

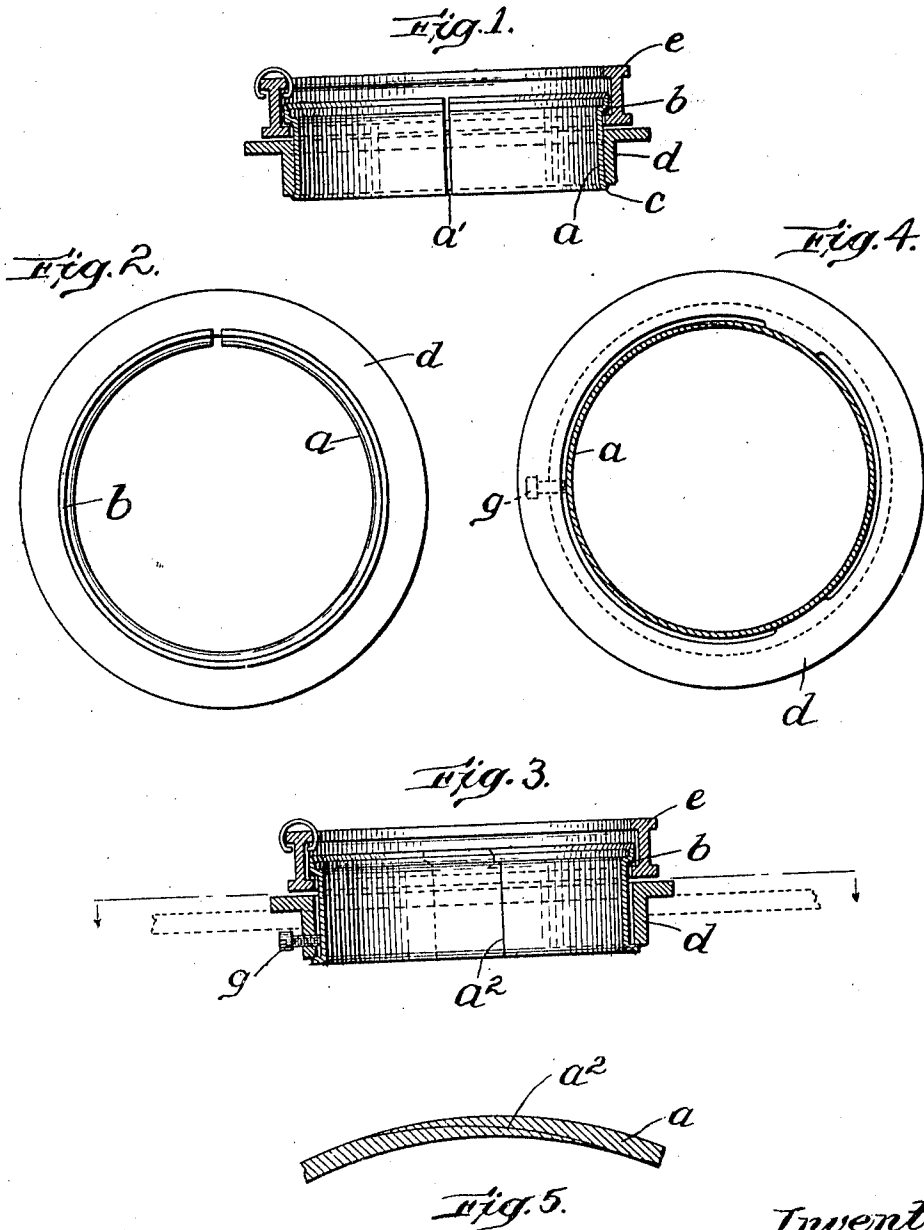
V. BÉLANGER.

DEVICE FOR SPINNING AND TWISTING YARN.

APPLICATION FILED JULY 30, 1906. RENEWED JUNE 15, 1909.

950,507.

Patented Mar. 1, 1910.



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# UNITED STATES PATENT OFFICE.

VICTOR BÉLANGER, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMERICAN TEXTILE COMPANY, A CORPORATION OF MAINE.

DEVICE FOR SPINNING AND TWISTING YARN.

950,507.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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*To all whom it may concern:*

Be it known that I, VICTOR BÉLANGER, citizen of the United States, and resident of Boston, county of Suffolk, Massachusetts, have invented certain new and useful Improvements in Devices for Spinning and Twisting Yarn, of which the following is a specification.

This invention relates to devices for spinning and twisting yarn and more particularly comprises a freely rotatable traveler ring so combined with an internally disposed retaining device that free rotation of said traveler ring may be caused through the torque exerted by the yarn passed through the traveler as it winds upon the spindle, while avoiding difficulties that impair the efficiency of the ring.

In the accompanying drawings I have illustrated one of the simple forms of embodying my said invention.

Figure 1 is a central vertical section of the complete device assembled in operative position. Fig. 2 is a plan view showing the keeper or guide for the traveler ring in operative position, the ring being removed. Fig. 3 is a central vertical section showing the keeper provided with an adjusting screw. Fig. 4 is a plan view of the same. Fig. 5 is a detail view showing a portion of a modified form of the keeper such as is indicated in Figs. 3 and 4.

One of the difficulties encountered in properly mounting a rotary spinning ring is due to the rapid accumulation and balling up of lint, dust and foreign substance between the rotary ring and the casing by which it is confined. Moreover the impingement of the ring against the outer casing or guide produces a variable rotation of the ring owing to the intermittent friction on its outer periphery.

