

(No Model.)

J. TATHAM.

RING AND TRAVELER FOR RING SPINNING MACHINES, &c.

No. 358,995.

Patented Mar. 8, 1887.

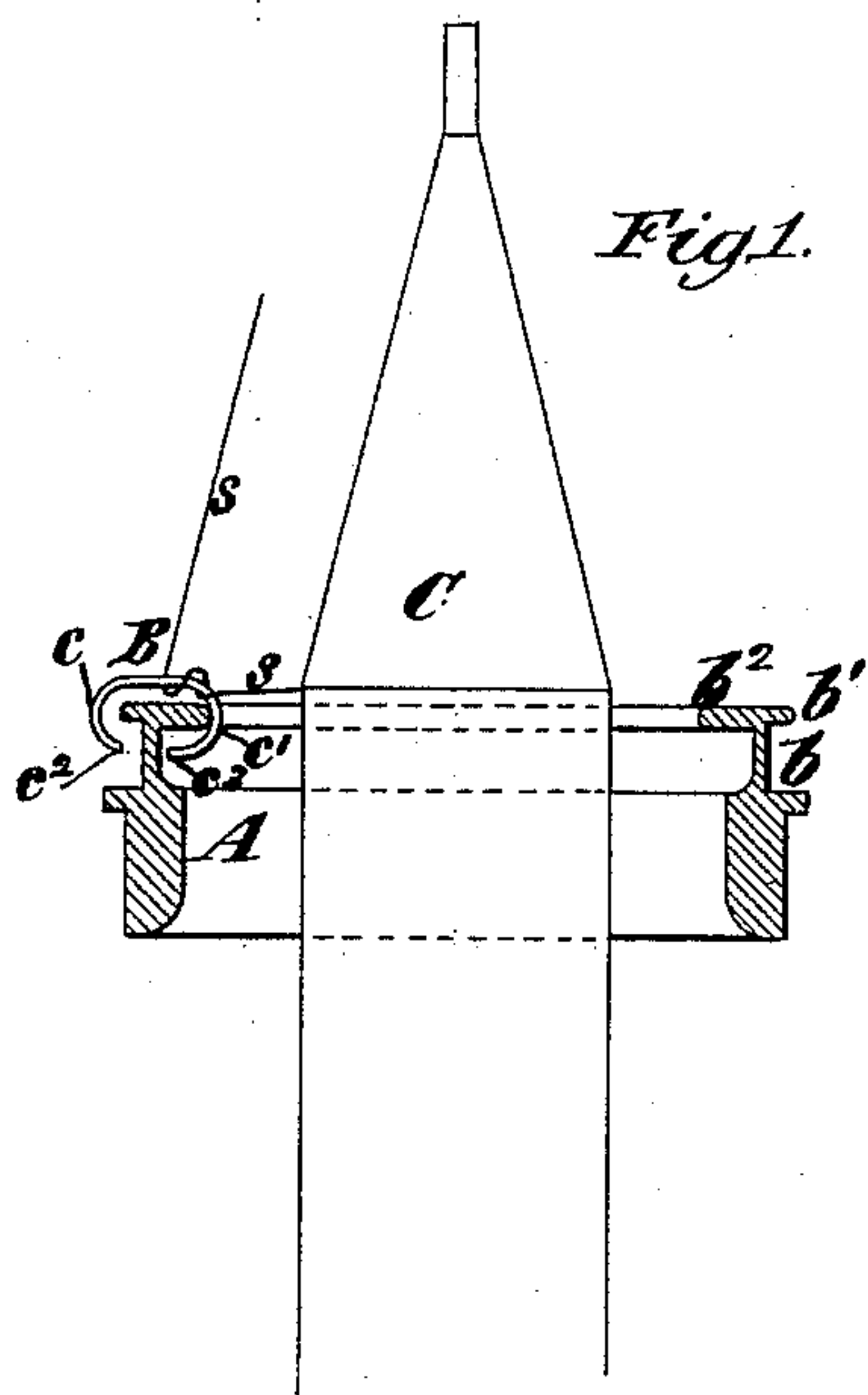


Fig. 1.

