

No. 731,273.

PATENTED JUNE 16, 1903.

J. BRANDON.  
COTTON GIN.

APPLICATION FILED JULY 24, 1901.

2 SHEETS—SHEET 1.

NO MODEL.

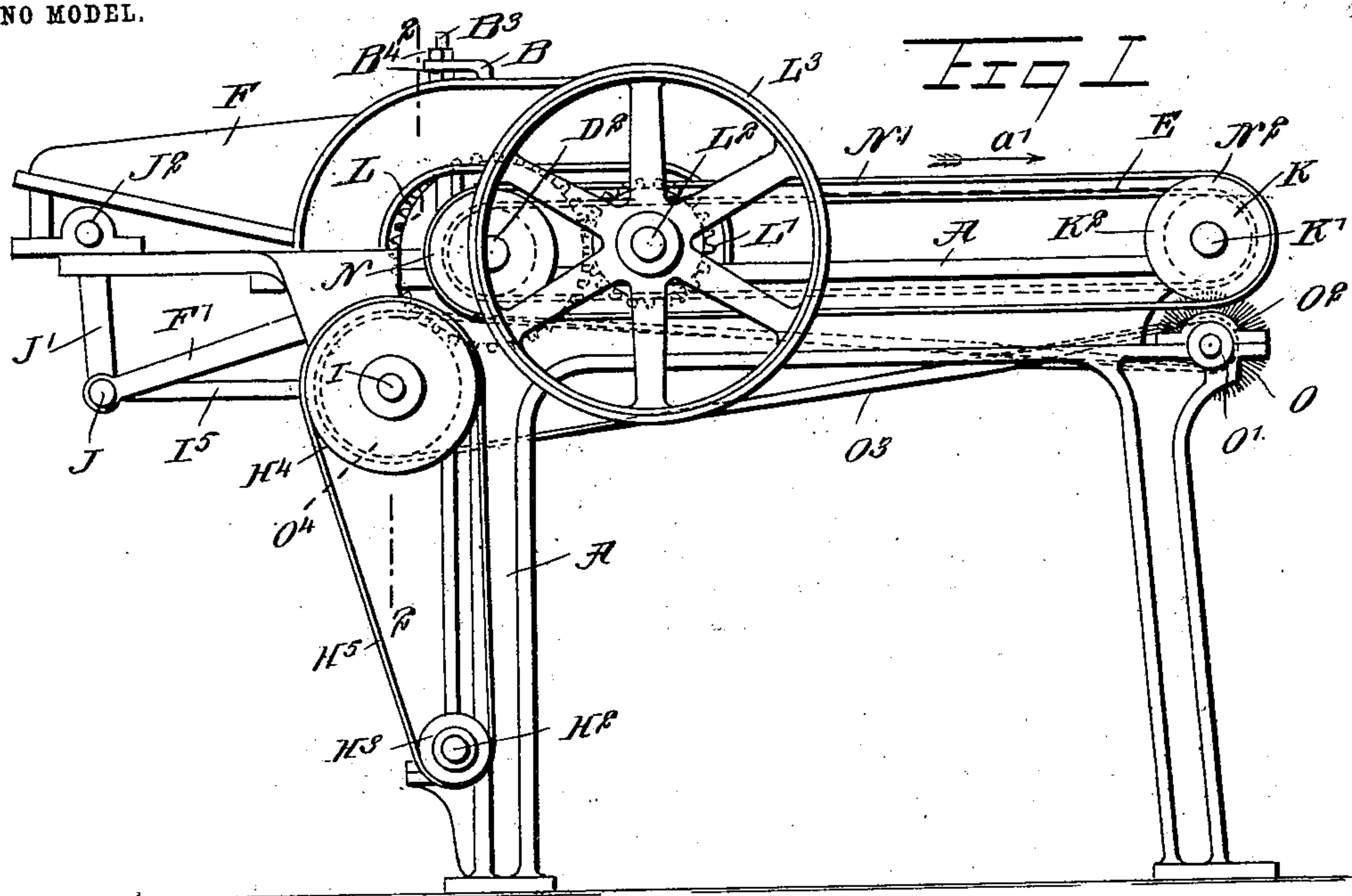


Fig 2

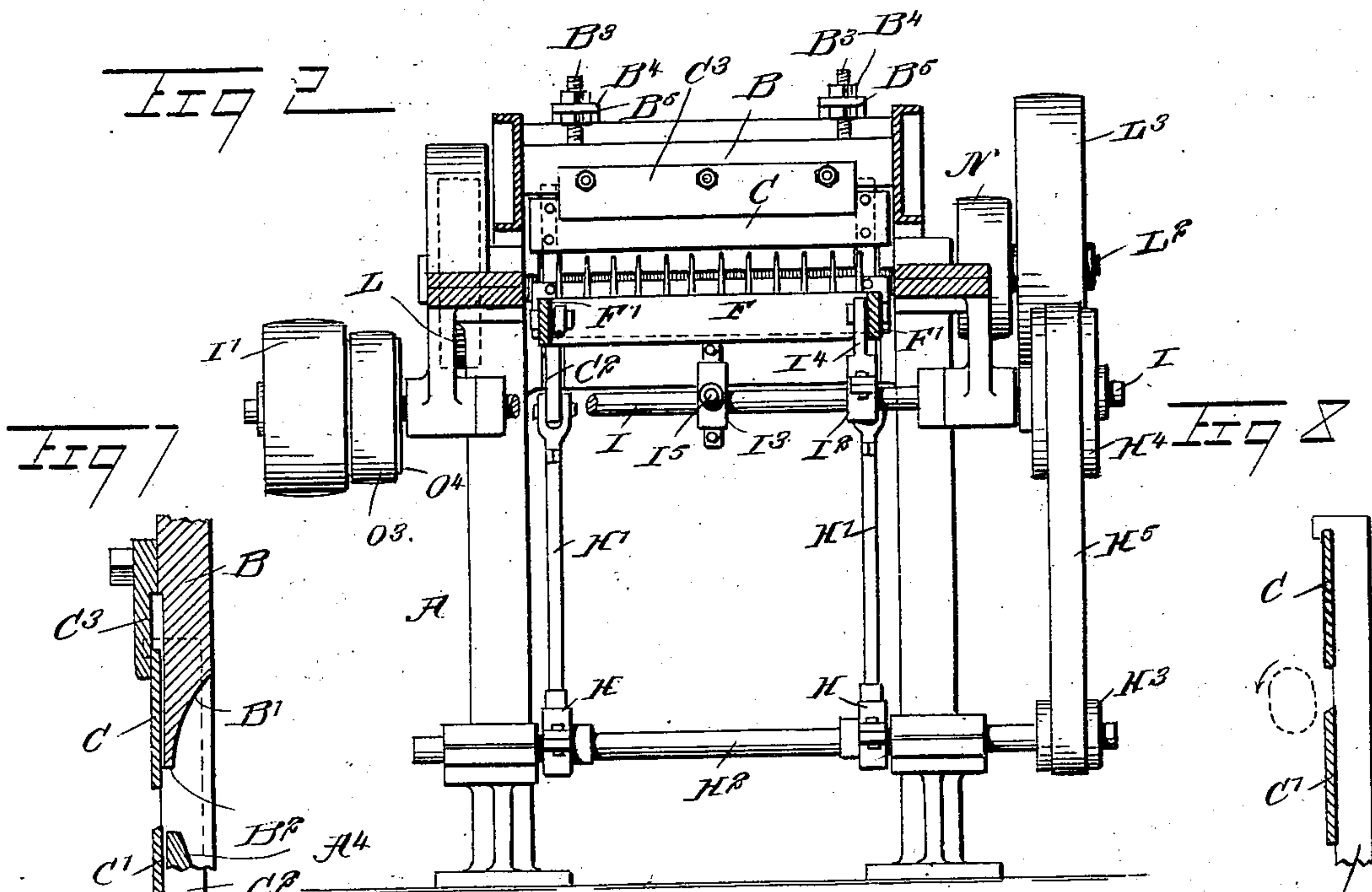


Fig 3

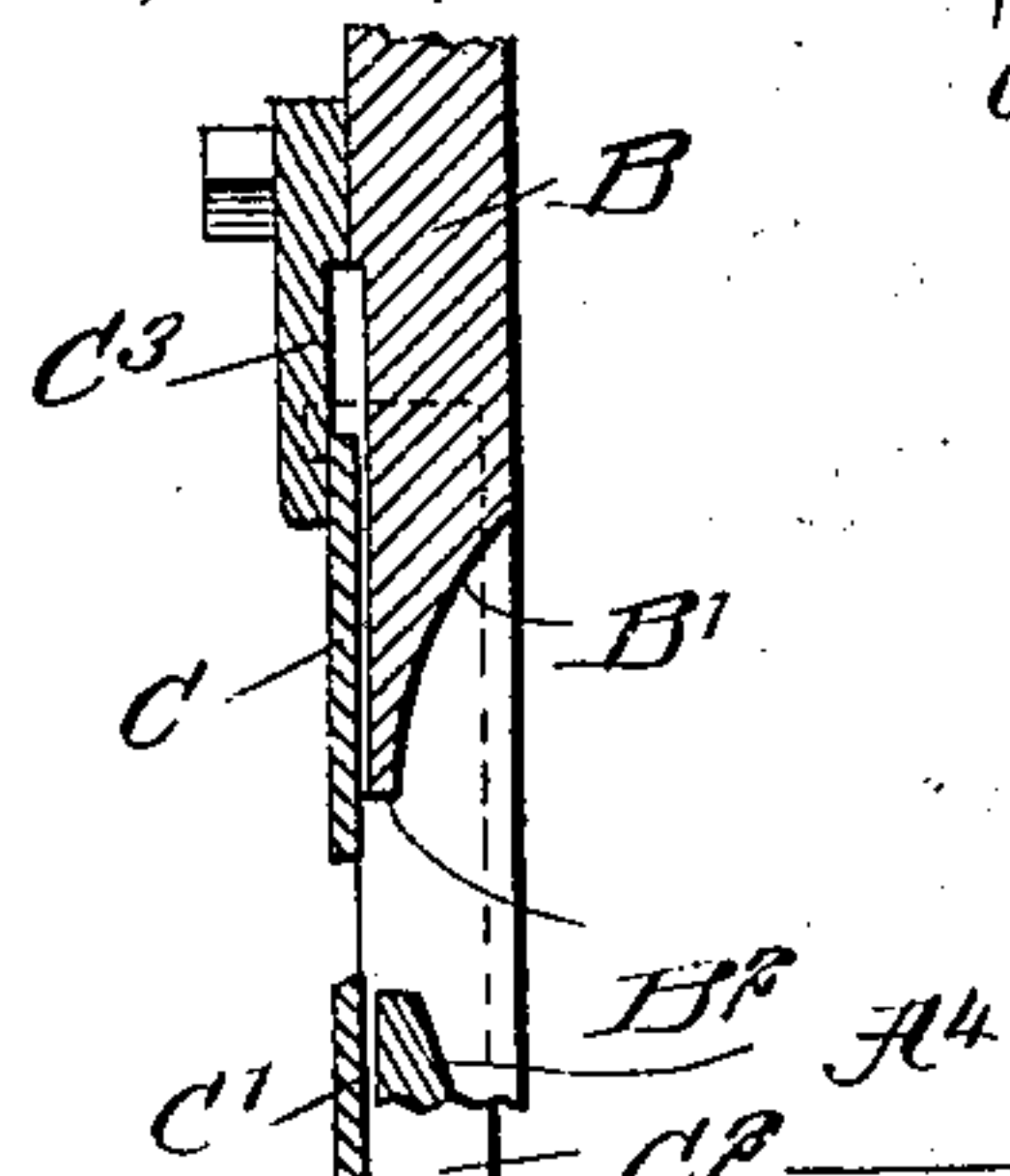


Fig 4



WITNESSES:

