

No. 868,924.

PATENTED OCT. 22, 1907.

D. HARRINGTON.
SPINNING RING.

APPLICATION FILED DEC. 16, 1902.

Fig. 1.

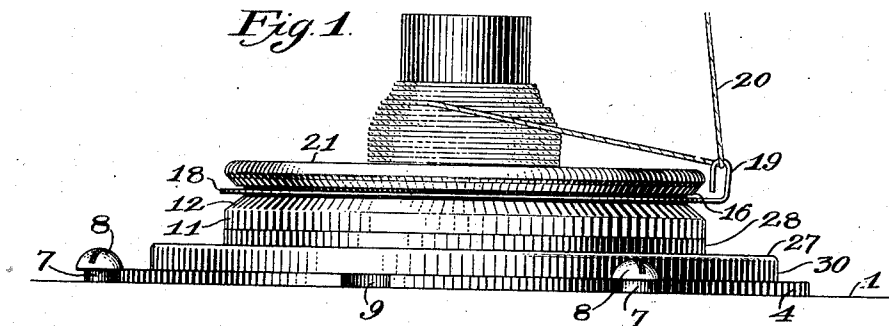


Fig. 2.

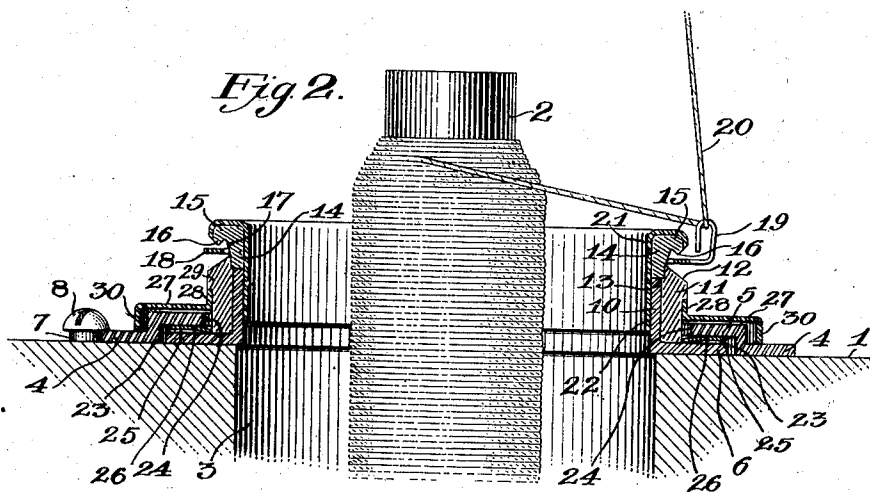
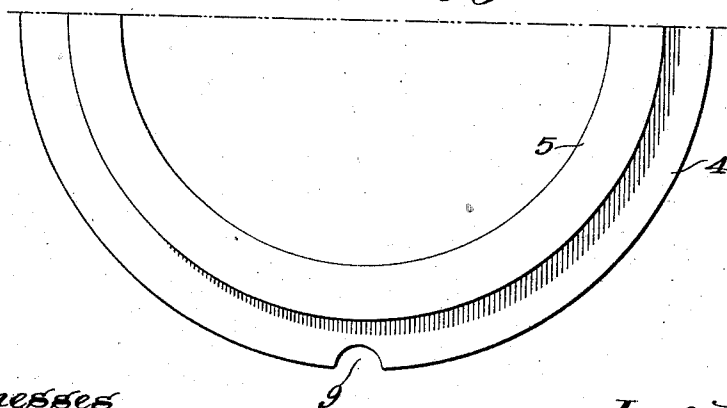


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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SPINNING-RING.

No. 868,924.

Specification of Letters Patent.

Patented Oct. 22, 1907.

Application filed December 16, 1902. Serial No. 135,442.

To all whom it may concern:

Be it known that I, DAVID HARRINGTON, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Spinning-Rings, of which the following is a specification, accompanied by drawings, forming a part of the same, in which—

Figure 1 represents a front elevation of the spinning ring embodying my invention. Fig. 2 is a central vertical sectional view, and Fig. 3 is a plan view of one half of the spinning ring holder.

