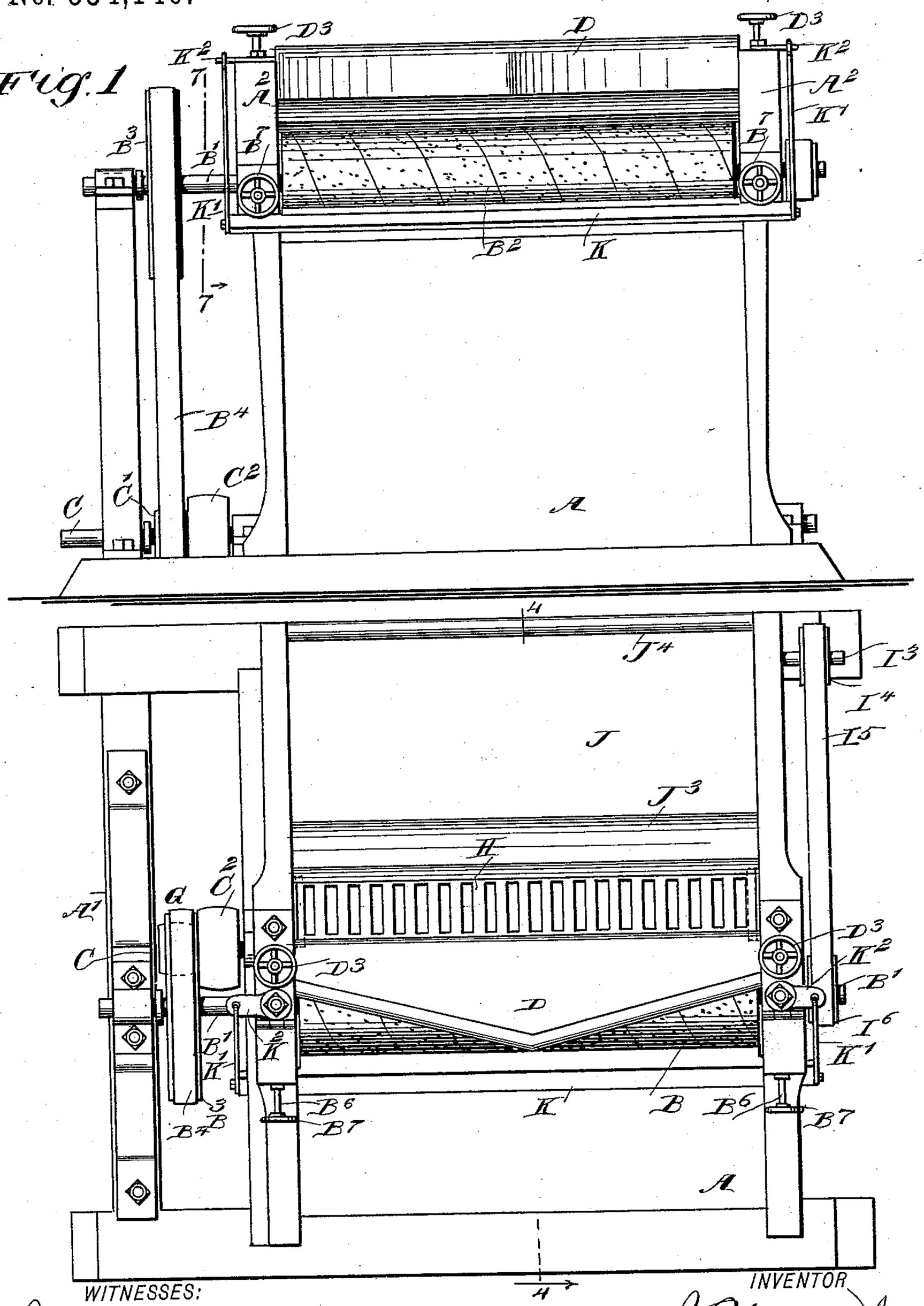
(No Model.) 3 Sheets—Sheet 1.

J. E. COLEMAN, Jr.

ROLLER COTTON GIN.

No. 534,140. Patented Feb. 12, 1895.

