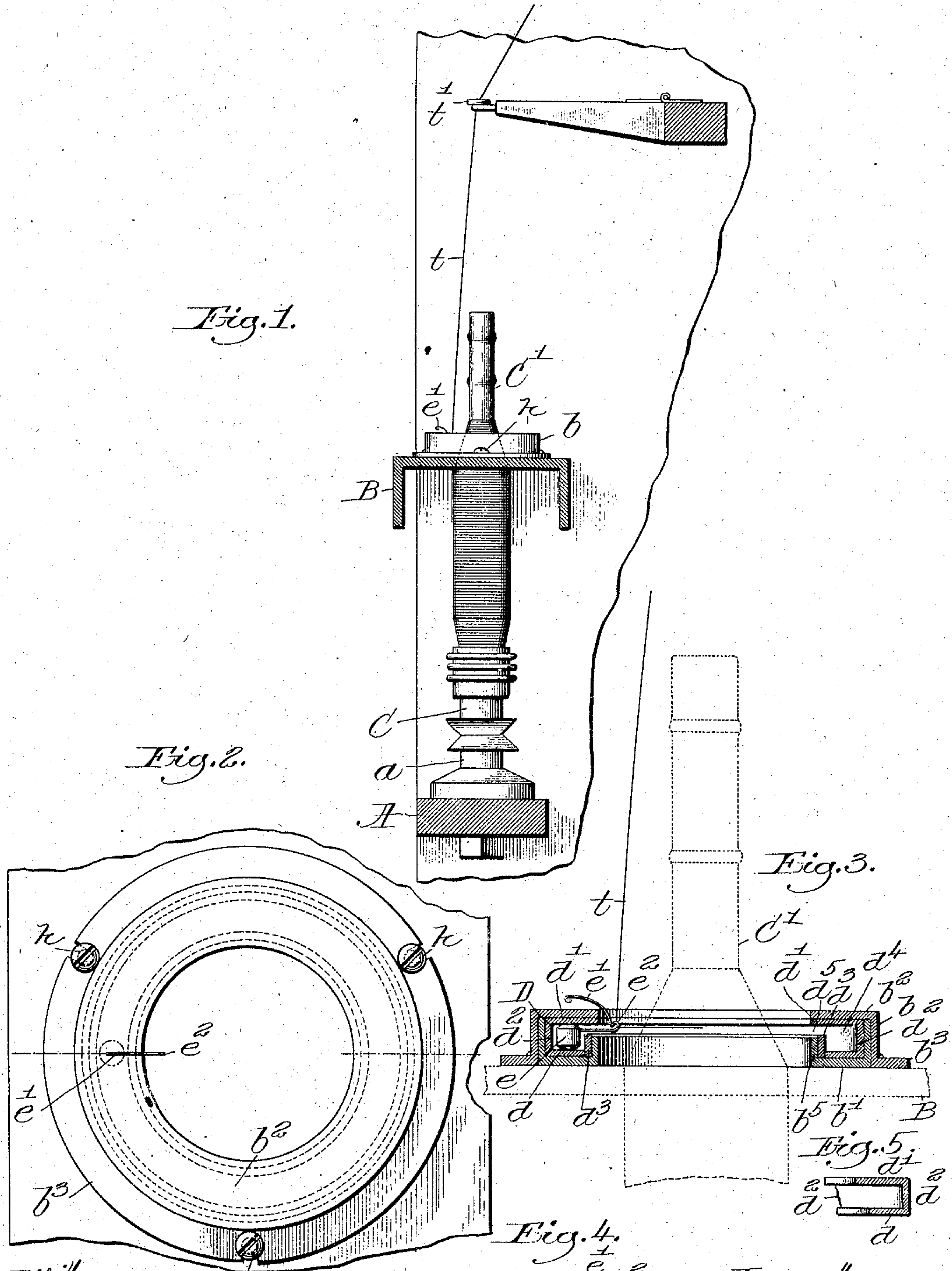


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T. P. FARMER.
RING FOR SPINNING AND TWISTING.
APPLICATION FILED FEB. 27, 1904.



Witnesses:
Fred S. Grumbaf.
S. Wm. Lutton

Inventor.
Theodore P. Farmer.
By Crosby, Ferguson & Pitts

UNITED STATES PATENT OFFICE.