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*Neely Foster*

INVENTOR

*James Brandon*  
BY *Mum*  
ATTORNEYS

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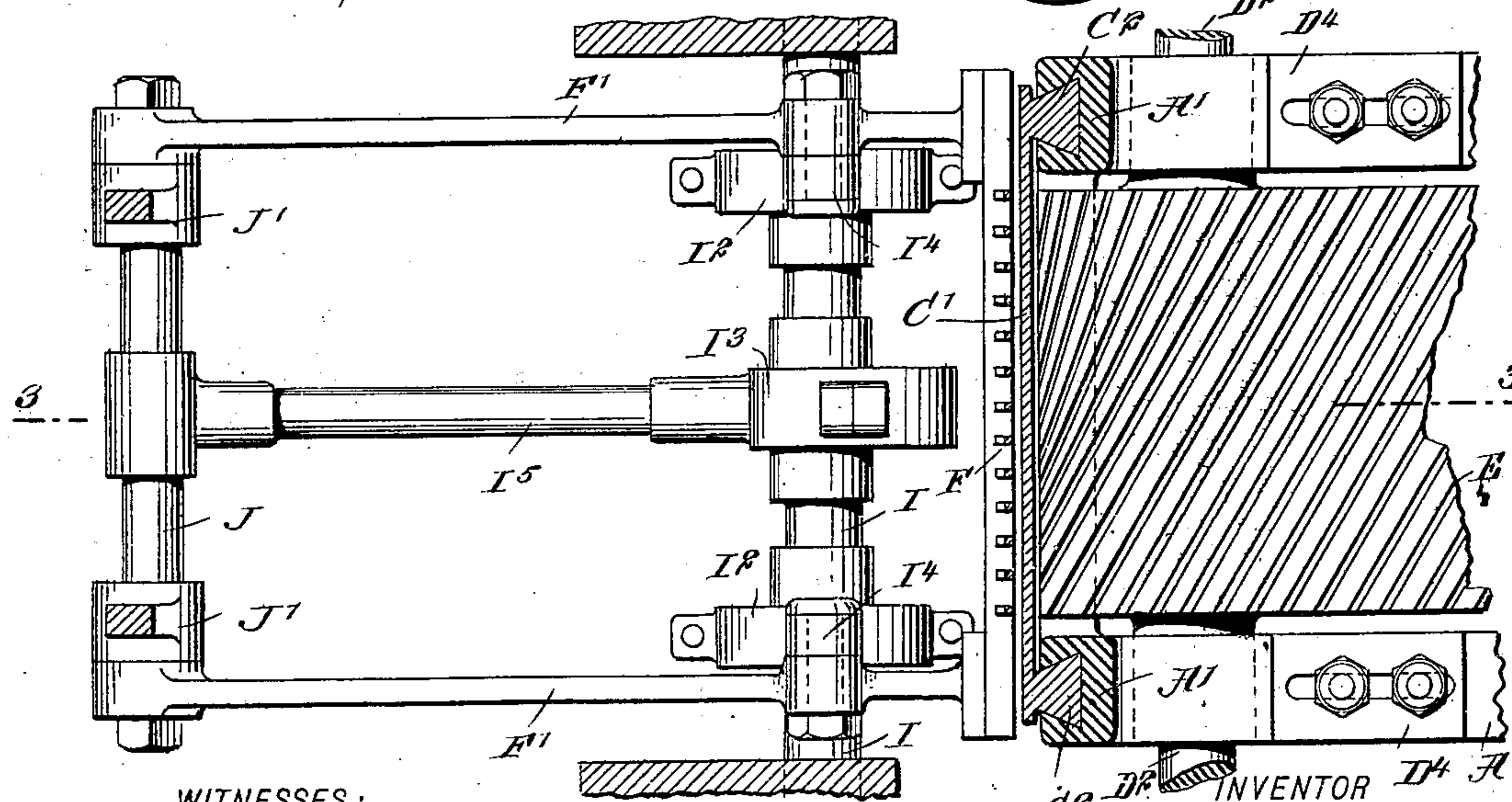
