

No. 821,238.

PATENTED MAY 22, 1906

J. HAYDEN, JR.

RING SPINNING AND TWISTING APPARATUS.

APPLICATION FILED MAY 23, 1905.

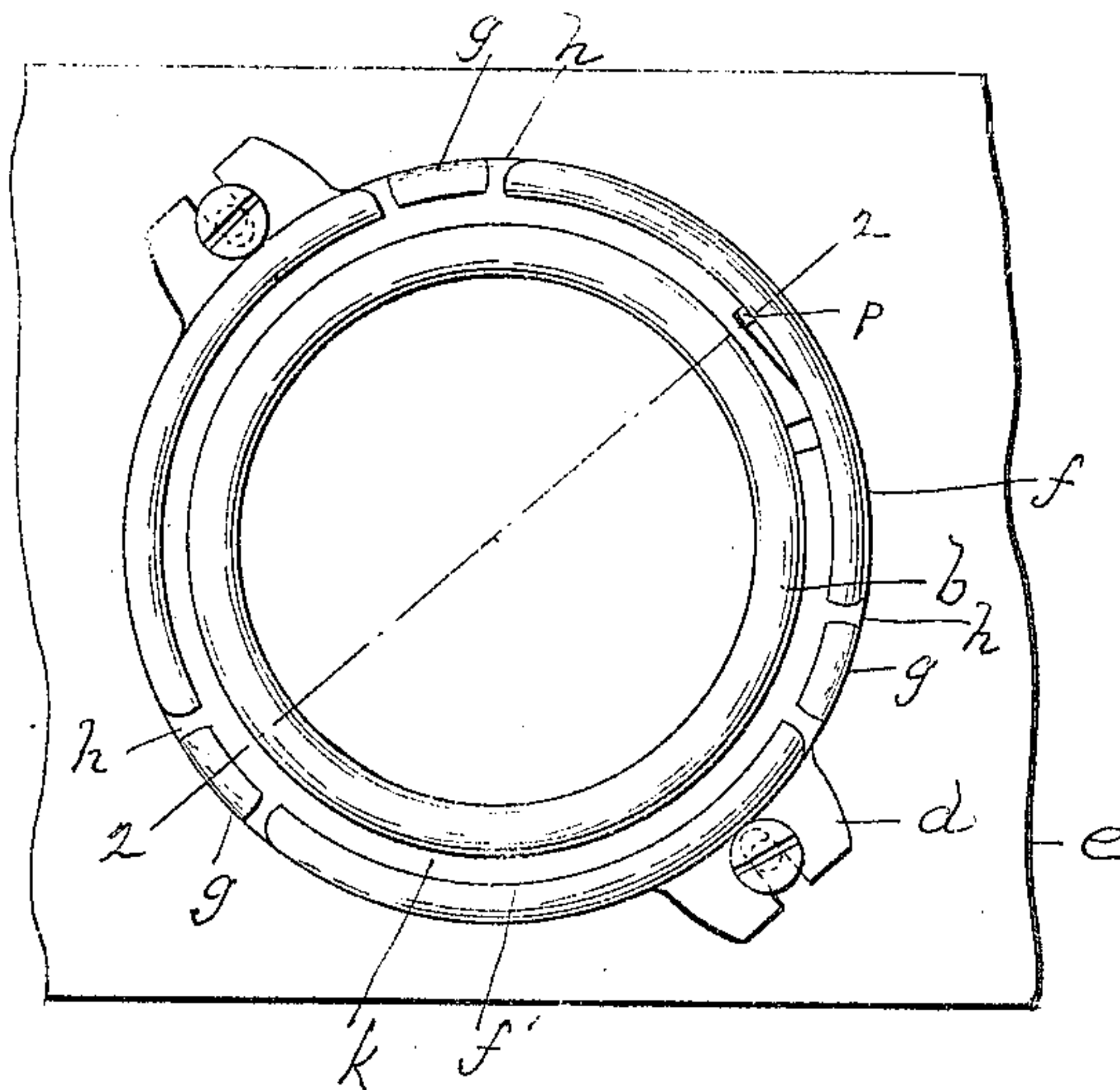


Fig. 1.

