April 14, 1942. R. HARGREAVES ET AL 2,279,785

MEANS FOR VERTICALLY POSITIONING A SPINNING OR TWISTER RING

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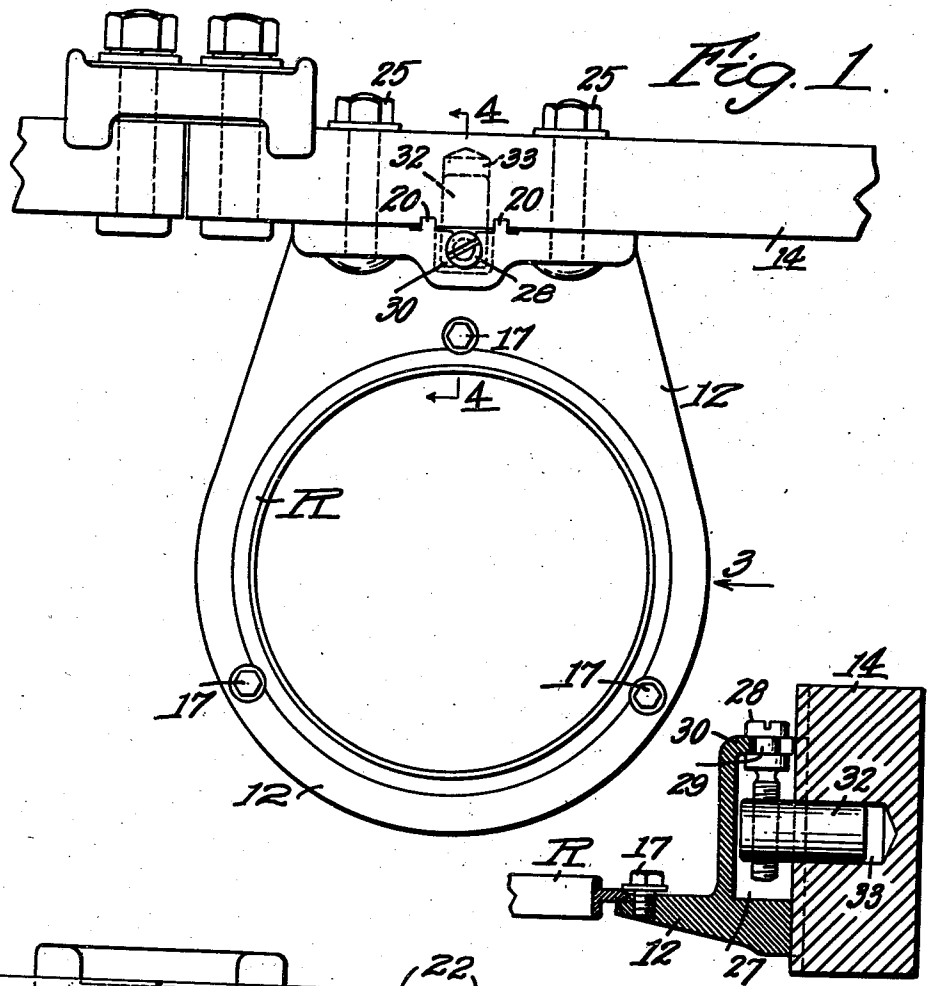

Fig. 1.