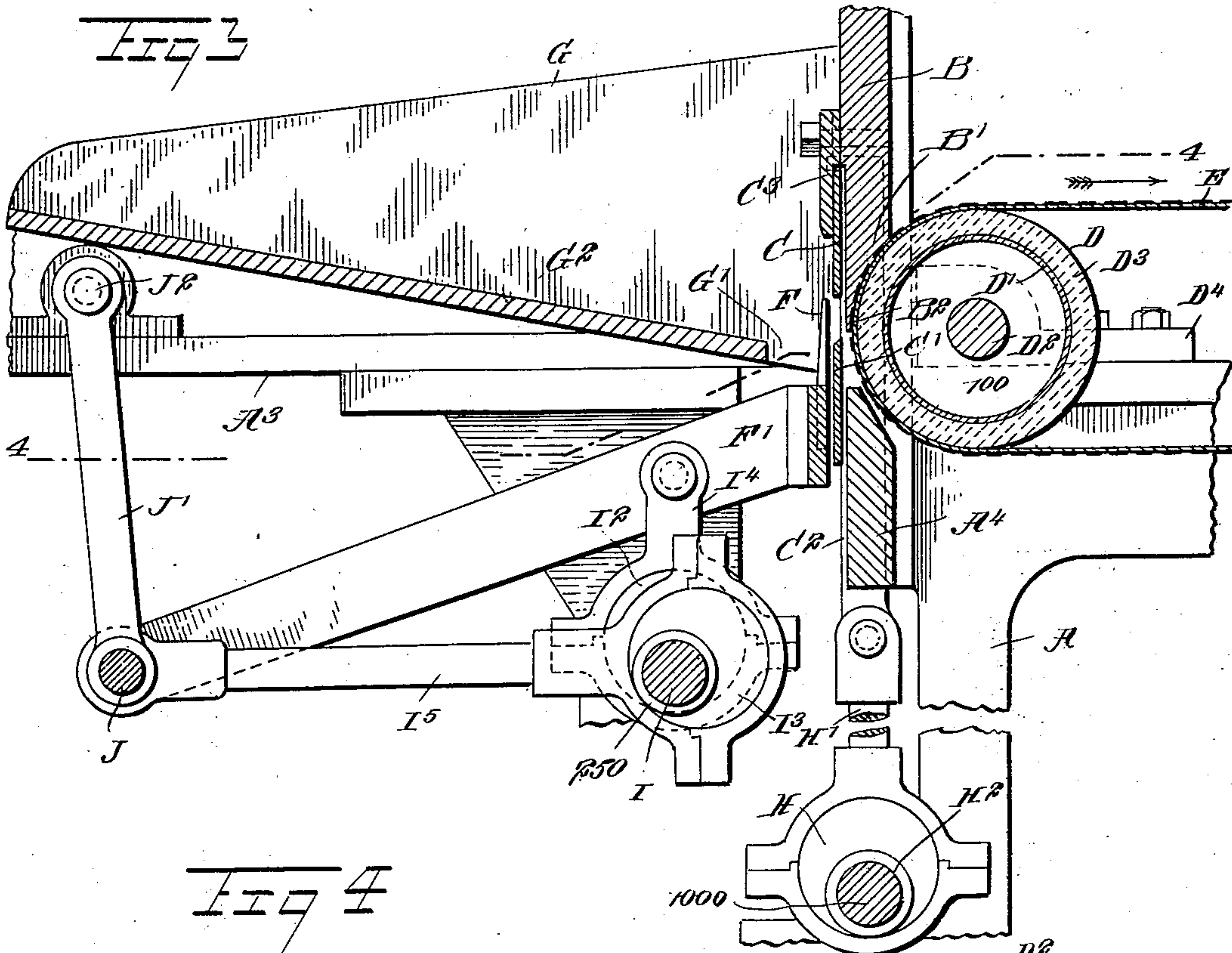
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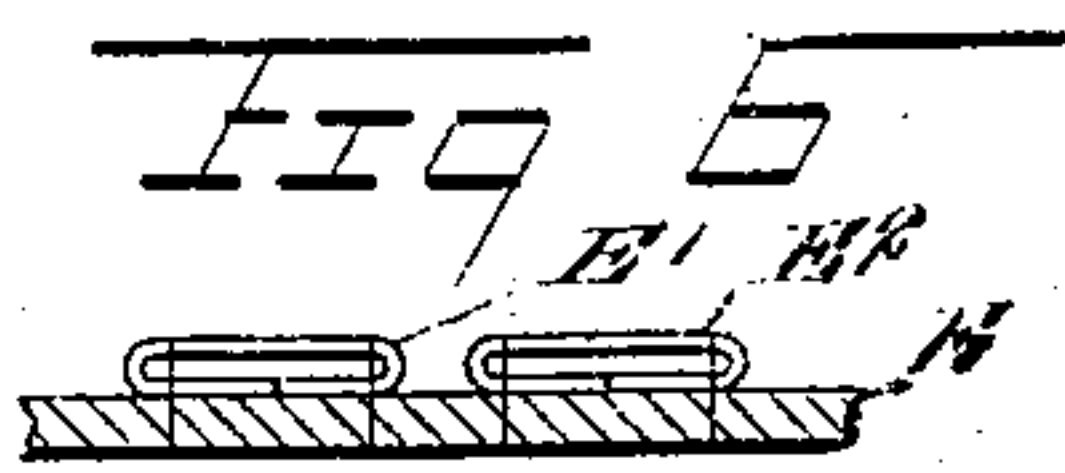
NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