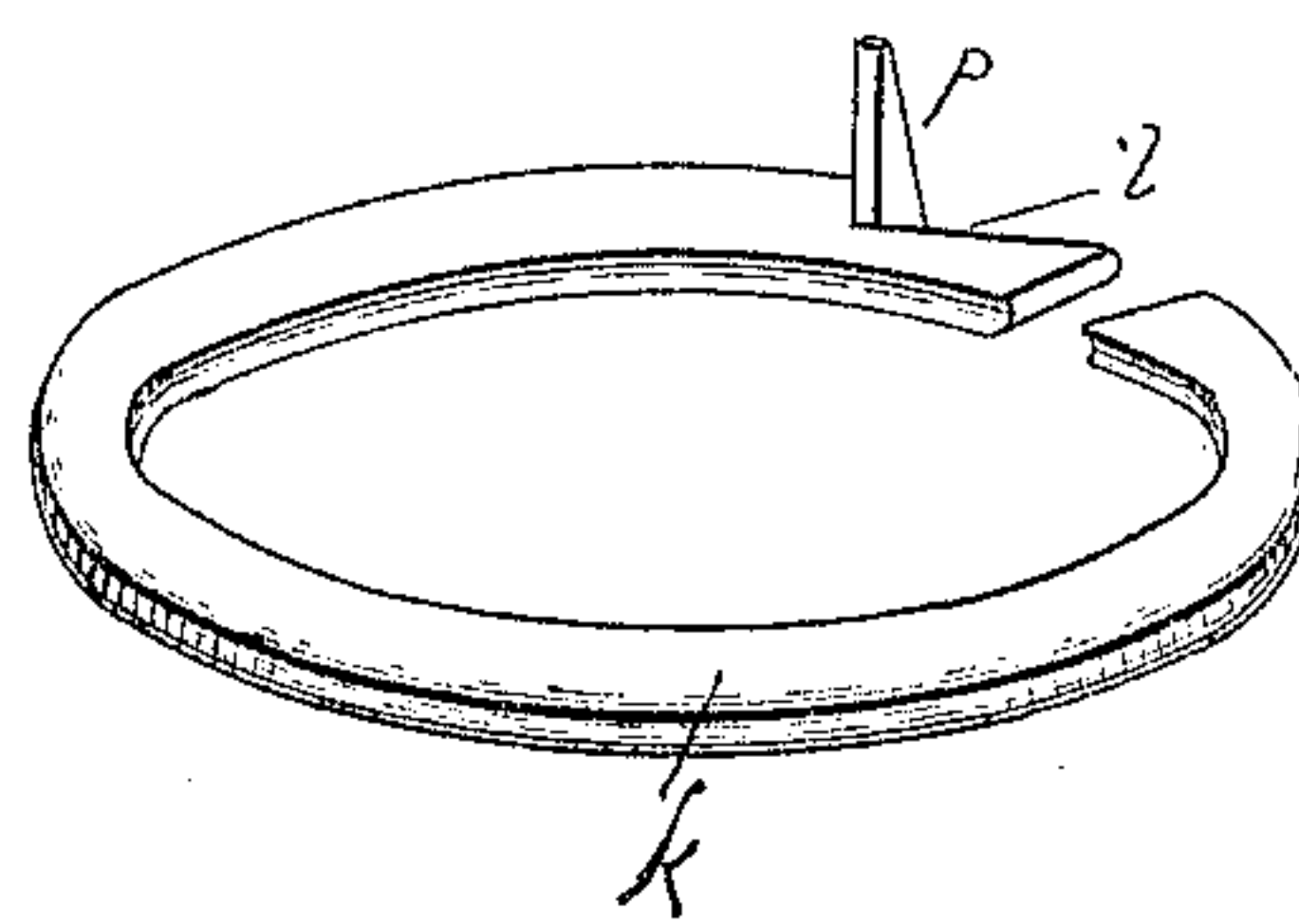


Fig. 3.

