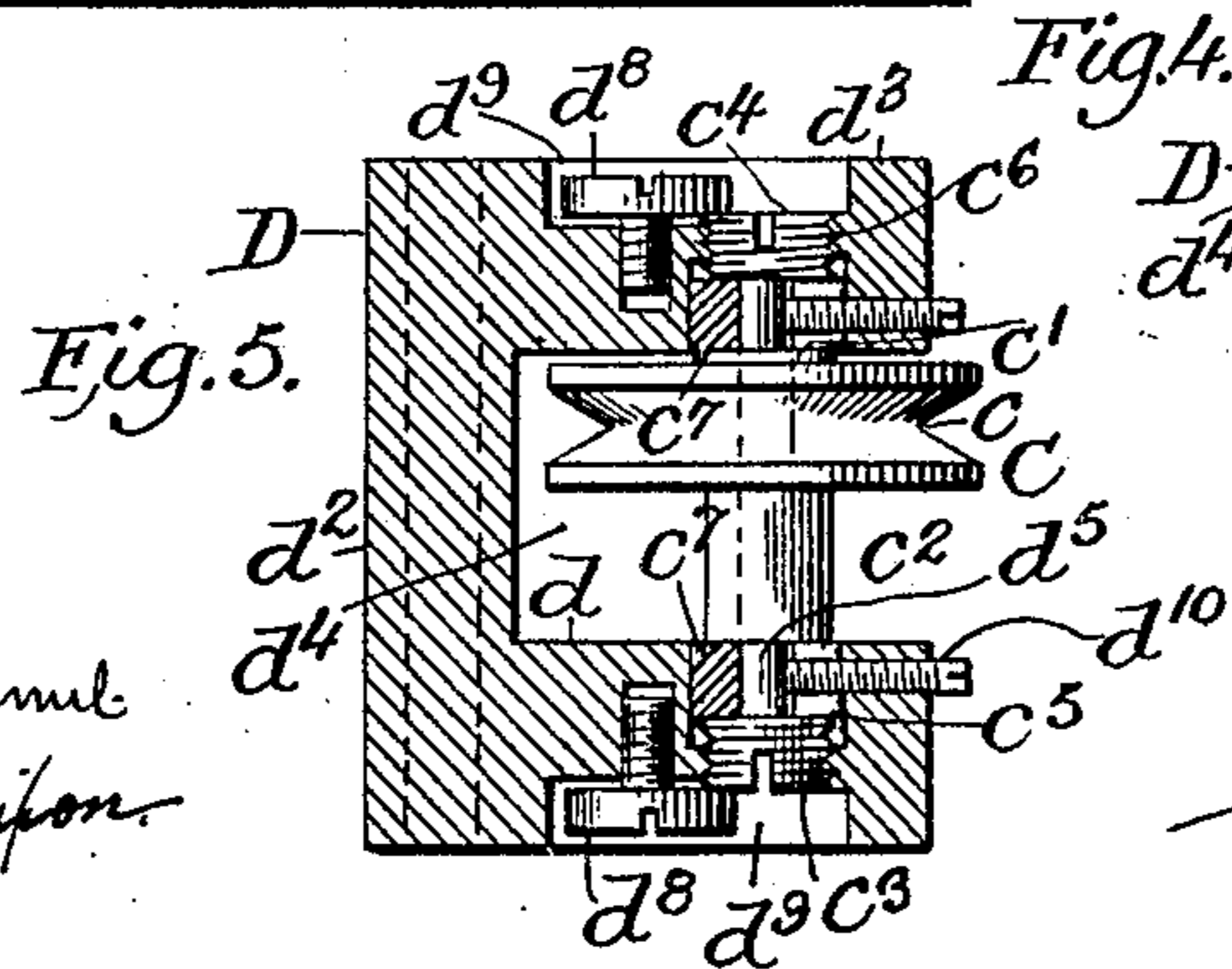