Fig. 1



WITNESSES:

John A. Bergstrom

Henry J. Herstein

Fig. 2

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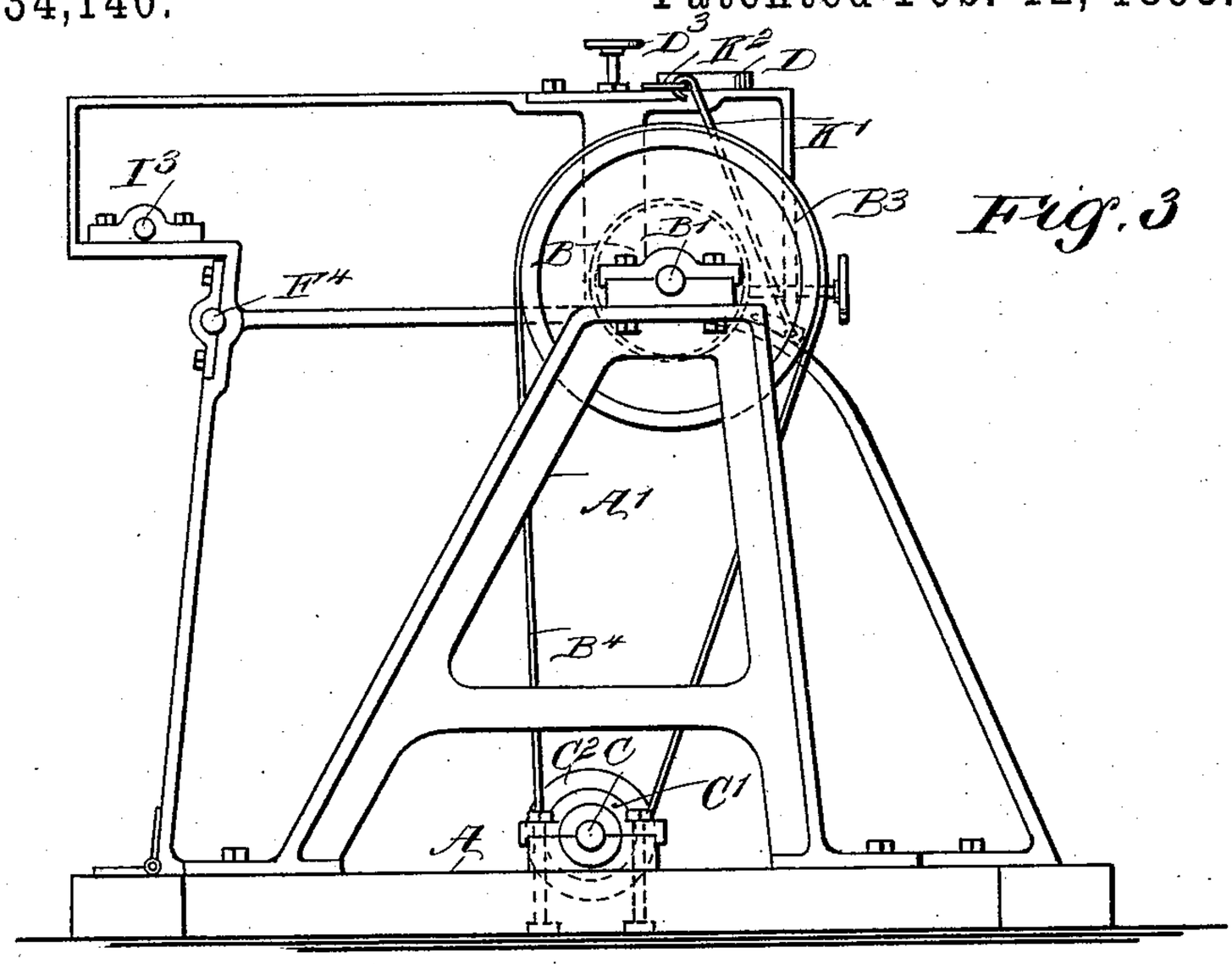

