April 2, 1946. J. J. KLORAN 2,397,491

TWISTER RING

Filed April 11, 1944

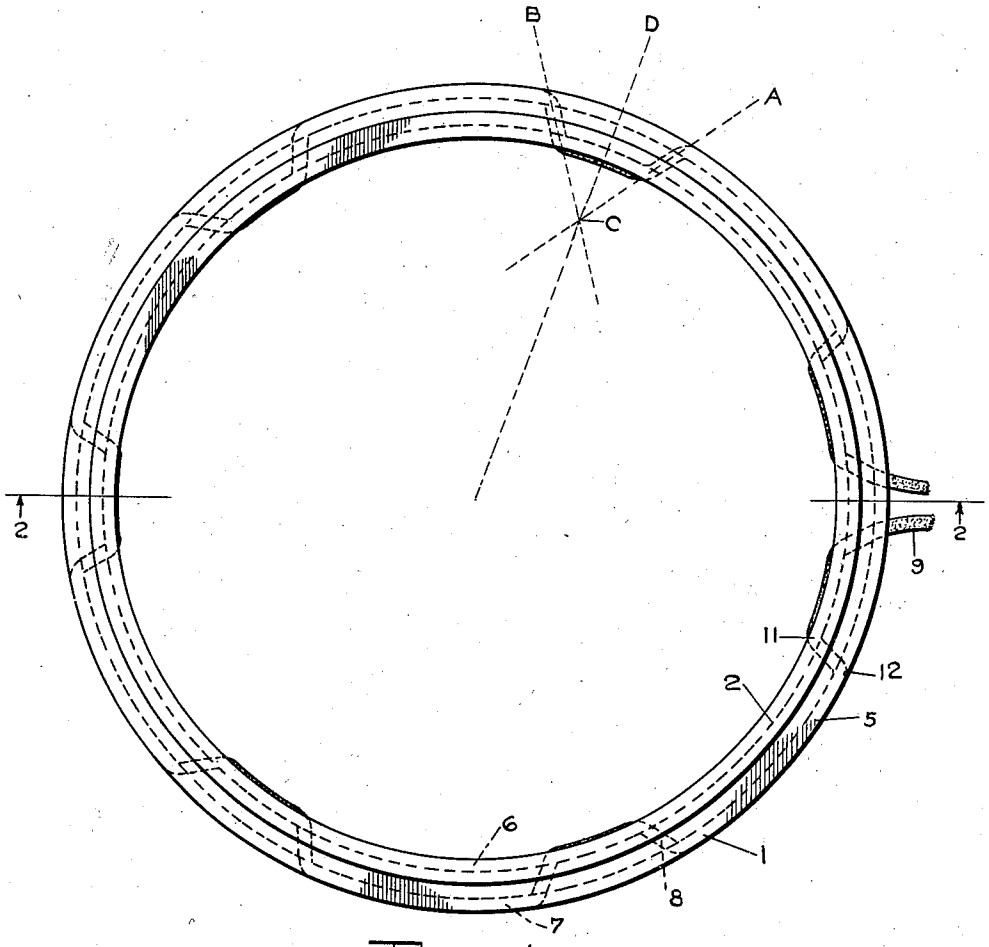


Fig. 1

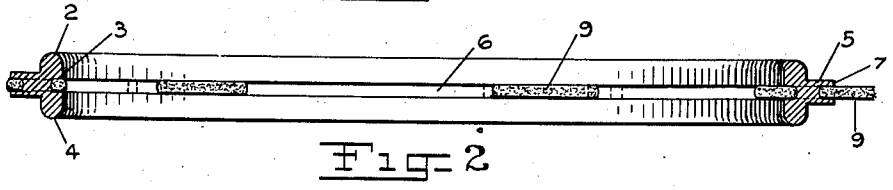


Fig. 2

INVENTOR.

JAMES J. KLORAN.

BY

J. Kelton & A. Weinman

ATTORNEYS.

Patented Apr. 2, 1946 2,397,491

UNITED STATES PATENT OFFICE

2,397,491

TWISTER RING

James Joseph Kloran, Cumberland, Md., assignor to Celanese Corporation of America, a corporation of Delaware

Application April 11, 1944, Serial No. 530,498

6 Claims. (Cl. 57—120)

This invention relates to twister rings of the self lubricating type especially rings employed in the down twisting of yarn or thread.

