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J. HAYDEN, JR.
RING SPINNING AND TWISTING APPARATUS.
APPLICATION FILED DEC. 27, 1904.

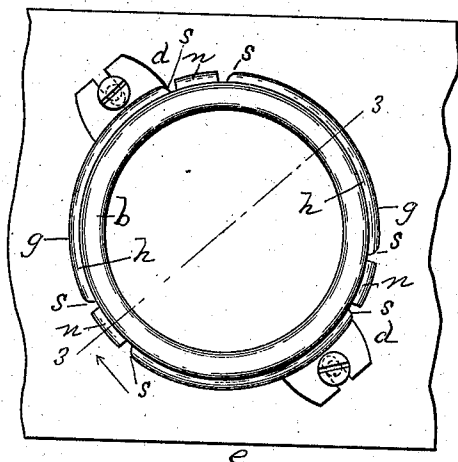


Fig. 1.

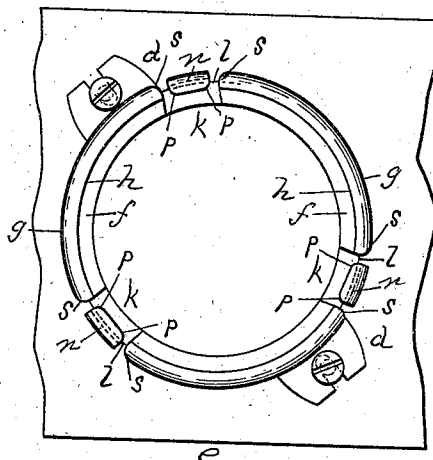


Fig. 2.

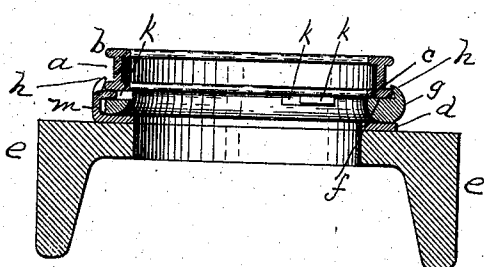


Fig. 3.

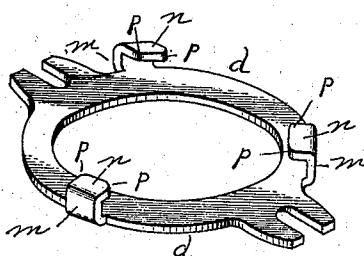


Fig. 4.

WITNESSES.

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RING SPINNING AND TWISTING APPARATUS.

No. 814,844.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed December 27, 1904. Serial No. 238,282.

To all whom it may concern:

Be it known that I, JOEL HAYDEN, JR., a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ring Spinning and Twisting Apparatus, of which the following is a specification.

This invention relates to that class of ring spinning and twisting apparatus in which the ring is non-rotative—that is, while it may have some slight horizontal or approximately rotative movement such movement does not entitle it to be termed a “rotary” ring; as there is no continuous movement and of course no complete rotation. The ring belongs, therefore, to the class usually termed “stationary” rings.

This invention has for its principal objects to prevent the wearing of the lower flange of the ring, such wear being commonly produced by the vibration of the ring and its direct contact with the supporting plate or holder; to obviate the necessity for mutilating the ring in order to apply clips or similar devices extending from the supporting-plate, thus enabling the ring to be reversed, and to impart steadiness and stability to the ring, preventing jumping and substituting for the usual vibrations or reciprocations even movements on elliptical or other curved lines, whereby the spinning or twisting spindles may be run at higher speeds.

The nature of the invention is fully described below, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a spinning-ring, the supporting plate or holder, and an improved ring or member intermediate of said spinning-ring and holder, all in position on the ring-rail and embodying my invention. Fig. 2 is a similar view with the spinning-ring removed. Fig. 3 is a vertical section taken on line 3 3, Fig. 1. Fig. 4 is a perspective view of the supporting plate or holder removed.

Similar letters of reference indicate corresponding parts.

The spinning-ring *a* is constructed in the ordinary manner and provided with the upper and lower flanges *b* and *c*.