Fig. 3

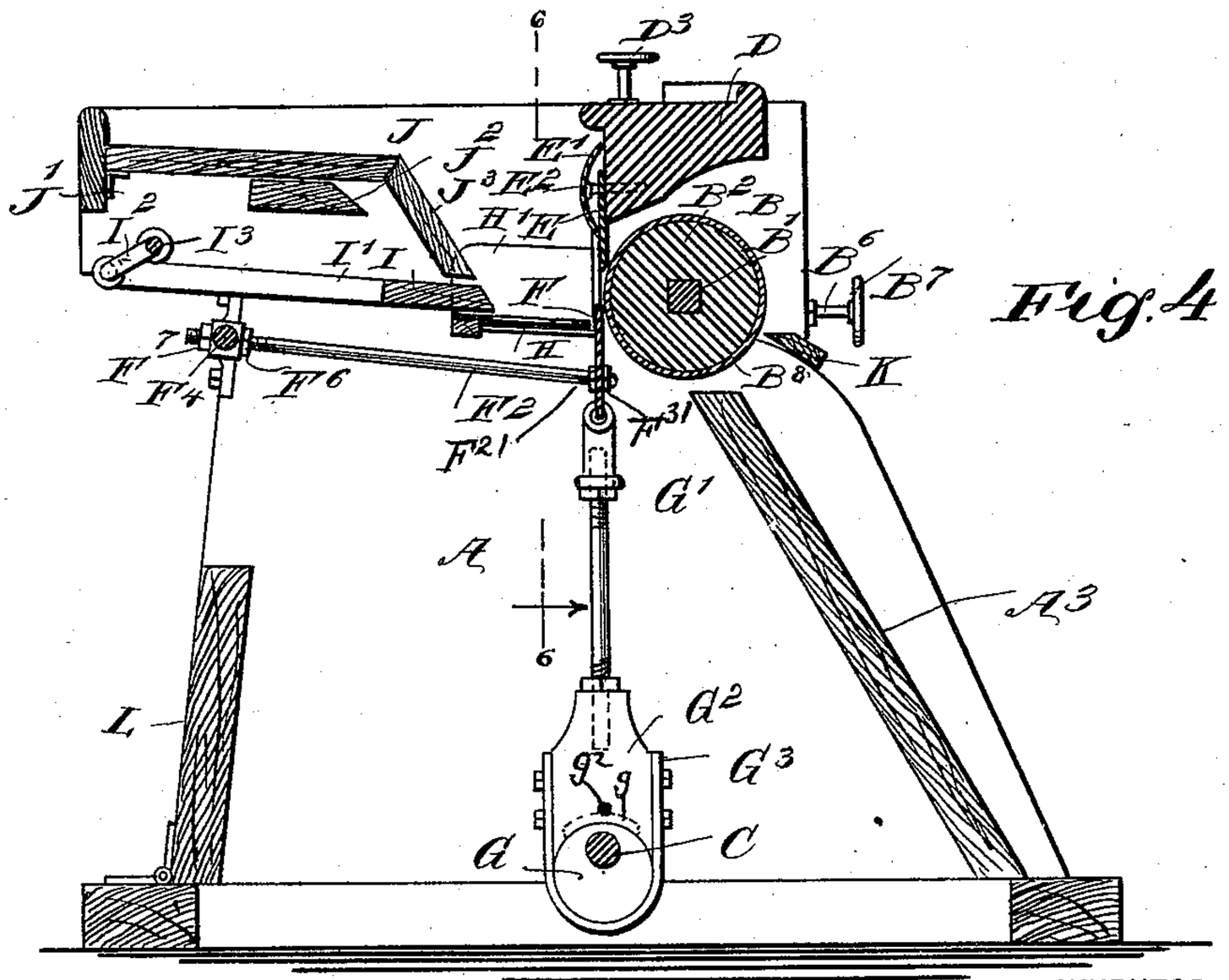

Fig. 4

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(No Model.)

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J. E. COLEMAN, Jr.

