

(No Model.)

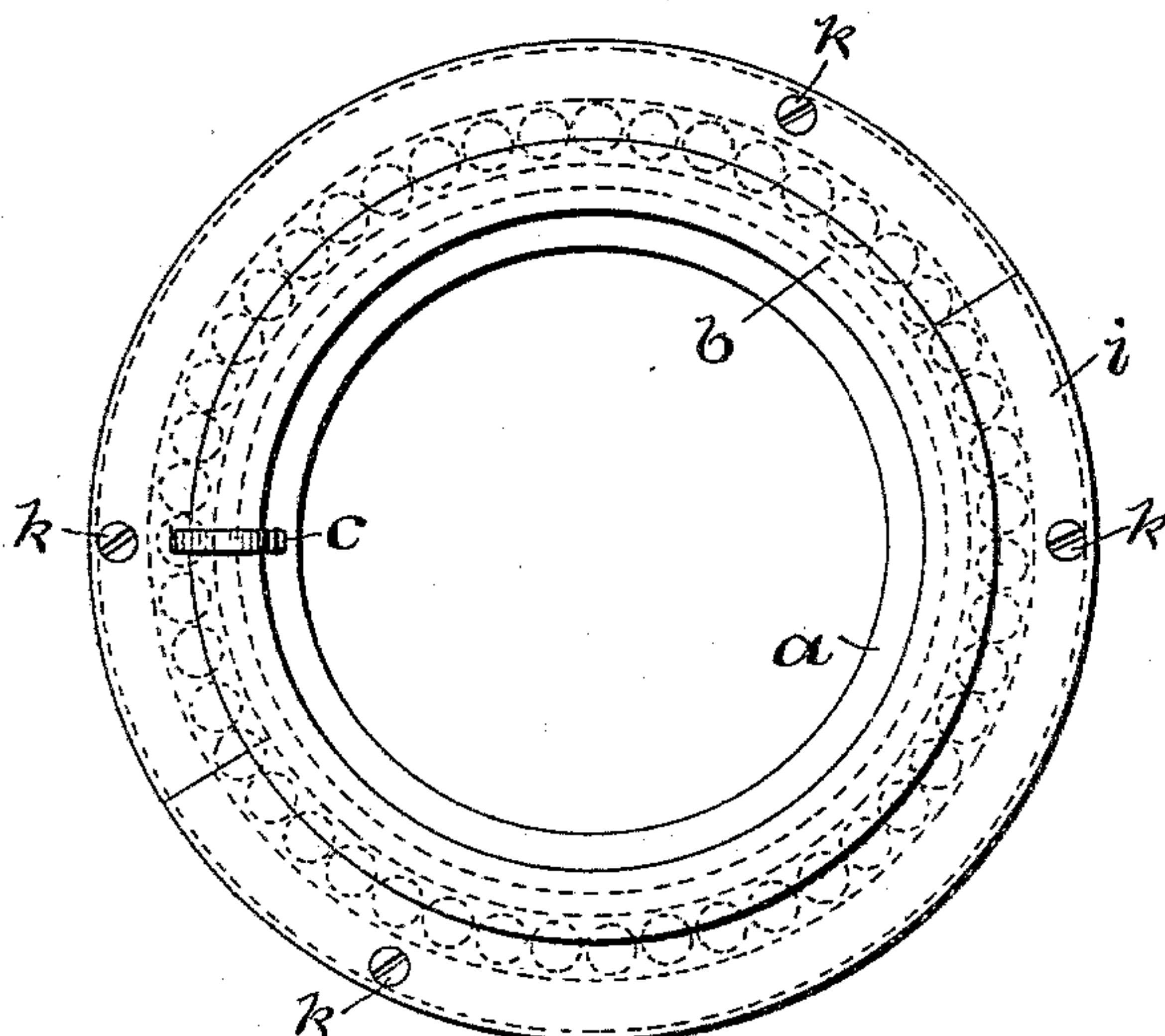
F. S. CULVER.

RING AND TRAVELER FOR SPINNING MACHINES.