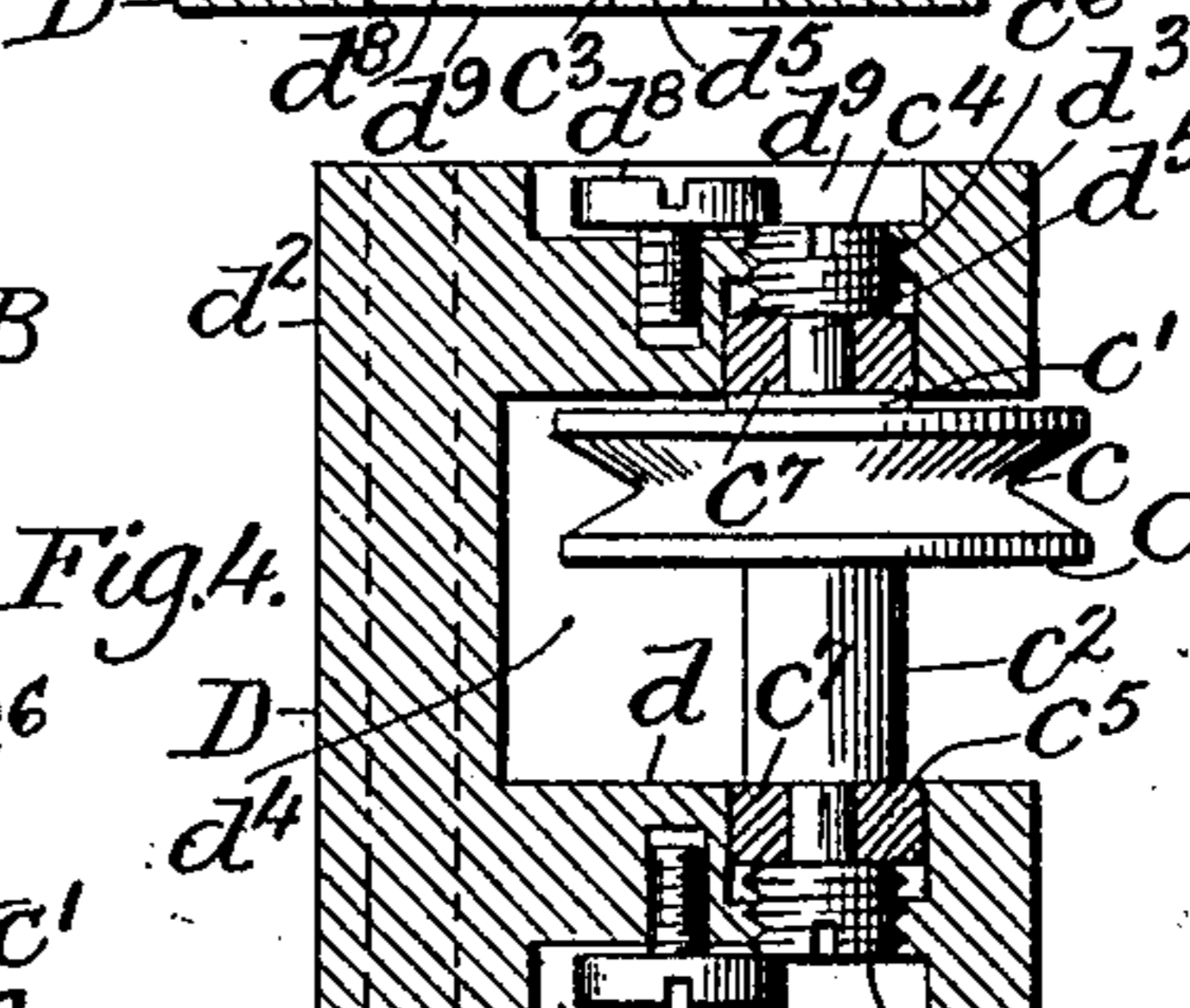
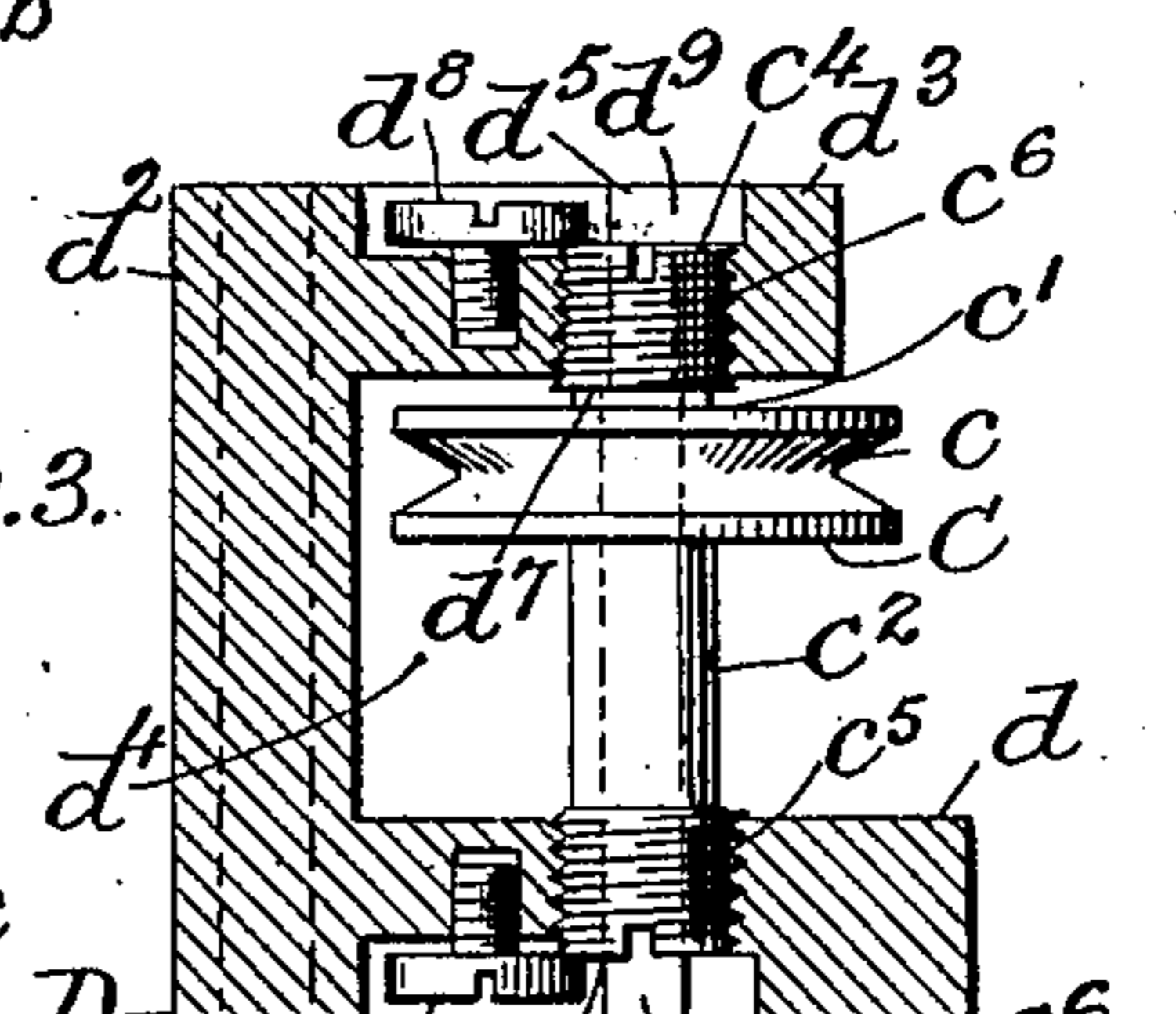