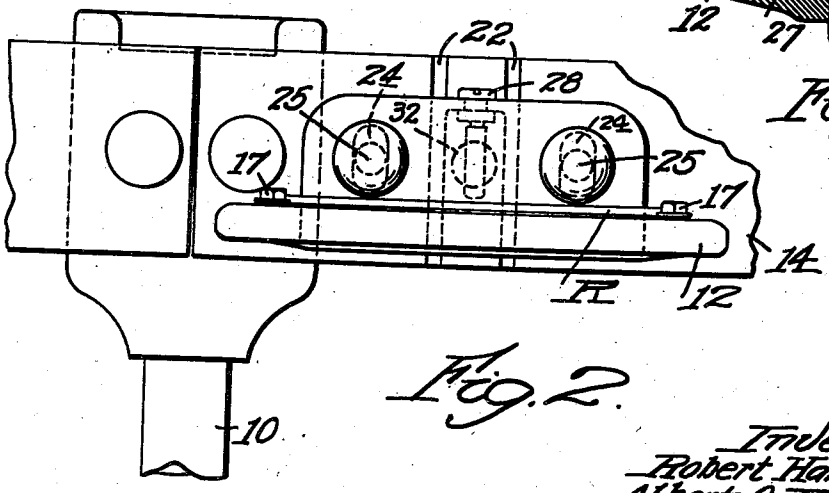

Fig. 4.

Fig. 2.

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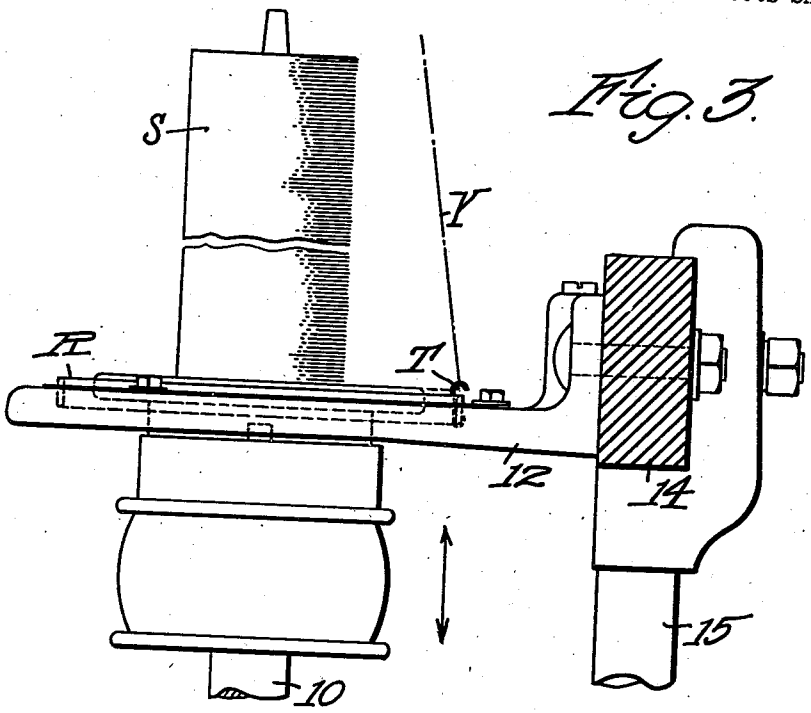
Fig. 3.



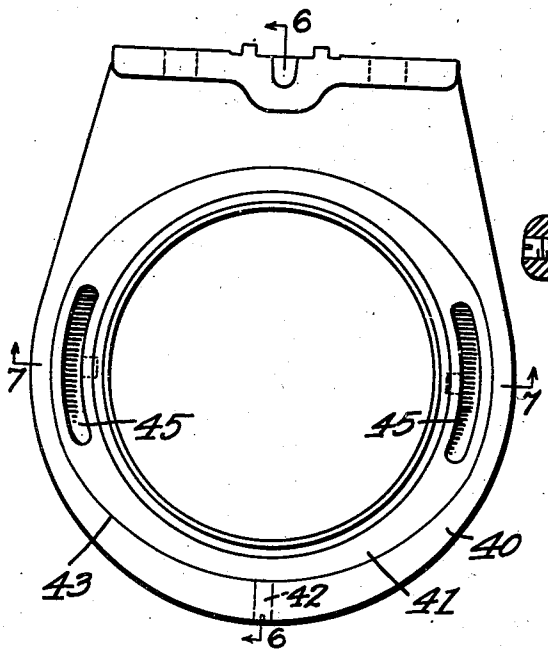


Fig. 5.

