

No. 649,221.

Patented May 8, 1900.

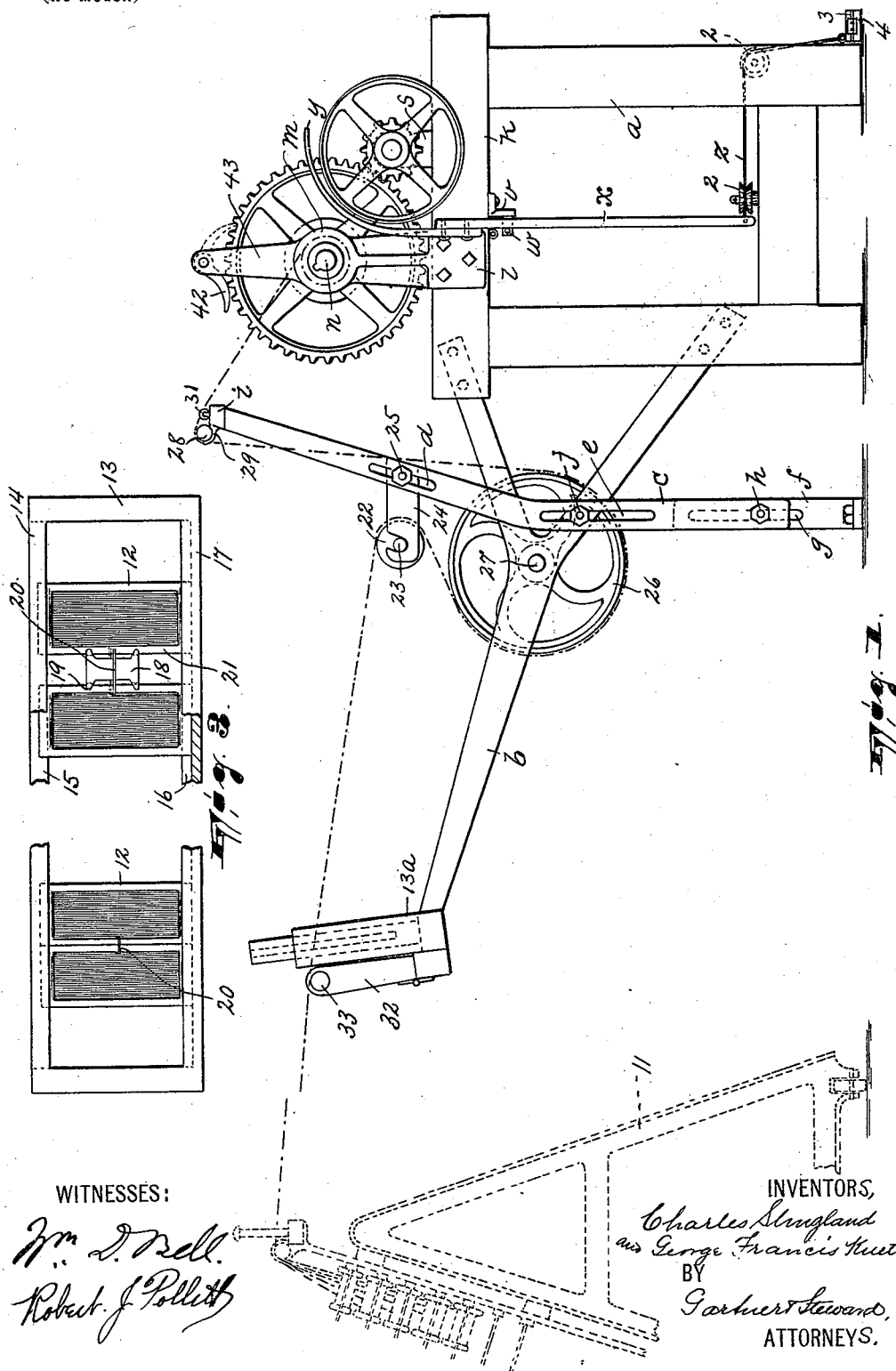
C. SLINGLAND & G. F. KUETT.

WARPING MACHINE.