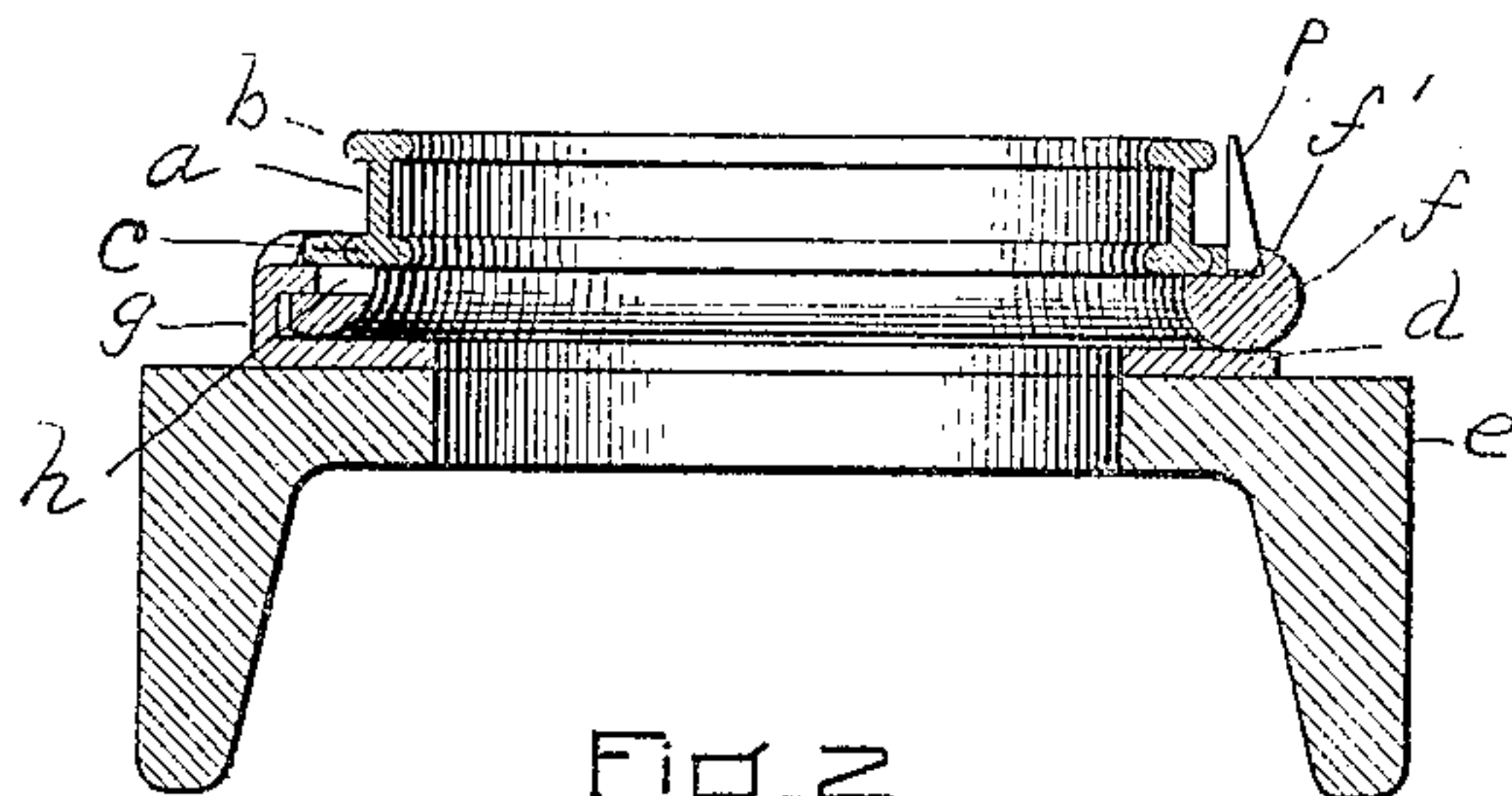


Fig. 2.