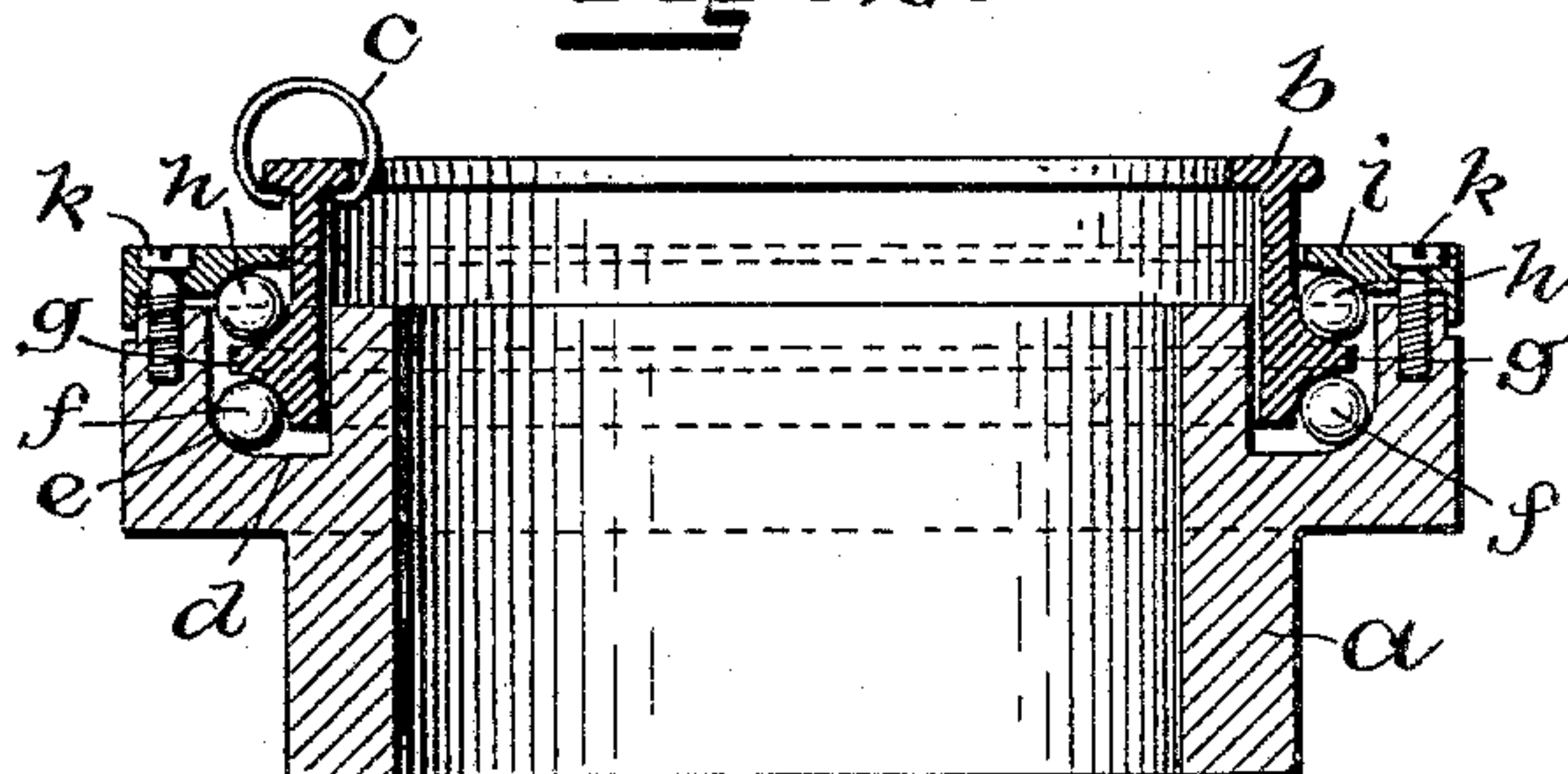
No. 597,176.

Patented Jan. 11, 1898.

