

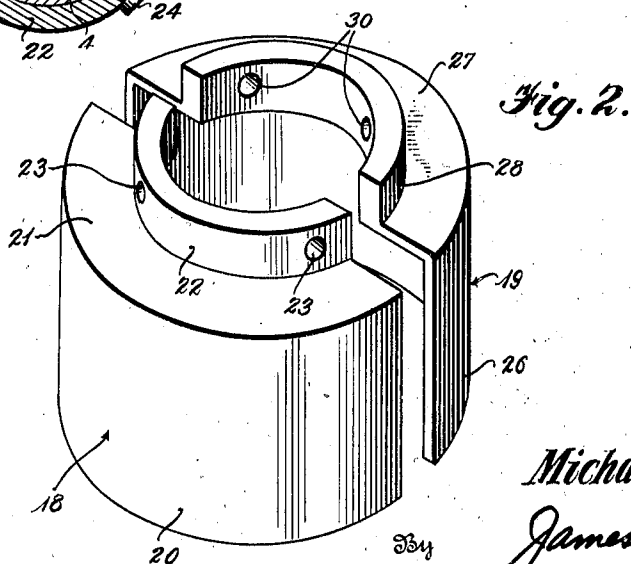
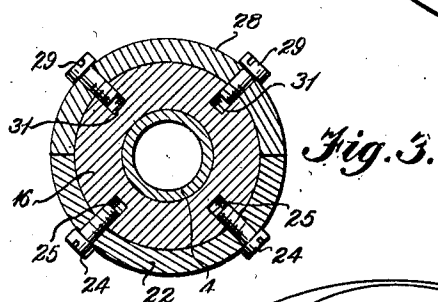
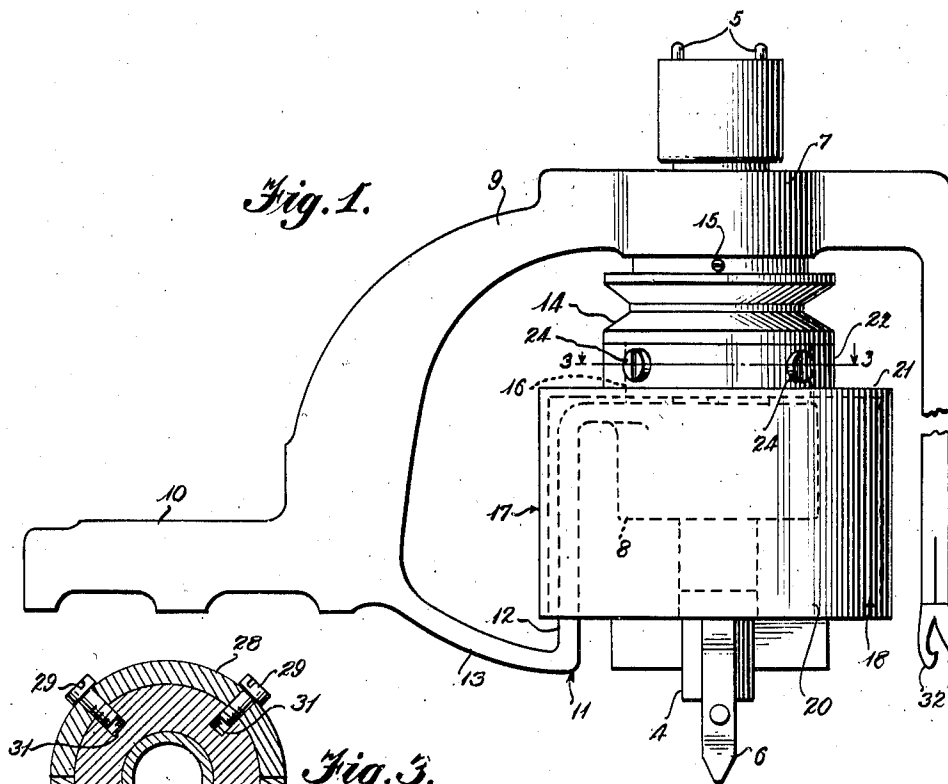
May 23, 1944.

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2,349,512

TWISTER TUBE ASSEMBLY FOR SPINNING MACHINES

Filed Oct. 2, 1943



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2,349,512

TWISTER TUBE ASSEMBLY FOR SPINNING MACHINES

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Application October 2, 1943, Serial No. 504,769

2 Claims. (Cl. 57-128)

This invention relates to an improvement in twister tube assemblies for spinning machines. More particularly, the invention relates to the provision in such assemblies of a bearing protector sleeve for preventing dust, lint or yarn from gaining access to the bearing means for the tube.

The invention is here illustrated in connection with a twister tube assembly for imparting a false twist to the roving during the drawing operation of a spinning frame. In such assemblies, a twister tube is rapidly rotated in appropriate bearings and the roving is drawn through the tube which is provided with appropriate means for inducing a false twist in the roving. A great deal of difficulty has been encountered with such assemblies during the spinning of wool yarns due to the fact that lint or short fibers, as well as dust, obtain access to the bearings in which the tube rotates. This foreign matter in the bearings greatly increases the frictional resistance to rotation of the tube. It has frequently happened that sufficient foreign matter has accumulated in the bearings to entirely prevent rotation of the tube. When the tube has thus ceased to perform its function, it has been necessary to take the machine out of production until the tube assembly could be dismantled and the bearings cleaned.