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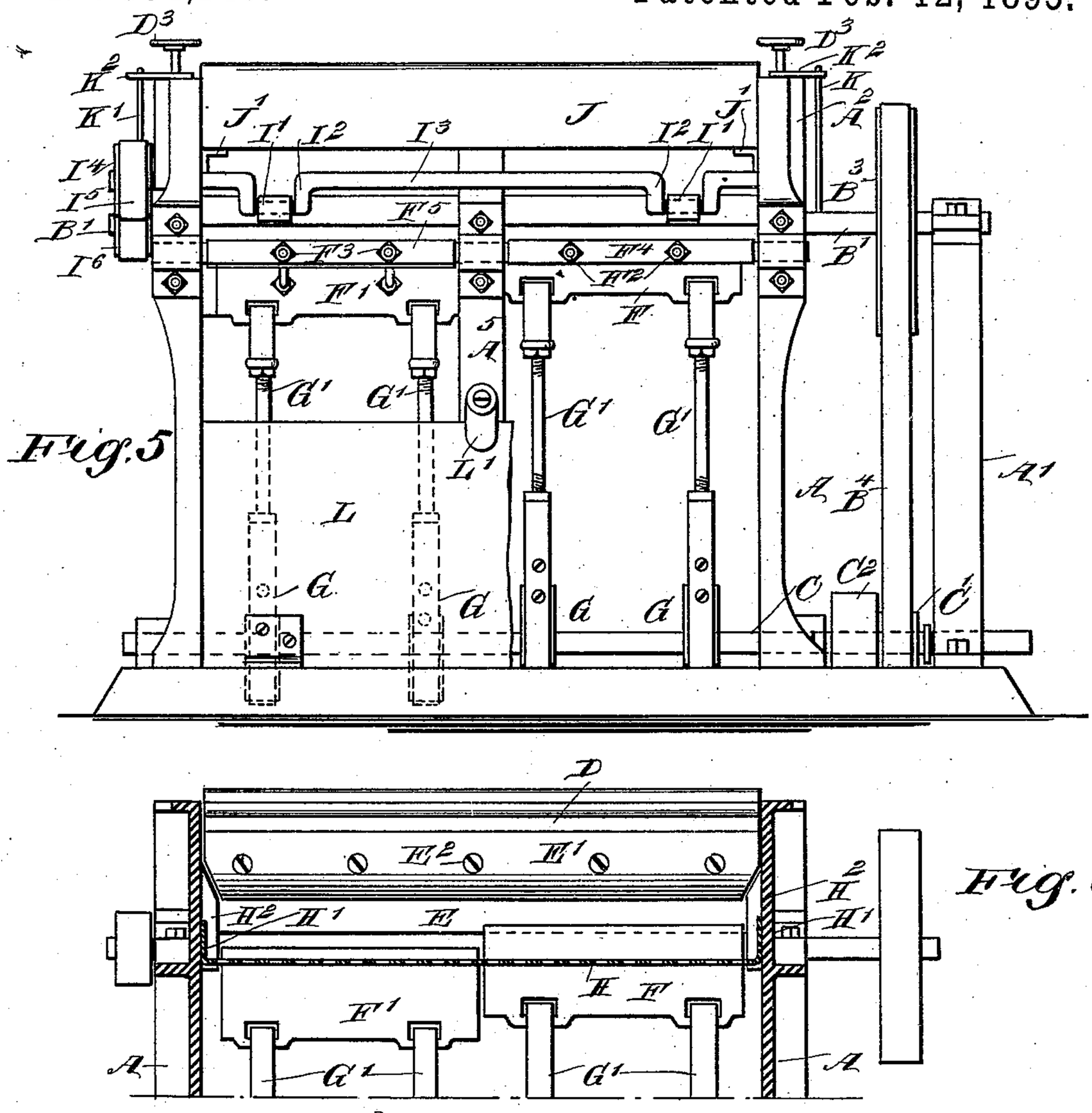