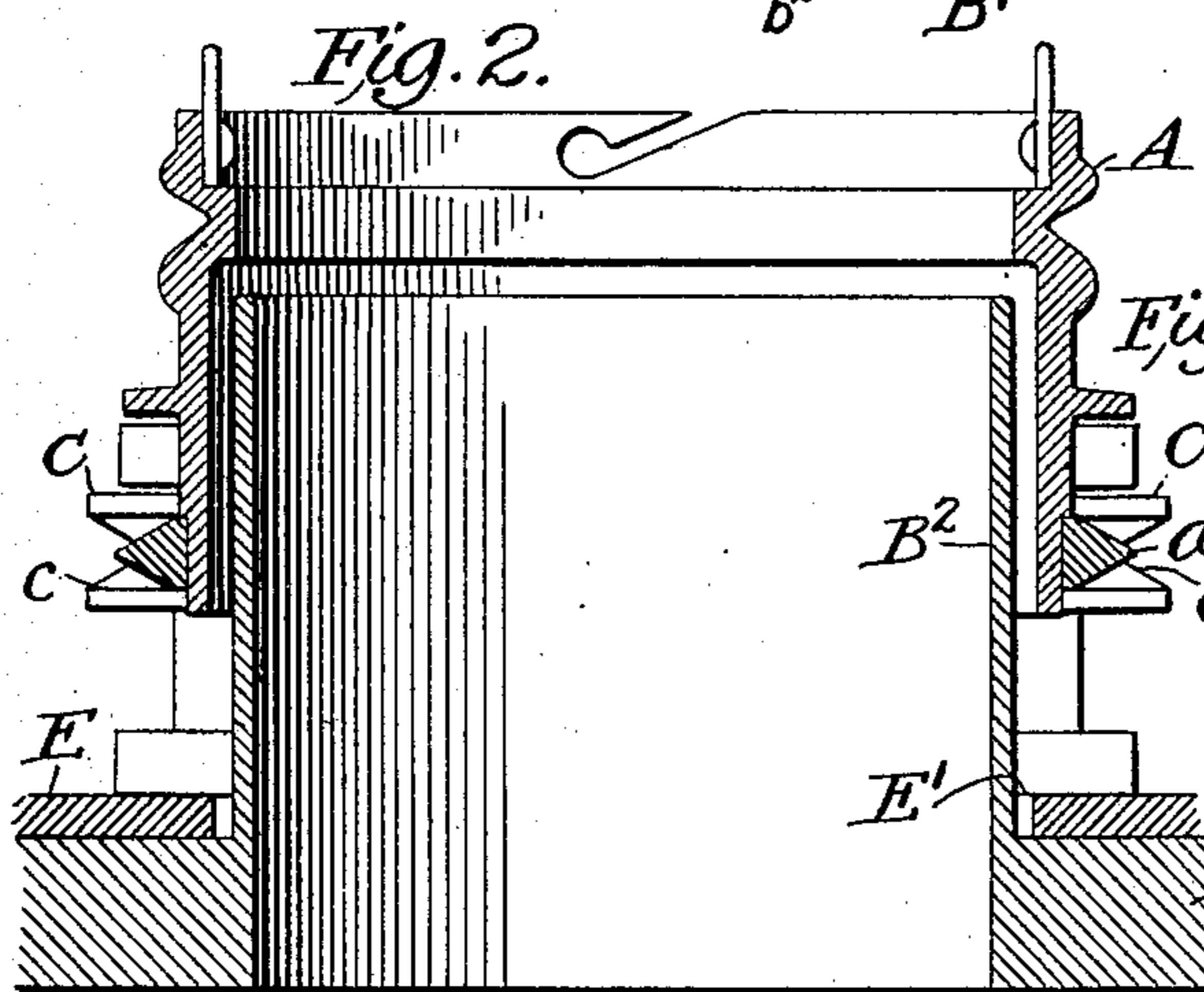