(Application filed Dec. 16, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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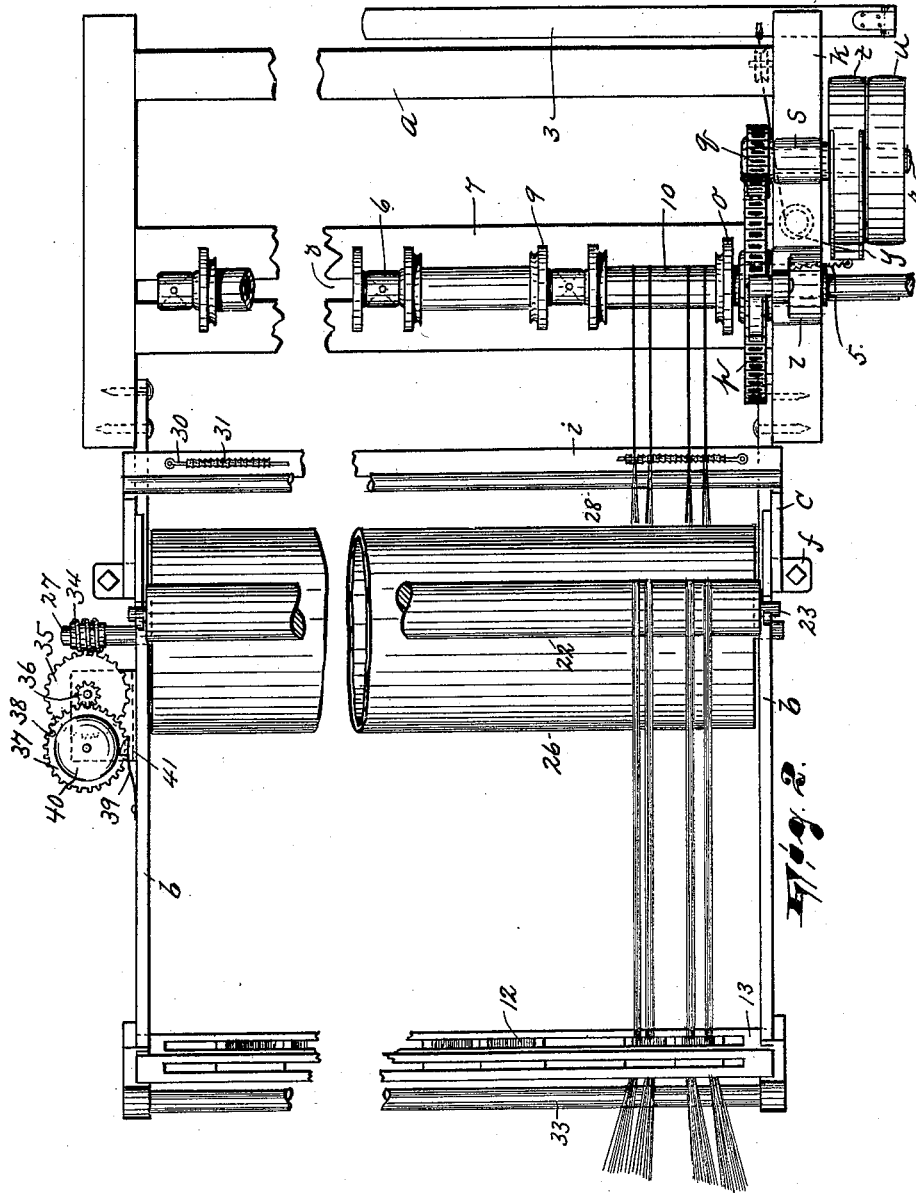
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES SLINGLAND AND GEORGE F. KUETT, OF PATERSON, NEW JERSEY.

## WARPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 649,221, dated May 8, 1900:

Application filed December 16, 1899. Serial No. 740,511. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES SLINGLAND and GEORGE F. KUETT, citizens of the United States, residing in Paterson, in the county of Passaic and State of New Jersey, have invented certain Improvements in Warping-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to warping-machines, and it has reference particularly to that class of machines of this nature adapted for winding or filling the bobbins used in some kinds of looms for holding the warp-threads.

The invention consists in the improved warping-machine and in the combination and arrangement of its various parts, substantially as will be hereinafter pointed out, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, wherein we have fully illustrated our invention, Figure 1 is a view in side elevation of a warping-machine constructed after the principles of our invention. Fig. 2 is a top plan view of said warping-machine as shown in Fig. 1; and Fig. 3 is a view in front elevation, partially broken away and partially shown in section, of a certain reed construction.

The reference character *a* in the drawings designates a rectangular frame, from one end of which and at both sides thereof project substantially Y-shaped brackets *b*, the extremities of the bifurcated portions of which support them, being bolted or otherwise secured to said frame *a*.