*H. Walker*  
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## UNITED STATES PATENT OFFICE.

JAMES BRANDON, OF NEW YORK, N. Y.

## COTTON-GIN.

SPECIFICATION forming part of Letters Patent No. 731,273, dated June 16, 1903.

Application filed July 24, 1901. Serial No. 69,481. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES BRANDON, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Cotton-Gin, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved cotton-gin for readily ginning cotton without kinking or otherwise injuring the fiber.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is an enlarged sectional side elevation of the same on the line 3 3 of Fig. 4. Fig. 4 is a sectional plan view of the same on the line 4 4 of Fig. 3. Fig. 5 is an enlarged plan view of part of the carrier apron or belt. Fig. 6 is a sectional side elevation of the same. Fig. 7 is an enlarged sectional side elevation of the improvement, showing the stripper in a lowermost position; and Fig. 8 is a diagrammatic view showing the elliptical path of the gyrating comb in front of the stripper-blades.

The improved cotton-gin is mounted on a suitably-constructed frame A, supporting the breast-beam B, in front of which operate the upper and lower blades C C' of a reciprocating stripper, and at the rear of the said breast-beam is located the ginning-roller D, over which passes the endless apron or belt E for carrying off the lint. In front of the stripper gyrates the comb F in an approximately elliptical path, (see Fig. 8,) and the comb, as well as the lower stripper-blade C', extends through an opening G' in the inclined bottom G<sup>2</sup> of the hopper G, arranged in front of the breast-beam B and adapted to contain the cotton to be ginned. The blades C and C' of the stripper are spaced apart and are secured at their ends to slides C<sup>2</sup>, mounted to slide in vertical