Similar letters and figures of reference refer to similar parts in the different views.

My invention relates to a spinning ring provided with a track for a rotating traveler and a portion of my invention relates particularly to that class of spinning rings which are provided with a peripheral groove or track for an annular traveler.

The objects of my invention are to provide means whereby the ring will be centered automatically with the rotating bobbin during the operation of spinning; to provide a frictional device to resist the rotation of the ring within its holder; to provide a wooden track for the rotating traveler and protect the same from accidental injury; to enable the entire metallic portions of the ring to be stamped from sheet metal; to allow those portions of the ring to be easily replaced which are subject to wear, and to provide a simple and efficient method of securing the ring upon the rail of the spinning frame, and these objects, among others, I accomplish by means of the construction and arrangement of parts as hereinafter described, the novel features being pointed out in the annexed claims.

Referring to the accompanying drawings 1 denotes the ordinary ring supporting rail of a spinning frame, 2 a rotatable bobbin passing through an opening 3 in the rail. Upon the upper surface of the rail 1 is a spinning ring holder which consists of an annular base plate 4, resting upon the rail and provided with an interior flange 5 which overlaps the base 6 of the spinning ring. The ring holder is held by means of three equidistant screws held in the rail concentrically with the hole 3. Two or these screws are shown at 7, 7, Fig. 1, having heads 8 which overlap the spinning ring holder and hold it in contact with the upper surface of the rail. The ring holder is provided on one side with a notch 9 slightly larger than the screw head 8, so that when the opposite edge of the ring holder is placed beneath the heads of two of the screws, with the notch 9 in registration with the third screw, the holder will fall into place on the top of the rail without withdrawing any of the screws. By slightly turning the holder to bring its notch 9 out of registration with the screw, and tighten-

ing one of the screws, the holder will be held in position concentrically with the hole 3 in the rail.

The body of the spinning ring consists of a vertical annular metallic plate 10, provided at its lower edge with an exterior flange which forms the base 6 of the ring and rests upon the rail. Upon the outside of the plate 10 is a nonmetallic sleeve 11, preferably of wood, having its lower edge resting upon the base 6 and having its upper edge beveled at 12 and extending a short distance above the top of the plate 10. Resting upon the upper edge of the plate 10 and overlapping a shoulder 13 formed in the sleeve 11 is a nonmetallic ring 14, preferably of wood, having at its upper edge an exterior flange 15 provided on its under side with a triangular rib 16 opposing the beveled surface 12 of the sleeve 11, the space between the beveled surface 12 and the rib 16 forming a peripheral groove. The exterior wall of the ring 14 is slightly tapered as at 17 and forms the bottom of the peripheral groove or track for a traveler 18, consisting of a sheet metal ring provided on one side with a hook 19 to engage a yarn strand 20. Tightly fitting the upper and inner surface of the nonmetallic ring 14 is a metallic lining 21 which extends below the ring 14 as at 22, and is held by frictional contact with the interior of the metallic plate 10. An annular space 23 is left between the ring holder and the base 6 of the spinning ring, and a similar annular space 24 is left between the wooden sleeve 21 and the inner edge of the flange 5 of the holder, thereby allowing the spinning ring to be moved laterally within its ring holder. A small space 25 is also left between the upper side of the base 6 and the under side of the flange 5 of the holder, between which is inserted an annular elastic washer 26 consisting of a thin steel ring slightly warped so it will rest upon the base 6 of the spinning ring, and at certain points bear against the under side of the flange 5 of the ring holder, in order to exert a slight frictional resistance to the rotation of the ring within the holder. The opening between the sleeve 11 and the flange 5 of the ring holder is covered by a metal cap 27, having on its inner edge an upturned flange 28 inclosing the sleeve 11 and abutting a shoulder 29 thereon. The cap 27 extends beyond the flange 5 of the ring holder, and is provided with a downwardly turned flange 30 to prevent the access of dirt and lint.