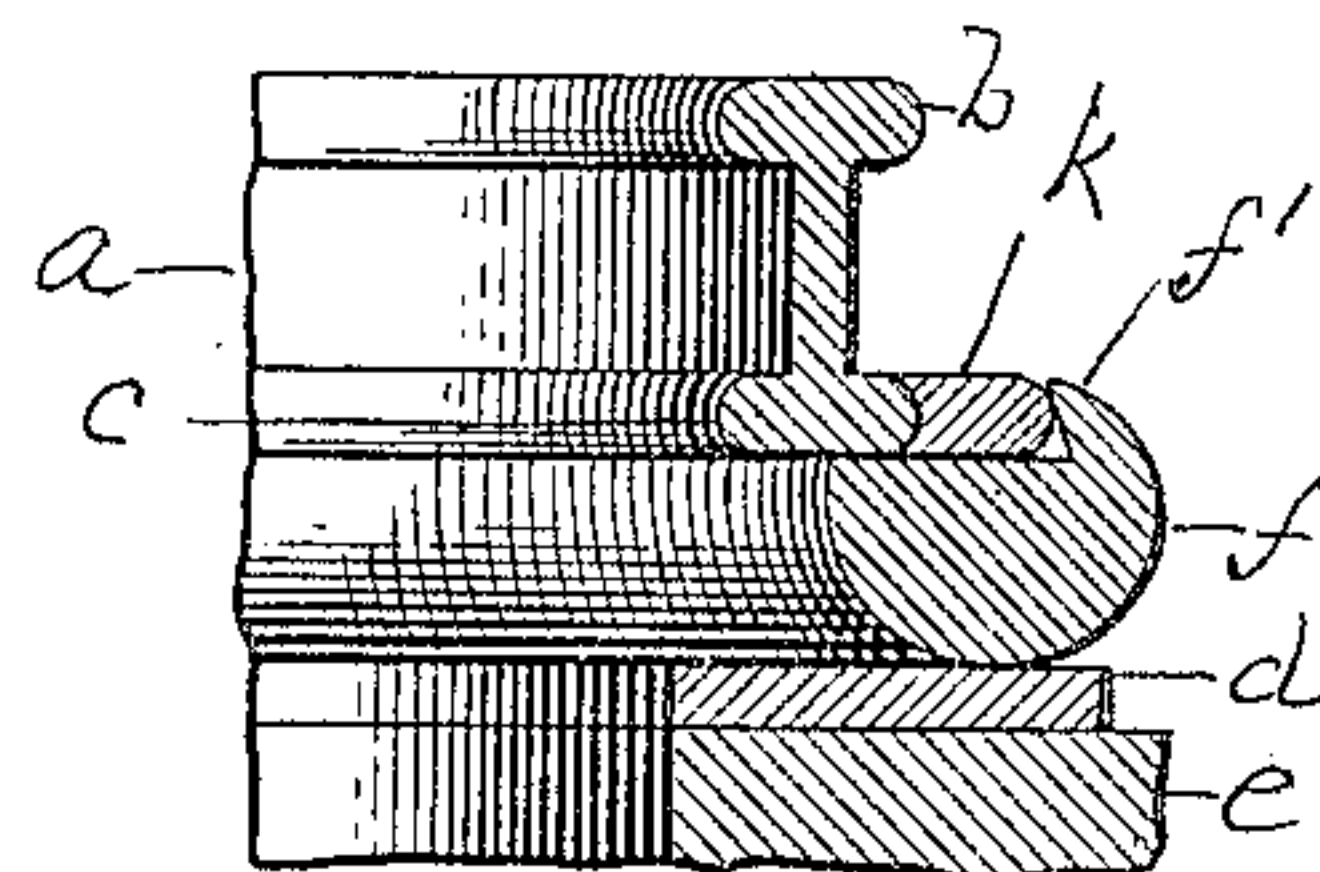


Fig. 4.

