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SPINNING RING

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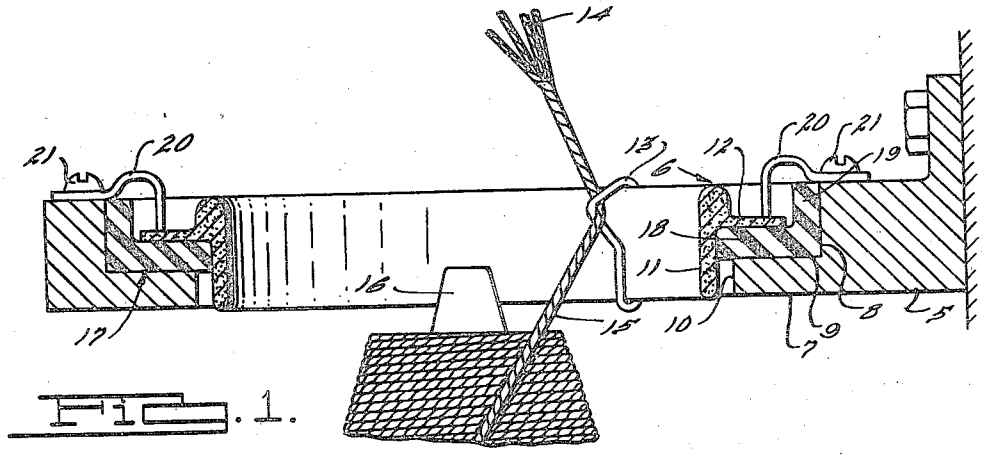



Fig. 1.

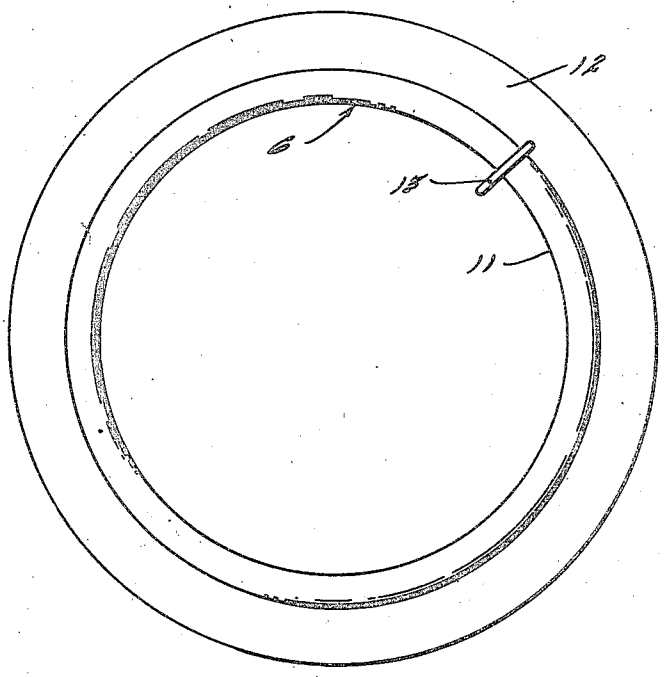



Fig. 2.

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## SPINNING RING

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6 Claims. (Cl. 57—120)

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This invention relates to improvements in spinning and twisting rings employed in the textile industry to support and/or guide a traveler for revolving movement thereabout.

As is well known, the traveler moves around the spinner or twister at a relatively high speed and the contacting surfaces, particularly those of the traveler, will readily wear away unless properly lubricated. Lubricant supplied to the ring should be uniformly distributed to the surfaces thereof engaged by the traveler and should be confined to the ring.

An object of the invention is the provision of a spinner or twister ring in which lubricant is uniformly supplied to all surfaces thereof engaged by the traveler; and to provide an assembly wherein such ring is so isolated from its support that lubricant supplied to the ring is effectively confined thereto and cannot gain access to other portions of the assembly including the support.

In carrying out the foregoing the spinner or twister ring has a porosity sufficient to transmit lubricant by capillary action and to exude the same at the surfaces of the ring; and there is provided a seal between the ring and support which prevents the transmission of lubricant therebetween and serves as a means for mounting the ring on its support. The combined seal and mounting is impervious to lubricant, will not appreciably deteriorate in the presence thereof, and preferably should have an inherent resiliency which will facilitate sealing engagement in response to a compressive force. More specifically, the same may be formed from a material having the characteristics of rubber.