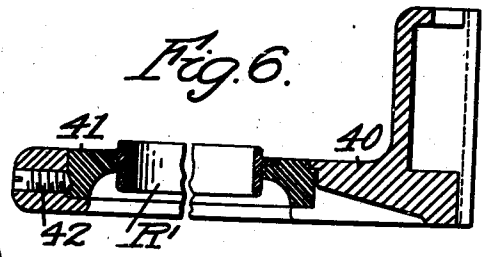


Fig. 6.

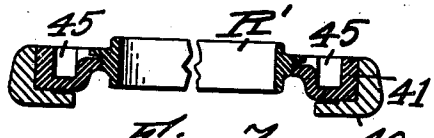


Fig. 7.

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MEANS FOR VERTICALLY POSITIONING SPINNING OR TWISTER RINGS

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Application March 10, 1941, Serial No. 382,498

7 Claims. (Cl. 57—137)

This invention relates to ring spinning and ring twisting machines in which the spun or twisted yarn is wound on a rotated spool or bobbin. Where a spool or bobbin is used which has a lower head or flange, it is important that the ring and spool coact in accurate and predetermined vertical relation, in order that the lower end of the yarn body may be so formed with relation to the flange or head that the thread will not catch or break when unwinding therefrom. This is particularly important where rayon or other synthetic fibres are used to form the yarn.

It is found that spool heads or flanges vary substantially in thickness, so that relative vertical adjustment between the spool-supporting spindle and the spinning or twisting ring is desirable, in order to establish and maintain correct vertical winding relationship.

To the accomplishment of this result, it is the general object of our invention to provide an improved construction by which the spinning or twister ring may be vertically adjusted relative to the spool-supporting spindle.

A further object is to provide a construction in which the ring is held from angular displacement relative to its horizontal plane during such vertical adjustment.

Our invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

Preferred forms of our invention are shown in the drawings, in which

Fig. 1 is a plan view of portions of a ring twister embodying our improvements;

Fig. 2 is a front elevation thereof;

Fig. 3 is a side elevation, looking in the direction of the arrow 3 in Fig. 1;

Fig. 4 is a sectional side elevation, taken along the line 4—4 in Fig. 1;

Fig. 5 is a plan view of a modified construction;

Fig. 6 is a sectional side elevation thereof, taken along the line 6—6 in Fig. 5; and

Fig. 7 is a sectional front elevation, taken along the line 7—7 in Fig. 5.

Referring to Fig. 3, we have shown a twister spindle 10 and a spool S, mounted for rotation within a twister ring R. The yarn Y is guided by a traveler T rotatable on the ring R in the usual manner, and is wound on the spool S by the drag of the traveler. The ring R is mounted in a bracket 12 which is secured against the vertical front face of a ring rail 14, which is mounted in the usual manner on rail supports 15.

Any usual provision may be made for effecting relative vertical movement between the spindle and spool on the one hand, and the ring rail and ring on the other. It is immaterial for the purposes of our invention whether the ring rail supports 15 are vertically reciprocated, or whether the spindles 10 are mounted for vertical movement with a movable spindle rail (not shown).

Our invention relates particularly to the means for mounting the ring R on the ring rail 14 and for providing vertical adjustment of the ring relative to the rail. The ring R is seated in a circumferential recess in the upper face of the bracket 12 and is secured therein by a plurality of screws 17. The rear face of the bracket 12 is provided with parallel ribs 20 (Fig. 1) which are vertically slidable in corresponding grooves 22 (Fig. 2) in the front face of the ring rail 14. The bracket 12 is slotted as indicated at 24 in Fig. 2 to receive clamping bolts 25 (Fig. 1) by which the vertical adjustment of the bracket relative to the ring rail may be retained.

In order to provide accurate vertical adjustment for the bracket 12, we form the bracket with a recess 27 (Fig 4) in its vertical flange portion and we provide an adjusting screw 28 having a flanged neck portion 29 adapted to be received in a slot in the upper end wall 30 of the recess 27.

