

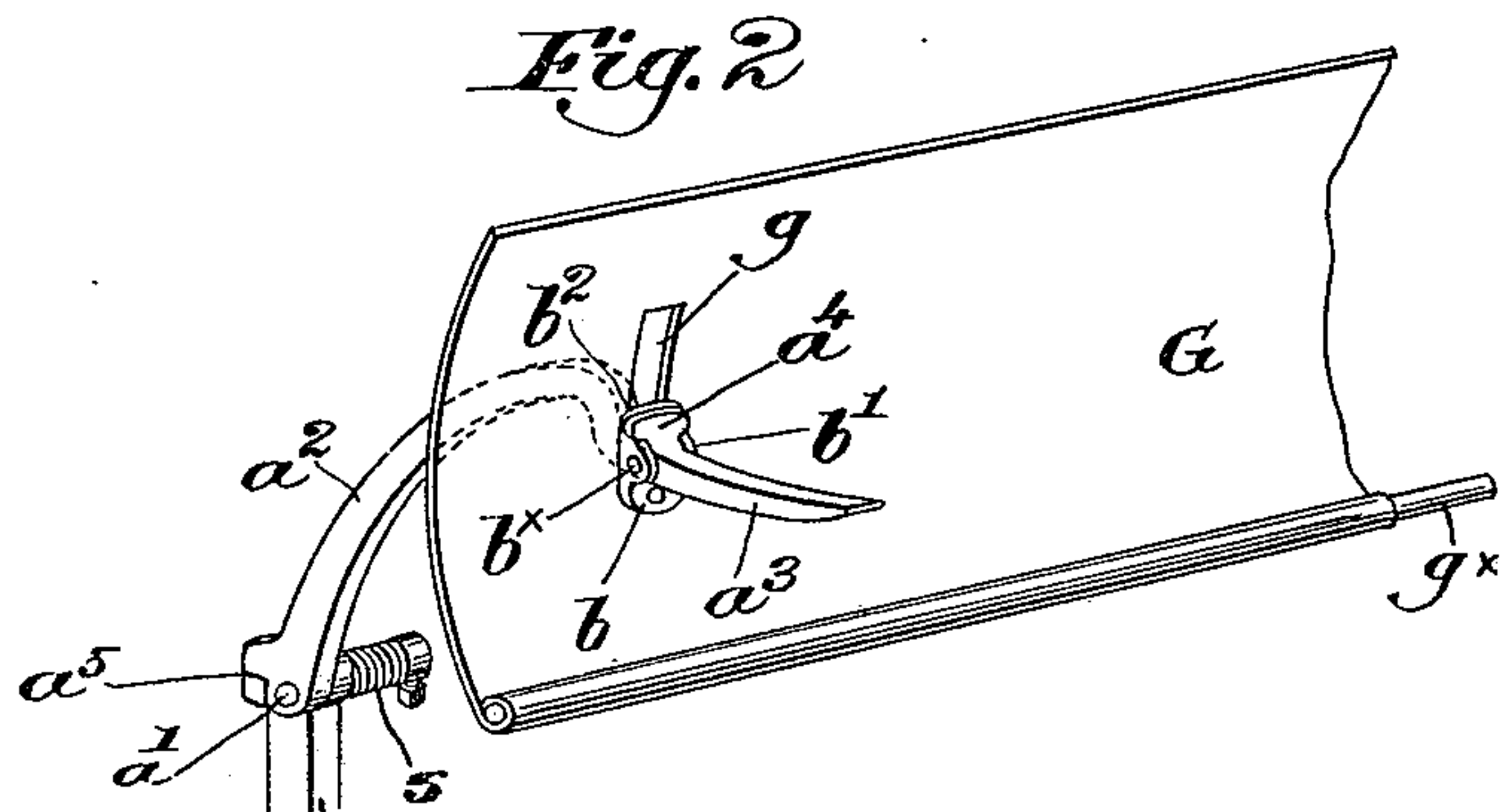
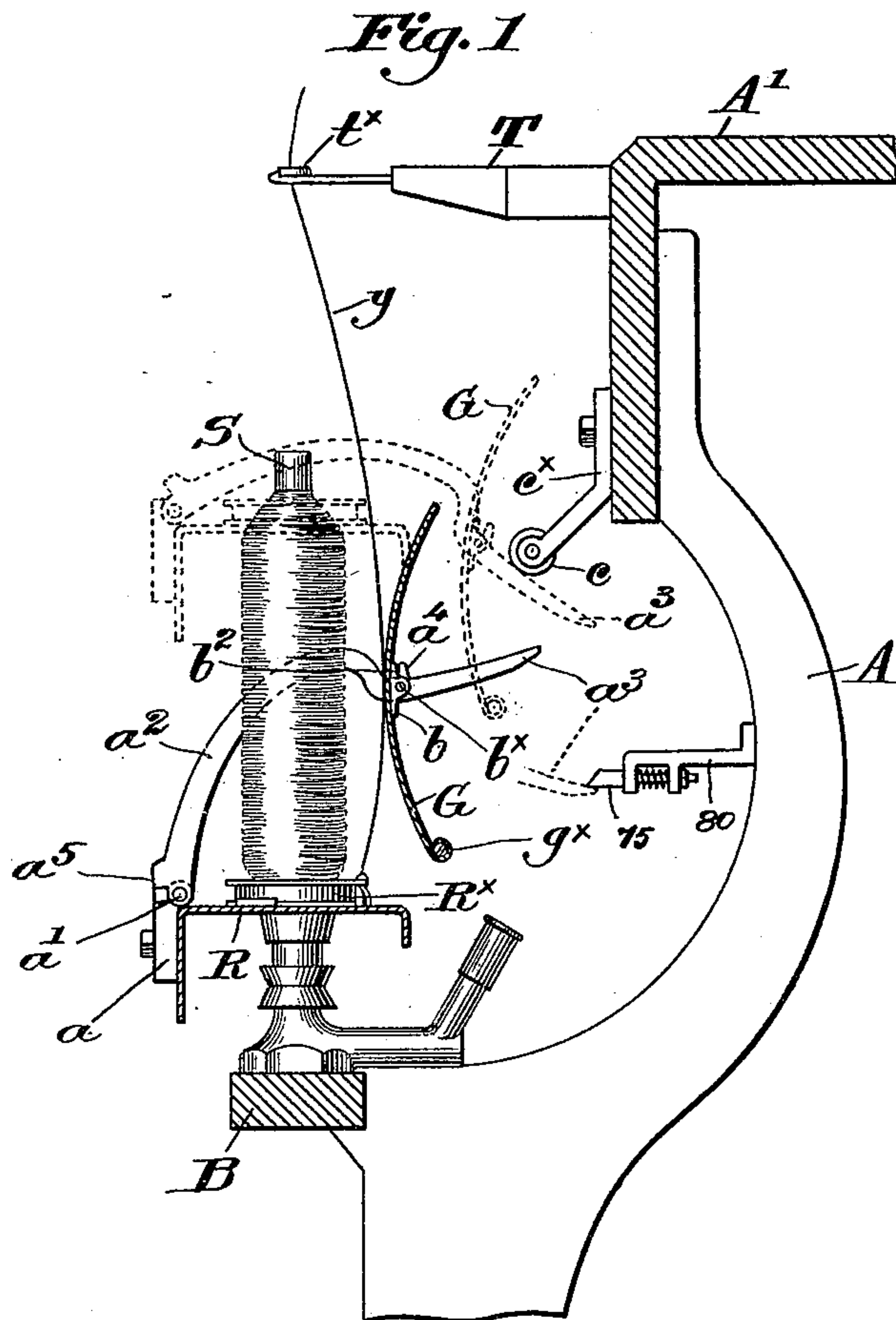
No. 622,181.

