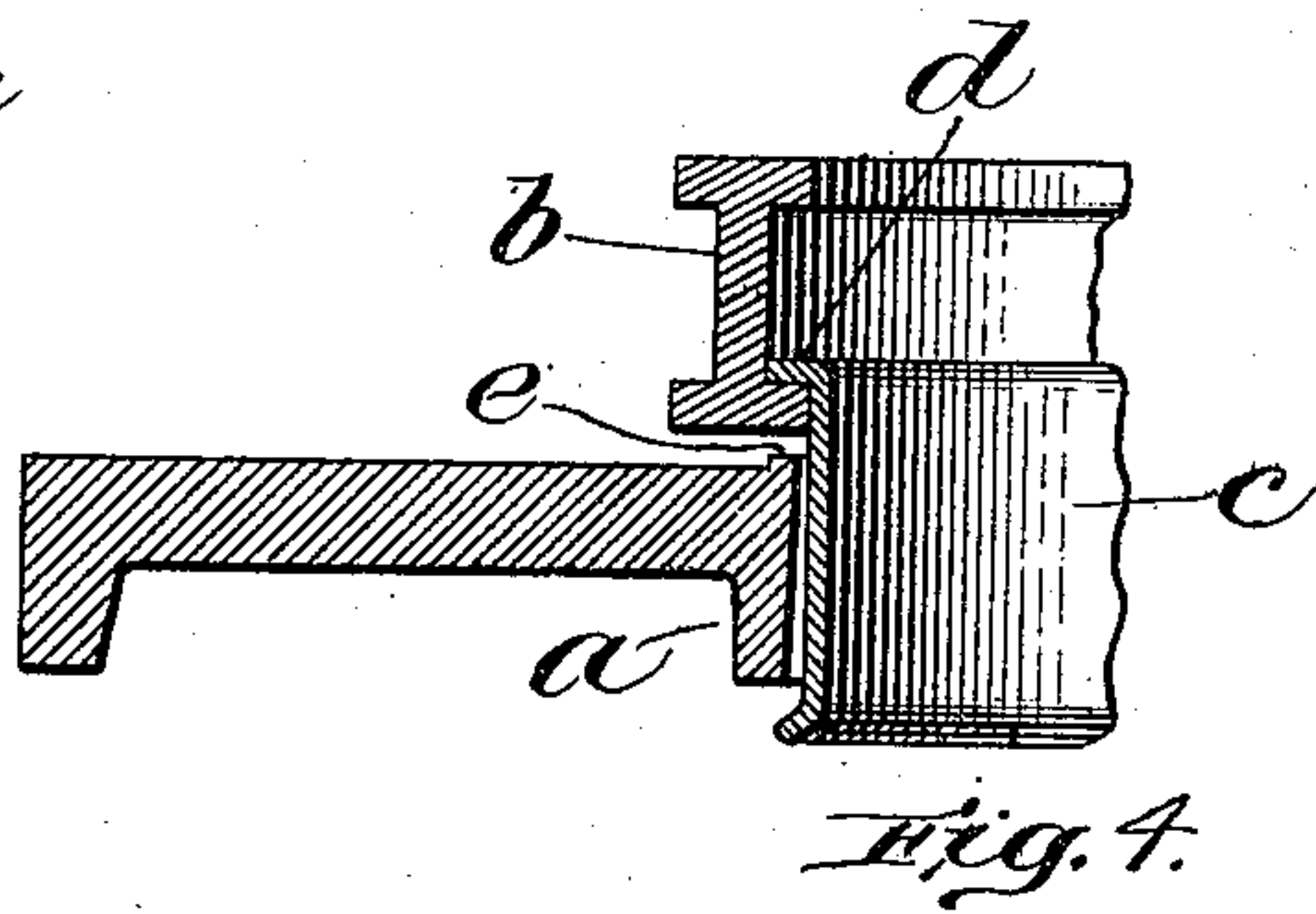