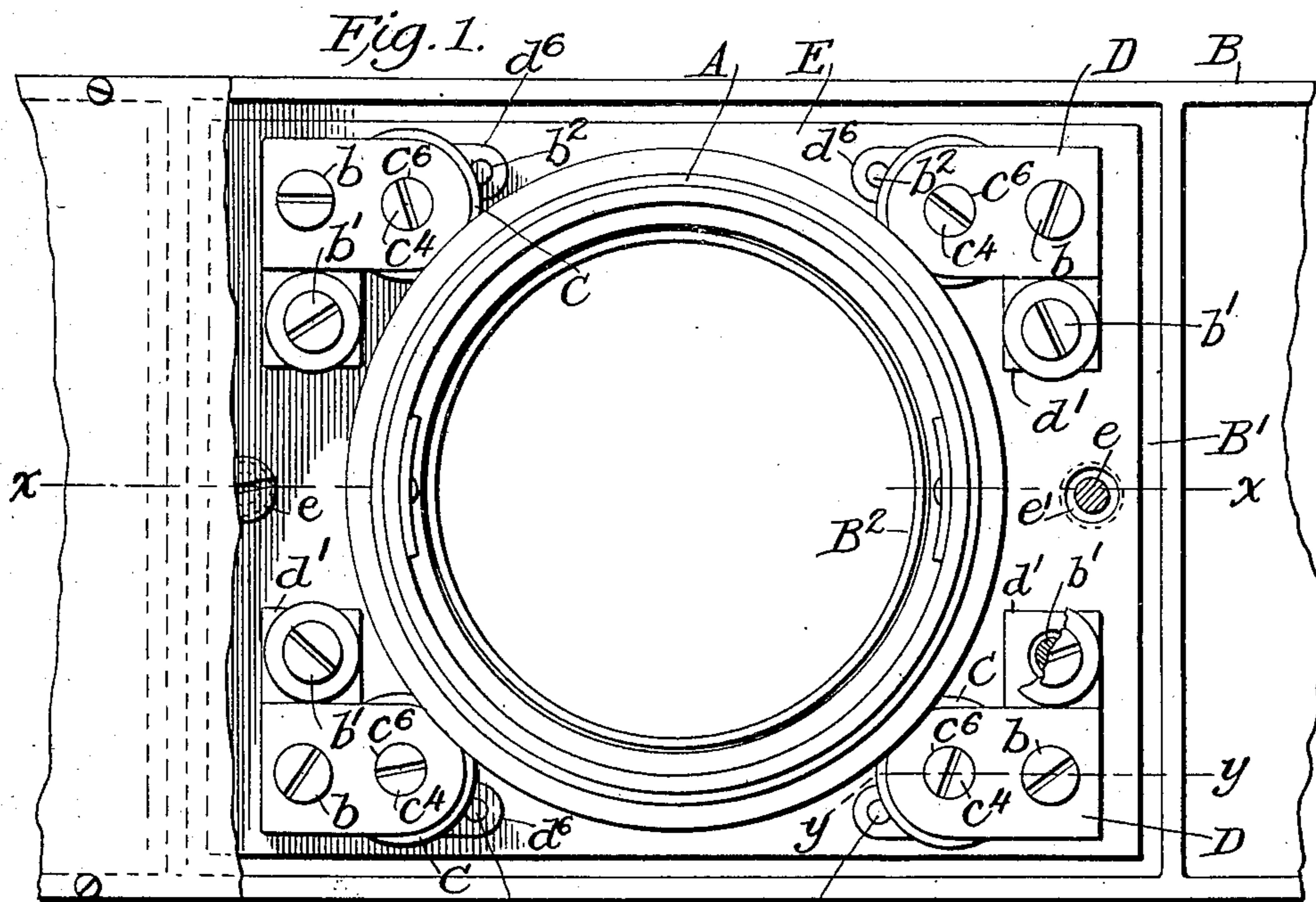


