W. H. MAGEE.

SPINNING RING.

No. 180,611. Patented Aug. 1, 1876.

Fig. 1.

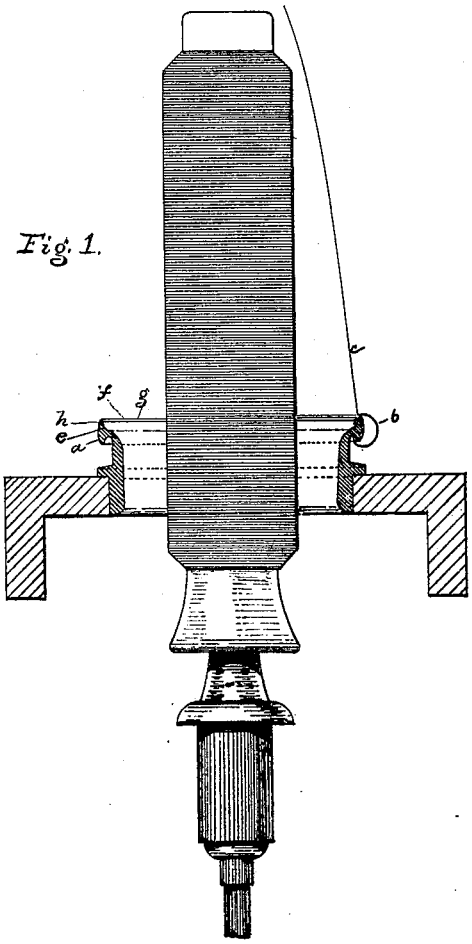

Fig. 2

Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM H. MAGEE, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR TO GEORGE DRAPER & SON, OF MILFORD, MASSACHUSETTS.

IMPROVEMENT IN SPINNING-RINGS.

Specification forming part of Letters Patent No. **180,611**, dated August 1, 1876; application filed May 26, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. MAGEE, of Woonsocket, in the county of Providence and State of Rhode Island, have invented an Improved Spinning-Ring, of which the following is a specification:

This invention relates to a spinning-ring, and has particular reference to the position or location of the race on which the traveler runs.

The office of the traveler in spinning is to produce drag on the thread, keep it smooth and uniform, and permit it to be wound on the bobbin as tightly and evenly as possible, without breaking or stretching the thread, which is directed by the traveler to the bobbin as the ring-rail is raised and lowered.

In the ordinary ring the thread meets the traveler near its center, and the centrifugal force of the traveler, in its rapid rotation, is sufficient to cause the outer end ot the traveler to rise and drag its inner end against the inner side of the ring and under side of the race, while the outer end runs clear of the race, the friction produced being, therefore, on but one end of the traveler, which causes the traveler to move unsteadily, or oscillate at its outer end, causing an unsteady drag on the thread, which breaks it or makes it rough, and the traveler so lifted is sometimes pulled or thrown from the race.

Some rings have been provided with inclined and beveled races, arranged at the inner portions of the rings, as in United States Patents Nos. 24,681 and 24,169; but it will be noticed that the strain of the thread on the traveler and the action of centrifugal force tend to lift the traveler, and cause it to bear at its inner and lower end against the ring with greatest force.

A race arranged lower on the inner than the outer portion of the ring obstructs the winding operation, and the draft cannot be made as steady and uniform as it would were the race located lowest at the outer portion of the ring.

Figure 1 represents one of my improved rings in section and applied to a bobbin, and Fig. 2 represents a section of an ordinary race and a traveler.

My improved ring is provided at top with an outwardly-inclined race, *a*, on which is placed a traveler, *b*, through which the thread *c* is led, it passing from the usual guide-eye through the traveler and onto the bobbin, tube, or spindle. This race is inclined, substantially as shown in the drawings, and is provided at its inner portion with an inclined or rounded way, *e*, against which the inner end of the traveler moves; and at its extreme outer edge *f* the traveler is rounded or chamfered, to permit the thread to engage the traveler very close to its inner end, and so that the yarn extending from the bobbin to the traveler will be substantially on a level with the extreme upper edge *g* of the inner flange, such edge being located in a circle of larger diameter than the circle formed by the annularly-projecting portion *h*, just below the edge *g*.

