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SPINDLE ADJUSTING MEANS

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Fig. 1.

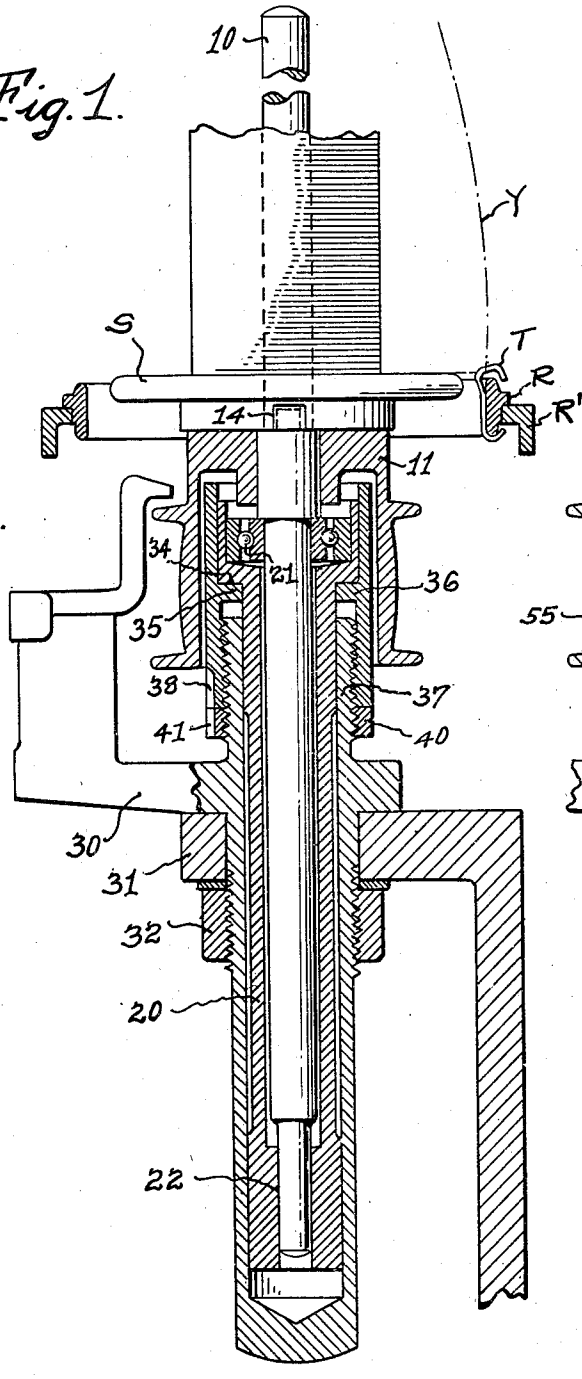
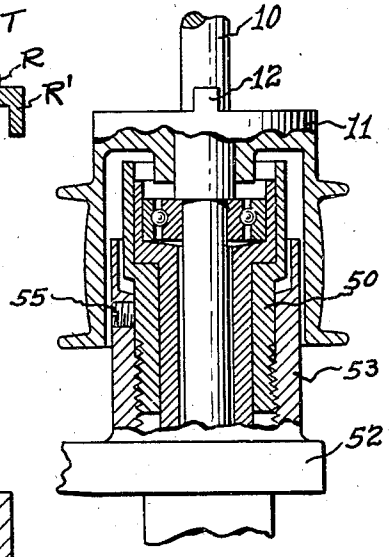


Fig. 2.



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SPINDLE ADJUSTING MEANS

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4 Claims. (Cl. 57—135)

1

This invention relates to spindles on which spools are supported and rotated during a twisting and winding operation. It is essential that such spools be so positioned vertically that the lower limit of yarn travel will substantially coincide with the upper face of the lower flange of the spool. Otherwise the yarn mass may be formed with an irregular lower end and the yarn may be broken or snarled on unwinding. This is particularly liable to occur with rayon or other smooth synthetic yarns.