C. T. ATHERTON.
 ROTARY RING SPINNING AND TWISTING MACHINE.
 APPLICATION FILED DEC. 7, 1907.

913,654.

Patented Feb. 23, 1909.



WITNESSES
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CHARLES T. ATHERTON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO ATHERTON SPINNING RING COMPANY, OF PROVIDENCE, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

ROTARY RING SPINNING AND TWISTING MACHINE.

No. 913,654.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed December 7, 1907. Serial No. 405,490.

To all whom it may concern:

Be it known that I, CHARLES T. ATHERTON, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Rotary Ring Spinning and Twisting Machines, of which the following is a specification.

My invention in spinning and twisting machines of the class above specified has reference more particularly to the means made use of for supporting the ring and effecting its adjustments; and such invention has for its object to provide means of that character, which, while simple in construction and efficient in operation, shall, at the same time, permit of a more ready and convenient adjustment of the parts than has been possible with constructions heretofore in use.

To these ends the invention consists, first, in the peculiarities of construction and combination of parts by which the ring supporting rolls are pivoted in their respective carrying brackets and rendered adjustable in them; second, in the combination of parts by which the ring and its supporting rolls are mounted upon the ring carrying rail and rendered capable of removal therefrom without disturbing their relationship with respect to one another, and third, in various other constructions and combinations of parts, all as will hereinafter more fully appear.