bearings A', arranged on the frame A, the upper portion of the blades C extending under a guide C<sup>3</sup>, secured to the breast-beam and serving to guide the blade C and prevent it from swinging or bending. A reciprocating motion is given to the stripper, and for this purpose the slides C<sup>2</sup> are connected at their lower ends with eccentric-rods H' of eccentrics H<sup>2</sup>, secured on a transverse shaft H<sup>2</sup>, journaled in suitable bearings arranged on the main frame A. This shaft H<sup>2</sup> is rotated by pulleys H<sup>3</sup> H<sup>4</sup> and a belt H<sup>5</sup> from a driven shaft I, extending transversely and journaled in suitable bearings on the frame A. On the shaft I is secured a pulley I', connected by a belt with other machinery, so that when the shaft I is rotated a rotary motion is given to the shaft H<sup>2</sup> at a speed exceeding that of the shaft I. The shaft I carries eccentrics I<sup>2</sup> and I<sup>3</sup>, of which the eccentrics I<sup>2</sup> are preferably two in number and are connected by eccentric-rods I<sup>4</sup> with arms F', rigidly carrying at their free ends the comb F. The arms F' swing on a pivot J, pivotally engaged by the eccentric-rod I<sup>5</sup> of the eccentric I<sup>3</sup>, and the pivot J is hung on links J', fulcrumed at J<sup>2</sup> on a bracket A<sup>3</sup>, secured to or formed on the main frame A.

The ginning-roller D consists, essentially, of a metallic tubular core D', secured on the shaft D<sup>2</sup>, and on the core is secured the body D<sup>3</sup>, of rubber or other elastic material of suitable thickness to readily yield for the purpose hereinafter more fully described. The shaft D<sup>2</sup> extends transversely and is journaled in bearings D<sup>4</sup>, held longitudinally adjustable on the frame A to bring the drum D and its apron or belt E into proper relation to the segmental surface B' on the lower end of the rear face of the breast-beam B. (See Fig. 3.) The endless apron or belt thereof is provided at its outer surface with oblique bars E', spaced apart and preferably formed of flexible strips of a suitable fabric with the sides of the strips turned under, as is plainly shown in Fig. 6, to rest on the outer surface of the apron or belt, the ends of the strips and their turned-under parts being fastened by stitches E<sup>2</sup> to the apron or belt, so as to securely hold the strips in place. The rear end of the endless apron or belt E passes over a roll K, secured on a shaft K', extending transversely and journaled in bearings K<sup>2</sup>, held longitudi-



nally adjustable on the main frame A to permit of giving the desired tension to the apron or belt E. The ginning-roller D is rotated at a speed considerably less than that given to the shaft I, and for this purpose the shaft D<sup>2</sup> in the said ginning-drum carries a gear-wheel L in mesh with a gear-wheel L', secured on a shaft L<sup>2</sup>, journaled in suitable bearings on one side of the frame A, and on the said shaft L<sup>2</sup> is secured a pulley L<sup>3</sup>, connected by a belt with other machinery for imparting a rotary motion to the shaft L<sup>2</sup> and by the gear-wheels L' and L to the shaft D<sup>2</sup> of the ginning-roller D. The shaft D<sup>2</sup> carries a pulley N, connected by a belt N' with a pulley N<sup>2</sup>, secured on the shaft K', so that when the ginning-roller is rotated a like rotary motion is given to the roll K to insure proper traveling of the apron or belt. The apron or belt E is engaged by a brush O for removing the lint from the said belt or apron, and this brush O is secured on a transverse shaft O', journaled in suitable bearings on the frame A. (See Fig. 1.) A pulley O<sup>2</sup> is secured on the shaft O' and is connected by a crossed belt O<sup>3</sup> with a pulley O<sup>4</sup> on the shaft I, so that when the latter is rotated a rotary motion is given to the brush O to rotate the latter at a higher rate of speed than that given to the roll K, so that the brush readily brushes the lint off of the apron or belt E, which travels in the direction of the arrow a'. (See Fig. 1.)

It is understood that when the machine is in operation and the shaft I is rotated the shaft H<sup>2</sup> is driven at an increased rate of speed, and the eccentrics H and their rods H' impart a reciprocating motion to the slides C<sup>2</sup> and the stripper-blades C and C'. The parts are so proportioned that the upper edge of the lower blade C' when at the end of its upward movement stands a short distance below the lower edge B<sup>2</sup> of the breast-beam B, (see Fig. 3,) while the upper blade C is a distance above the said edge B<sup>2</sup>. When the stripper is in a lowermost position, as shown in Fig. 7, then the lower edge of the upper blade C is a distance below the edge B<sup>2</sup> and the upper edge of the lower blade C' is at or near the upper edge of the cross-beam A<sup>4</sup>, forming part of the main frame A.

The operation is as follows: The seed-cotton is placed in the feed box or hopper G and slides down the inclined bottom thereof and passes through the opening between the stripper-blades C C' to the traveling flexible apron or belt E. As the surface of the belt or apron E is much rougher than the concave surface B' of the breast-beam, it is evident that the fibers of the cotton coming in contact with the rough surface of the traveling apron readily adhere to the latter and are drawn under and past the smooth concave surface B' of the breast-beam. The compressibility of the elastic roller D permits the latter to yield sufficiently to let the maximum quantity of lint to pass between the apron and the surface B'; but the roller D does not yield