A further object of the invention is the provision of a seal between the spinner or twister ring and its support which prevents the movement of lubricant therebetween and which also functions in conjunction with the ring to provide an open reservoir with a part of the ring at the bottom of the latter adapted to receive lubricant for transmission by capillary action to those surfaces of the ring engaged by the traveler.

Other objects and advantages of the invention will be more apparent from the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a diammetrical section of a ring and rail assembly embodying the invention.

Fig. 2 is a top plan view of the ring shown in Fig. 1.

Referring to the drawings, a ring rail of a spinning or twisting frame as employed in the

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textile industry is indicated by the numeral 5, such rail having one or more openings therein for the reception of a ring 6. The invention is applicable to either spinning or twisting rings and the same are hereinafter referred to in a generic sense as a "spinner" ring or rings.

Each opening in the ring rail 5 includes a radially inwardly extending flange 7 and is bounded by an annular axially extending wall 8, an annular radially extending wall 9 and a second annular axially extending wall 10 at the free end of the flange 7. The ring 6 includes a main body part 11 and an annular radially outwardly extending flange 12 disposed in overlapping relationship with the flange 7. While I have shown the ring 6 mounted directly in the opening of the rail 5, nevertheless, if desired the ring may be mounted in an adaptor or holder in the same manner as shown for the direct mounting and such holder or adaptor may be bolted or otherwise secured to the rail. The ring is thus supported directly from the rail or indirectly therefrom when either adaptor or holder is used.

The ring 6 guides a traveler 13 for relatively high speed revolving movement thereabout, the traveler being of the type which hooks over and engages the upper and lower edges of the ring 6. When employed as particularly illustrated the ring serves to impart a twist to a plurality of strands 14, the twisted strands 15 being wound onto a rotating spool 16. It is desirable to minimize the friction between the traveler 13 and the surfaces of the ring 6 engaged thereby and for this purpose lubricant should be supplied to such surfaces in quantity sufficient to prevent frictional wear, especially of the traveler.

With the foregoing in mind, the ring 6 is preferably formed from a mass of sintered metallic particles and has a degree of porosity sufficient to absorb lubricant and to transmit the same by capillary action. In general, the metallic particles are briquetted under relatively high pressure to produce a ring of substantially the desired shape and dimensions and the briquette is then sintered in a non-oxidizing atmosphere to cause the particles to adhere together and thus provide a relatively high strength porous body. The porosity may be varied by varying the size and shape of the particles and by varying the briquetting pressure. The ring may be hardened, particularly at those surfaces thereof engaged by the traveler, by any well known method or process, for example by nitriting.

While I prefer to use ferrous metal particles, either alone or in combination with copper or tin

particles, nevertheless other metals or combinations thereof, such as copper and tin may be used. For example, a mixture of 90 parts iron and 10 parts copper or tin by weight is suitable for the purpose intended or a mixture of 90 parts copper and 10 parts tin by weight may be employed.

With the ring 6 as shown, lubricant may be supplied to the flange 12 and transmitted therefrom by capillary action to the main body 11, and particularly the surfaces at the upper and lower edges thereof which are engaged by the traveler 13. In order to isolate the ring 6 and its lubricant content from the support, there is provided a seal, generally indicated by the numeral 17, having a radial flange 18 extending between the ring flange 12 and the rail flange 17, and an axial flange 19 extending between the outer peripheral edge of the ring flange 12 and the rail wall 8. As shown the end face of the flange 7 is radially spaced from the main body 11 of the ring 6 to permit the traveler to move therebetween and the seal flange 18 bridges such space and abuts the outer periphery of the body 11 above that portion of the latter which is engaged by the traveler.

The flange 19 cooperates with that part of the main body 11 of the ring to form an annular lubricant reservoir, the bottom wall of which is provided in part by the ring flange. A plurality of retainers 20, each secured to the ring rail 5 by a screw 21, extend into this reservoir and engage the ring flange 12 to press the latter firmly against the seal flange 18. Lubricant can be dropped into this reservoir during operation of the mechanism and the seal will prevent leakage or drippage of the lubricant from the reservoir to the mechanism therebelow. Oil applied at the flange 12 will be exuded at a relatively low rate to the peripheral surface of the main body of the ring.