Referring to the accompanying drawing, which forms a part of this specification, Figure 1, is a plan of a portion of a ring-supporting rail, with a rotary ring mounted thereon in accordance with my invention, the cover for the rail and a portion of one of the bracket holding screws being broken away, and one of the screws by which the ring and bracket carrying plate is secured to the rail shown in horizontal section; Fig. 2, a vertical section of such parts, taken in the plane $x x$ of Fig. 1; Fig. 3, a vertical section of one of the friction roll supporting brackets detached, taken in the plane $y y$ of Fig. 1, and showing certain of the parts carried by it in side elevation; Fig. 4, a similar vertical section, taken in the same plane, of a friction roll supporting bracket, having a slightly modified form of mounting for the friction roll, and also showing certain of the parts carried by the bracket in side elevation, and

Fig. 5, a like vertical section, taken in the same plane, of a friction roll supporting bracket provided with a further modified form of mounting for such supporting roll, with various of the parts carried by the bracket likewise shown in side elevation.

In all the figures, like letters of reference are employed to designate corresponding parts.

A indicates the ring by means of which the spinning and twisting of the yarn are effected, and B indicates the rail upon which the ring is rotatively mounted. The ring A and the rail B, in themselves however, constitute no part of my present invention, but are or may be of any ordinary or preferred construction and require no further description herein, it only being essential that, whatever their construction, the ring be provided with a circumferential track a .

For mounting the ring A upon the rail B, I make use of the friction rolls C, which, along with peripheries c that are severally adapted to engage with the track a , are or may be constructed with upper hubs c^1 and lower hubs c^2 , if so desired, but these are immaterial and either the upper or the lower of these hubs, or both together may be omitted without in any way affecting the invention. As thus constructed, these friction rolls C are disposed at appropriate distances apart around the ring, and, engaging with the track a thereon, are rotatively mounted in brackets D. To permit of this mounting of the rolls in them, each of the brackets D is preferably constructed with a suitable base d , with a lug or projection d^1 extending outwardly from its side, and also with an upwardly extending portion d^2 , which is provided with an overturned upper end d^3 , between which and the base d a recess d^4 is formed, in which the friction roll C is pivoted by a pin d^5 , which, extending axially through it, with the upper and lower ends of the pin respectively secured in the overturned upper end portion d^3 of the bracket and in the base d thereof, as shown. With the brackets constructed and carrying the friction rolls as thus explained, the brackets are secured to and supported upon the rail B, through the intermediary of a plate E. To permit of this being accomplished, the brackets are secured to the plate and the plate, in turn, with the brack-

ets upon it, is detachably secured in a chamber B^1 formed in the upper surface of the rail as clearly illustrated.

For securing the brackets to the plate E, I make use of screws b and b^1 , which pass downwardly through suitable orifices formed in the brackets and engage at their lower ends with correspondingly shaped threaded orifices similarly formed in the plate; and in order to provide for the adjustment of the friction rolls C toward and away from the axis of the ring A, when required, to cause them to bear with greater or less force against the track a , or to bring the ring into concentricity with the axis of its cooperating spindle, I find it convenient to construct the orifices for the screws b^1 in the outwardly extending lugs or portions d^1 of the brackets somewhat larger than the screws they accommodate. As thus constructed, the adjustment of the friction rolls C toward and away from the axis of the ring, will be effected by first loosening the screws b and b^1 , then swinging the brackets in the proper direction and to the required extent upon their respective screws b as pivots, and then tightening the screws b and b^1 , when the parts will not only be adjusted, but firmly clamped and held in adjusted position. In order however to provide for a more positive holding of the brackets in adjusted position, I employ a dowel pin b^2 in connection with each, which, passed downward through an appropriate orifice formed in a second lug or projection d^6 on the side of the base of each of the brackets D, engages at its free lower end with a socket formed in the plate E. When thus employed, the friction rolls C and bracket D will be first brought into the required adjustment, and the orifice or socket for the dowel pin will then be drilled, after which the dowel pin will be driven into place. This particular orifice however will only serve for one adjustment of the bracket, and should it be found that a second adjustment of it was subsequently required, then a second orifice for the dowel pin would have to be drilled, after the required adjustment of the bracket had been made and the dowel pin employed in connection with it. The securing of the brackets D to the plate E being thus accomplished, the securing of the plate itself to the rail B is effected by screws e , which passed downward through appropriate orifices e^1 formed in such plate, engage at their lower ends with suitable threaded orifices formed in the rail; and in order to provide for the lateral adjustment of the plate upon the rail with respect to the axis of the ring A, I preferably construct it of a length somewhat less than the length and breadth of the chamber B^1 , with the orifices E^1 and e^1 therein slightly larger than the upwardly extending sleeve B^2 and screws e , which they respectively re-