enough to let the hard seed pass through. The lint is carried rearwardly on the upper run of the belt or apron to be finally brushed off by the revoluble brush O. It is understood that by having the strips E' of the apron or belt E close to the surface B' the lint passed upon the apron and carried by the latter along the said surface causes a strong pull on the fiber, so that the stripper-blades C and C' can readily act on the cotton at the edge B<sup>2</sup> to loosen and remove the seeds without kinking or otherwise injuring the fiber. Now while the cotton is engaged by the apron or belt E below the breast-beam and while the stripper is upward the lower stripper-blade C' takes hold of the surplus cotton between the belt E and the comb F to relieve the said belt, and consequently the drum D, at the same time pushing the cotton up and loosening the seeds therein. As the lower blade C' does not move clear up to the edge B<sup>2</sup> of the beam B, it does not cut off the cotton passing to the apron or belt nor does it kink the fiber on the edge B<sup>2</sup> of the beam, and hence the fiber is not injured and passes in its natural state to the apron or belt. When the stripper moves downward, the upper blade C pushes the seeds out of the cotton now passing under the edge B<sup>2</sup> of the breast-beam, which cotton had previously been pushed up onto the beam by the lower stripping-blade C', as above explained. As the lower edge of the upper blade C does not come down to the upper edge of the cross-beam A<sup>4</sup>, it is evident that the feeding of the cotton from the hopper G to the traveling apron E is not interrupted, and consequently the ginning-roller and its belt can work continuously without danger of becoming overcrowded and without losing hold of the lint. The comb F receives a gyrating motion, as previously mentioned, by the action of the eccentrics I<sup>2</sup> I<sup>3</sup>, the links J', and the arms F', so that the teeth of the comb move approximately in an elliptical path in front of the stripper and within the hopper G, as will be readily understood by reference to Fig. 8. The comb F in going upward close to the stripper-blades C C' combs the cotton out of the stripper, and in going down it allows free feeding of the cotton to the strippers without danger of drawing the cotton down through the opening G' in the inclined bottom G<sup>2</sup>. As the teeth of the comb F are spaced considerable distances apart, (see Figs. 2 and 4,) the lint held on the apron E is drawn easily between the teeth of the comb.

The breast-beam B is preferably held vertically adjustable on the frame A, so as to bring the surface B' in proper relation to the ginning-drum and its apron, and for this purpose the breast-beam is provided with screw-rods B<sup>3</sup>, engaged at their upper ends by nuts B<sup>4</sup>, resting on opposite sides on brackets B<sup>5</sup>, secured to the main frame A. (See Figs. 1 and 2.) The breast-beam is in frictional contact with the apron E at the concave surface B' for



a distance considerable in excess of the length of the largest fiber to insure proper action of the apron and breast-beam without requiring a very fine or close adjustment of the parts referred to.

The above-described form assures a uniform pull or tension upon the cotton fibers throughout their entire length, thus diminishing the possibility of injuring the staple by abrasion, if not, in fact, entirely eliminating said possibility.

Simultaneously with the operation of drawing the seed-cotton under the breast-beam B the seeds contained therein are arrested in their travel at the lower edge of said breast-beam B, (see B<sup>2</sup>,) and while in this position are rapidly agitated by the reciprocating stripper-blades C and C'. It will be fully understood that the seeds are agitated from both top and bottom alternately, each individual agitation moving the seeds a short distance only, the object in view being to loosen and remove the seeds more in detail, thus preserving the fiber from undue strains or other harsh treatment during the process of separating the fibers from the seeds. The agitations of the seeds are very rapid, approximately two thousand (2,000) per minute, thus assisting to produce the maximum quantity of lint, while preserving to the staple its natural strength.

It will be observed by reference to the accompanying drawings that the feed-aperture is never entirely closed, the feeding being, in fact, practically constant.

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

1. A roller cotton-gin, having a soft elastic roller, a flexible belt traveling over said roller, a breast-beam in contact with said flexible belt, a stripper having an upper and a lower blade arranged in front of the breast-beam and flexible belt and a comb in front of the stripper, as set forth.

2. A roller cotton-gin having a stripper consisting of an upper stripper-blade and a lower stripper-blade spaced from the upper stripper-blade to form an opening for the passage of the cotton to the ginning-drum, the said blades moving in unison up and down, a comb in front of the stripper, and mechanism for imparting gyrating movement to the comb, as set forth.

3. A roller cotton-gin having a breast-beam, a ginning-roller in close proximity thereto, a reciprocating stripper in front of the breast-beam and drum and consisting of spaced stripping-blades, a comb in front of the said stripper, and means for imparting gyrating movement to the comb, as set forth.

4. A roller cotton-gin having a breast-beam formed at its rear face with a segmental surface, a soft elastic roller, an apron passing over the roller and in frictional contact with the said segmental surface of the beam, and a reciprocating stripper in front of the said beam and consisting of spaced stripping-blades,

the lower blade in its upward stroke moving close to the edge of the breast-beam, as set forth.