By constructing the race and placing it in an inclined position, substantially as described and shown, and so that the traveler, in its rotation about the race, will, owing to its centrifugal action, keep both its ends against the ring, I am enabled to use a very light traveler, and one by which the uniformity of the drag on the thread may be increased, for when both ends of the traveler bear constantly on the ring it will be obvious that its motion will be more uniform and steady, and it will not oscillate as does the traveler on an ordinary ring, so constructed that both ends of the traveler fail to find a constant bearing thereon.

Another important advantage gained by the location of the race as described is that the yarn is enabled to encircle and pull against the traveler much nearer its inner end than has been heretofore the case, and this insures a steadier draft than is the case when the yarn passes about a traveler near its center.

The centrifugal action of the traveler, in connection with the upward draft of the yarn, tends to keep the outer end of the traveler always against the outer portion of the ring-race, and the force with which the inner end of the traveler bears on the ring is varied according to the draft between the bobbin and traveler.

When the bobbin first receives the thread the yarn extending from the bobbin to the traveler assumes a position with relation to the circumference of the bobbin more nearly

in a radial line drawn from the center of the spindle than it does when the bobbin is substantially filled.

The pressure of the ends of the traveler against the race, owing to centrifugal action of the traveler, is substantially the same while the bobbin is being filled, for the spindle turns at the same speed; but when the yarn is being wound on the bobbin, the latter being small, the draft on the yarn is sufficient, and it acts to pull the traveler toward the then outer portion of the bobbin, which is then nearer the center of the ring than when the bobbin is mostly filled; and this inward draft, although insufficient to remove the inner end of the traveler from the race, does act to lessen the amount of its friction on the inner portion of the race, making the friction less than when the yarn, proceeding from the full bobbin, acts on the traveler, for then the centrifugal action of the traveler, being less impeded, enables the traveler to bear at its inner end with greater force than when the bobbin is first being wound, and in this way the draft on the yarn and centrifugal action of the traveler tend to make the drag on the yarn and the winding action more nearly uniform than is the case with the ordinary ring and traveler, and a very light traveler may be used.

Ring-travelers have frequently to be changed according to the size of the yarn or thread; but in all cases with a ring and traveler constructed as above described, the traveler may be lighter than the traveler of an ordinary ring, for the drag on the yarn is evener, it being produced principally by friction of both ends of the traveler against the ring or race, instead of by the weight of the traveler, as heretofore common, and consequently a lighter traveler produces as much drag, and the drag is more uniform, which enables the production of more even thread, and enables it to be wound closer.

It will be obvious that the traveler *b*, acted upon by the thread at or near the inner end of the traveler, instead of at or near its center, and near the top of the race, will move the traveler with the greatest uniformity and with the least possible tendency to vibration.

When in action, the inner end of the traveler is held by the thread and action of centrifugal force against the race at a point above the point at which the outer end of the traveler meets the race. This ring may be made adjustable on the race through an ordinary holder. The race on this ring is arranged entirely outside of a line coinciding with the interior of the ring, and the traveler in action moves in a circle of greater diameter than the diameter of the interior portion of the ring, and this construction enables a bobbin to be wound full enough to fill the interior of the ring; but this inclined race may be made nearer the center of the ring without departing from this invention.

I claim—

1. A spinning-ring, provided with an outwardly-inclined race, shaped at its inner side substantially as set forth, and with its outer edge lower than the inner edge, substantially as described.

2. A ring, provided with a race outwardly inclined, substantially as shown and described, in combination with a traveler adapted, owing to the action of centrifugal force, to bear on and move with both ends against the race, substantially as described.

3. As a new article of manufacture, a spinning-ring provided with an outwardly-inclined circular race, the interior diameter of which is greater than the smallest interior diameter of the body of the ring, substantially as described.

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

WILLIAM HENRY MAGEE.

Witnesses:
JAMES PICKFORD,
EDWARD A. MONGEON.