The ring holder 4, annular plate 10, lining 21, elastic washer 26 and cap 27 are all stamped from sheet metal by means of suitable shaped punches and dies, and the nonmetallic sleeve 11 and ring 14 are preferably turned from any suitable close grained wood. The several parts of my composite ring are assembled as follows: The elastic washer 26 is applied to the body portion 10 which is placed within the ring holder; the cap 27 is placed over the flange 5 of the ring holder; the nonme-

tallic sleeve 11, applied to the body 10, and the metallic lining 21, with its nonmetallic ring 14 is then pressed into frictional contact with the inside of the body 10, thereby locking all the parts together. When the
 5 lining 21 is pressed into place, the lower edge of the nonmetallic ring is in contact with the upper edge of the body 10, which determines the width of the peripheral groove or track for the traveler. The triangular rib 16 limits the area of contact between the spinning ring and the upper side of the traveler and the
 10 bottom 17 of the track, and the upper edge 12 of the sleeve 11 are also beveled or tapering, so that the contact of the traveler with either of these surfaces is limited to a corner of the inner edge of the traveler, thereby decreasing the frictional resistance to the rotation of the traveler. The contact of the traveler with the walls of its peripheral track will cause a slow rotary movement to be imparted to the spinning ring within its ring holder. This rotary movement is retarded by the
 15 action of the elastic washer 26.

If the hook 19 of the traveler were to revolve in a path other than concentric to that part of the bobbin upon which the yarn is being wound, a varying strain or pull would be given to the yarn, but as the ring is
 25 free to move laterally within the ring holder, any variation in the pull on the yarn will cause the spinning ring to be moved laterally and restored to a concentric relation to the bobbin, thereby maintaining a uniform strain upon the yarn. The traveler 18 is provided on
 30 one side with a radial arm which is turned at right angles upwardly, inwardly, and then downwardly, nearly to the traveler to form the hook 19 having a narrow opening only to receive the yarn upon the inner side of the hook, whereby the yarn strand is prevented from
 35 disengaging itself from the hook when the tension of the yarn is removed. The space 25 between the base 6 of the ring and the flange 5 of the ring holder is sufficient to permit a slight vertical movement to the ring within its holder, and the elastic washer 26 is preferably a very
 40 thin ring of sheet steel which is slightly warped so as to press at points of limited area against both the base 6 and flange 5 and exert a slight and delicate pressure downward upon the base 6, and against any upward pressure of the traveler against the rib 16 of the ring due
 45 to the tension of the yarn. The delicate adjustment of the yielding pressure exerted by the elastic washer relatively to the tension of the yarn strand causes the ring to be automatically leveled by the conjoint action of these two forces, so the hook 19 will travel in a horizontal plane exactly at right angles to the axis of the
 50 rotating bobbin and thereby maintain a uniform tension on the yarn strand. The elastic washer 26 has a three-fold function; first, to retard the rotation of the ring; second, to furnish frictional resistance to the lateral movement of the ring, and third, to coöperate with the upward pull on the ring by the yarn to automatically level the ring.

I do not wish to confine myself to the precise application of the yielding pressure to the ring, as shown, but I
 60 consider the thin elastic washer 26 a preferable method, as it is extremely resilient and well adapted to exert a sensitive and delicate pressure, and as it occupies but a portion of the space between the ring and the ring holder, the clogging of the space by the accumulation
 65 of dust or lint is obviated.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination with a spinning ring, of a ring holder inclosing a portion of the spinning ring and arranged to permit a limited lateral movement of said ring, whereby the latter is capable of movement in a plane at right angles with its axis, and yielding means for retarding the rotation of said ring. 70

2. The combination with a spinning ring having a flanged base adapted to rest upon the rail of a spinning frame, of a ring holder consisting of an annular plate provided with a flange overlapping the flanged base of the ring, with an intervening annular space between said base and said ring holder, whereby the spinning ring is capable of movement within its ring holder in a plane parallel with its axis, and means for retarding the rotation of said ring. 75 80