*c* designates a pair of standards, each having longitudinal slots *d e* and being mounted in supports *f*, which are bolted to the floor and through longitudinal slots *g*, in which project bolts *h*, which the standards carry and whereby said standards are adjustably sustained in the supports. The tops of the supports *d* are connected and braced by a bar

*i*. The brackets *b* carry bolts *j*, which penetrate the slots *e* in the standards and which may be tightened up, so that the correspond-

ing brackets and standards are clamped together, each standard thus acting as an auxiliary support for the bracket.

Upon one of the upper side beams *k* of the frame *a* is sustained a bearing-bracket *l*, said bracket being bolted to the beam and having a cylindrical or sleeve-like integral portion *m*, which affords a bearing for a shaft *n*, that carries at its inner end a face-plate *o*. Between the face-plate *o* and the sleeve *m* is mounted on said shaft a gear *p*, said gear being in mesh with a pinion *q*, which is mounted upon a counter-shaft *r*, and said counter-shaft being journaled in a bearing-bracket *s* (also supported upon the beam *k*) and constituting the drive-shaft. Upon this shaft, outside of the frame, are mounted the usual fast and loose pulleys *t u*, respectively.

*v* is a bracket which is bolted to the beam *k* and has a stud *w*, which stud affords a fulcrum for a lever *x*, that carries at its upper end a curved fork *y*, said fork constituting a belt-shifter and being movable with the lever into opposition to either of the pulleys. The lower end of the lever *x* is connected by means of a cord or strap *z*, which passes over suitable pulleys *2*, that are journaled in the frame, with a treadle-lever *3* on a block *4*, that is secured to the floor.

*5* is a retractile spring which connects the lever with some stationary part of the machine. It is to be remarked that the spring and the strap or cord are connected to the lever at points on opposite sides of the fulcrum thereof.

*6* designates a series of adjustable brackets, which are clamped to spaced horizontal bars *7*, that constitute a part of the frame *a* and extend transversely thereof. *8* designates a slot that is formed between these bars and affords a guide in which the brackets are adjustable, the base portion of each bracket projecting into said slot. It should be remarked that the several brackets are clamped to the bars in any desired and well-known manner. We do not illustrate any particular means for clamping said brackets in position, this detail not being necessary to a proper disclosure of our invention, of which it constitutes no essential part. Each bracket forms a bearing for a pair of face-plates *9*, arranged upon opposite sides thereof.

10 denotes bobbins, all of which, except the one nearest the face-plate *o*, are clamped together and held in position by the brackets 6. The bobbin adjoining the face-plate *o* is held in position between said face-plate and the face-plate of the nearest bracket 6, being clamped in position by adjusting said bracket toward said face-plate, the same as the other brackets are made to clamp the other bobbins in position by being adjusted toward each other. When all the bobbins are clamped in place, it will be seen that they and the series of pairs of face-plates practically constitute a single body and are revoluble as such, the rotary motion being imparted through the gear *p* to the entire series of bobbins and face-plates.

In Fig. 1 we show in dotted lines a creel 11, and from this creel the threads extend in a more or less separated disposition. Said threads are arranged in series or sets, each series or set first passing through one of a series of reeds 12 after leaving the creel. The reeds 12 are arranged in a rectangular frame 13, whose top bar 14 has a longitudinal slot or opening 15, whereby the reeds may be introduced into the frame, the lower ends of the reeds being adapted to set in a groove 16, formed in the lower bar 17 of the frame, while their upper ends project into the slot 15. In order to maintain these reeds in proper disposition in their frame with reference to the corresponding bobbins upon which the threads from the creel are adapted to be ultimately wound, blocks 18, having arbitrary widths, are provided, said blocks being adapted to be interposed between the reeds and preferably having notched projections 19. The reeds and the blocks are held together by elastic bands 20, which surround said blocks and the adjoining side bars 21 of the frames of the reeds. The frame 13 is mounted on the ends of the brackets *b*, being sustained in slotted guides 13<sup>a</sup>, extending upwardly from said brackets. From the reeds the several series of warp-threads extend to and over a roller 22, having trunnions 23, which are journaled in notched brackets 24, said brackets being provided with bolts 25, which penetrate the slots *d* in the standards, the connection between the brackets and the standards being therefore adjustable. From the roller 22 the warp-threads extend downwardly and around a beam 26, the trunnions 27 of said beam being journaled in the brackets *b* and said beam being of a diameter appreciably greater than that of the roller 22 and being disposed in proximity to said roller and with its trunnions situated, preferably, a greater distance from the frame *a* than are the trunnions 23 of the roller, so that the warp-threads take a decidedly indirect course and so have considerable contact with the beam. From the beam the series of warp-threads extend upwardly and over a glass bar 28, which is set in small brackets 29, that project from the bar *i*. Upon the bar *i* is secured a rod

30, which extends longitudinally thereof and upon which are strung series of externally serrated or grooved tubular guides 31. Each series of warp-threads extends from the glass bar 28 to and over the guides 31, being laid in one of the grooves of the guide and being thereby narrowed down, substantially as shown in Fig. 2. Being disposed beneath the bar *i*, the beam thus offers the maximum surface to the warp.