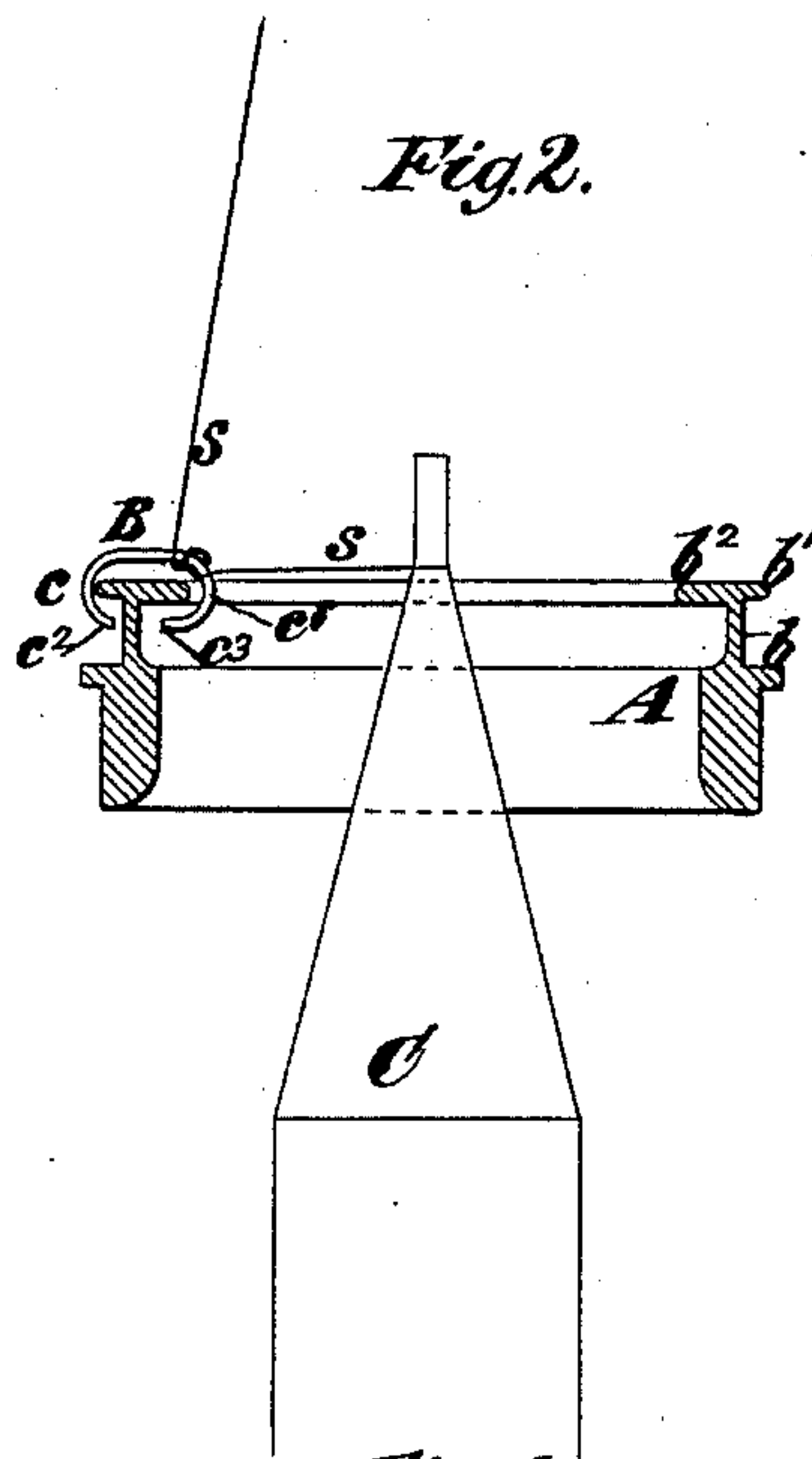


Fig. 2.