d represents the supporting plate or holder,

and *e* the ring-rail. The spinning-ring does not rest directly on the holder, but is seated on the flat ledge or surface *f* of an intermediate member *g*, said member being in the form of a ring which is preferably circular in shape and of about the same diameter as the spinning-ring. This intermediate member *g* rests directly on the holder *d* and is sprung over the outer edge of the lower flange *c* by means of the upturned and inturned annular lip *h*. This ring member *g* having once been sprung into position over and around the lower flange *c* remains permanently in such position, being tight on the spinning-ring and is removable only by prying or forcing it off. Moreover, this member *g* is weighted substantially evenly throughout—that is to say, it is made relatively very thick and heavy, as indicated in Fig. 3—the weight thereby being distributed around the entire circumference and its inside diameter being just sufficient to enable it to be sprung over the lower flange of the spinning-ring and to remain permanently in that position. The main portion of the weighted or heavy intermediate ring—that is, the portion lettered *g*—is provided with a number of—say three—horizontal openings or passages *k*, said passages extending down below the surface of the flat ledge *f*, which constitutes an inner flange and an annular seat for the spinning-ring. The supporting plate or holder *d* is provided on its outer edge or periphery with a number of clips which are integral with the holder, which correspond in number and location with the passages *k* and are somewhat narrower than said passages. These clips comprise the vertical portions *m* and the inwardly-extending horizontal portions *n*, which are adapted to project over the outer curved edge *l*, Fig. 2, of the bottom of the passage *k* between the walls of said passages, thus holding down the intermediate ring *g* *h* and through its agency the spinning-ring *a*. It will be noticed that the inner edges of the horizontal portions *n* of the clips are curved at their opposite ends or corners, as indicated at *p*. The passages *k* are also provided with flaring entrances produced by oppositely curving the edges of the vertical portion *g* of the intermediate ring, as shown at *s*. By means of these curvatures *p* and *s* the portions of the intermediate ring next

the passages are prevented from clinging to or hanging upon the opposite ends of the up-turned portions of the clips and sticking as the intermediate ring and spinning-ring move 5 rotatively or vibrate in any direction. As such movements of the ring occur the effect of these curvatures is to deflect the ring and to change its vibratory or reciprocating movement into a practically continuous 10 movement on elliptical or curved lines or perhaps on circular lines, the circles being of course small and having their centers at points not far from the points of contact of two adjacent curvatures *p s*. Thus there is 15 a tendency to prevent purely reciprocating horizontal movement or vibration.

The relatively heavy weighted member *g* imparts great steadiness and stability to the spinning-ring, having a tendency to produce 20 a gliding movement and to prevent jerking or jumping, whereby a high speed of the spindle may be attained. The spinning-ring is held almost continuously for its entire circumference by the intermediate ring, thus 25 imparting steadiness to its movement and enabling the spinning-ring to follow steadily and smoothly a spindle which is inclined from the perpendicular, keeping said spindle in the center. By means of the intermediate 30 member wearing of the lower flange on the ring is prevented, as there is no relative movement between said flange and intermediate member.

It is evident that as the clips grasp directly 35 the intermediate member instead of the spinning-ring mutilation of the lower flange of the spinning-ring is prevented and the ring can be reversed. The additional thickness of the intermediate ring is applied on its 40 outer edge or periphery, thus weighting it on its outer edge and outside of the spinning-ring, thereby applying the weight where the leverage will be greatest and where it will be most efficient.

45 Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, the spinning-ring, the supporting 50 plate or holder, a permanent member intermediate of the spinning-ring and the supporting plate or holder and rigid with said spinning-ring and conforming substantially in shape thereto, and means for connecting said 55 plate or holder and intermediate member whereby said intermediate member is allowed to move horizontally only on the surface of

the plate or holder but prevented from continuous rotative movement.

2. In an apparatus of the character de- 60 scribed, the spinning-ring, the supporting plate or holder, a permanent ring intermediate of the spinning-ring and the supporting plate or holder and rigid with the spinning- 65 ring and resting wholly on the horizontal surface of the plate or holder, and means for connecting said plate or holder and intermediate ring whereby the intermediate ring is allowed to move horizontally on said plate or 70 holder and is in contact therewith during the entire horizontal movement.

3. In an apparatus of the character described, the spinning-ring, the supporting plate or holder having a flat horizontal upper 75 surface, a permanent ring-shaped weighted member intermediate with the spinning-ring and the supporting plate or holder and rigid with the spinning-ring and resting on the horizontal surface of the plate or holder, and 80 means for connecting said plate or holder and the intermediate ring whereby the intermediate ring is allowed curved horizontal movement on lines which are non-concentric with the periphery of the spinning-ring but prevented from continuous rotative movement. 85

4. In an apparatus of the character described, a spinning-ring; a stationary plate or holder, a member intermediate of the spinning-ring and plate or holder and rigid with 90 the ring, said member being provided with passages having oppositely-curved edges; and engaging mechanism extending from the plate or holder into said passages, said engaging mechanism being provided at its contact 95 ends with curvatures opposite the curvatures in said passages, for the purpose set forth.

5. In an apparatus of the character described, a spinning-ring; a stationary plate or holder, a member intermediate of the spinning-ring and plate or holder and rigid with 100 the ring, said member being provided with horizontal passages; and engaging mechanism extending from the plate or holder into said passages and being provided with rounded or curved edges at the points where it 105 comes into horizontal contact with the walls of said passages, for the purpose set forth.

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

JOEL HAYDEN, JR.

Witnesses:

HENRY W. WILLIAMS,
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