A plug 32 is mounted in a horizontal opening 33 in the ring rail 14 and is threaded to receive the screw 28. By loosening the bolts 25 and turning the screw 28, the bracket 12 may be easily and accurately adjusted vertically relative to the rail 14, after which the bolts 25 may be tightened to preserve the adjustment.

The construction thus described provides a simple and reliable means for vertically adjusting each ring R and bracket 12 relative to the ring rail 14. The ribs 20 on the brackets 12 prevent angular displacement of the brackets and the broad flat engaging surfaces of the bracket 12 and ring rail 14 maintain the ring at all times parallel with its initial horizontal position. All of the rings are thus accurately maintained in the same horizontal plane or parallel thereto.

The rings R may thus be very easily adjusted relative to the spindles 10 to correspond to the particular thickness of spool head or flange in use at a given time. In Figs. 5, 6 and 7, we have shown a slightly modified construction in which the ring R' is not mounted directly in the bracket 40 but is mounted in a retainer 41, which in turn is secured in the bracket 40 by a binding screw 42. The outer surface of the retainer is preferably elliptical in outline, as shown in Fig. 5, and

the corresponding recess 43 in the bracket is also elliptical. This elliptical outline is adopted to provide space at the opposite ends of the long diameter of the ellipse for oil recesses 45 (Fig. 7) from which the ring R' may be slightly lubricated during the operation of the machine.

Except as above described, the bracket 40 is similar in construction to the bracket 12 and is similarly effective in providing accurate and convenient vertical adjustment for the ring R' relative to its ring rail.

In practice, it is customary to form the brackets 12 or 40 of aluminum or some other light but rigid metal so as to reduce the load on the ring rail. This is particularly important if the ring rail is vertically reciprocated.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what we claim is:

1. In a machine for making yarn, a ring, a ring rail having an extended vertical supporting surface, a bracket providing a support for said ring and having an extended vertical attaching surface, means to move said bracket vertically relative to said rail, and means to clamp said bracket and rail together with said vertical surfaces abutting and firmly engaging.

2. In a machine for making yarn, a ring, a ring rail having an extended vertical supporting surface, a bracket providing a support for said ring and having an extended vertical attaching surface, means to guide said bracket for straight line vertical movement relative to said rail, means to move said bracket vertically, and means to clamp said bracket and rail together with said vertical surfaces abutting and firmly engaging.

3. In a machine for making yarn, a ring, a ring rail having an extended vertical supporting surface, a bracket providing a support for said ring and having an extended vertical attaching surface, coacting ribs and grooves on said bracket and rail effective to guide said bracket for straight line vertical movement relative to said rail, means to move said bracket vertically, and means to clamp said bracket and rail together with said vertical surfaces abutting and firmly engaging.

4. In a machine for making yarn, a ring, a ring rail having an extended vertical supporting surface, a bracket providing a support for said ring and having an extended vertical attaching surface, an adjusting screw mounted for rotation in said bracket but held from axial movement therein, a member seated in said rail and transversely threaded to receive said screw, said bracket being shiftable vertically relative to said rail by rotation of said screw, and means to clamp said bracket and rail together with said vertical surfaces abutting and firmly engaging.

5. In a machine for making yarn, a ring, a ring rail having an extended vertical supporting surface, a bracket having a vertical rear flange and having an elliptical opening in its horizontal portion, a retainer in which said ring is mounted, said retainer being elliptical in peripheral outline and being seated in said elliptical opening, means to hold said retainer in said bracket, and means to secure the vertical flange of said bracket against the vertical supporting surface of said ring rail.

6. The combination in a machine for making yarn as set forth in claim 5, in which the elliptical retainer is provided with recesses in its upper surface at opposite ends of its long diameter to receive a lubricant for said ring.

7. In a machine for making yarn, a ring, a ring holder, a ring rail, means to clamp said holder to said rail, and screw-adjusting means to change the vertical relationship of said ring and holder to said rail.

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