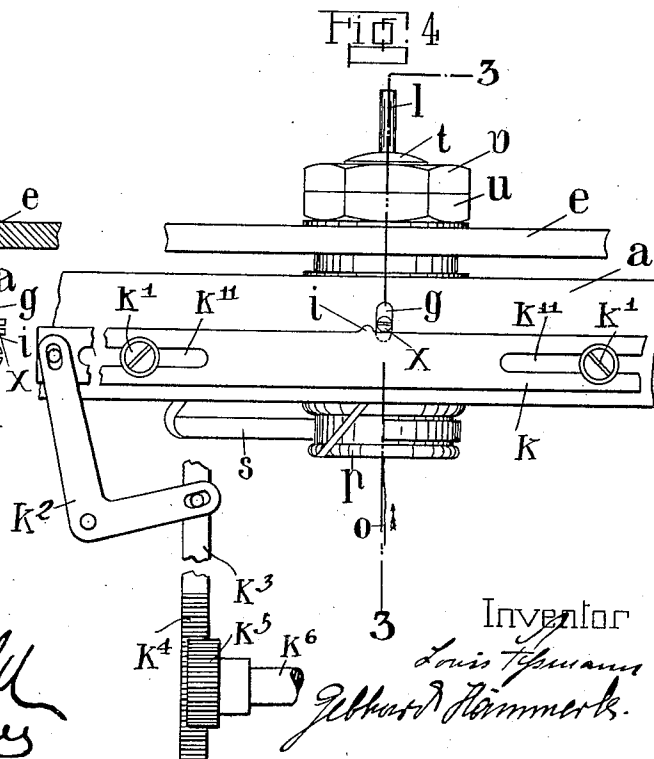
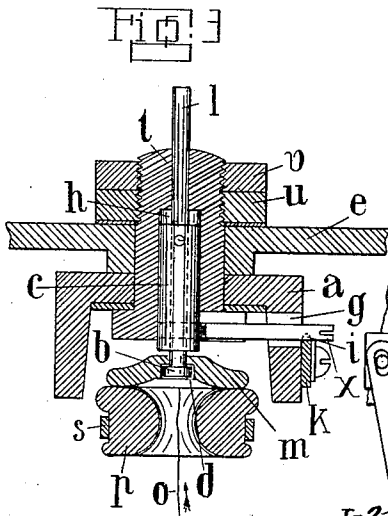
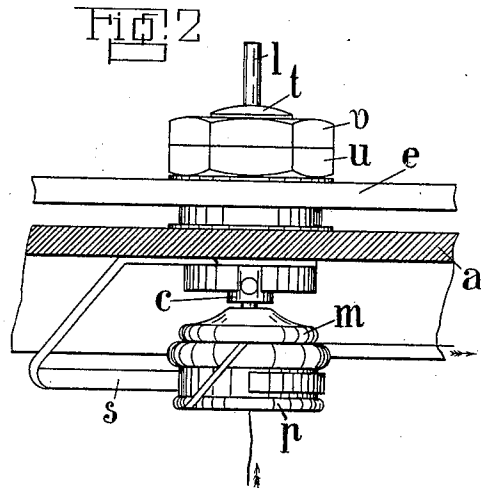
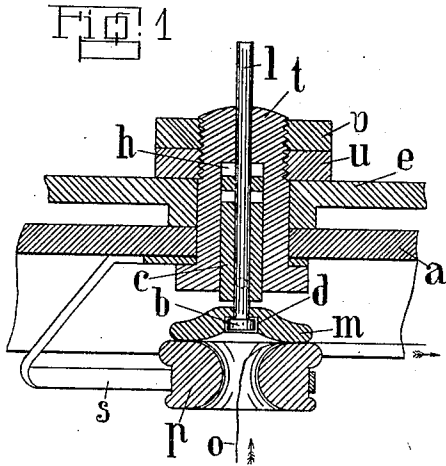


L. FESSMANN & G. HÄMMERLE.
 COMBINED YARN GUIDING, CLEARING, AND TENSION DEVICE FOR WARPING MACHINES, &c.
 APPLICATION FILED NOV. 26, 1909.

1,034,775.

Patented Aug. 6, 1912.



Witnesses

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LOUIS FESSMANN AND GEBHARD HÄMMERLE, OF AUGSBURG, GERMANY.

COMBINED YARN GUIDING, CLEARING, AND TENSION DEVICE FOR WARPING-MACHINES, &c.

1,034,775.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed November 26, 1909. Serial No. 529,956.

To all whom it may concern:

Be it known that we, LOUIS FESSMANN and GEBHARD HÄMMERLE, subjects of the German Emperor, and residing at Augsburg, Germany, have invented certain new and useful Improvements in Combined Yarn Guiding, Clearing, and Tension Devices for Warping-Machines, &c., of which the following is a specification.

Our invention is an improvement in combined yarn-guiding, clearing, and tension devices of the type herein illustrated. Such devices are termed in the art thread-valves or yarn-valves, and have been employed in connection with the bobbin-frame or creels of warping-machines and the like. As heretofore constructed, a device of the said type has comprised, essentially, a glass guide-ring mounted in a holder above a group of supply-bobbins or cops, and a plate resting upon the upper edge or surface of the said ring and upon the yarn or thread which passes over the said surface after passing up through the central opening of the ring, the said plate having combined therewith a stem movable vertically in a guide above the plate and ring, and the plate being thereby held in proper working relations with respect to the ring, while having freedom to rise and fall as variations occur in the thickness of the yarn or thread as it travels through between the ring and plate. We have found in practice that when the plate is connected firmly or rigidly with the stem or guide-pin the results are not altogether satisfactory, inasmuch as a lump, loop, or other enlargement of any of the kinds commonly occurring on yarns or threads acts with a tendency to tilt or incline the plate laterally, in passing between the plate and the ring at one side of the center. When the plate is connected rigidly with the stem or guide-pin the tendency of the latter to cramp and bind in its guide, as a result of the tendency to tilting of the plate, operates to cause the yarn or thread to be clamped and held between plate and ring, so as to become broken by the pull thereon, especially in the case of the larger lumps or other enlargements.