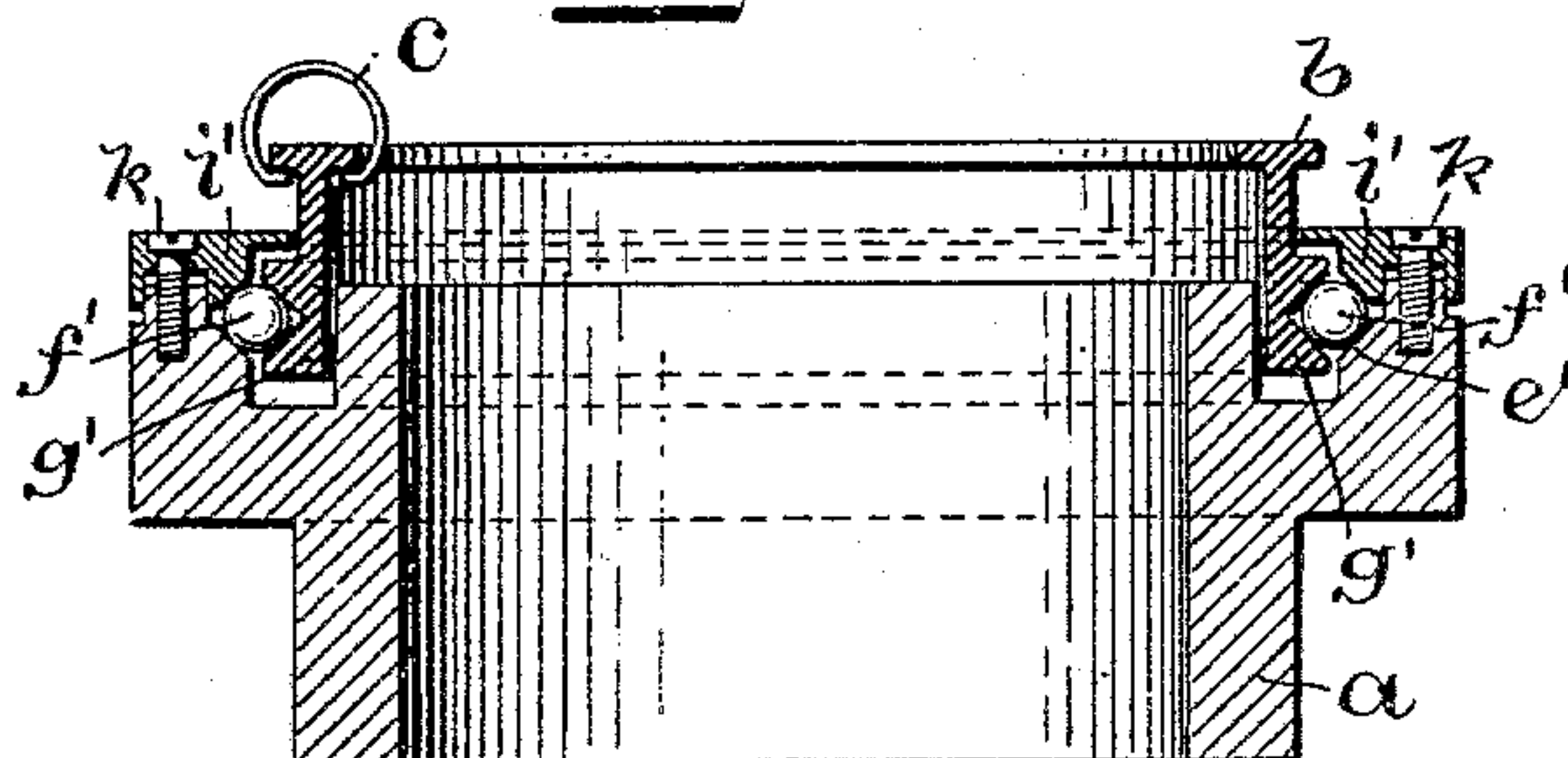
**Fig. 1.**



**Fig. 2.**



**Fig. 3.**



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

FREDERICK SLOCUM CULVER, OF TAUNTON, MASSACHUSETTS.

## RING AND TRAVELER FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 597,176, dated January 11, 1898.

Application filed February 9, 1897. Serial No. 622,603. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK SLOCUM CULVER, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Rings and Travelers for Spinning-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the rings of ring-spinning machines and the holders in which the rings are supported.