32 is a frame which is hinged in place opposite one face of the frame 13 and carries a glass bar 33, this device constituting the usual mechanism whereby the threads are lowered or elevated, as necessity requires.

The end of one of the trunnions 27 of the beam 26 carries a worm 34, the threading of which is in engagement with the teeth of a worm-wheel 35, which carries a pinion 36, that is in engagement with a gear 37, and said gear being provided with a pin 38, which strikes a hammer 39 for sounding the gong 40. The gear and the worm-wheel, together with the gong and pinion, are mounted on a plate 41, which projects from one of the brackets *b*. The mechanism just described constitutes one of the usual forms of indicating attachments for machines of this nature.

42 designates a pawl which is pivotally sustained in a vertical extension 43 of the bearing-bracket *l*, and which may be employed when the pull of the warp is very great to obviate any reaction of the mechanism which drives the bobbins.

This machine is adapted especially for the warping of the threads used for the selvage of goods, and it will be seen that after the width of each series of threads has been reduced by the reeds 12 and after said threads have passed around the beam and roller it is further reduced to approximately the width required by the grooved guides 31. When the spools 10 have made two or three revolutions, and therefore two or three layers of threads have been laid one upon the other upon them, we apply strips of paper in such manner that when the next layer is wound on the spools said strips of paper are interposed. This is a very common expedient employed in the operation of warping for preventing the threads as they are laid upon each other from becoming unduly intertwined, so as to prevent them from being subsequently unwound with facility. At the same time it makes it possible to wind a considerable quantity of warp upon the bobbins without moving the latter longitudinally, so as to make use of the whole surface of the bobbin. Further than this it is thought that it is unnecessary to describe the operation of the machine, since it will be readily understood by those who are skilled in the art to which the invention appertains.

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

1. In a warping-machine, the combination,

with the frame, of a warp-receiving means mounted thereon, brackets projecting from said frame and partially sustained thereby, auxiliary supports for said brackets, other  
5 brackets carried by said supports, a roller journaled in said last-named brackets, a beam journaled in said first-named brackets, said beam having a diameter appreciably greater than that of the roller and being disposed be-  
10 neath, and relatively farther from the frame than, the same, and guiding means mounted on said supports approximately vertically above the portion of said beam immediately adjacent the frame, the warp being adapted  
15 to extend over said roller, thence over the beam and thence over the guiding means, substantially as described.

2. In a warping-machine, the combination, with the frame, of a warp-receiving means  
20 mounted thereon, brackets projecting from said frame, adjustable standards auxilially sustaining said brackets, reeds carried by said brackets, other brackets carried by said stand-  
25 ards, a roller journaled in said last-named brackets, a beam journaled in said first-named brackets, said beam having a diameter appreciably greater than that of the roller and being disposed beneath, and farther from the  
30 frame than, the same, and guiding means mounted on said standards, the warp being adapted to extend over said roller, thence over the beam, and thence over the guiding means, substantially as described.

3. In a warping-machine, the combination,  
35 with the frame, of a warp-receiving means

mounted thereon, brackets projecting from said frame, adjustable standards auxilially sustaining said brackets, reeds carried by said brackets, other brackets carried by said stand-  
40 ards, a roller journaled in said last-named brackets, a beam journaled in said first-named brackets, said beam having a diameter appreciably greater than that of the roller and being disposed beneath, and farther from the  
45 frame than, the same, and serrated or grooved guides mounted on said standards, the warp being adapted to extend over said roller, thence over the beam, and thence over the guides, substantially as described.

4. In a warping-machine, the combination  
50 of a frame, reeds removably mounted in said frame in alinement with each other and edge to edge, elastic devices connecting said reeds, and means for maintaining said reeds spaced  
55 against the tension of said elastic devices, substantially as described.

5. In a warping-machine, the combination of a frame, reeds removably mounted in said frame in alinement with each other and edge  
60 to edge, elastic devices connecting said reeds, and blocks adapted to be disposed between said reeds, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 31st day of October, 1899.

CHARLES SLINGLAND.  
GEORGE F. KUETT.

Witnesses:

JOHN MASTERTON,  
JOHN W. STEWARD.