It is the general object of my invention to secure such relative positioning by providing means for vertically adjusting the spindle blade and its bolster bearing relative to the fixed bolster case or spindle base.

A further object is to provide vertical adjustment in such form that oil leakage may be effectually prevented.

My 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 the invention are shown in the drawing, in which

Fig. 1 is a sectional side elevation of a spindle embodying my invention; and

Fig. 2 is a similar view showing a slight modification.

Referring to Fig. 1, my improved spindle comprises a blade 10 having a belt-driven whirl 11 on which a spool S is supported. The whirl 11 has a lug 12 engaging a notch 14 in the spool S and thus providing for positive rotation of the spool by the whirl. The yarn Y is directed to the spool S through a traveller T on a twister ring R in a vertically movable ring rail R'. All of the parts thus far described are of the usual form and in themselves form no part of my present invention.

The spindle blade 10 extends downward into a bolster 20, in which it is supported by an upper ball bearing 21 and a lower plain bearing 22. The bolster 20 is mounted in a bolster case or spindle base 30 secured in a spindle rail 31 by a clamping nut 32. The bolster 20 is vertically slidable in the base 30 and is provided with a shoulder 34 which rests on an internal flange 35 in a tubular bolster support 36.

The support 36 has threaded engagement with an upward extension 37 of the spindle base 30 and is provided with one or more vertical slots 38 to which a spanner may be applied for vertically adjusting the support 36. A lock nut 40 is also threaded on the upward extension 37

2

and is similarly slotted at 41 for application of a spanner.

With this construction, vertical adjustment of the blade 10, bolster 20 and spool S relative to the base 30 and spindle rail 3. is easily accomplished by turning the bolster support 36 on the threaded spindle base extension 37 to raise or lower the support and the parts carried thereby. After satisfactory adjustment is secured, the adjustment is retained by tightening the lock nut 40.

With this construction, the only rotating parts of the spindle are the blade 10 and whirl 11 which are always carefully machined and balanced. None of the additional parts provided for adjustment are rotated except for adjustment and so do not require running balance. The close fit of the threads after the lock nut is tightened makes oil leakage very improbable and should any slight leakage occur, it may be stopped by application of a nonhardening cement to the extension 37 below the lock nut 40.

In the construction shown in Fig. 2, the bolster support 50 is externally threaded and the spindle base 52 is provided with a tubular upward extension 53 having corresponding internal threads. In this construction, the bolster support 50 may be easily grasped and turned for vertical adjustment after the blade 10 and whirl 11 have been removed. The adjustment may then be retained by tightening a set screw 55.

With both forms of my invention, vertical adjustment of the spool S relative to the travel of the ring R is easily and quickly accomplished and the adjustment once made will be reliably retained.

While the invention is shown as applied to a twisting frame having a fixed spindle rail and a movable ring rail, it is obviously equally applicable to the reverse arrangement of fixed ring rail and movable spindle rail.

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

1. A textile spindle comprising a rotated blade, means to support a spool thereon, a bolster bearing for said blade, a spindle base, a support for said bolster bearing, and means to shift said bolster support vertically on said spindle base.

2. A textile spindle comprising a rotated blade, means to support a spool thereon, a bolster bearing for said blade, a spindle base, a support for said bolster bearing, means to shift said bolster support vertically on said spindle base, and lock-

ing means to retain said support in a selected vertical position.

3. A textile spindle comprising a rotated blade, means to support a spool thereon, a bolster bearing for said blade, a spindle base, a support for said bolster bearing, and a threaded connection between said support and said base for adjusting said support vertically relative to said base.

4. A textile spindle comprising a rotated blade, means to support a spool thereon, a bolster bearing for said blade, a spindle base, a support for said bolster bearing, said support having a tubular threaded portion and said base having a tubular upward extension threaded to receive said support for vertical adjustment thereon, and locking means to retain such adjustment.

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