March 8, 1960 E. MAURER 2,927,349

DRAWING TOP ROLLS FOR RING SPINNING FRAMES

Filed July 8, 1954

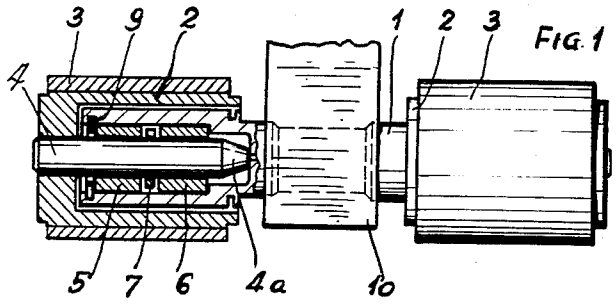


FIG. 1

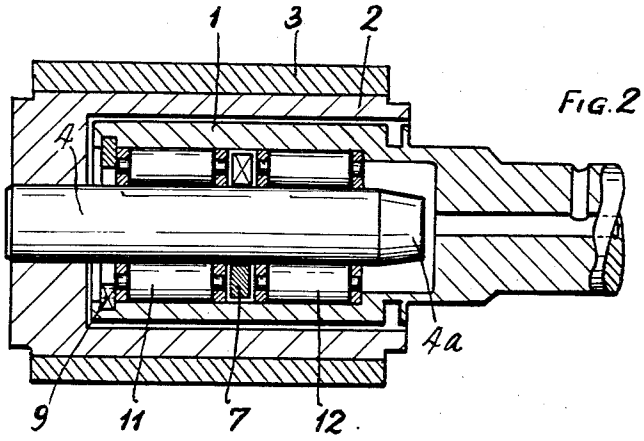


FIG. 2

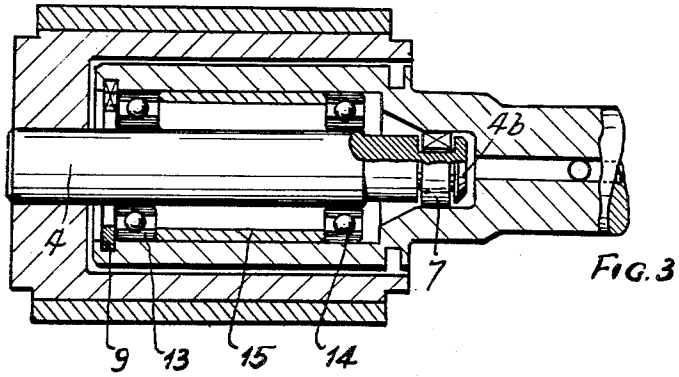


FIG. 3

Inventor: Eugen Maurer
by Eric B. Franke, Atty

United States Patent Office 2,927,349 Patented Mar. 8, 1960

2,927,349

DRAWING TOP ROLLS FOR RING SPINNING FRAMES

Eugen Maurer, Murrhardt, Germany, assignor to Rollenlager-Spindelfabrik "Spintex" G.m.b.H., Stuttgart-Bad Cannstatt, Germany

Application July 8, 1954, Serial No. 442,025

1 Claim. (Cl. 19—142)

This invention relates to and has for its object to provide an improvement in top rolls for drawing systems of ring spinning frames including means for preventing unwanted axial wandering of the top roll on the roll holder, as disclosed in the co-pending patent application now Patent No. 2,873,484, dated February 17, 1959.

It is known to secure the top rolls (loose boss type) by means of thrust collars which are drawn on the roll holder.

The primary object of the present invention is to provide a substantially more easily releasable connection between the top roll and the roll holder.

A further object of the present invention is to provide a top roll of simple and economic construction which for the purpose of fly removal may conveniently be removed by hand with relatively little effort on the part of the operator.

To this end a feature of the present invention resides in having a resilient retaining ring, which can be contracted or expanded, mounted with tension on the cylindrical portion of a journal rigidly secured in the roll body or casing. The retaining ring being mounted from the free coni-form end of said journal so as to be located between two bearing bushings provided in the roll holder and serves as a retaining shoulder for the top roll supported on the roll holder to thereby prevent the top roll from axial wandering in relation to the roll holder.