ceive and accommodate. With the brackets D thus adjustably mounted upon the plate E, and with the plate adjustably secured to the rail B, the adjustment of the ring A laterally with respect to its axis may be accomplished not only by the adjustment of its supporting rolls and brackets upon the plate E, but also by the adjustment of the plate itself upon the rail B.

While provision is thus made for the lateral adjustment of the friction rolls C and through them of the ring A, I also provide for the vertical adjustment of these parts as well. To this end I make use of a pair of adjusting screws c^3 and c^4 , in connection with each friction roll C, of which the screw c^3 is threaded upwardly in an orifice c^5 formed in the base d of the bracket D, while the screw c^4 is threaded downwardly in a similar orifice c^6 formed in the overturned upper end portion d^3 thereof, with the screws disposed in line and in concentric relationship with respect to the axis of the roll. As thus arranged, these screws act against the ends of the roll and serve not only as a means for vertically adjusting the roll, but also as a means for holding it in adjusted position. In some instances these screws c^3 and c^4 will act directly against the opposite ends of the roll, as shown, for instance, in Fig. 3, and in that case they will preferably be constructed tubular whereby to receive and accommodate the opposite ends of the pivot pin d^5 , which said pin will be made of a length to rest at its lower end, upon the plate E, and be provided near its upper end with a shoulder d^7 for cooperation with the screw c^3 , to restrain the pin from rising in the roll when the parts are in operation or otherwise. In other instances, on the other hand, the screws c^3 and c^4 , instead of acting directly against the ends of the friction rolls, will act upon them through the intermediaries of plugs c^7 , which are preferably constructed in tubular form, whereby to receive the ends of the pivot pins d^5 , and are arranged in the screw orifices c^5 and c^6 with one of their ends contacting with the ends of the friction roll and the other of their ends abutting against the inner ends of their respective screws c^3 and c^4 , as shown more particularly in Figs. 4 and 5.

With the parts constructed and disposed under either of the arrangements specified, the vertical adjustment of the friction rolls C, to bring them into appropriate relationship to the ring A, or to properly locate such ring with respect to the horizon, may be readily effected by simply turning the screws c^3 and c^4 appropriate to them in the proper direction when the rolls will be raised or lowered as may be desired.

To firmly hold the screws c^3 and c^4 in adjusted positions and prevent them from moving either outward or inward therefrom, I

make use of binding screws d^8 , which, threaded in suitable orifices formed in the brackets D, and sunken in appropriate recesses d^9 whereby to be below the surface of such brackets, are provided with heads which extend outward over and in contact with their respective cooperating screws c^3 and c^4 , and prevent thereby any rotation of the latter; while in order to prevent any rotation of the pivot pins d^5 I sometimes find it convenient to employ holding screws d^{10} , which, threaded in suitable orifices formed in the brackets D and extending inward through appropriate apertures formed in the plug c^7 , engage at their inner ends with such pins and thereby not only hold and firmly bind them in place, but prevent at the same time all rotation of the plugs, as shown, for instance, in Fig. 5.

From the foregoing therefore it will be seen that I provide means for mounting rotating spinning rings upon their supporting rails, which, in addition to allowing of the vertical and lateral adjustment of their carrying friction rolls, and of the firmly holding of them in adjusted position, also permits of the ready removal of these parts, with their carrying brackets, from the ring supporting rail, when such adjustments are to be made, without disturbing in any way their relative arrangement when so removed.