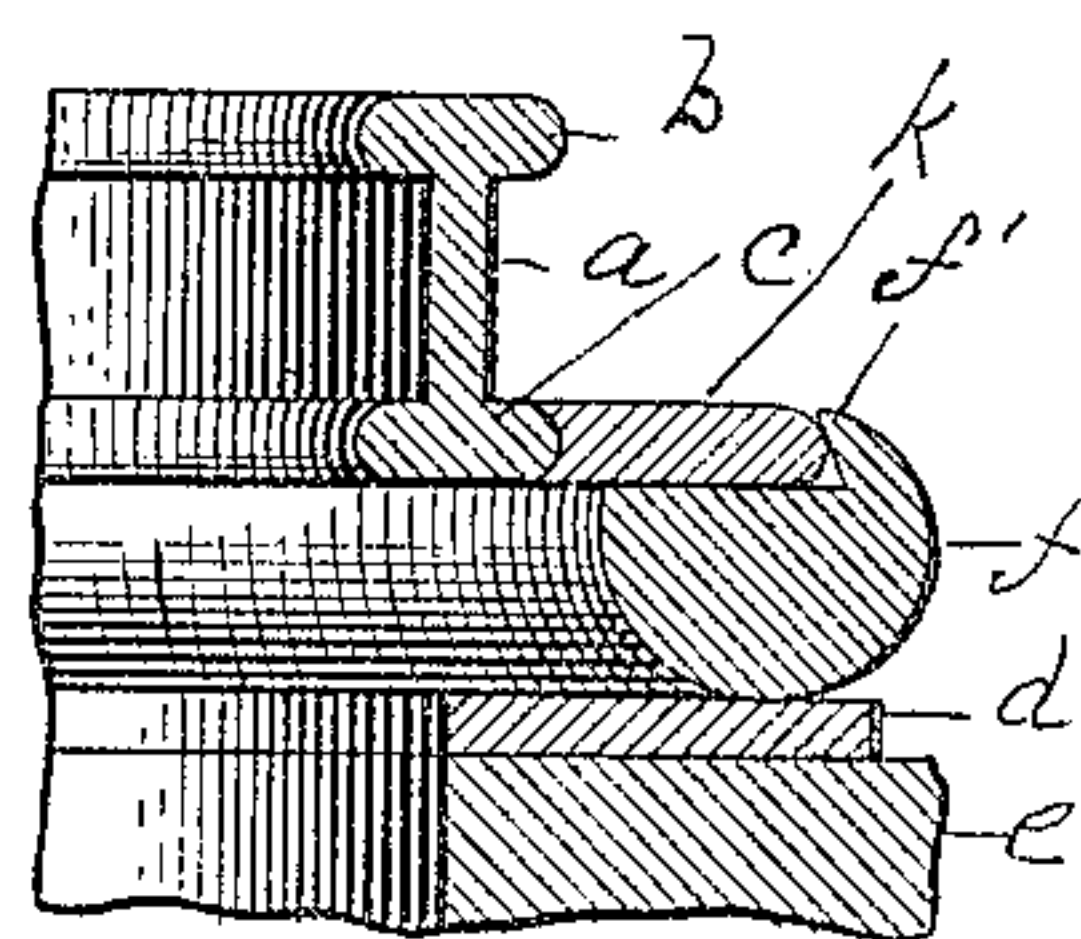


Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## RING SPINNING AND TWISTING APPARATUS.

No. 821,238.

Specification of Letters Patent.

Patented May 22, 1906.

Application filed May 23, 1905. Serial No. 261,856.