An object of the invention is the construction of a ring in which is threaded a lubricating wick, the ring being so constructed that the life of the wick is greatly lengthened thus resulting in a saving in the number of wicks consumed and in the man-hours required for inspection and changing of wicks.

Another object of the invention is the construction of a ring of the self-lubricating wick type in which the capillary flow of lubricant through the wick is at a maximum thus extending the life of the ring and of the traveler and easing the maintenance of the desired tension on the yarn.

A further object of the invention is the construction of a ring of the wick lubricating type in which the wick may be drawn tight into the wick groove where it is snugly held without choking off the flow of lubricant therethrough and in which the wick forms no sharp protrusions into the path of the flyer or traveler.

Other objects of the invention will appear from the following description and drawing.

In the drawing wherein is shown one embodiment of my invention:

Fig. 1 is a plan view of a ring with wick in operative position, and

Fig. 2 is a cross-sectional view taken on the line 2—2 of Fig. 1.

Like reference numerals indicate like parts in both views of the drawing.

Textile devices for winding and twisting yarn that employ a ring and traveler are very common. As an example of such a device there may be mentioned the down twister which pulls a yarn from a source of supply such as a spool, down through a guide and/or tensioning device, through a traveler adapted to ride around a ring and then on to the take-up package. Another example is the spinning machine which feeds a roving of wool or cotton fibers through drafting and feed rolls then as the twist is being inserted in the drawn roving, the roving passes through suitable guides, then through a flyer or traveler mounted to ride around a ring surrounding a take-up bobbin or other package and then on to the take-up package. Many other types of winding and twisting devices are in use that employ a ring and traveler, either as a single unit or multi units where the rings are mounted in rows on a ring rail. To alleviate the great task of keeping the surface of the rings upon which the traveler rides properly lubricated, a self-lubricating ring has been devised employing a wick that dips into a well of lubricant and is threaded or laced about the ring so that the traveler contacts therewith and wipes a film of lubricant over the working surface of the ring. This invention is applicable to all such winding and twisting devices and is a self-lubricating ring that is fool proof, long lasting and produces less breaks in the yarn or thread being treated than rings heretofore employed.

In accordance with my invention, I construct a self-lubricating ring of the wick type wherein the wick is threaded or laced through holes in the ring, which holes are drilled or otherwise formed at an angle to the radius of the ring, and wherein the wick is drawn snugly into a wick groove formed in the ring. Such a construction has the advantages of allowing the wick to be drawn tighter without interfering with the flow of lubricant therethrough. This permits the wick to be securely held in the groove, without forming a sharp angle in the path of the traveler at the working or inner face of the ring and without choking the flow of lubricant.

Referring now to the drawing for a more complete description of the invention, reference numeral 1 indicates a self-lubricating ring having a working face formed by the top 2, an inner face 3 and a portion 4, and having a supporting shoulder 5 provided on its outer face by which the ring is mounted in a ring rail (not shown) or other traversing or supporting element. On the inner face 3, there is formed a wick groove 6 while in the shoulder 5 or elsewhere on the outer face there is formed a wick guide 7, the wick groove and guide being connected at intervals with holes 8 through which a wick 9 is laced. The holes 8 are bored or otherwise formed at an angle to a radial line of the ring so that the wick 9 is bent only to an obtuse angle shown at 11 and 12 on the drawing, when the wick 9 is in operative position thus causing the wick to lie in a straighter line than in the rings heretofore known. The obtuse angle formed by the wick allows the lubricant to flow freely through the wick even when the wick is drawn quite tight. It also forms a slanting protrusion at 11 for contact with the traveler thus eliminating the possibility of the traveler from being stopped or thrown out of its desired path at these points, which actions were the cause of many broken yarns on prior devices. The slanting surface 11 also greatly extends the life of the wick by pre-

venting the traveler from hitting the projecting bend with a chopping or cutting action.