3. The combination with a spinning ring, of a ring holder consisting of an annular plate arranged to inclose loosely a portion of the spinning ring, means for attaching said holder to the rail of a spinning frame and concentrically with a rotatable bobbin, with an annular space between the holder and the ring, whereby the latter is capable of movement in a plane at right angles with its axis, and yielding means for retarding the rotation of said ring. 85 90

4. The combination of a spinning ring having a peripheral groove or track for a traveler and an annular traveler rotatable in said track, and having means on one side for engaging a yarn strand, of a holder for confining said ring to the rail of a spinning frame, said ring capable of movement in said holder in a plane at right angles to its axis and yielding means for retarding the rotation of said ring. 95

5. The combination with a spinning ring having a flanged base adapted to rest on the rail of a spinning frame and a peripheral groove forming a track for a traveler, of an annular traveler adapted to rotate in said groove and having means on one side for engaging the yarn strand, a ring holder adapted to rest on the rail and overlapping the flanged base of the spinning ring, with an intervening space whereby said ring is capable of being moved in a plane at right angles with its axis and an elastic washer bearing on the flanged base of the spinning ring. 100 105

6. The combination with a spinning ring, of an annular ring holder, means for attaching said holder to the rail of a spinning frame concentrically with a rotatable bobbin, a flange on said ring adapted to rest on the rail, said flange being inclosed by the ring holder, with an intervening space between said flange and said holder and a traveler provided with means for engaging a yarn strand, whereby the tension upon the yarn strand is free to move the spinning ring in a plane at right angles with its axis, said movement being limited by the ring holder, and an elastic washer bearing on the flanged base of the spinning ring. 110 115 120

7. The combination with a spinning ring having a flange forming the base of the ring and adapted to rest on the rail of a spinning frame, of a ring holder overlapping said base with an intervening space between said holder and said base and an elastic washer arranged to bear against the opposing surfaces of the ring and holder to impart a frictional resistance to the rotation of the ring in the holder. 125

8. The combination with a spinning ring holder adapted to retain a spinning ring on the rail of a spinning frame, said holder having an annular space to receive the base of a spinning ring, of a spinning ring provided with a base inclosed within said ring holder and capable of movement therein, and means for imparting a pressure to said base in a line parallel with the axis of said ring, said means interposed between said base and said ring holder. 130 135

9. The combination with a spinning ring holder and a spinning ring retained in said holder and adapted to move therein, of means interposed between said holder and said ring to impart a pressure to said ring in a line parallel with its axis. 140

10. The combination with the rail of a spinning frame, of a spinning ring holder consisting of an annular plate held on said rail by screws concentric with the center of 145

the hole in the frame and with the heads overlapping said plate, said plate provided with a notch in its periphery larger than the overlapping portion of one of the screws, whereby said holder may be removed from the frame.

5 11. The combination with a spinning ring having a flange forming the base of the ring, of a ring holder consisting of an annular plate overlapping the base of the ring, and a detachable cap supported by said ring and projecting radially therefrom over said ring holder, substantially as described.

10 12. The combination with a spinning ring having a flange forming the base of the ring, and an annular ring holder overlapping said base, of a detachable cap consisting of an annular plate overlapping said ring holder and having a downwardly turned flange at its outer edge to prevent the admission of dirt and lint beneath the cap, substantially as described.

15 13. The combination with a spinning ring and ring holder, of a detachable cap carried by said ring and consisting of an annular plate extending over said ring and having at its outer edge a downwardly turned flange with a space between the flange and the holder to allow a lateral movement of said ring, substantially as described.

20 14. The combination in a spinning ring, of a vertical annular metallic plate, an exterior flange at the lower edge of said plate to form the base of the spinning ring, and adapted to rest on the rail of a spinning frame, a nonmetallic sleeve held on said plate and forming the lower wall of a peripheral groove or track for a traveler, a nonmetallic ring having an exterior flange at its upper edge forming the upper wall of the traveler track, a metallic lining for said nonmetallic ring, said lining overlapping said vertical annular plate and forming a telescopic connection therewith, substantially as described.