5. A roller cotton-gin having a soft elastic roller, a flexible belt traveling over said roller, a breast-beam having a segmental surface in close frictional contact with the said flexible belt, a reciprocating stripper, and a comb in front of the stripper, as set forth.

6. A roller cotton-gin having a breast-beam formed at its rear, lower face with a segmental surface, a ginning-roller, an apron passing over the same and in frictional contact with the said surface, and a reciprocating stripper in front of the said beam and consisting of an upper and a lower blade, the lower blade in its upward stroke moving close to the edge of the breast-beam, and the upper blade in its downward movement passing the said edge of the breast-beam, as set forth.

7. A roller cotton-gin having a breast-beam formed at its rear, lower face with a segmental surface, a ginning-roller, an apron passing over the same and in frictional contact with the said surface, a reciprocating stripper in front of the said beam and consisting of an upper and a lower blade, the lower blade in its upward stroke moving close to the edge of the breast-beam, and the upper blade in its downward movement passing the said edge of the breast-beam, a comb in front of the said stripper, and means for imparting a gyrating motion to the comb, as set forth.

8. A roller cotton-gin having a traveling surface for receiving and carrying off the lint, a stripper, a gyrating comb in front of the stripper, and means for imparting a gyrating motion to the comb, as set forth.

9. A roller cotton-gin having a ginning-roller, a reciprocating stripper having an upper and a lower stripper-blade operating in conjunction with the said roller, a comb in front of the said stripper, and means for imparting a gyrating motion to the comb, as set forth.

10. A roller cotton-gin comprising a breast-beam, a traveling surface at the said breast-beam to receive and carry off the lint, a stripper reciprocating at the said breast-beam adjacent to the said traveling surface, the stripper consisting of an upper and a lower stripper-blade, a comb in front of the said stripper, and means for imparting a gyrating motion to the comb, as set forth.

11. A roller cotton-gin comprising a breast-beam, a traveling surface at the said breast-beam to receive and carry off the lint, a stripper reciprocating at the said breast-beam adjacent to the said traveling surface, the stripper consisting of an upper and a lower stripper-blade, a comb in front of the said stripper, means for imparting a gyrating motion to the comb, and a feed-hopper for delivering the cotton to the said comb, as set forth.

12. A roller cotton-gin having a traveling surface for receiving and carrying off the lint, a stripper for acting on the lint passing to the



traveling surface, a comb for removing the lint from the stripper, and means for imparting a gyrating motion to the comb, as set forth.

13. A roller cotton-gin having a ginning-  
5 drum, a stripper device, a comb, and means for imparting a gyrating movement to the said comb, the means comprising arms carrying the comb, a link on which the arms are fulcrumed, and eccentrics of which one is connected with the arms and the other with the link, as set forth.

14. A roller cotton-gin having a traveling belt comprising an endless apron, rollers over which the apron passes, and oblique bars  
15 spaced apart and secured on the outer surface of said apron, the said bars being made of flexible material, as set forth.

15. A roller cotton-gin having a traveling belt comprising a flexible body and oblique  
20 bars secured on the outside thereof, the bars being formed of flexible strips of a fabric material with the sides turned under and onto the surface of the belt-body, and rollers over which the belt passes, as set forth.

16. A roller cotton-gin having a traveling belt, comprising a flexible body and oblique  
25 bars secured on the outside thereof, the bars being formed of flexible strips of a fabric material with the sides turned under and onto the surface of the belt-body, and stitches  
30 along the sides of the strips for securing the latter to the said body, and rollers over which the belt passes, as set forth.

17. A roller cotton-gin having a ginning-  
35 roller comprising a core, an elastic body on the

said core, an apron passing over the roller, a stripper adjacent to the apron, a comb in front of the stripper, a feed-hopper for the cotton, and means for removing the lint from the apron, as set forth.

18. A roller cotton-gin having a breast-beam formed at its rear face with a segmental surface, a ginning-roller, an apron passing over the roller and in frictional contact with the said segmental surface, a reciprocating strip-  
45 per in front of the said beam and consisting of an upper and a lower blade, a comb in front of the said stripper, arms carrying said comb, links on which the arms are fulcrumed, and means for moving said arms and links to  
50 impart a gyrating motion to the said comb, as set forth.

19. A roller cotton-gin, comprising a breast-beam, a traveling surface at the said breast-beam to receive and carry off the lint, a strip-  
55 per reciprocating at the said breast-beam adjacent to the traveling surface, a comb in front of the said stripper, means for imparting a gyrating motion to the comb, a feed-hopper for delivering the cotton to the said comb,  
60 and means for removing the lint from the traveling surface, as set forth.

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

JAMES BRANDON.

Witnesses:

THEO. G. HOSTER,  
EVERARD B. MARSHALL.