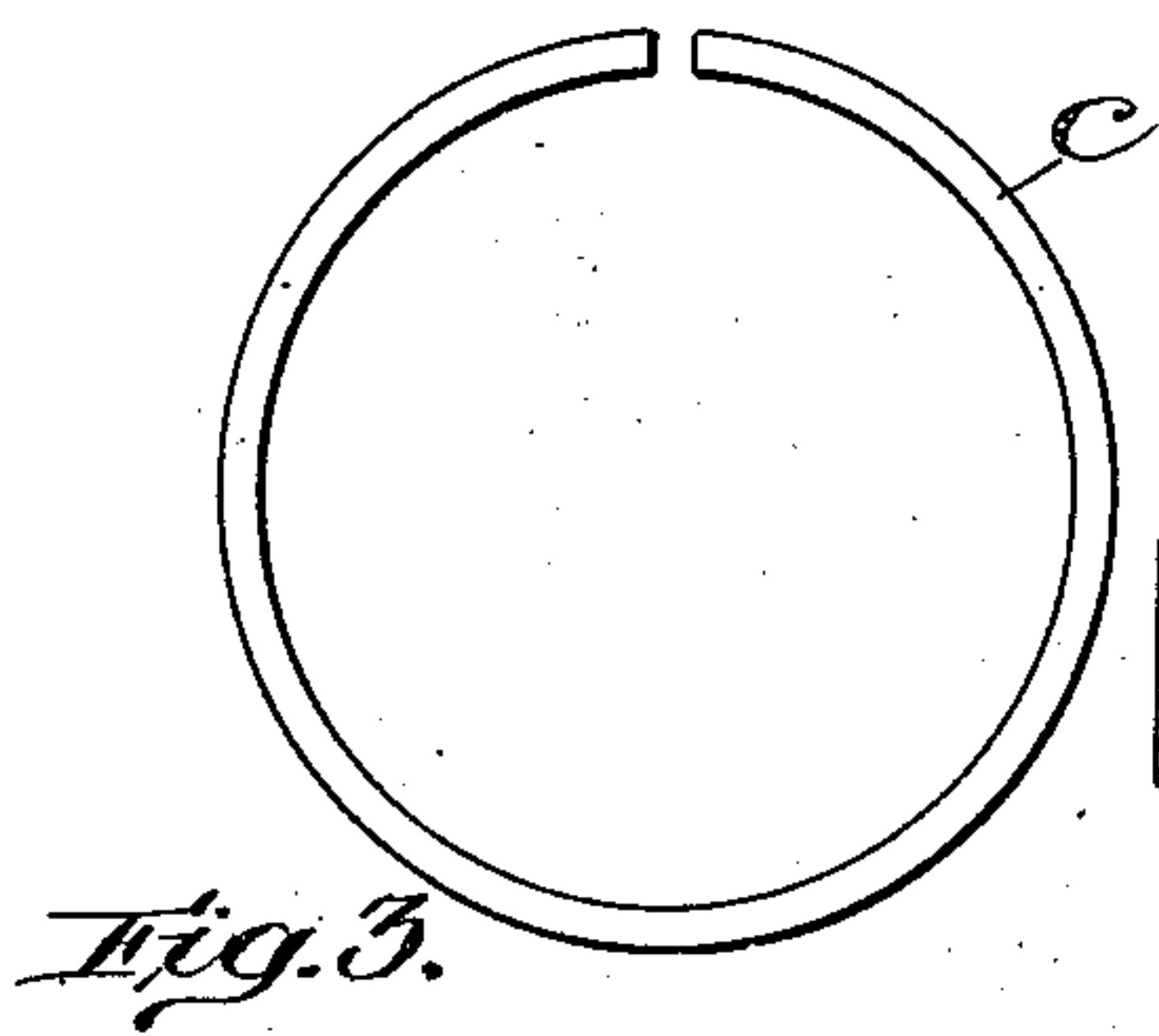
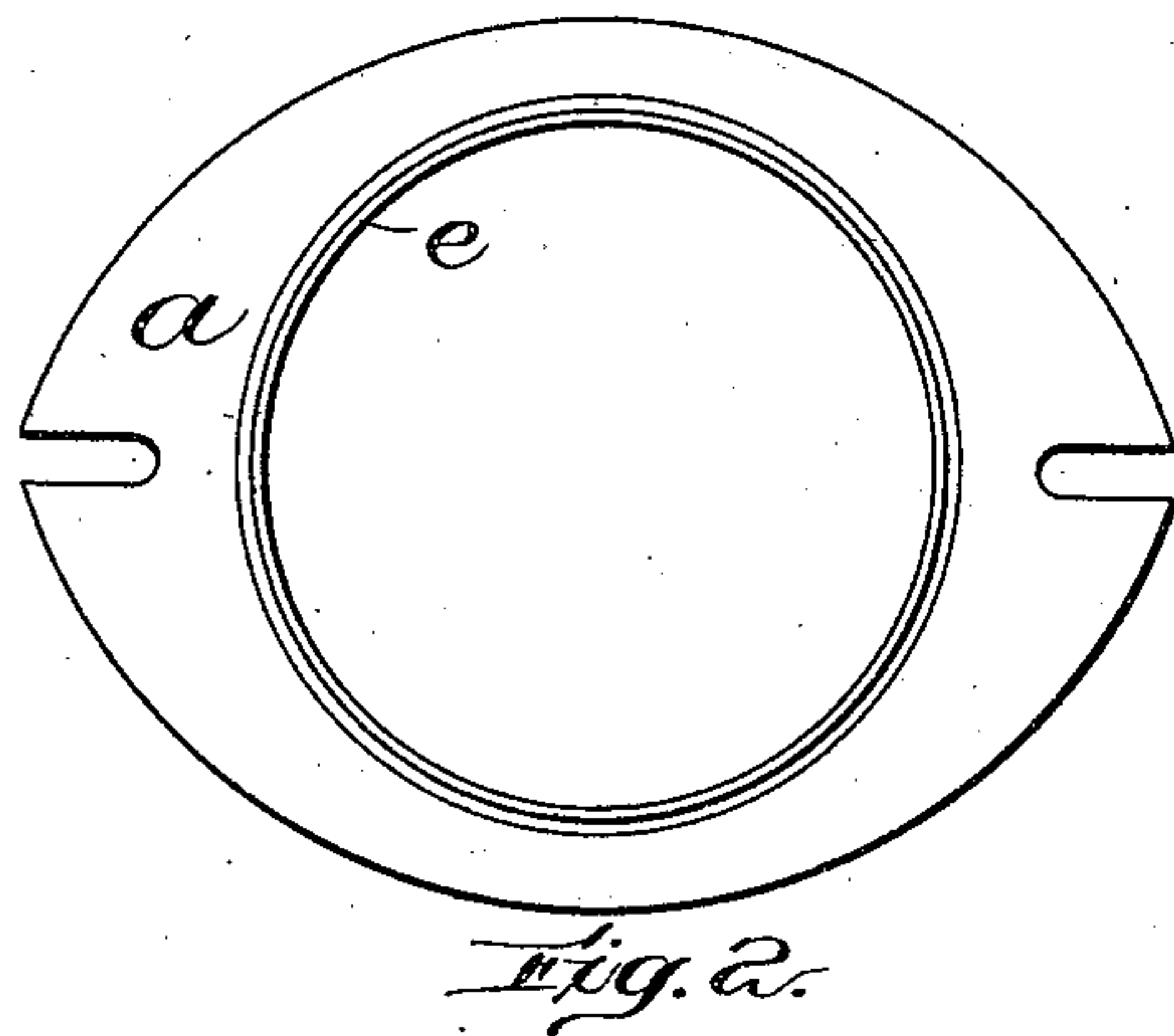
