W. LISTER.

TENSION APPARATUS FOR YARN WINDING FRAMES AND THE LIKE.

APPLICATION FILED OCT. 27, 1915.

1,211,862. Patented Jan. 9, 1917.

FIG. 1.

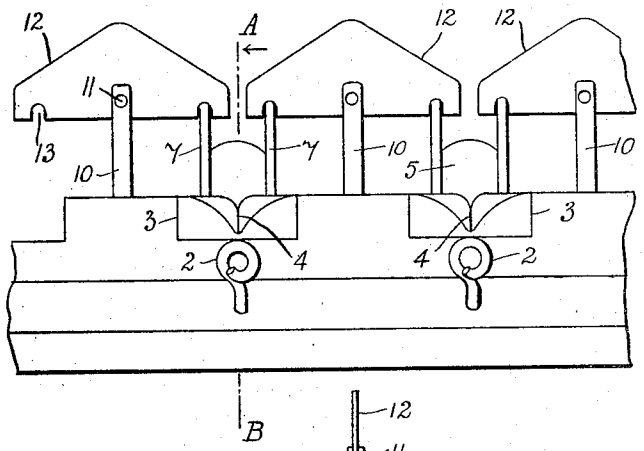


FIG. 2.

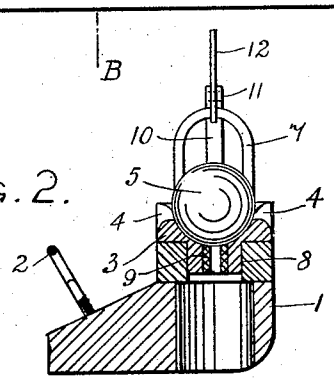
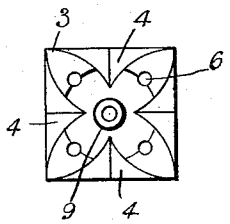


FIG 3



Witnesses:-

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

UNITED STATES PATENT OFFICE.

WILLIAM LISTER, OF NELSON, ENGLAND.

TENSION APPARATUS FOR YARN-WINDING FRAMES AND THE LIKE.

1,211,862. Specification of Letters Patent. Patented Jan. 9, 1917.

Application filed October 27, 1915. Serial No. 58,199.

To all whom it may concern:

Be it known that I, WILLIAM LISTER, a subject of His Majesty the King of Great Britain, residing at Nelson, in the county of York, England, have invented new and useful Improvements in Tension Apparatus for Yarn-Winding Frames and the like, of which the following is a specification.

This invention relates to tension apparatus of the ball drag type for yarn winding frames, gasing frames and the like.

According to my invention, the balls lie in central depressions formed in square or other suitably shaped blocks made of porcelain or other suitable material, and blocks fitting exactly into correspondingly shaped slots or recesses formed in the rail and being held in position therein preferably by means of plugs or circular projections formed on their undersides which plugs fit into holes in the rail. To guide the yarn beneath the balls the blocks are notched at back and front; and to prevent the balls from being lifted out of position they are engaged on two opposite sides by arch shaped pins fitting into holes in the blocks. To lead the yarn between one of a pair of pins and the ball between said pair and thence into position beneath the ball, I may employ vertical triangular or crescent shaped guides rounded at the angles, said guides being secured to the rail in such a position that they normally slightly overlap the pins and thus hold the parts in position. By turning the guides on their attaching screws or the like, however, the pins and thus the balls, and if necessary the blocks in which the balls lie, can readily be removed.

Referring to the accompanying drawings, Figure 1 represents in front elevation a portion of the tension rail, Fig. 2 is a section thereof taken on the line A—B in Fig. 1, and Fig. 3 is a plan of a block detached.

The reference numeral 1 indicates the tension rail, on the sloping back of which are thread guides 2. In recesses on the said rail are placed blocks 3, each having curved or tapering notches or slots 4 for guiding the yarn as it approaches and leaves the ball 5, and four holes 6 for receiving the arched pins or staples 7. Preferably the recesses and blocks are square and the notches on all four sides of the blocks, so that by lifting out the blocks and turning them around to the extent of a quarter of a revolution, a fresh pair of notches can be brought into action the pins 7 being likewise turned at right angles to their previous positions. The foot of each block consists of a circular plug 8 (Fig. 2) adapted to fit into a corresponding hole in the rail; the center of this plug is bored for the reception of a rubber or other like ring or tube 9, which projects above the surface of the central cup of the block 3 preferably only to the extent of the thickness of the yarn, and forms a seat for the ball 5. The ball being thus practically in contact with the block over a large portion, say one-third, of its surface, except in so far as the ball is lifted clear by the yarn, the yarn is braked throughout its passage through the cup, and the ball only rests on or makes effective contact with the tube 9 when an end breaks, when in consequence of the clinging nature of the tube 9 the speed of rotation of the ball is immediately checked and quickly stops the passage of the yarn; it also tends to prevent the ball from rattling. To the pillars 10, which are screwed or otherwise rotatable in the rail, are pivoted at 11 vertical guides 12, which may be of any suitable shape, for example approximately triangular as shown, and provided with notches 13 adapted to engage the tops of the arched pins 7. The guides 12 might, if suitably shaped, be connected directly to the rail instead of by pillars 10; they are turned at right angles, that is across the rail instead of along the rail, when it is required to insert or remove the pins, balls or blocks as aforesaid.

I claim as my invention:—

In tension apparatus of the ball drag type for yarn winding frames and the like, a notched block forming a seat for the ball and having a central downwardly directed opening lined with a ring or tube of a resilient material such as rubber.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM LISTER.

Witnesses:

ERNOLD SIMPSON MOODLY,

MALCOLM SMETHURST.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."