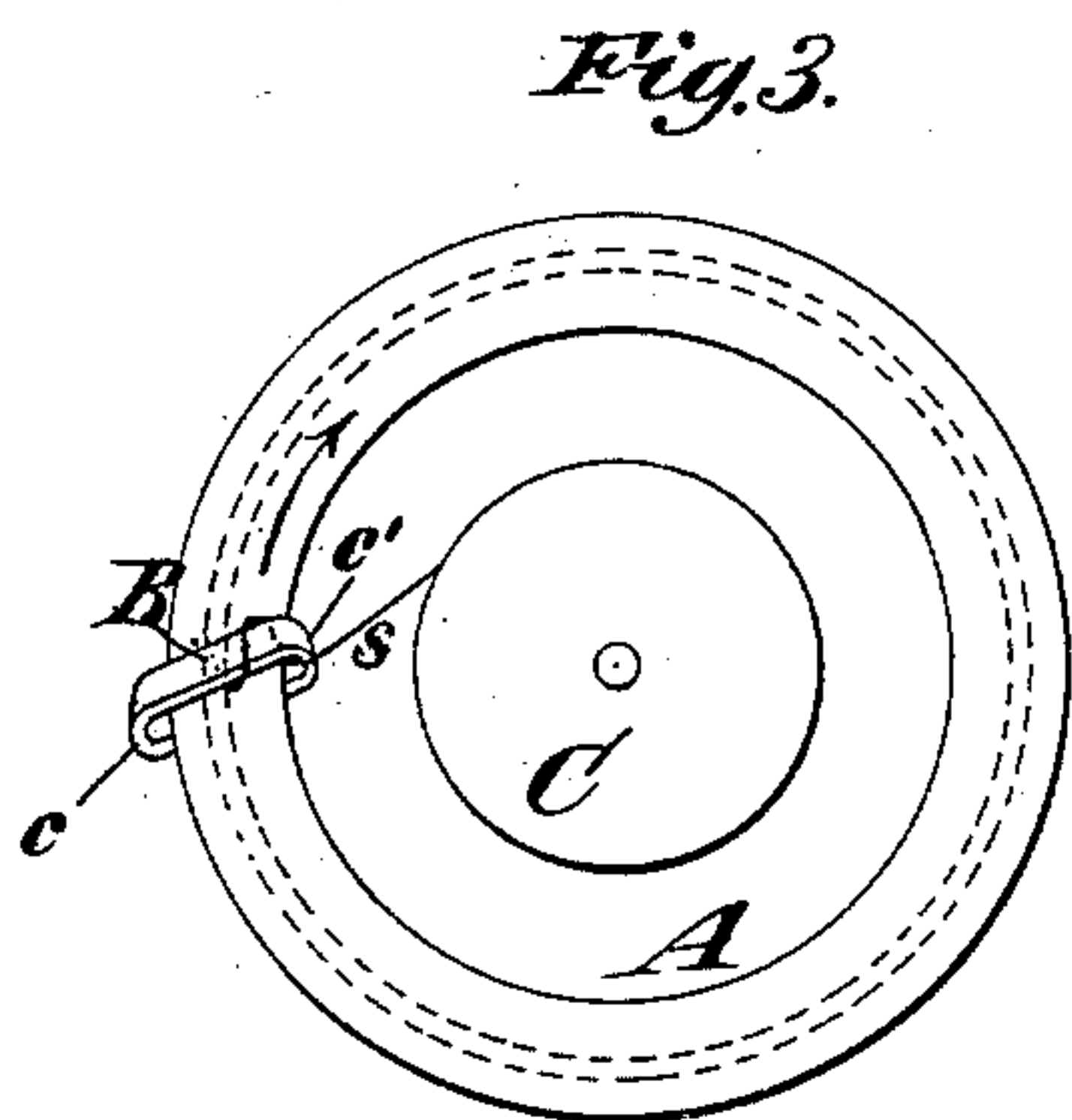


Fig. 3.