In ring-spinning machines as heretofore constructed the rings are secured either in a holder, which is adjustably but firmly secured in the ring-rail, or they are secured in the ring-rail. In either case the rings are firmly held. Travelers, usually formed of a loop of wire, slide around on the rings. The yarn passes from the drawing-rolls through a guide-eye placed above the spindle on a line with the axial center of the spindle, which is coincident with the center of the ring, and through the traveler to the bobbin on the spindle. When the yarn is being wound on the empty bobbin, particularly when a large ring is used, the draft on the yarn is nearly on a radial line between the bobbin and the traveler, and the ends frequently break down on account of such successive draft.

When in a ring-spinning frame the spindles are turning at the high speed used in the modern ring-spinning machines, the centrifugal force drives the traveler outward and the outer end of the traveler down against the ring with such force that it slides with considerable friction on the ring and thereby causes excessive strain on the yarn and consequently frequent breakdowns.

The object of this invention is to avoid such excessive strain on the yarn and consequently stoppage of the production of yarn; and to this end the invention consists in a ring supported on suitable bearings, so as to rotate and yield to excessive strain on the yarn; and the invention further consists in the peculiar and novel construction of the holder and the bearings supporting the ring, as will be more fully set forth hereinafter.

Figure 1 is a top view of the holder and the

spinning-ring, the ball-bearing being indicated in broken lines. Fig. 2 is a vertical sectional view of the holder and the spinning-ring, showing the ball-bearings. Fig. 3 is a vertical sectional view of a holder and spinning-ring forming a modified form of ball-bearing.

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

In the drawings, *a* indicates a holder in which the ring of a ring spinning or twisting machine is supported, *b* the spinning-ring, and *c* the traveler. The holder, which may be secured in the ring to the ring-rail or form part of the ring-rail, I provide with annular ball-bearings, on which the ring is supported and is free to rotate.

In the form shown in Fig. 2 the holder is provided with the annular groove *d*. The annular race *e* is formed in the groove *d*, or a separate steel ring, forming the race *e*, may be inserted. The series of balls *f* form the bearing of the ring *b*, which is provided with the double cone *g* and rests on the series of balls *f*. Another series of balls *h* bear on the upper part of the cone *g*, and the race *i*, formed in two parts, is secured to the holder by the screws *k k*, so that the race *i* can be adjusted to the ball-bearings.

Fig. 3 shows a modified form of ball-bearing. The cone *g'* on the ring *b* is here a V-shaped groove. The series of balls *f'* bear on the two sides of the V-shaped groove and on the race *e'*, formed on the holder. The race *i'* is secured by the screws *k k* and permits of the adjustment of the ball-bearings.

As far as I know I am the first to construct and use a ring for ring spinning or twisting machines which can rotate with the traveler. I do not, therefore, wish to confine myself to any particular form of bearing or support for the ring. The bearings may be changed or other suitable bearings substituted without materially changing the nature of the invention or the operation of the device, the essential feature of which consists in a spinning-ring of a ring-spinning machine supported so that it may rotate with the traveler.

After a series of practical tests I find that the strain on the yarn is diminished and that in spinning the yarn is not as liable to break as it is when the ring is fixed and unable to



yield to the strain on the yarn; that when the spindle is turning at the high speed required the ring rotates at a slower speed than the traveler and that the friction of the ring on its bearings, as well as the friction of the traveler on the ring, form a sufficient drag to lay the yarn firmly on the bobbin.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a ring spinning and twisting machine, in combination, a ring, the annular ball-bearings, and a traveler loose on the ring and adapted to slide on the same, whereby the strain of the yarn on the traveler may cause the ring to rotate on the ball-bearings and permit the traveler to rotate on the ring, as described.

2. In a ring spinning and twisting machine,

the combination with the ring-rail, and a ring, of annular races on the rail and on the ring, a series of balls forming a ball-bearing for the ring, and a traveler loose on the ring and adapted to slide on the ring, as described.

3. In a ring spinning and twisting machine, the combination with the holder for the ring, a fixed annular race in the holder, the ring *b*, an annular race on the ring, balls supporting the ring in the holder, the adjustable race *i*, of the traveler *c* loose on the ring, whereby the traveler may rotate independent of the ring, or with the ring, as described.

In witness whereof I have hereunto set my hand.

FREDERICK SLOCUM CULVER.

Witnesses:

JOSEPH A. MILLER, Jr.,  
M. F. BLIGH.