THEODORE PRENTICE FARMER, OF SOUTHWEST HARBOR, MAINE, ASSIGNOR OF ONE-SIXTEENTH TO CHARLES VAN EVERSDYK GALLUP, OF DEDHAM, MASSACHUSETTS, AND THREE-FOURTHS TO JOHN BROOKS, OF BOSTON, MASSACHUSETTS.

RING FOR SPINNING AND TWISTING.

SPECIFICATION forming part of Letters Patent No. 791,615, dated June 6, 1905.

Application filed February 27, 1904. Serial No. 195,531.

To all whom it may concern:

Be it known that I, THEODORE PRENTICE FARMER, a citizen of the United States, residing at Southwest Harbor, in the town of Tremont, county of Hancock, State of Maine, have invented an Improvement in Rings for Spinning and Twisting, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a novel ring for spinning or twisting yarn.

My novel ring presents an annular groove open at its inner side for the reception of a thread-receiver or traveler, the raceway being maintained in operative position with relation to a spinning-rail or other thing for carrying the same by a suitable inclosing case, (herein represented as composed of multi-
parts and separable.) In practice for the best results the raceway will be composed of a non-metallic substantially frictionless material, so that as the thread-receiver is made to travel rapidly in the raceway-groove the raceway will not become unduly heated or wear the thread-receiver, it being essential, it will be understood, to avoid undue friction between the rapidly-moving thread-receiver and the raceway, especially when, as herein contemplated, the thread-receiver is to be revolved by the yarn at an excessively rapid rate of speed. One of the best frictionless materials known to me at the present time is wood prepared to resist friction. The thread-receiver or "traveler," as it might be called, comprises a body that enters the groove of the raceway, the body having an arm that is extended from the raceway at its inner side, said arm being bent to enable the thread to be engaged therewith, so that the thread in the rotation of the spindle may drag the thread-receiver in a circular path in the raceway. The outer extremity of the arm referred to is represented as extended over the top of the inclosing case

employed to confine the raceway containing the thread-receiver in its working position on a ring-rail of the spinning-frame.

Figure 1 shows part of a spinning or twisting frame with my novel ring sustained on the ring-rail. Fig. 2 is an enlarged plan view of the ring resting on a ring-rail. Fig. 3 is a section in the line *x*, Fig. 2. Fig. 4 shows the thread-receiver detached, and Fig. 5 shows a section through one-half of the block comprising part of the raceway.

Referring to the drawings, A represents a sufficient portion of a step-rail having a bearing *a*, which may be of any usual or suitable construction, to receive the pintle or lower end of a spindle, it being my intention to use any of the modern bolsters or bearings to sustain high-speed spindles. The spindle C (partially shown) is of the class known as "sleeve-whirl" spindles, the blade of the spindle carrying a bobbin C'. The ring-rail about each spindle-opening therein sustains an inclosing case or raceway-holder, shown as made in two parts *b b'*, the part *b* having an intumed flange *b²* and an outturned foot *b³*, while the part *b'* has two upright lips *b⁴ b⁵*, the lip *b⁵* being the shorter.

The raceway of the ring (designated by D) comprises a block having an upright annular wall *d²* and two horizontal inwardly-directed lips *d d'*, one wider than the other, and a ring-shaped part *d³*, of less height than the upright lip *d²* and a little higher, preferably, than the lip *b⁵*, said ring-shaped part constituting the inner wall of the raceway. The space *d⁴* between the upright lip *d²* and the ring *d³* constitutes the raceway-space, which is in communication with an annular groove *d⁵*, open toward the bobbin.

The space *d⁴* receives the body *e* of the thread-receiver E, (see Fig. 4,) said body having an arm *e'* extended outwardly through the groove *d⁵*, where it has an eye *e²* for the reception of the thread *t*, led from the usual guide-eye *t'* to the bobbin. The free end of

the arm e' is bent outwardly and is made to overlie but not touch the top flange b^2 of the outer member of the inclosing case.

The inclosing case will be connected with the ring-rail in any usual way, springs h being herein shown as standing in notches in the foot b^3 and entering the ring-rail.