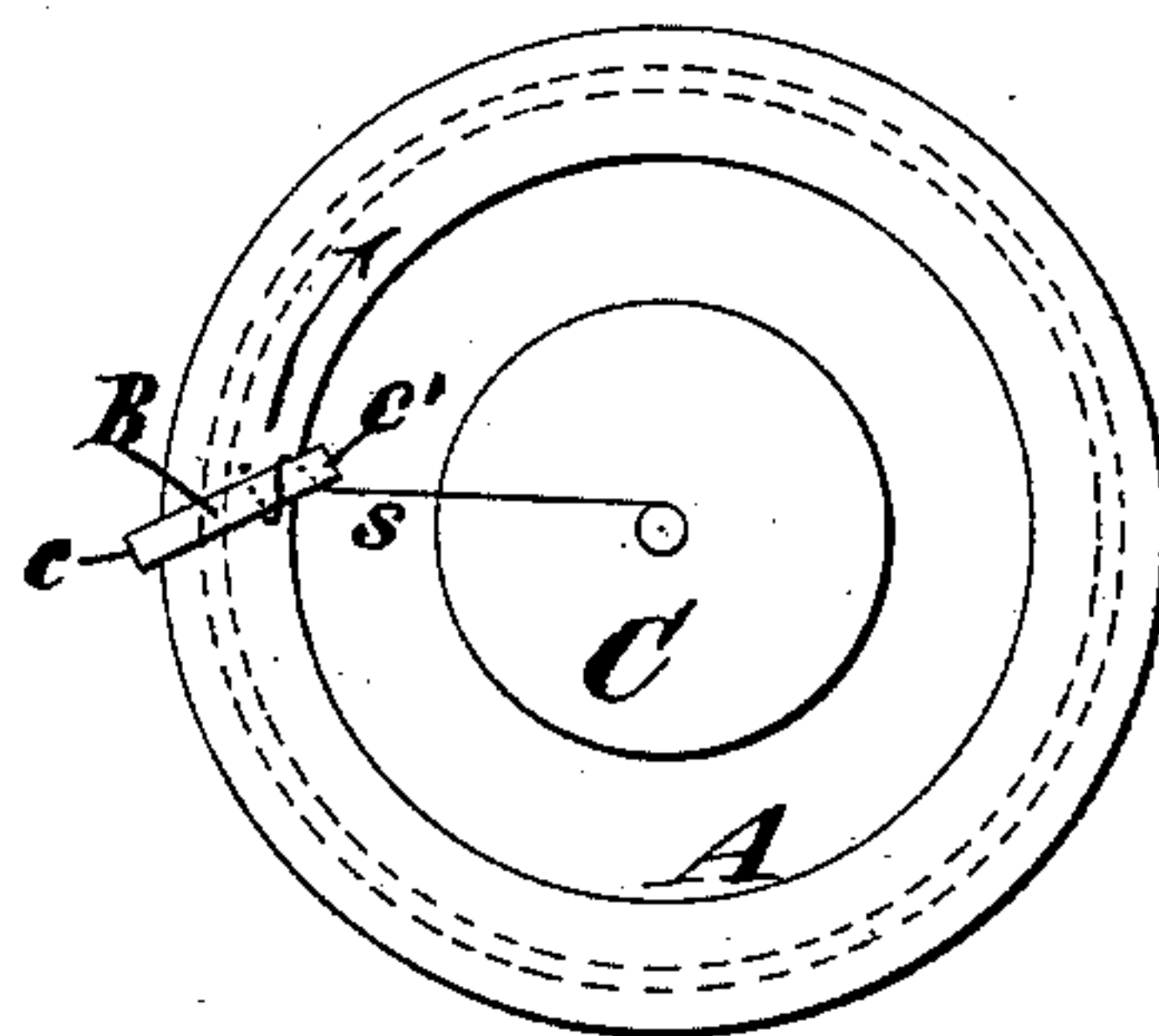


Fig. 4.

