted upon the beam;

Figure 2 is a fragmentary longitudinal section through the beam and cylinder in an operative position;

Figure 3 is a fragmentary plan view of the beam and cylinder;

Figure 4 is an enlarged transverse section taken substantially on the line 4—4 of Figure 2;

Figure 5 is a section on the line 5—5 of Figure 2; and

Figure 6 is a perspective view of the warp receiving cylinder.

In Figure 1 there is conventionally shown a portion of a warping machine including the frame 10, the reed 11 through which the warp threads 12 pass, the same being guided over a roller 13 to the warp receiving cylinder and beam constituting the present invention. As usual the frame 10 carries a driving roller or drum 14 against which the beam and cylinder rest and which are rotated by said roller through frictional contact with the warp threads as the same are being wound upon the cylinder.

The beam of the present invention is designed to replace the ordinary light wooden beams which are now generally employed and upon which the warp threads are directly wound, the beam being afterwards detached from the machine and crated for transportation. After the warp has been used at the looms these wooden beams are then returned to the point of shipment for further use at the warping machines. It is one of the purposes of the present invention to avoid this repeated shipment of the

beams themselves in order to reduce expense and the possibility of damage to the beams.

In its preferred form the present beam consists of a central core 15 made of iron or other heavy material so as to impart considerable weight to the beam and the ends of the core terminate in trunnions 16 which, when the beam is in position, have a bearing in the lower ends of arms 17 pivoted to the frame 10 of the machine, said arms supporting the beam in proper relationship to the driving drum 14. The body 18 of the beam in which the core 15 is embedded is of wood and at its ends is encircled by metallic reinforcing rings 19 which prevent splitting of the body. Adjacent one end of the body 18 the same is provided with opposed grooves 20, the bottoms of which are formed by the adjacent surfaces of the core 15. In each of these grooves there is mounted an adjustable slide 21 having a longitudinally extending groove 22 therein. The slide is adjustable longitudinally of the groove 20, for a purpose which will presently appear and is secured in adjusted position by a screw 23 or other suitable fastening device which extends through the slot in the slide and engages in a transverse threaded opening 24 formed in the core 15. The inner end of each slide 21 has formed thereon a stop pin 25 projecting laterally therefrom and outwardly beyond the surface of the beam body.

The stop pins 25 are employed for the purpose of assisting in properly positioning the warp receiving cylinder 26 on the beam preparatory to winding the warp threads on said cylinder. This cylinder consists of a tubular body, usually made of compressed paper, having metallic reinforcing end caps 27 provided with opposed notches 28 in the ends thereof which register with similar notches 29 formed in the ends of the body. The outer surface of the body of the cylinder has secured thereto a retaining flap 30, the flap being attached in any suitable manner along one of its longitudinal edges to the cylinder with the remaining portion of the flap extending circumferentially about the body. This flap is utilized for the purpose of preventing slipping of the warping threads at the beginning of the operation of winding the same on the cylinder and for this purpose the ends of said threads are introduced between the flap and the cylinder. After the cylinder has been given a few turns and the warp threads have been wound about the exterior of the flap, it will be apparent that the ends of the threads will be securely retained in position between the cylinder and the flap with the result that any danger of slipping of the threads with a consequent

variation of the tension thereof will be avoided. In practice the cylinders are made in various lengths and when placed upon the beam preparatory to winding the warp threads thereon should be centered upon said beam. It is for this purpose that the stop pins are adjustable longitudinally of the beam. When the length of any particular cylinder is ascertained the slides 21 may be adjusted to properly position the pins 25, whereupon the cylinder 26 may be mounted upon the beam from the end remote from said pins. The slots 28, 29 at the end of the cylinder adjacent said pins are aligned with the pins so that the latter will engage therein, as clearly illustrated in Figure 2. Said pins will then limit the longitudinal movement of the cylinder in one direction upon the beam and also prevent relative rotation between the beam and cylinder.

In order that the cylinder will be held in its centered position upon the beam and prevented from moving longitudinally in an opposite direction thereon the beam is provided adjacent the end opposite the pins 25 with a plurality of sets of other pins 31, preferably spaced equi-distances apart along the beam, either set of the pins 31, depending upon the length of the cylinder, being adapted to be engaged in the notches 28 and 29 in the end of the cylinder opposite those notches in which the pins 25 are engaged.