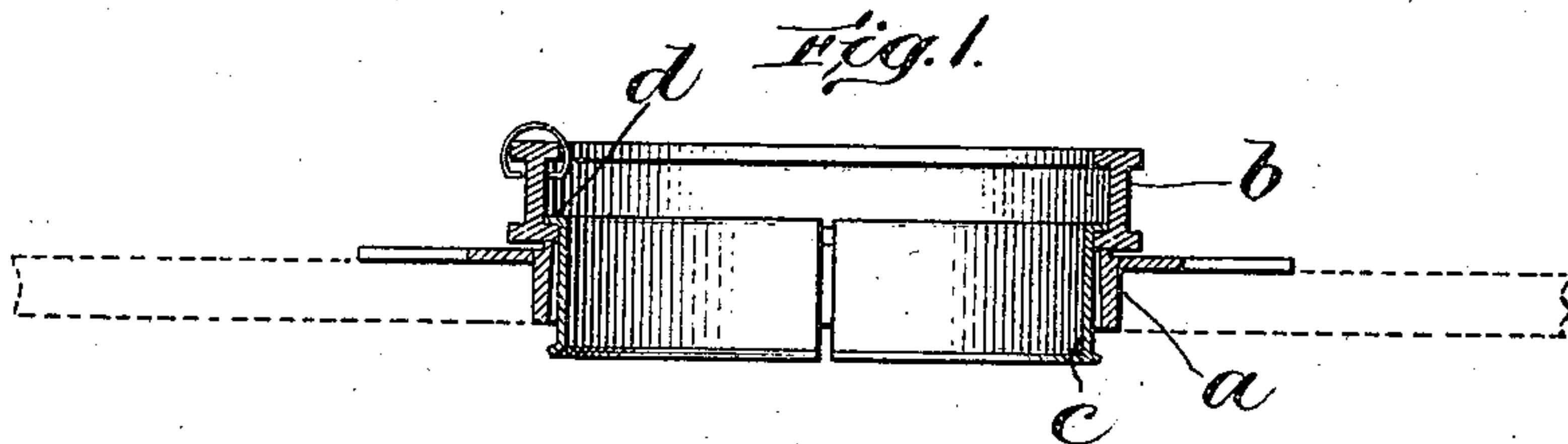


