

(No Model.)

H. L. PEIRCE.

RING AND TRAVELER FOR SPINNING MACHINES.

No. 547,937.

Patented Oct. 15, 1895.

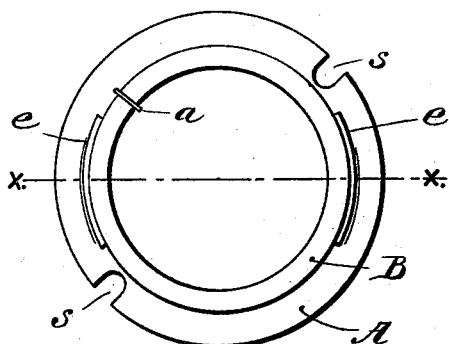


FIG. 1.

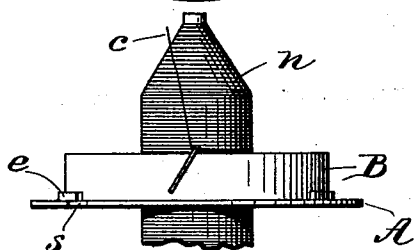


FIG. 2.

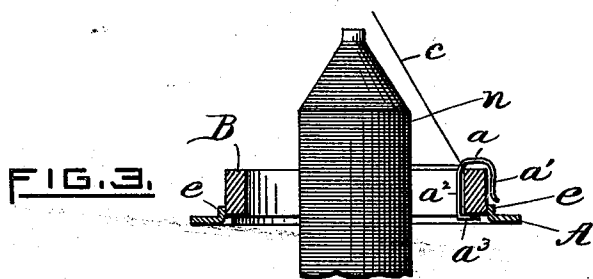


FIG. 3.



FIG. 5.

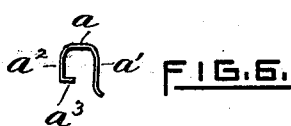


FIG. 6.

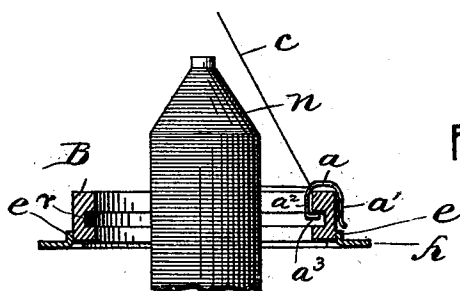


FIG. 4.

WITNESSES.

*Charles Hannigan*  
*James E. Arnold*

INVENTOR.

*Horatio L. Peirce*  
*By Benj. Arnold*  
*Atty.*

# UNITED STATES PATENT OFFICE.

HORATIO L. PEIRCE, OF JOHNSTON, ASSIGNOR TO CHARLES H. POLAND, OF PROVIDENCE, RHODE ISLAND.

## RING AND TRAVELER FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 547,937, dated October 15, 1895.

Application filed March 15, 1895. Serial No. 541,934. (No model.)

*To all whom it may concern:*

Be it known that I, HORATIO L. PEIRCE, of Johnston, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Rings and Travelers for Spinning-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the rings and travelers for them used on ring-spinning machines. It is fully explained and illustrated in this specification and accompanying drawings.

Figure 1 is a top view of the ring and traveler and the ring-holder by which the ring is held when in use. Fig. 2 shows a front elevation of the ring, traveler, and holder with a part of a cop of yarn. Fig. 3 is a vertical cross-section of the parts shown in Fig. 2 with the part of a cop in elevation. Fig. 4 represents in vertical cross-section a modification of the ring with part of a cop of yarn in elevation. Figs. 5 and 6 represent side views of the travelers used on the rings.

In its construction the ring B is made with straight vertical sides both inside and outside and a plain horizontal top and bottom square, or nearly so, to the sides of the ring, making the upper half and the lower half of the ring just alike, that it may be reversed in the holder A and used either side up with equal facility. It has no thin edges to be worn into notches by the action of the traveler, but instead it has a wide bearing-surface inside, outside, and at the bottom for the traveler to run on.

The traveler *a*, as shown separately in Fig. 5, has a long vertical inside leg *a*<sup>2</sup> with a foot *a*<sup>3</sup>, bent out at right angles to the leg, and a slightly-curved top with a straight vertical leg *a*<sup>1</sup> down the outside, slightly curved out at the lower end to facilitate the putting of it on the ring. The outer leg is shortened up enough to clear the flanges *e* on the holder A. The ring-holder A consists of a circular flat plate having a circular opening in it nearly as large as the outside diameter of the ring

B and has two slight flanges *e e*, turned up at right angles to the plate for a short distance on two opposite side of the opening, between which the ring is pressed in and held by the contraction of the flanges. Two holes or notches *s* are made in the plate of holder to receive the screws to fasten it to the ring-rail. This traveler in operation starts quickly and runs smoothly and uniformly owing to the proportionately great bearing it has on the surfaces of the ring and the distance between the foot under the ring and the top where the yarn *c* draws on the traveler. The centrifugal action of the traveler in running throws the inner leg *a*<sup>2</sup> against the inner face of the ring, so as to touch that surface its whole length and give it a great bearing-surface, which, with the wide bearing of the foot on the under side of the ring, leaves little if any chance for wear. This ring and traveler effectually prevent what is called "ballooning" of the yarn, and for which "separators" are devised in this way: When a bobbin or cop *n* is nearly full, which is the time when the ballooning takes place, the size of the cop and its rapid motion produce a strong centrifugal current of air that blows against the long inner leg of the traveler and presses it harder against the inner face of the ring, causing more friction and an increased tension on the yarn that prevents it from flying out or ballooning. This increase of friction as the cop gets fuller is also very beneficial in another way—that is, in evening the tension on the yarn by causing it to draw harder when the cop, being nearly full, is drawing on the traveler in a direction nearly agreeing with the line of its motion, and therefore drawing it far more easily than it does when the cop is small, and the direction of the draft of the yarn on the traveler is more at an angle to the line of the traveler's motion.

In Fig. 4 a modification of the ring is shown that is made to accommodate very light yarn by lessening the weight of the traveler, which is done by shortening the inside leg. It consists in making a plain narrow groove in the inner face of the ring about half-way down, so that the ring can be used either side up. The traveler is the same as before described,

except that the inner leg is shortened, (see Fig. 6,) so as to bring the foot  $a^3$  into the groove  $r$  (see Fig. 4) instead of under the bottom of the ring. The full-sized traveler of Fig. 5 can still be used on the ring the same as already described.

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

- 10 1. A ring for ring spinning machines, having right angled upper and lower corners to its inner face, in combination with a traveler having a straight inside leg and a flat foot at

right angles thereto, and a long outside leg, substantially as described. 15

2. A ring for a ring spinning machine, having a rectangular shape in vertical cross section, and having a circular groove in its inner face at about its middle, in combination with a traveler having a straight inside leg with a flat foot at right angles thereto, and a long outside leg, substantially as described. 20

HORATIO L. PEIRCE.

Witnesses:

CHARLES H. POLAND,  
BENJ. ARNOLD.