The mounting for the pins 31 of each set includes a tubular member 32 extending transversely through the core 15 and body 18 and provided at one end with an inverted flange 33 capable of being engaged by an annular flange 34 formed upon one of said pins. This latter pin is provided with a hollow shank 35 for receiving the inner end of the shank 36 of the other pin so as to permit of relative longitudinal movements of said pins. At the outer end of the shank 36 of the last mentioned pin there is provided an annular flange 37 and this flange is engaged with a closure ring 38 mounted in the end of the tubular member 32 and which limits the outward movement of the adjacent pin. Interposed between the flanges 34 and 37 of the respective pins is an expansible coil spring 39 which normally exerts an outward pressure upon the pins to maintain the outer ends thereof projected beyond the outer surface of the beam. However, when the cylinder 26 is slipped over the adjacent end of the beam the contact of the metallic end cap of the beam with each set of pins will force the pins inwardly against the tension of the spring until the pins 25 are engaged in the notches of said end cap. Said pins 25 are so adjusted that when engaged in said notches as described, one of the sets of pins

31 will become aligned with the notches 28 and 29 in the opposite end of the cylinder and there being no longer any inward pressure upon said pins by reason of the cylinder passing thereover, the spring 39 associated with the pins will force the same outwardly into said notches and thus secure the cylinder in its proper position upon the beam. To remove the cylinder 26 from the beam, after the warp threads have been wound on the cylinder, it is only necessary to exert an inward pressure upon the set of pins 31 engaged in the notches in the adjacent end of the cylinder, whereupon the cylinder may be withdrawn from the beam. It is, of course, understood that before the cylinder can be removed from the beam it is necessary to detach the trunnions 16 from the supporting arms 17. If desired, the pressure of the warp threads against the driving roller or drum 14 may be increased during the winding operation by suspending weights 40 from the ends of the trunnions 16.

What is claimed is:

1. In a warping machine, a beam including a body, and means on said body normally projecting beyond the outer surface thereof for engaging a warp receiving cylinder thereon and preventing longitudinal movement of said cylinder relative to said body.

2. In a warping machine, a beam including a body, and stop members carried by said body and normally projecting beyond the outer surface thereof for engaging the ends of a warp receiving cylinder on said body and preventing longitudinal movement of said cylinder relative to said body.

3. In a warping machine, a beam including a body, a slide adjustable longitudinally of said body and carrying a stop pin against which one end of a warp receiving cylinder is engageable to center the cylinder on the beam and prevent relative rotation between the beam and cylinder, and another pin carried by said body and engageable with the other end of said cylinder to maintain the latter centered upon said body.

4. In a warping machine, a beam including a body, a slide adjustable longitudinally of said body and carrying a stop pin against which one end of a warp receiving cylinder is engageable to center the cylinder on the beam and prevent relative rotation between the beam and cylinder, and a spring pressed pin normally projecting laterally from said body and engageable with the other end of said cylinder to maintain the same centered

upon said body, said pin capable of being recessed within said body as said cylinder is being mounted thereon.

5. In a warping machine, a beam including a body, a stop pin carried thereby and capable of being engaged by one end of a warp receiving cylinder, and a plurality of spring pressed stop pins arranged at intervals along said body, either one of which is engageable with the opposite end of said cylinder to prevent longitudinal movement of the cylinder on said body.

6. In a warping machine, a beam including a body having longitudinal grooves therein, a central core for said body forming the bottom of said grooves, slides adjustably mounted in said grooves and each carrying a stop pin projecting beyond the outer surface of said body and capable of being engaged by one end of a warp receiving cylinder to center said cylinder upon the beam and prevent longitudinal movement of the cylinder in one direction, and means carried by said body and engageable with the opposite end of said cylinder to maintain the latter centered upon the beam.

7. In a warping machine, a beam including a body, means carried by said body and capable of being engaged by one end of a warp receiving cylinder to limit the longitudinal movement of said cylinder in one direction upon the beam, a tubular member extending transversely through said body, opposed pins mounted in said tubular member and capable of projecting beyond the outer surface of the body and engageable with the opposite end of said cylinder to maintain the same centered on the beam, and a spring interposed between said opposed pins and exerting an outward pressure thereon to yieldably maintain the same in projected position.

8. In a warping machine, a beam including a body, stop members carried by said body and normally projecting beyond the outer surface thereof for engaging the ends of a warp receiving cylinder on said body and preventing longitudinal movement of said cylinder relative to said body, and means for yieldably supporting certain of said members in projecting position to permit said members to move inwardly relative to said body when said cylinder is passed over said members.

In testimony whereof we have affixed our signatures.

ALBERT HASLER.
EZRA L. PROBERT.