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 DEVICE FOR SPINNING AND TWISTING YARN.  
 APPLICATION FILED OCT. 8, 1906. RENEWED JAN. 3, 1910.

975,318.

Patented Nov. 8, 1910.



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# UNITED STATES PATENT OFFICE.

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

DEVICE FOR SPINNING AND TWISTING YARN.

975,318.

Specification of Letters Patent.

Patented Nov. 8, 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 Sea View, county of Plymouth, 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 to devices of that type employing a traveler ring capable of rotation under the stress of the yarn passing through the traveler to the spindle.

Among the obstacles to the practical and satisfactory use of this type of ring are irregularity of rotation, uneven stress or drag on the yarn, excessive wear, and liability to becoming clogged with lint or foreign substance.

It is the object of this invention to overcome these and other difficulties and to provide a simple and efficient construction and arrangement that will permit the proper rotation of the ring for an indefinite period of time without subjecting the parts to objectionable clogging or to undue wear.

One of the principal features characterizing the invention resides in the combination with such a rotatable traveler ring of a retaining device suspended therefrom in position to engage the support in order to retain the ring in operative position during its rotation.

In the accompanying drawings is shown one form of embodying the principles of this invention.

Figure 1 is a vertical central section thereof. Fig. 2 is a plan view of the base member or holder capable of attachment to the ring rail. Fig. 3 is a plan view of the retaining device which forms the connection between the traveler ring and its support; and Fig. 4 is a sectional view on an enlarged scale to show more clearly the relationship of the parts.

In the practice of the invention according to the specific form illustrated in the drawings I provide a suitable base or support which may according to convenience consist of an annular base member or bushing *a* adapted to fit into the usual aperture in the ring rail through which the spindle projects or if desired the ring rail itself may be con-

structed and proportioned to form a direct support for the ring and its retaining device after the manner indicated in Fig. 4.

Means are provided for loosely connecting the traveler ring *b* with the base member or support in such a manner as to permit the free rotation of the traveler ring without binding. The connecting means or retaining device shown in the drawings comprises an annular hoop or band *c* preferably of thin sheet metal whose periphery is cut through to render it expansible and contractible and whose upper edge is provided with a projecting flange *d* adapted to engage the inner raceway of the traveler ring.

The parts are so proportioned that the retaining device or hoop *c* forms a light contact with the interior portion of the traveler ring while the aperture in the supporting member is slightly larger than the corresponding portion of the hoop. I prefer also to make this aperture in the base very slightly flared so that the diameter at the bottom thereof is slightly larger than at the top as shown on an exaggerated scale in Figs. 1 and 4 of the drawings. The lower edge of the retaining hoop *c* is bent outwardly to form a retaining lip or flange which will serve to prevent the accidental escape of the hoop from the base member. The upper flange of the retaining device preferably projects far enough to engage or touch the surface of the interior raceway of the ring to prevent the lodgment of lint or dust between the parts.

The contact between the traveler ring and the retaining device is sufficient to cause the retaining device to rotate with the traveler ring at nearly or quite the same rate of speed while the centrifugal tendency of the rapidly rotating flexible hoop tends to expand its lower portion outwardly to approximately conform to the flared surrounding wall of the aperture in the support so that the ring rotates very steadily without objectionable vibration. The flare of these parts tends to prevent the erratic jumping or jerking of the ring under the stress of the yarn. The retaining device therefore forms a sort of universal joint or expansible clutch between the support and the traveler ring. In practice I prefer to form the support or base with a slightly raised annular rib or shoulder *e* adjacent to the upper edge of the aper-



ture so as to provide a narrow bearing or rest for the traveler ring.

As the outside diameter of the flanged portion of the retaining device when made in the annular form is greater than either the internal diameter of the aperture in the base or the internal diameter of the lower flange of the traveler ring, it is necessary to compress or squeeze the ends of the hoop *c* by each other to assemble the parts in operative position. During rotation the upper edge of the keeper is prevented from expanding by the traveler ring while the lower edge is allowed to expand slightly by reason of the clearance space between itself and the surrounding wall of the support.