The thread in the eye e^2 of the thread-receiver and being spun or twisted by the rotation of the spindle and bobbin and being wound on the bobbin drags the thread-receiver at a very rapid rate in the space of the raceway, and as the raceway is composed of substantially frictionless material, as stated, there is no possibility of said thread-receiver sticking or binding in the raceway due to friction, and consequently the raceway and the thread-receiver may be run for a very long time and at an excessively rapid rate without undue wear. The parts of the raceway may be removed when desired and said parts be substituted by others.

I prefer to use as the antifriction material wood treated as now commonly practiced in the manufacture therefrom of antifriction-bearings and the like. There are numerous ways of treating wood to make it durable and render the wood substantially frictionless, and any of these forms may be used in the treatment of wood for the production of raceways.

The body e of the thread-receiver in its rapid rotations contacts with the inner side of the outer wall d^2 of the raceway, and said wall limits the extent of outward movement of said thread-receiver due to centrifugal action, the inner side of the ring d^3 of said raceway constituting a means to restrain the inward movement of the thread-receiver toward the bobbin due to variations in tension of the thread being laid or wound on the bobbin.

My invention, comprising a raceway of non-metallic or frictionless material having an open groove at its inner side in which the thread-receiver may be run rapidly, is not limited to the particular shape shown for the different parts of the raceway, and while I prefer to make the top flange d' , the lower flange d , and the connecting portion d^2 integral or in one piece, yet this invention is not limited to making the same in one piece, and the raceway might be composed of separate rings secured one to the other. So, also, my invention is not limited to the exact shape shown in cross-section of the body of the thread-receiver or traveler nor to the exact shape shown for the arm connected with said body and with which the thread to be spun or wound on the bobbin is connected, and it will be obvious that variations in shape may be made in said body and arm and yet be within the scope of my invention herein set forth in the specification and embodied in the claims at the end thereof.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A spinning-ring comprising a raceway having an annular groove presenting a slot at its inner side, a thread-receiver embraced by said raceway and having a thread-receiving arm extended outwardly through said slot, and an inclosing case for said raceway.

2. A spinning-ring comprising a raceway having an annular groove, a thread-receiver movable therein, and a multipart holder embracing the raceway and adapted to confine the raceway in operative position.

3. A spinning-ring comprising a raceway having an annular groove open at its inner side next the spindle, a thread-receiver having an arm extended through the said open inner side through said groove at the inner side of said raceway and provided with an eye to receive the thread, and an inclosing case for the raceway.

4. A spinning-ring comprising a non-metallic raceway having an annular groove open at its inner side, a thread-receiver free to travel in said groove and having an arm extended through the opening at the inner side of said raceway, said arm being bent to form a thread-receiving eye, and means to confine the raceway in its operative position.

5. In a spinning-ring, a raceway presenting outside, bottom and top walls, and a separate ring constituting the inner wall of the raceway.

6. In a spinning-ring, a raceway presenting outside, bottom and top walls, a separate ring constituting the inner wall of the raceway, a thread-receiver movable between said walls, and means to confine the raceway in working position.

7. A spinning-ring comprising a raceway, presenting an annular box having at its interior an annular groove and presenting three integral walls surrounding said groove, and a ring fitted to the inner circular edge of said raceway and constituting an inner wall, said ring being of a height to leave a space between its edge and the upper side of the under wall referred to, and a thread-receiver movable in said raceway, and means for confining said raceway in working position.

8. A spinning-ring comprising a multipart raceway presenting an annular groove, a thread-receiver retained loosely therein, and restrained as to its outward movement under centrifugal action by the outer wall of the raceway and as to the extent of its movement toward the spindle by the inner wall of the raceway.

9. A spinning-ring presenting a metallic inclosing case, a non-metallic raceway therein having an annular groove open at its side next the spindle, and a revoluble thread-receiver therein comprising a body having an arm pro-

vided with an eye, the non-metallic walls of the raceway preventing any part of the thread-receiver from contacting with said inclosing case.

5 10. The combination with a multipart inclosing case, and an inner non-metallic raceway presenting an open groove toward the spindle, of a thread-receiver guided by said raceway and presenting an arm between said

raceway and spindle for the reception of the 10 thread being spun and wound.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEODORE PRENTICE FARMER.

Witnesses:

GEO. W. GREGORY,
EDITH M. STODDARD.