Patented Mar. 28, 1899.

G. O. DRAPER.  
RING SPINNING MACHINE.

(Application filed June 4, 1898.)

(No Model.)



Witnesses: a  
A. C. Hammond.  
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# UNITED STATES PATENT OFFICE.

GEORGE O. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE  
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## RING-SPINNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,181, dated March 28, 1899.

Application filed June 4, 1898. Serial No. 682,539. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE O. DRAPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Ring-Spinning Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to ring-spinning machines wherein the usual separators are displaced by a guard or curtain longitudinally extended back of the spindles to receive the impact of the yarn and prevent excessive ballooning, such a device being shown in United States Patent No. 599,539, dated February 22, 1898.

In another application, filed on the 4th day of June, 1898, Serial No. 682,538, I have shown a flexible curtain suspended from its upper edge back of the spindles, the supports for the guard or curtain being entirely independent of the ring-rail.

My present invention has for its object the production of apparatus of the same general type embodying several novel features; but herein I employ a substantially inflexible guard supported in such manner as to traverse in unison with the ring-rail. Preferably the guard is mounted upon the ring-rail, and in order to obviate any interference with the guide or thread board at the upper end of the traverse I have provided means for stopping the upward movement of the guard, the supports therefor being arranged to yield for the purpose.

Figure 1 is a transverse sectional view of a sufficient portion of a ring-spinning machine to be understood, with the preferred embodiment of my invention applied thereto, the ring-rail being shown in full and dotted lines at the bottom and top of its traverse, respectively; and Fig. 2 is a perspective detail, enlarged, to be described.

The frame A, roller-beam A', spindle and ring-rails B and R, respectively, the spindles S, and the thread or guide board T may be and are of usual or well-known construction, the ring-rail being provided with rings R<sup>x</sup>, the yarn y leading downward from the usual pigtails t<sup>x</sup>.