*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.

Moreover, my improved device relates to that class of apparatus in which an intermediate member or ring is applied between the spinning-ring and the supporting plate or holder, such intermediate member being non-rigidly connected with the holder, but rigidly connected with the spinning-ring. In my invention I apply between said intermediate member and the spinning-ring a curved or arc-shaped member, which I term an “adapter,” the principal object of which is to provide for the application of rings of different sizes to the same intermediate member, as many sizes of adapters being employed as there are sizes of rings.

Minor objects of this invention are to equalize the combined weight of the ring and the adapter by applying a heavier adapter when a smaller ring is employed and a narrow and light adapter when a larger ring is employed; to enable the level at which the yarn runs from the traveler to the spindle to be substantially the same when different rings and adapters are employed; to provide means (by trimming the edge of the adapter) for centering the ring around the spindle in case either the ring or the intermediate member is uneven or has become sprung by the hardening process, and to combine with the adapter a traveler-clearer.

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, the intermediate member, and my adapter provided with a clearer, the parts being assembled and in position on a ring-rail. Fig. 2 is a vertical section taken on line 2 2, Fig. 1. Fig. 3 is a view in perspective of my improved adapter removed. Figs. 4 and 5 are enlarged detail views, in vertical section, showing different-sized adapters applied to different-sized spinning-rings.

Similar letters of reference indicate corresponding parts.

*a* represents a spinning-ring of ordinary construction provided with the upper and lower flanges *b* and *c*.

*d* represents the supporting plate or holder, and *e* the ring-rail.

*f* represents the intermediate ring-shaped member held non-rigidly on the holder by any suitable means, the means shown consisting of clips *g*, which extend up from the holder into passages *h* in the intermediate member and are bent inward horizontally and overlap the bottoms of said passages.

None of the above parts are claimed as new in themselves considered in this application.

*k* represents a curved or arc-shaped plate, termed by me an “adapter,” preferably flat, and adapted to rest on the upper flat side of the intermediate member *f* between the periphery of the lower flange *c* of the ring and the lip or flange *f'*, which extends upward from the flat surface of the intermediate ring and slightly inward, as shown. The inner edge of the adapter is concave in vertical section, whereby it is adapted to fit over the outer edge of the flange of the spinning-ring, and the outer edge of the adapter has its upper portion curved or beveled inward in order that the central portion may extend under the upper end of the lip *f'*. After the adapter therefore is sprung over the lower flange of the spinning-ring and pressed down upon the flat surface of the intermediate ring inside the lip *f'* it is practically locked in such position, and the spinning-ring, the adapter, and the intermediate ring are rigidly connected and move or vibrate together to the limited extent allowed by the clips *g*.

In practice adapters are provided of different sizes and widths. A narrower adapter is



provided for a large ring, as in Fig. 4, and a broader adapter for a smaller ring, as in Fig. 5. The intermediate member, however, is of the same size in all cases. The adapter may  
 5 be of such a width as to allow the spinning-ring to rest on the intermediate member, as illustrated in Fig. 4, or if the spinning-ring is much smaller the adapter extends inward  
 10 the spinning-ring by reason of the curved groove on the inner edge of the adapter, which corresponds with the curved outer edge of the lower flange of the spinning-ring, as shown in Fig. 5. As a broader adapter is  
 15 necessarily heavier when a smaller ring is employed, the heavier adapter adds to the weight of the ring, so that great speed is attainable. As my adapter engages the different rings at the same level, inasmuch as it en-  
 20 gages them by its inner edge instead of supporting them on surfaces of different levels, the level at which the yarn leaves the traveler for the spindle is always approximately the same.

25 It is frequently the case that the spinning-ring or the intermediate member is slightly uneven or sprung by the hardening process, whereby the ring is not centered around the spindle. By turning the edge of the adapter  
 30 this unevenness may be neutralized and the ring absolutely centered.