In addition to functioning as a lubricant seal, the seal 17 serves as a means for resiliently mounting the ring 6 on its support and will minimize the transmission of vibrations therebetween which may be developed by revolving movement of the traveler about the ring 6 and vertical reciprocal movement of the latter and the ring rail support 5.

Although but one specific embodiment of the invention has herein been shown and described, it will be understood that various changes in the size, shape, and arrangement of parts may be made without departing from the spirit of the invention.

I claim:

1. In combination, a spinner ring of the type adapted to support a traveler for revolving movement thereabout and formed from a mass of sintered powdered metal having a porosity sufficient to transmit liquid lubricant by capillary action, said ring including an annular main body adapted to be engaged by the traveler during its revolving movement and a radially outwardly directed flange adapted to receive lubricant at one face thereof and transmit the same by capillary action to said main body, a support for the ring, and a seal engaged with said support and with the other face of said flange for preventing access of the liquid lubricant received by said flange to said support.

2. In combination, a spinner ring of the type adapted to support a traveler for revolving movement thereabout and formed from a mass of sintered powdered metal having a porosity sufficient to transmit liquid lubricant by capillary action, said ring including an annular main body adapted to be engaged by the traveler during its revolving movement and a radially outwardly directed flange adapted to receive lubricant at one face thereof and transmit the same by capillary action to said main body, a support for the ring having a part thereof disposed in spaced overlapping relationship with a part of said flange and having a terminal face adjacent to but spaced from said ring main body, and a lubricant seal for isolating said ring from said support extending into the space between said overlapping parts and bridging the space between said terminal face and said main body and abutting the latter.

3. In combination, a spinner ring of the type adapted to support a traveler for revolving movement thereabout and formed from a mass of sintered powdered metal having a porosity sufficient to transmit liquid lubricant by capillary action, said ring including an annular main body adapted to be engaged by the traveler during its revolving movement and a radially outwardly directed flange adapted to receive lubricant at one face thereof and transmit the same by capillary action to said main body, a support for the ring having a first wall disposed in spaced overlapping relationship with said flange and a second wall normal to said first wall and spaced radially outwardly from the outer peripheral edge of said flange, and a lubricant seal isolating said ring from said support including a first flange extending into the space between said ring flange and said first wall and engaged therewith and a second flange integral with and normal to said first flange and extending between said second wall and the peripheral edge of said ring flange, said second wall and a portion of said ring body cooperating to form a lubricant receiving reservoir, the bottom wall of which is provided at least in part by said ring flange.

4. In combination, a spinner ring of the type adapted to support a traveler for revolving movement thereabout and formed from a mass of sintered powdered metal having a porosity sufficient to transmit liquid lubricant by capillary action, said ring including an annular main body adapted to be engaged by the traveler during its revolving movement and a radially outwardly directed flange adapted to receive lubricant at one face thereof and transmit the same by capillary action to said main body, a support for the ring having a first wall disposed in spaced overlapping relationship with said flange and a second wall normal to said first wall and spaced radially outwardly from the outer peripheral edge of said flange, a lubricant seal isolating said ring from said support including a first flange extending into the space between said ring flange and said first wall and engaged therewith and a second flange integral with and normal to said first flange and extending between said second wall and the peripheral edge of said ring flange, said second wall and a portion of said ring body cooperating to form a lubricant receiving reservoir, the bottom wall of which is provided at least in part by said ring flange, and a clip secured to said support engaged with said ring flange to apply sealing pressure through the latter to the first flange of said seal.

5. In combination, a spinner ring of the type adapted to support a traveler for revolving movement thereabout and having a porosity sufficient to absorb lubricant at one surface thereof and transmit the same by capillary action to and exude the same at surfaces engaged by the trav-

eler during its revolving movement, a support for said ring, and a body of rubber-like material mounting said ring on said support and forming a lubricant seal therebetween.

6. In combination, a spinner ring of the type adapted to support a traveler for revolving movement thereabout and having a porosity sufficient to absorb lubricant at one surface thereof and transmit the same by capillary action to and exude the same at surfaces engaged by the traveler during its revolving movement, a support for said ring, a body of rubber-like material interposed between said support and ring mounting the latter on the support and forming a lubricant seal therebetween, and a retainer secured to said support and engaged with said ring for applying sealing pressure to said material.



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