In accordance with our present invention we combine the plate loosely with the stem or guide-pin so as to give the plate freedom for sufficient independent movement with relation to the stem or carrier to permit

every lump or other enlargement of the yarn or thread to pass readily through between the ring and plate.

In the accompanying drawing one constructional form of embodiment of our invention is represented by way of example.

In said drawing:—Figure 1 shows in section the said embodiment of our invention. The guide and adjacent parts, including a portion of the supporting rail or channel bar are in vertical section longitudinally of the said rail. Fig. 2 shows the parts of Fig. 1 mainly in side elevation, the rail or bar being represented in longitudinal section. Fig. 3 shows the guide and adjacent parts in vertical cross-section in the plane indicated by the dotted line 3, 3, of Fig. 4. Fig. 4 shows the parts of Figs. 1 and 2 entirely in side elevation, with the addition of the plate lifting mechanism hereinafter described.

Referring to the drawing, the screw-threaded, flanged member or box *t* occupies an opening made vertically through rail or bar *a* and is secured firmly by means of the nuts *u* and *v* to the said rail or bar *a*. The part *e* shown in the different figures of the drawings is the base of a bobbin or cop-carrier of the bank next above that to which the guide shown pertains, the screw-threaded portion of the member or box *t* passing through a hole in the said base, and the said bobbin or cop-carrier being secured in place by means of the said member or box *t* and the nuts *u* *v*. The box or member *t* is perforated and serves as guide for the stem or guide pin *l* and bushing *c*. The stem or pin is formed or otherwise provided at its bottom end with a collar *b* which fits loosely in a cavity *d* in the under side of the guide plate *m*. This plate is hollowed out or made concave at its bottom side in order that it may rest mainly by its margin upon the top of guide-ring *p* so as to diminish as much as possible the friction of the thread *o* in passing outward between the plate *m* and the ring *p*. The said ring is supported on the frame *a* in known manner by means of a clamp *s*.

The bushing *c* is fixed on the stem or pin *l* by means of a bolt *x*, which extends out through a vertical slot in one depending flange of the rail or channel bar *a*, as shown best in Figs. 3 and 4, the outer end of said bolt projecting over slide *k*, shown in said

figures. The said slide is held to the outer side of the said flange by means of screws k' , k' , the stems of which occupy horizontally-extending slots k^{11} , k^{11} , in the slide.

5 These slots permit the slide to reciprocate lengthwise. Lengthwise reciprocatory movement is communicated to the slide in any convenient manner in practice. We have shown herein, for instance, the slide engaged by one arm of a bell-crank k^2 , the other arm of the said bell-crank being engaged with a vertical bar k^3 , the latter having a rack k^4 engaging a spur-pinion k^5 on a shaft k^6 . Shaft k^6 is, in practice, oscillated, *i. e.*, turned first in one direction and then in the other, by suitable operating connections not necessary to be shown, and thereby the bar k^3 is moved up and down, and through the bell-crank horizontal movement is imparted to the slide k back and forth in the direction of its length. The slide k is formed or provided with a nose or cam i which is caused by the lengthwise reciprocating movement of the slide to pass back and forth beneath the projecting bolt x , and by engagement therewith acts to raise the said bolt, as well as the bushing c , the stem or pin l , and the plate m , thereby producing a periodic lift of the plate m to permit loose particles which have been disengaged from the passing yarn or thread and held by the plate and ring to escape. Sufficient clearance or space is provided for between the upper end of the bushing c and the upper end of the chamber within which such bushing works in the flanged member or box t , to accommodate the lifting movement of the bushing. It will be perceived that plate m is capable of tilting movement relative to the stem or carrier l , and also capable of vertical movement to a certain extent independently thereof.

The loose connection of the plate m with the stem or carrier l forms the subject of claims in our application for United States Letters Patent filed October 30, 1908, Serial No. 460,238.

We claim:—

1. The combination, with a frame and a slide movable thereon, of a clamp attached to the frame, a perforated base carried by said clamp, a perforated box secured in said frame, a guide pin slidable in said box, a bushing in said box attached to said guide pin, a bolt secured to said bushing extending above said slide and adapted to be lifted thereby, and a guide plate connected with said pin and normally resting on said base.

2. The combination, with a frame and a slide movable thereon, of a clamp attached to the frame, a perforated base carried by said clamp, a perforated box secured in said frame, a guide pin passing through said box, a bushing in said box attached to said pin, a bolt secured to said bushing and acting with and adapted to be lifted by said slide, and a guide plate connected with play to said pin and normally resting on said base.

3. The combination, with a frame and a slide movable thereon, of a clamp attached to the frame, a perforated base carried by said clamp, a perforated box secured in said frame, a guide pin passing through said box, a bushing in said box attached to said pin, a bolt secured to said bushing and acting with and adapted to be lifted by said slide, and a guide plate concaved on its bottom side connected with play to said pin and normally resting on said base.

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