In the drawing I have shown, and in the above described the carrying rail as provided with but a single ring, but it is to be understood that in practice not only a single ring, but a plurality of such rings arranged in a row may be employed if so desired.

While in thus explaining my invention I have described the specific form which I have found the most convenient in practice, I wish it distinctly understood that I do not limit myself thereto, as it is obvious that I may modify the same in various of its details and still be within the scope of the invention.

Having now described my invention and specified certain of the ways in which it may be carried into practice, I claim and desire to secure by Letters Patent of the United States,—

1. The combination, with a rotating spinning and twisting ring, a supporting rail therefor, and friction rolls for engaging with and carrying such ring, of brackets in which the friction rolls are rotatively mounted secured to the supporting rail, pins upon which such friction rolls are rotatively supported, adjusting screws for acting against the ends of said friction rolls to effect the vertical adjustment of these rolls in their supporting brackets, and screws arranged in such supporting brackets and overlapping with their heads the outer ends of the adjusting screws to hold such adjusting screws in adjusted position, substantially as described.

2. The combination, with a rotating spinning and twisting ring, a supporting rail there-

for, and friction rolls for engaging with and carrying such ring, of brackets in which the friction rolls are mounted secured to such supporting rail, pins upon which the friction rolls are rotatively supported, adjusting screws for acting against the ends of said friction rolls to effect the vertical adjustment of these friction rolls, plugs interposed in the brackets between the inner ends of the adjusting screws and the ends of the friction rolls, and devices for holding such adjusting screws in adjusted position, substantially as described.

3. The combination, with a rotating spinning and twisting ring, a supporting rail therefor, and friction rolls for engaging with and carrying such ring, of brackets in which the friction rolls are rotatively mounted secured to such supporting rail, pins upon which such friction rolls are rotatively supported, adjusting screws for vertically adjusting said supporting rolls in their carrying brackets, plugs interposed between the inner ends of such adjusting screws and the ends of the friction rolls, and screws arranged in the brackets for engaging with apertures in the sides of the plugs to hold them from rotation, substantially as described.

4. The combination, with a rotating spinning and twisting ring, a supporting rail therefor, and friction rolls for engaging with and carrying such ring, of brackets in which the friction rolls are rotatively mounted secured to such supporting rail, pins upon which such friction rolls are rotatively supported, adjusting screws for vertically adjusting said supporting rolls in their carrying brackets, plugs interposed between the screws and the ends of the friction rolls and provided with apertures in their sides, and screws arranged in said brackets and engaging with both the apertures in the sides of the plugs and with the pins to restrain them both from rotation, substantially as described.

5. The combination, with a rotating spinning and twisting ring, a supporting rail therefor, and friction rolls for engaging with and carrying such ring, of brackets in which the friction rolls are rotatively mounted, means for adjustably securing the brackets in place upon the supporting rail, and dowel pins for positively locking and holding the brackets in adjusted position, substantially as described.

6. The combination, with a rotating spinning and twisting ring, friction rolls for engaging with and carrying such ring, brackets in which the friction rolls are rotatively mounted, and a ring supporting rail, of a plate by means of which the brackets are adjustably and detachably secured to the ring supporting rail, substantially as described.

7. The combination, with the friction roll supporting brackets, and a ring supporting rail, of a plate to which such brackets are ad-

justably secured and by which they are adjustably and detachably secured to the ring supporting rail, substantially as described.

8. The combination, with the friction roll supporting brackets, a ring supporting rail, and a plate upon which such brackets are carried and secured to such rail, of means for adjustably securing the brackets to said plate, and dowel pins coöperating with the brackets and plate to lock and positively hold the brackets in adjusted position thereon, substantially as described.

9. The combination, with the friction roll

supporting brackets, and a ring supporting rail, of a plate to which such brackets are adjustably secured, and means whereby the plate is secured to the ring supporting rail, substantially as described. 15

In witness whereof I have hereunto set my hand in the presence of two witnesses this 20 31st day of August, 1907.

CHARLES T. ATHERTON.

Witnesses:

ABEL T. ATHERTON,
CLARENCE T. MERTZ.