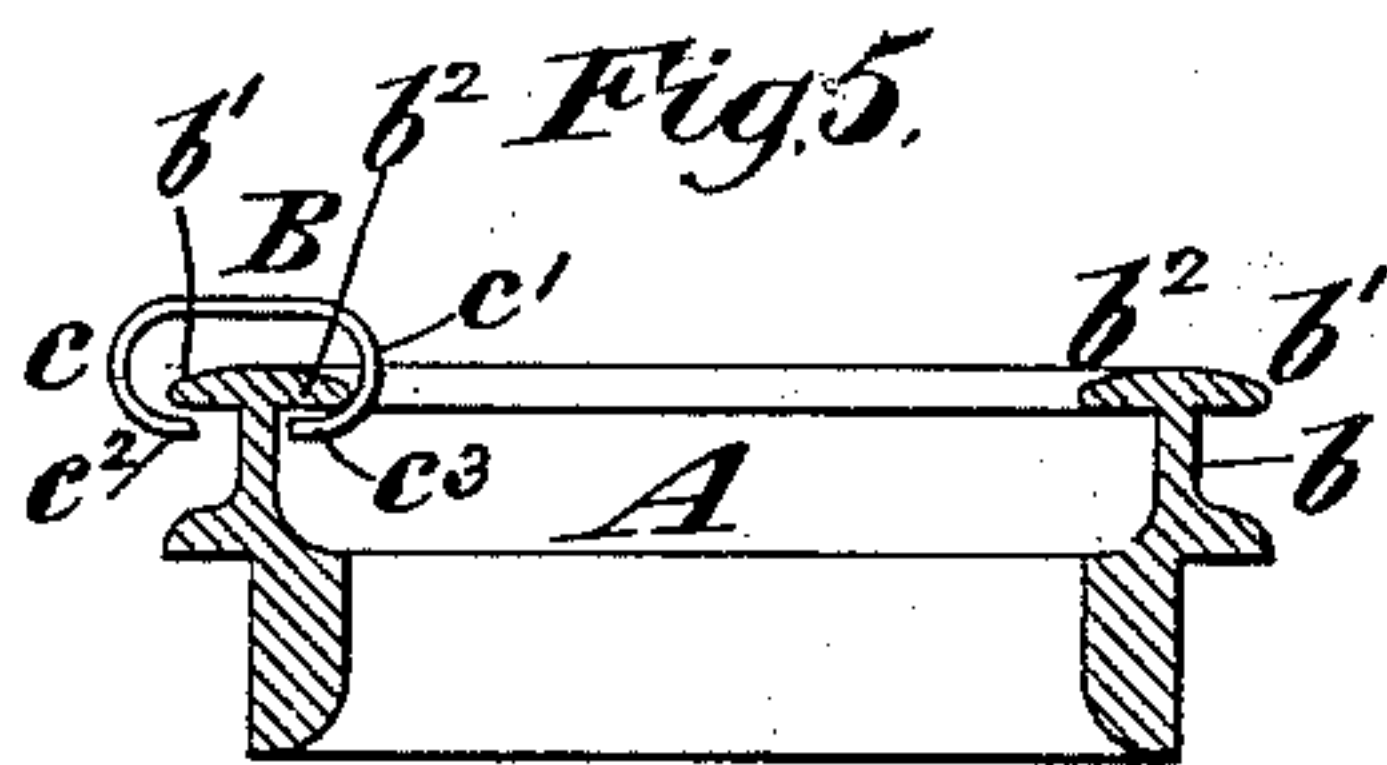


Fig. 5.

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# UNITED STATES PATENT OFFICE.

JOHN TATHAM, OF ROCHDALE, COUNTY OF LANCASTER, ENGLAND.

## RING AND TRAVELER FOR RING-SPINNING MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 358,995, dated March 8, 1887.

Application filed April 20, 1886. Serial No. 199,486. (No model.) Patented in England January 30, 1883, No. 503, and August 18, 1885, No. 9,769; in France July 30, 1883, No. 156,798, and in Belgium August 1, 1883, No. 62,190.

*To all whom it may concern:*

Be it known that I, JOHN TATHAM, of Rochdale, in the county of Lancaster, England, machine-maker, have invented a certain new and useful Improvement in Rings and Travelers for Ring-Spinning and Ring-Doubling Machines, of which the following is a specification.

My invention relates to the rings and travelers employed in ring-spinning and ring-doubling machines, used for spinning and doubling cotton, wool, and other fibrous materials; and it consists in the novel construction of the rings and in a novel combination therewith of the travelers, as hereinafter described, and pointed out in the claims, whereby the travelers are enabled, when working, to adjust themselves in position upon the rings, according to the diameter of the part of the cop upon which the yarn or thread is to be wound, thereby regulating the tension of the yarn or thread passing to the cop from the traveler around which the yarn or thread is lapped, and whereby the bodies of the rings are prevented from being worn by the ends of the travelers.

By my invention I am enabled to obtain a more uniform and regular drag or tension upon the yarn or thread being spun or doubled than has heretofore been obtained.

In the accompanying drawings, Figures 1 and 2 are central vertical sections of a ring and side views of its traveler and of the cop within the ring, Fig. 1 showing the position of the traveler when spinning or doubling upon the larger portion of the cop, or the portion which is of greatest diameter, and Fig. 2 representing the position of the traveler when spinning or doubling onto the smaller end portion of the cop. Figs. 3 and 4 are plan views corresponding, respectively, to Figs. 1 and 2; and Fig. 5 is a sectional view of a ring embodying my invention, in a form slightly modified from that shown in Figs. 1 and 2, and including a side view of the traveler.

Similar letters of reference designate corresponding parts in all the figures.

A designates the ring, and B the traveler, which may be made of bent wire or of a strip of metal having some little breadth and bent into proper form; and C designates the cop.

The ring A consists of a cylindric body portion,  $b$ , as is usual, and which is surmounted by flanges  $b'$   $b^2$ , extending, respectively, outward and inward horizontally from the body  $b$ . In all cases I make the upper portion or flanges of the ring much wider than has been usual in the rings heretofore employed, the flanges having greater projection from the body than is usual; and I prefer to give the inner flange or inwardly-extending flange,  $b^2$ , a greater projection than the outer flange,  $b'$ , as is shown in Figs. 1 and 2, although such flanges may have equal projections, as shown in Fig. 5.