In the preferred embodiment of my invention, the holes are so formed that the distance between holes where the wick 9 lies in the wick groove 6 is from 1/18 to 1/28 of the inner circumference of the wick groove 6 while the number of places the wick 9 lies in the wick groove may vary from 4 to 10. In this preferred embodiment, the holes 8 are formed such that axial lines A and B through any pair of holes intersect at C on a radial line of the ring at a distance of from 4/8 to 7/8 of the length of the radius from the center of the ring. For the purpose of this invention, a pair of holes is to be understood as the two adjacent holes between which the wick lies in the wick groove 6. Obviously, the angle of the holes 8 with the radial line D will depend somewhat on the construction of the ring 1, its thickness, its shoulder shape, the number of holes, and also the position of the wick groove 6 and wick guide 7. It is not necessary that the wick guide 7 be on the shoulder 5; it may be located above or below the shoulder depending upon the shape of the ring and the method of attaching the ring to the ring rail or other supporting device. Of course, the ring may be of any suitable weight, shape and diameter for the particular twisting device upon which it is to be used and may be made of any suitable material which is usually highly tempered steel.

It is to be understood that the foregoing detailed description is merely given by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. A self-lubricating ring for winding and twisting devices, comprising a working face having a wick groove and an outer face having a wick guide, said ring having holes connecting said wick groove and said wick guide through which a wick is adapted to be laced, said holes being at an angle to the radial line of said ring, the axial lines through any pair of holes upon being extended intersect a radial line passing through said ring midway between said axial lines at a distance of from 4/8 to 7/8 of the length of said radial line from the center of said ring.

2. A self-lubricating ring for winding and twisting devices, comprising a working face having a wick groove and an outer face having a wick guide, said ring having pairs of holes connecting said wick groove and said wick guide, through which a wick is adapted to be laced, of the said ring, the axial lines through any pair of holes upon being extended intersect a radial line passing through said ring midway between said axial lines at a distance of from 4/8 to 7/8 of the length of said radial line from the center of said ring.

3. A self-lubricating ring for winding and twisting devices, comprising a working face having a wick groove and an outer face having a wick guide, said ring having pairs of holes connecting said wick groove and said wick guide, the axial lines of the pair of holes being separated a distance of from 1/18 to 1/28 of the inner circumference of the wick groove, the axial lines through any pair of holes upon being extended intersect a radial line passing through said ring midway between said axial lines at a distance of from 4/8 to 7/8 of the length of said radial line from the center of said ring.

4. A self-lubricating ring for winding and twisting devices, comprising a working face having a wick groove and an outer face having a wick guide, said ring having from 4 to 10 pairs of holes connecting said wick groove and said wick guide through which a wick is adapted to be laced, said holes being at an angle to a radial line of said ring, the axial lines through any pair of holes upon being extended intersect a radial line passing through said ring midway between said axial lines at a distance of from 4/8 to 7/8 of the length of said radial line from the center of said ring.

5. A self-lubricating ring for winding and twisting devices, comprising a working face having a wick groove and an outer face having a wick guide, said ring having from 4 to 10 pairs of holes connecting said wick groove and said wick guide and the axial lines of each pair of holes being separated a distance of from 1/18 to 1/28 of the inner circumference of the wick groove, the axial lines through any pair of holes upon being extended intersect a radial line passing through said ring midway between said axial lines at a distance of from 4/8 to 7/8 of the length of said radial line from the center of said ring.

6. A self-lubricating ring for winding and twisting devices, comprising a working face having a wick groove and an outer face having a wick guide, said ring having holes connecting said wick groove and said wick guide and a wick laced through said holes lying alternatively in the wick groove and wick guide, said holes being at an angle to the radial line of said ring, the axial lines through any pair of holes upon being extended intersect a radial line passing through said ring midway between said axial lines at a distance of from 4/8 to 7/8 of the length of said radial line from the center of said ring.

JAMES JOSEPH KLORAN.

Certificate of Correction

Patent No. 2,397,491. April 2, 1946.

JAMES JOSEPH KLORAN

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 56, claim 2, after the word and comma "laced," insert *said pair of holes being at angles to a radial line*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of June, A. D. 1946.

[SEAL]

LESLIE FRAZER,
First Assistant Commissioner of Patents.