In the practice of my present invention I provide a retaining device so constructed as to permit it to be arranged or disposed inside of the ring in position to have engagement with the interior raceway of the ring, a slight clearance space being left between the traveler ring and the adjacent portion of the retaining device to permit the free rotation of the traveler ring under the stress of the yarn and to allow the ring to lift or rise slightly while in rotation.

According to the form of the invention illustrated in the drawings, the retaining

device comprises a hoop or band *a* of spring metal or other resilient material, whose periphery is cut through transversely as shown at *a'* to make said hoop contractible and expansible. At its upper portion the retaining device is provided with an offset or outwardly projecting flange or shoulder *b*, while its lower end is slightly flared or flanged as indicated at *c*. By means of the slit *a'* the hoop is made contractible so that it can be squeezed within a small enough compass to allow the larger flanged portion to be passed through the spindle orifice in the base or support *d*, after which the natural elasticity of the hoop serves to expand it into frictional engagement with the said base or support. The flange *c* formed at the lower end serves to prevent the retaining device from being pulled upwardly out of its support or base by the tension of the yarn when the machine is in operation. It will also be observed that the projecting shoulder or flange *b* is provided with a vertically disposed rim whose outer face is parallel with the inner raceway of the ring, the purpose being to form a wider bearing surface at this point to oppose the inner face of the ring. The upper edge of this flanged portion *b* is beveled so as to afford no place for lodgment of dust or lint.

The traveler ring *e* is mounted outside the upper portion of the hoop *a* and its adjacent surfaces are separated therefrom by a slight clearance space to form a loose engagement that will not interfere with the proper rotation of the ring, the outwardly projecting flange or lip *b* projecting sufficiently above the support or base *d* to give sufficient freedom of movement to allow the ring to lift slightly from its seat when rotating.

The frictional engagement between the keeper *a* and its support *d* need be only sufficient to prevent the slipping down of the keeper by its own weight. So far as the ring comes in contact with said retaining device its tendency will be to pull it upward and during the starting of the ring when the friction is the greatest, the retaining device *a* will be permitted to turn or rotate slowly in its support, thus diminishing to that extent the retardation of the traveler ring due to its friction against the keeper.

Provision may be made for adjusting or contracting the retaining device to a smaller diameter. Any suitable mechanical device

may be employed for this purpose but I have herein shown an adjusting screw *g* tapped into the lower portion of the base *d* which can be turned for the purpose of contracting or permitting the expansion of the retaining device. If a device of this kind be used I prefer to make the transverse slit or cut in the hook on a long oblique line as indicated at *a*<sup>2</sup> in Fig. 5.

Various modifications may be made in the form, construction and arrangement of the parts illustrated in the drawings without departing from the essential feature, which is the internally disposed contractible elastic hoop or guide arranged to engage the inner portion of the traveler ring so as to permit its free rotation in operative position.

What I claim as my invention is:—

1. A device for retaining a rotary traveler ring in operative relationship to its support, comprising an elastic hoop of flexible material severed from edge to edge and provided with outwardly projecting lips or flanges to engage respectively the inner raceway of the ring and the adjacent edge of the ring support, substantially as described.

2. A retaining device for a rotary traveler ring comprising a contractible and expandible split band or hoop of flexible material whose edge portions are turned outwardly to form retaining lips adapted to project respectively into the inner raceway of the traveler ring and beneath the adjacent edge portion of the ring support, substantially as described.

3. The combination of the rotatable traveler ring, a support provided with a concentric spindle orifice, an elastic and contractible retaining hoop frictionally seated in the spindle orifice, the upper and lower edges of said hoop being bent outwardly to project beyond the inner flange of the traveler ring and the lower edge of the spindle orifice respectively, substantially as described.

4. A device of the class described embracing in combination a rotatable spinning ring, a support or base upon which said ring loosely rests, said support being provided with a concentric spindle orifice, means for loosely retaining said ring in operative position above said support, said means comprising an elastic contractible hoop seated inside said spindle orifice and having projecting flanges of larger diameter respec-

tively than the internal diameter of the lower flange of the traveler ring and of the spindle orifice, the retaining means being arranged to permit said ring to lift from its support and rotate under the frictional impulse of its traveler, substantially as described.

5. In a device of the class described the combination of the rotatable traveler ring, a base or support therefor having a spindle orifice, an elastic contractible retaining device disposed within said orifice and having its upper edge turned outward to form a loose but retaining engagement with the lower portion of the traveler ring, and means for preventing the displacement of the retaining device from operative position under the tension exerted by the yarn, substantially as described.

6. The combination of the rotatable traveler ring loosely mounted upon its support, a separate contractible elastic retaining device arranged inside said support and having its upper edge projecting into the inner raceway of the traveler ring to overhang the lower flange of said traveler ring but so as to leave a slight clearance between itself and said flange to permit the ring to lift slightly when rotating, substantially as described.

7. A device of the class described embracing in combination a socket piece having an inside cylindrical face and a flat horizontal top adapted to form a smooth bearing seat for supporting the traveler ring, a traveler ring rotated by the frictional engagement of the traveler under the influence of the yarn, a spring retaining device for detachably maintaining the rotating traveler ring in operative position, embracing a cylindrical hoop or band adapted to engage the inside cylindrical face of the socket piece and provided at its upper and lower edges with outwardly projecting lips respectively adapted to engage the lower flange of the traveler ring and adapted to project beyond the lower edge of the inside face of the socket when expanded and to be sprung inside said cylindrical face to permit removal, substantially as described.

In witness whereof, I have hereunto set my hand.

VICTOR BÉLANGER.

In the presence of—

GEO. N. GODDARD,

KATHARINE A. DUGAN.