The traveler B consists of a piece of wire or strip of metal having its end portions bent over and inward, and the traveler is formed of greater length from  $c$  to  $c'$  than is usual, so that it may move a considerable distance in the direction of its length upon a ring without disengaging its end portions,  $c^2$   $c^3$ , from the flanges  $b'$   $b^2$  of the ring.

As will be readily seen from Figs. 1 and 2, the end portions,  $c^2$   $c^3$ , of the traveler B have a projection inward from the bends  $c$   $c'$  of the traveler less than the width of the flanges  $b'$   $b^2$ , respectively, and hence the end portions,  $c^2$   $c^3$ , of the traveler cannot come in contact with the body of the ring, but are always held out of such contact by the curved ends of the traveler  $c$   $c'$  bearing against the edges of the flanges  $b'$   $b^2$ .

Figs. 1 and 3 show the positions occupied by the traveler B upon the ring A when the yarn or thread  $s$  is being wound upon the larger part of the cop C, and at which time the traveler is passing at its greatest velocity around the ring in the direction indicated by the arrow in Fig. 3, and the bend  $c'$ , at the inner end of the traveler, is caused to bear against the inner edge of the inner flange,  $b^2$ , of the ring A, around which it travels. When the yarn or thread  $s$  is being wound upon the smallest part of the cop C, and when the ring-rail is changing its movement from ascending to descending, the traveler B will take the position in which it is shown in Figs. 2 and 4, for at such times the tension of the yarn or thread will tend to draw the traveler toward the cop, and the bend or curve  $c$  at the outer end of the traveler will be caused to move in contact with the edge of the outer flange,  $b'$ .



By elongating the traveler B, I am enabled to wrap the yarn or thread one or more times around the traveler, thereby enabling the yarn or thread when being wound upon the smaller part of the cop, as shown in Figs. 2 and 4, to pass around the part  $c'$  of the traveler which is nearest the cop and very near the inner bend or curve of the traveler, and when being wound upon a larger part of the cop, as in Figs. 1 and 3, to pass around the part of the traveler which is farther from the cop, and therefore more distant from the inner bend or curve of the traveler. In order to secure such greater length of the traveler without any fear of either end portion of the traveler becoming disengaged from the flanges  $b'$   $b^2$ , I make the flanges broader or of greater projection than is usual, and for a like reason I make the inner flange,  $b^2$ , of greater projection than the outer flange,  $b'$ , as when yarn is winding upon the smaller portion of the cop, the traveler stands more nearly radial to the cop than when it is winding upon the larger portion, and hence there is more tendency of the inner end portion,  $c^3$ , of the traveler being lifted out of engagement with the inner flange,  $b^2$ , of the ring. By making the inner flange,  $b^2$ , of the ring with greater projection inward from the body  $b$  than the flange  $b'$  has outward projection I am also enabled to remove the traveler from the ring or replace it thereon with facility.

It will be observed that the two flanges  $b'$   $b^2$  of the ring A are in the same horizontal plane, and when the traveler has its ends engaged with these two flanges it will maintain a substantially horizontal position, as shown in Fig. 5.

By preventing the extremities  $c^2$   $c^3$  of the traveler B from bearing upon the body of the ring I obtain a more uniform drag than has hitherto been possible, and I also prevent the body of the ring from being worn by contact of the ends of the traveler with it.

The practical effect of my invention is that it enables cops to be wound on bare spindles, a result which has not before been accom-

plished; and, as more thread is thereby obtained in a cop, a considerable saving of time is effected both in winding the cops and in weaving with such cops, as the spinning or doubling machine has to be stopped less frequently to remove the cops from the spindles and the looms have to be stopped less frequently to renew the cops in the shuttles.

The wrapping of the yarn around the traveler produces a uniform tension and more perfect twist, and hence gives greater strength to the yarn or thread. Hitherto different tension in winding on the small and large parts of the cops has resulted in breaking the thread while winding on the small part if the tension is right for winding on the larger part of the cops or in too slack thread on the larger part of the cops, if the tension is right for winding upon the smaller part of the cops.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a ring having inwardly and outwardly projecting flanges, of a traveler having its ends bent or curved to embrace the flanges of the ring, and having its end portions inward of the curves less in length than the projection of the flanges, so that the curved portions of the traveler will make contact with the edges of the flanges and maintain the ends or extremities of the traveler out of contact with the body of the ring, substantially as herein described.

2. The combination, with a ring having at the top inwardly and outwardly projecting flanges which are in the same horizontal plane, the inner flange having a greater projection from the ring-body than the outer flange, of the traveler having bent ends embracing the flanges, substantially as herein described.

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