According to a further feature of the present invention the resilient retaining ring is mounted in an annular groove provided in the free end of the journal fixedly secured in the roll body such that when said retaining ring is expanded it is circumferentially in abutting engagement with the inside wall of the roll holder bore.

As compared with other known retaining means, the present invention affords the advantage that the top roll can be removed from the roll holder and remounted thereon by hand with but little effort when fly is to be removed from the top roll support. Most surprisingly the invention provides at the same time such an effective and powerful frictional connection between the retaining ring and the roll holder and top roll respectively that the axial forces occurring in operation and effecting that the parts abut against each other are securely taken up.

Other objects and features of the invention will become apparent from the following description taken in connection with the accompanying drawings which illustrate specific embodiments of the invention. On the drawings:

Fig. 1 is a sectional elevation of a top roll illustrating the invention, and

Figs. 2 and 3 are fragmentary sectional views showing the arrangement of the retaining ring.

In the drawings like references indicate the same or similar parts.

Referring now to the drawings it will be seen that the principal parts of the invention illustrated in Figs. 1 to 3 include a roll holder 1 and a top roll composed of a body

or casing 2, a lining 3 and a journal 4 rigidly secured in the casing 2.

In the form of the invention illustrated in Figs. 1, 2 and 3 two bearings (Fig. 1 bearing bushings 5, 6, Fig. 2 needle roller bearings 11, 12, Fig. 3 ball bearings 13, 14 with distance sleeve 15) and a contractable resilient retaining ring 7 are mounted in the annular space between roll holder 1 and journal 4. The numeral 10 in Fig. 1 indicates an arm holding the top rolls. In operation, the thrust load exerted on the top roll is not as great as the frictional contact between the retaining ring 7 and the journal 4. But the frictional contact, on the other hand, is so little that it can be released with relatively little effort when it is desired to remove the top roll from the roll holder 1 by hand. Removal of the top roll from the roll holder is now and then necessary in order to remove fly from the top roll.

The free end 4*a* of the journal 4 is tapered so as to facilitate the mounting of the retaining ring 7 on the cylindrical portion thereof. The portion 9 is a radial elastic washer. As illustrated in Fig. 2, the elastic retaining ring 7 is mounted within the annular space between a pair of needle bearings 11 and 12.

As shown in the form of the invention according to Fig. 3, the retaining ring 7 may also be mounted in an annular groove provided near the free end 4*b* of the journal 4. It bears then, when expanded, with initial tension against the inside wall of the roll holder bore. In this embodiment, the retaining ring is provided in conjunction with roller bearings 13, 14 and a spacer sleeve 15 therebetween.

The retaining ring 7 itself is a well known structural part. It can be expanded or contracted and it is so slit and has such dimensions that it may be securely seated on, or in, one of the structural parts to be secured against another while at the same time permitting the other part to run unimpeded.

It will be obvious that various modifications may be made in the embodiments above described without in any way departing from the spirit of the invention as defined in the appended claim.

What I claim is:

In a top roll for drawing systems of ring spinning frames, the combination of a hollow cylindrical roll holder, a casing having an axial cylindrical bore, the latter receiving said roll holder, a lining for said casing disposed on the outer periphery of the latter, a journal mounted in two needle bearings in said roll holder, said two needle bearings defining an annular space between the same, said journal having a free end and being rigidly secured with its other end in said casing and a contractable resilient retaining ring mounted with tension within the annular space on the cylindrical portion of said journal between said bearings, said free end of said journal being tapered and said retaining ring serving as retaining shoulder for said top roll so as to prevent the latter from axial wandering in relation to said roll holder.

References Cited in the file of this patent

UNITED STATES PATENTS

2,150,796	Brouwer et al.	Mar. 14, 1939
2,621,374	Waite	Dec. 16, 1952
2,873,484	Maurer	Feb. 17, 1959

FOREIGN PATENTS

434,481	Italy	Apr. 27, 1948
870,115	France	Dec. 5, 1941
884,584	France	Apr. 27, 1943
907,273	Germany	June 7, 1956