I prefer to make the guard G of thin sheet metal or other suitable light material substantially inflexible and which will retain its shape, the preferred form being herein shown as curved or rounded transversely or from top to bottom, with its convex surface outward toward the spindles. I have herein shown the guard as supported by the ring-rail itself, though it might be otherwise mounted—as, for instance, on the traverse-rods—so long as the guard traverses with the ring-rail. Brackets a are attached to the front of the ring-rail, preferably one at each end thereof, to which are pivoted at a' upwardly and rearwardly extended arms a<sup>2</sup>, the free ends of the arms passing through slots g in the guard and extending beyond the latter, as at a<sup>3</sup>.

Brackets b, having ears b', are secured to the rear face of the guard, and the arms a<sup>2</sup> are pivotally connected with said ears at b<sup>x</sup>, a shoulder a<sup>4</sup> on the arm normally resting against a stop b<sup>2</sup> on the bracket b. (See Fig. 2.)

I prefer to weight the lower edge of the guard, as by attaching a rod g<sup>x</sup> thereto, so that the shoulder and stop referred to will be normally held in engagement, with the guard in proper upright position.

A suitable spring s (see dotted lines, Fig. 1) is provided at the fulcrum a' of each arm a<sup>2</sup>, one end of said spring being attached to the arm and the other end to the bracket a, the winding of the spring being such that the arms are normally held lifted in full-line position, Fig. 1, with a shoulder a<sup>5</sup> abutting against the top of the bracket a. As the ring-rail approaches the upper end of its traverse the guard would, unless prevented, interfere with the thread-board T, and I prevent such interference by mounting, preferably, a roll c on a stand c<sup>x</sup>, attached to a part of the frame, as the roller-beam A', said roll being in the path of the extension a<sup>3</sup> of the supporting-arm a<sup>2</sup>. When said extension engages the roll, the upward movement of the guard is stopped, the arms a<sup>2</sup> then rocking on their fulcrum a', as shown in dotted lines Fig. 1. The guard G then rocks by gravity on its pivots b<sup>x</sup> relatively to the arms and is thus prevented from interfering with the ring-rail as the latter completes its traverse



into dotted-line position, Fig. 1. The rolls  $c$  travel along the extensions  $a^3$  and reduce the friction thereupon during movement of the arms  $a^2$  relative to the ring-rail. When the  
 5 ring-rail is near the upper end of its traverse, there is practically no necessity for the guard, so that the stoppage of the latter, as described, is unobjectionable.

By weighting the lower edge of the guard  
 10 it is maintained by gravity in operative position.

The supporting-arms may be depressed by hand when doffing, if necessary, to thus keep the guard out of the way at such time.

15 Any suitable lock or catch can be provided to retain the arms so depressed, the lock or catch being liberated by the operator when starting the frame after doffing.

I have shown in Fig. 1 a very simple form  
 20 of lock—viz., a spring bolt or dog 75, mounted in a housing on a bracket 80, attached to the main frame, a portion of the extension  $a^3$  of one of the supporting-arms being shown in Fig. 1 in dotted lines as engaged by the  
 25 bolt.

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

1. In a ring-spinning machine, the reciprocating ring-rail, a guard, which in vertical section is curved from top to bottom, extended  
 30 behind the spindles with its convex surface toward the spindles, and means to support the guard and traverse it in unison with the  
 35 ring-rail.

2. In a ring-spinning machine, the reciprocating ring-rail, a substantially inflexible guard back of the spindles and yieldingly mounted to traverse with the ring-rail, and  
 40 means to stop the movement of the guard during the upper part of the traverse of the ring-rail.

3. In a ring-spinning machine, the reciprocating ring-rail, yieldingly-mounted supports  
 45 on the ring-rail, a substantially inflexible guard back of the spindles and pivotally connected with said supports and maintained by

gravity in upright position, and means to stop the movement of the free ends of said supports at the upper end of the traverse. 50

4. In a ring-spinning machine, a guard extended longitudinally back of the spindles, the ring-rail, spring-controlled supports mounted thereon and connected with the guard, stops to normally maintain the supports in elevated position, and means to stop  
 55 the upward movement of the guard at the upper portion of the traverse.

5. In a ring-spinning machine, a guard extended longitudinally behind the spindles, supports therefor, adapted to traverse in unison with the ring-rail, and means to stop the upward movement of the guard during the completion of the traverse at the upper end thereof. 65

6. In a ring-spinning machine, a substantially inflexible guard extended longitudinally behind the spindles, the ring-rail, rocking arms mounted thereon and pivotally connected with the guard, the free ends of the  
 70 arms projecting beyond the guard, and fixed stops to engage said projecting ends as the ring-rail rises, to thereby check the upward movement of the guard.

7. In a ring-spinning machine, a guard  
 75 curved from top to bottom in vertical section and pivotally mounted on substantially horizontal pivots, and extended longitudinally back of the spindles with its convex surface turned toward them, said pivots being located  
 80 below the top of the guard.

8. In a ring-spinning machine, a guard extended longitudinally back of the spindles and substantially horizontal pivots therefor between its upper and lower edges, the weight  
 85 of the guard being distributed to present a heavier section below the pivot thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE O. DRAPER.

Witnesses:

E. D. BANCROFT,

A. H. COUSINS.