Integral with the adapter is a traveler-clearer formed by making a cut from one of the ends of the adapter at *l* and bending up  
 35 the metal vertically to constitute the clearer *p*. This cut is made preferably straight and in the direction indicated, whereby the base of the clearer will be broader than its upper end and its inner edge be in a vertical line.  
 40 The outer edge may be shaved off somewhat, if desired.

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

45 1. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two, of a curved separate member adapted to rest on said intermediate member and to engage by  
 50 means of its inner edge the lower flange of said spinning-ring.

2. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two, of  
 55 a curved separate member adapted to rest on said intermediate member and provided on its inner edge with a groove adapted to fit the lower flange of said spinning-ring.

3. The combination with a spinning-ring,  
 60 a supporting plate or holder, and an intermediate member or ring between the last two provided with an upwardly and inwardly projecting lip, of a curved member adapted to rest on said intermediate member with its  
 65 outer edge beneath said lip and with its inner

edge adapted to engage the lower flange of said spinning-ring.

4. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two  
 70 provided with an upwardly and inwardly projecting lip, of a curved member adapted to rest on said intermediate member with its outer edge beneath said lip and with its inner edge provided with a groove adapted to fit  
 75 the lower flange of said spinning-ring.

5. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two and  
 80 provided with an upwardly-extending flange, of a curved member adapted to rest on said intermediate member and to engage both the flange on the intermediate member and the lower flange on the spinning-ring to prevent  
 85 vertical displacement and movement one on the other about the axis of said ring.

6. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two,  
 90 of a separate member adapted to rest upon said intermediate member and to engage the lower flange of said spinning-ring on the same plane as said flange.

7. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two,  
 95 of a separate member adapted to rest upon said intermediate member and to engage the lower flange of said spinning-ring on the same plane as said flange, and means secured to  
 100 said intermediate member limiting the outward movement of said separate member and preventing movement about the axis of said spinning-ring.

8. The combination with a spinning-ring,  
 105 a supporting plate or holder, and an intermediate member or ring between the last two, of a split adapter between said intermediate member and a flange of the spinning-ring, said adapter being provided on its inner edge  
 110 with a groove whereby it directly supports said spinning-ring.

9. The combination with a spinning-ring, a supporting plate or holder, and an intermediate member or ring between the last two  
 115 provided with an upwardly-extending flange, of a split adapter adapted to rest on said intermediate member and to abut said flange thereof, said adapter being provided with a groove on its inner edge whereby it engages  
 120 the flange of the spinning-ring.

10. The combination of a spinning-ring, a supporting plate or holder, an intermediate member provided on its upper edge with an annular lip, and an adapter resting on said  
 125 intermediate member between said lip and the outer edge of the lower flange of the spinning-ring, and directly supporting said spinning-ring by means of a groove on its inner edge which corresponds with the shape of  
 130



the ring, said spinning-ring, adapter and intermediate member being held in connection by said lip.

11. The combination of a spinning-ring, a supporting plate or holder, an intermediate member provided on its upper edge with an annular lip, and a Z-shaped adapter resting on said intermediate member between the lip and the spinning-ring, and pressed against the outer edge of the lower flange of the spinning-ring by said lip, whereby it directly supports said spinning-ring and rigidly connects the spinning-ring and the intermediate member.

12. The combination of a spinning-ring, a supporting plate or holder, a member intermediate of said supporting plate or holder and the spinning-ring, an adapter between the intermediate member and the spinning-ring firmly contacting with both, and a trav-

eler-clearer extending up from said adapter at a suitable distance from the flange of the spinning-ring on which the traveler moves.

13. The combination of a spinning-ring, a supporting plate or holder, a member intermediate of said supporting plate or holder and the spinning-ring, an adapter between the intermediate member and the spinning-ring and firmly contacting with both, and a traveler-clearer integral with and extending up from said adapter at a suitable distance from the flange of the spinning-ring on which the traveler moves.

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,  
A. K. HOOD.