I have found the difficulty mentioned above to be due almost entirely to the accumulation of foreign matter in the lower bearing of the tube, that is the bearing below the pulley by which the tube is driven. In many instances in which the tube has actually stopped rotating due to accumulation of foreign matter in the lower bearing, I have found the upper bearing to be clean and free.

Having in mind the above mentioned difficulty, it is an object of the present invention to provide a protector sleeve for the lower tube bearing of a twister tube assembly which prevents the accumulation of foreign matter in that bearing.

A further object of the present invention is to provide a bearing protector sleeve which does not interfere with the facility or accuracy of adjustment of a twister tube relative to the draft rolls.

Still a further object of the invention is to provide a bearing protector sleeve for the lower bearing of a twister tube assembly which can be readily mounted on or dismantled from the assembly without disturbing the adjustment of the tube.

Other objects and advantages of the invention will be apparent from the following detailed

description, which has reference to the accompanying drawing, in which:

Figure 1 is a side elevational view of a twister tube assembly with the bearing sleeve protector thereon;

Figure 2 is a perspective view of the sections of the bearing sleeve protector; and

Figure 3 is a sectional view on the line 3-3 of Figure 1.

In the drawing, there is shown only so much of the assembly as is necessary for a clear understanding of the invention. The reference numeral 4 designates a twister tube provided with pins 5 at its upper end and a jaw assembly 6 at its lower end. Such a tube is conventional in the art and need not be described in further detail although reference may be had to United States Patent No. 983,641, of February 7, 1911, to Durell O. Pease, for a disclosure of the principle of operation of such a tube.

The tube 4 is rotatably mounted in vertically spaced bearings, the upper bearing being designated by the reference numeral 7 and the lower bearing by the numeral 8. The upper bearing 7 is supported by an arm 9 of a bracket 10. The lower bearing 8 is supported by a second arm of the bracket, this second arm being designated generally by the reference character 11. The arm 11 has a portion 12 which extends vertically downward from the side of the bearing 8 to the generally laterally extending portion 13.

A pulley 14 is mounted on the tube 4 between the bearings 7 and 8. To permit vertical adjustment of the tube there is provided a set screw 15. This set screw also permits the tube to be rotated by the pulley.

The lower end of the pulley 14 is provided with a depending flange 16 to which the bearing protector sleeve is secured. The sleeve is designated generally by the reference numeral 17 and, as shown (see Figure 2), is composed of two arcuate sections 18 and 19, which, when assembled on the flange 16, form a generally bell-shaped member which extends over and covers the lower bearing 8. The sleeve 17 may be made up of three or more arcuate sections although I have found two to be the preferable number.

The arcuate section 18 is provided with a skirt portion 20, a shoulder portion 21, which extends inwardly from the skirt portion, and a neck portion 22 by which the arcuate section is attached to the flange 16 on the pulley 14. The neck portion 22 has drilled holes 23 for studs 24, which are threaded into drilled and tapped holes 25 in the flange 16. The section 19 is likewise provided

with a skirt portion 25, a shoulder portion 27 and an attaching neck portion 28. Studs 29 extend through drilled holes 30 in the neck portion 28 and into tapped holes 31 in the flange 16. The arcuate sections 18 and 19 are thus independently secured to the flange 16 and are, of course, independently removable from that flange.

As clearly shown in Figure 1, the bell shaped protector sleeve 17 also surrounds the downwardly extending portion 12 of the bracket arm 11. By this arrangement, the bracket arm does not interfere with free rotation of the sleeve 17 as it rotates with the tube 4 and pulley 14. The yarn guide 32 extends downwardly from the upper bearing 7 and adequate clearance is provided with the outer periphery of the sleeve 17.

It is necessary that the tube 4 be adjustable vertically in order to properly position the jaw assembly 6 relative to the draft rolls (not shown). To accomplish this, it is necessary to loosen the set screw 15 so that the tube may move axially of the pulley, but it will be apparent that the sleeve 17 does not interfere with this operation. The pulley 14 may be entirely removed from the assembly by merely withdrawing the tube 4 therefrom and removing either of the sections 18 or 19 of the sleeve 17 from the flange 16. The sections of the sleeve 17 may be removed from the pulley 14 without disturbing the adjustment of the tube 4, by merely removing the studs 24 and 29.

Various changes may be made in the described arrangement without departing from the essential features of the invention, as described in the following claims.

5 Having thus described my invention, I claim:

1. In a twister tube assembly for spinning machines, a twister tube, spaced upper and lower bearings rotatably supporting said tube, a pulley on said tube between said upper and lower bearings, a depending flange on said pulley, a bell-shaped bearing protector sleeve secured to said flange and extending downwardly over said lower bearing, said sleeve comprising a plurality of arcuate sections independently secured to said flange.

2. In a twister tube assembly for spinning machines, a twister tube, upper and lower bearings rotatably supporting said tube, bracket means supporting and maintaining said upper and lower bearings in spaced relationship, the portion of said bracket means which supports said lower bearing extending downwardly a substantial distance below the upper end of said lower bearing, a pulley on said tube between said upper and lower bearings, a depending flange on said pulley, and a bell-shaped bearing protector sleeve removably secured to said flange and extending downwardly to cover said lower bearing and said downwardly extending portion of said bracket means.

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