While I have shown the retaining device constructed in the form of a flanged hoop suspended from the traveler ring and have found this an exceedingly convenient and simple device to manufacture, it will be understood that I do not confine myself to this specific form or shape of connecting means since this principle may be susceptible of various modifications.

Without attempting to describe the various changes in form, construction and arrangement that may be made in the practical application of my invention, what I claim is:—

1. A device of the class described embracing in combination a rotatable traveler ring, an underlying support provided with a flared aperture, and a rotatable retaining device arranged to engage said ring, the lower portion of said retaining device being expandible under the centrifugal action due to its rotation.

2. A device of the class described embracing in combination a support, a rotatable ring, an expandible and contractible hoop whose upper portion is confined against expansion by the traveler ring and whose lower portion is free to expand under the centrifugal force to increase its diameter at the bottom.

3. In a device for spinning and twisting yarn, the combination of a ring support, a rotatable traveler ring loosely resting on said support, a separate retaining device whose upper portion frictionally engages the interior of the traveler ring, said retaining device being expandible under the centrifugal action of its rotation to engage the ring support and retain the ring in proper operative position.

4. In a device of the class described the combination of a support for the traveler ring, a rotatable traveler ring loosely resting on said support, and a retaining device suspended from said ring and constructed to loosely engage the support in order to prevent displacement of the ring from operative position.

5. A device of the class described embrac-

ing in combination a support for the traveler ring, a rotatable traveler ring loosely resting thereon, a separate retaining device suspended from and frictionally engaging said ring and extending inside said support to form a retaining connection between the support and said ring.

6. In a device of the class described the combination of the ring rail formed with a spindle aperture, a rotary traveler ring loosely resting above the ring rail, a separable retaining device suspended from the ring and loosely confined in said spindle aperture.

7. In a device of the class described the combination of a ring support provided with a spindle aperture, a rotatable traveler ring loosely resting on said support, an expandible and contractible hoop of flexible sheet metal formed with an outwardly turned flange at its upper end by which it is suspended from the traveler ring to hang through the spindle aperture of the ring support, said retaining device being provided with means to prevent its accidental withdrawal from said aperture while permitting it to rotate.

8. In a device of the class described the combination of a ring support, a rotatable traveler ring loosely resting on said support, and a separate rotatable expandible device arranged to form a frictional connecting means between said ring and said support while permitting the ring to rotate.

9. A retaining device for a rotary traveler ring comprising a cylindrical hoop cut through transversely from edge to edge to render it expandible and contractible the opposite edges thereof being turned outwardly to form flanges or lips adapted to engage respectively the ring supporting member and the interior of the ring.

10. In a device of the class described the combination of a ring support formed with a flared spindle aperture, a rotatable traveler ring, and a flanged expandible hoop suspended from said ring to hang in said aperture to have loose engagement therewith as it rotates.

11. A device of the class described embracing a rotatable traveler ring, an underlying support for said ring, means for retaining said traveler ring in operative position above said support, said retaining means being disposed inside of the ring and its support and being automatically expandible under the centrifugal action of its rotation.

12. A device of the class described embracing in combination a rotatable traveler ring, a support therefor provided with a spindle aperture, said support being provided with an upwardly projecting rib arranged to form a seat upon which said traveler ring loosely rests, and a retaining device for maintaining the traveler ring in



operative position, said retaining device being disposed inside of the ring and of said aperture.

13. In a device for spinning and twisting yarn, the combination of the rotary traveler ring, its traveler, a base or support therefor provided with an annular bearing face for supporting the lower face of the traveler ring and having an internal cylindrical bearing wall, a cylindrical hoop engaging the lower flange of said traveler ring and suspended therefrom, said hoop having close cylindrical engagement with the interior bearing wall of the traveler ring support to maintain the traveler ring in proper position as it rotates under the friction of the traveler, substantially as described.

14. A device of the class described em-

bracing in its construction, an annular base or holder adapted to be secured to the ring rail, said base being provided with an internal cylindrical bearing wall and being formed with a horizontal bearing face to rotatably support the lower face of the traveler ring, a cylindrical hoop secured to and depending from the traveler ring so as to hang inside said base and form a cylindrical bearing engagement therewith to form a guide for the ring as it rotates under the stress of the yarn, substantially as described.

In witness whereof, I have hereunto set my hand, this sixth day of October 1906.

VICTOR BÉLANGER.

In the presence of—

MARY E. BELANGER,  
GEO. N. GODDARD.