25 15. In a spinning ring, the combination of a vertical annular plate having an exterior horizontal flange forming a base for the ring, a nonmetallic sleeve surrounding said plate and resting on said base, and a nonmetallic ring supported on the top of said plate and having an exterior flange opposing the end of said sleeve and with said sleeve inclosing a peripheral groove forming a track for a traveler, substantially as described.

30 16. The combination of plate 10 having a base 6, sleeve 11 with its upper edge beveled, a ring 14 provided with a beveled periphery 17 and a flange having a triangular rib opposing the beveled end of said sleeve and a lining for said ring overlapping said plate 10 and frictionally held therein, substantially as described.

35 17. The combination of a plate 10 having a base 6, a sleeve 11, resting on said base and provided with an interior shoulder 13, a ring 14 resting on said plate 10 and overlapping said shoulder and a lining for said ring having a telescopic connection with said plate 10.

40 18. The combination in a spinning ring, of a vertical annular plate 10, having a base 6, a non metallic sleeve on said plate 10, an annular ring holder overlapping said base, a detachable metallic cap carried by said sleeve and overlapping the ring holder, substantially as described.

45 19. The combination, in a spinning ring, of a vertical annular plate 10 having a base 6, a ring holder overlapping said base, a sleeve held on said plate 10 and provided with an exterior shoulder 29, of a cap carried by said sleeve beneath said shoulder, said cap overlapping said holder, substantially as described.

20. The combination in a spinning ring, of the metallic telescopic members consisting of the annular plate 10 and lining 21, and the nonmetallic members, consisting of the sleeve 11 and ring 14, provided with a peripheral groove forming a track for a traveler and means for retaining the metallic plate 10 upon the rail of a spinning frame, substantially as described.

21. The combination of a spinning ring having a base adapted to rest on the rail of a spinning frame, of a ring holder provided with a flange overlapping the base of the ring with a space between the upper side of said base and the under side of said flange, whereby the ring is allowed a slight vertical movement within the holder and a spring adapted to apply a slight pressure to press the base against the rail of the spinning frame, substantially as described.

22. The combination with a spinning ring having a peripheral track for a traveler, and having a base adapted to rest upon the rail of a spinning frame, of a ring holder overlapping the base of the spinning ring with an intervening space to allow a vertical movement to the ring within the holder, a spring having its tension applied to press the base of the ring against the rail, and an annular traveler adapted to be rotated in the track of the ring and having means for engaging a yarn strand whereby the tension of the yarn will exert an upward strain against the tension of said spring, substantially as described.

23. The combination with a spinning ring and a ring holder, said ring being capable of a slight vertical movement within said holder, of a traveler adapted to engage the yarn strand and exert an upward pull on the ring during the operation of spinning, and an annular blade spring having its tension applied parallel to the axis of said ring to counteract said upward pull of the yarn, whereby the tension of the yarn strand is made to level automatically the spinning ring as the traveler is rotated, substantially as described.

24. The combination with a ring holder and a rotary spinning ring loosely retained by said ring holder and capable of movement therein, of means for imparting a resistance to the movement of the ring in the ring holder by a pressure parallel to the axis of the ring, said means being interposed between the ring and ring holder.

25. The combination with a rotary spinning ring and a ring holder inclosing a portion of the ring, said ring being capable of a lateral movement in said holder in a plane at right angles with its axis, and means for imparting a resistance to the movement of the ring by a pressure parallel to the axis of the ring, said means being interposed between the ring and ring holder.

26. The combination with a spinning ring having a base adapted to rest on the rail of a spinning frame, of a ring holder overlapping said base, with a clear space between the opposing surfaces of said ring and said ring holder to obviate the accumulation of dirt or lint, and means for applying a yielding pressure to said ring parallel to its axis, said means being interposed between said ring and said ring holder.

Dated this 13th day of December 1902.

DAVID HARRINGTON.

Witnesses:

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