Fig. 5

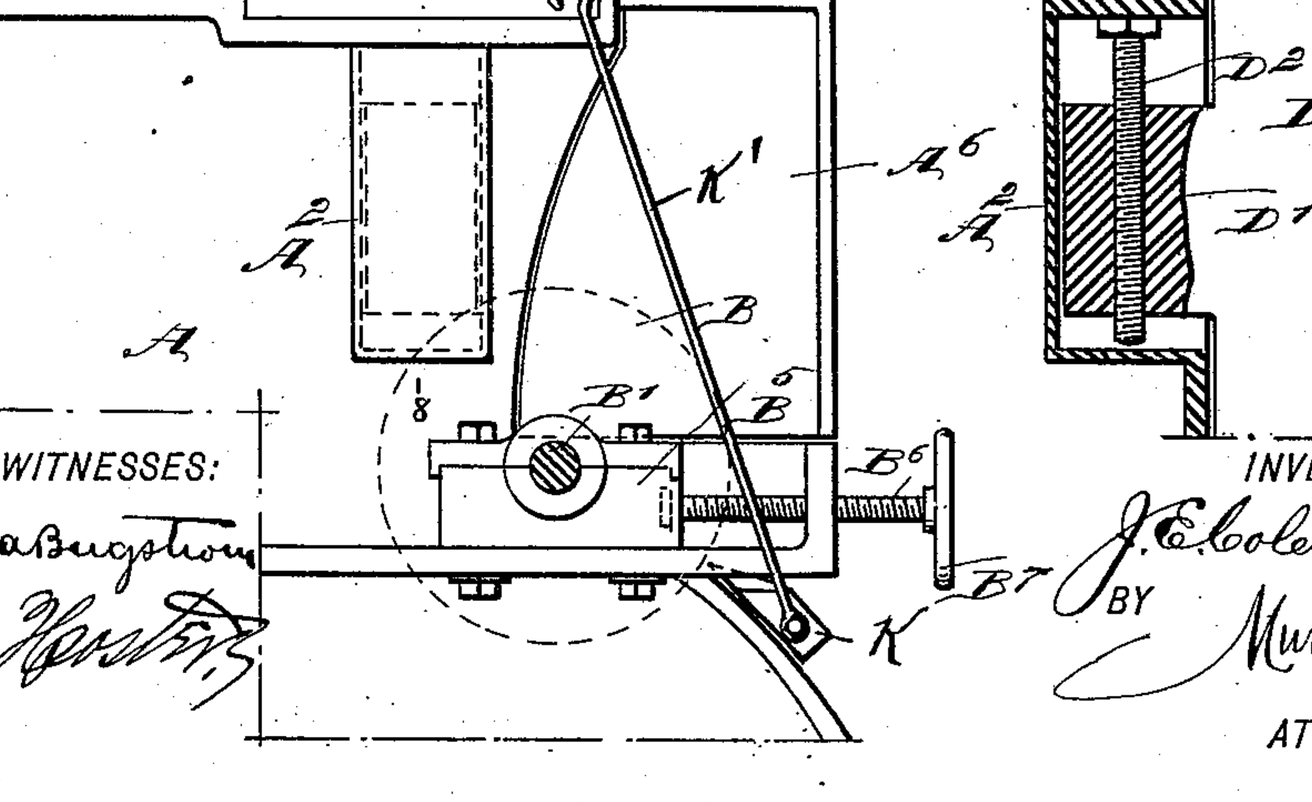

Fig. 6

Fig. 7

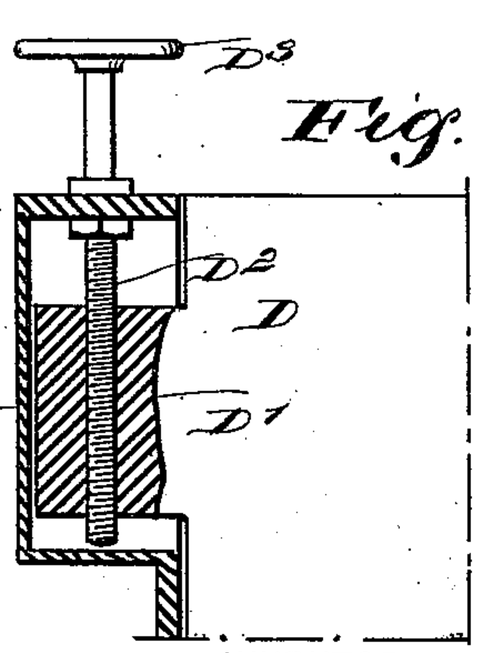

Fig. 8

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES E. COLEMAN, JR., OF WADE, GEORGIA.

ROLLER COTTON-GIN.

SPECIFICATION forming part of Letters Patent No. 534,140, dated February 12, 1895.

Application filed April 25, 1894. Serial No. 508,981. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. COLEMAN, Jr., of Wade, in the county of Emanuel and State of Georgia, have invented a new and Improved Roller Cotton-Gin, of which the following is a full, clear, and exact description.

The invention relates to roller gins of the McCarthy type; and its object is to provide a new and improved cotton gin which is simple and durable in construction, very effective in operation, and arranged to permit of ready access to all the parts for repairs and other purposes.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the improvement. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of the same. Fig. 4 is a sectional side elevation of the same on the line 4—4 of Fig. 2. Fig. 5 is a rear end elevation of the same with part broken out. Fig. 6 is a transverse section of part of the improvement on the line 6—6 of Fig. 4. Fig. 7 is an enlarged side elevation of part of the improvement on the line 7—7 of Fig. 1; and Fig. 8 is a transverse section of the same on the line 8—8 of Fig. 7.

The improved cotton gin is provided with a suitably constructed frame A, in which is journaled the roller B, provided with a shaft B′ mounted to turn in suitable bearings in the frame A and in bearings in a standard A′ forming part of the said frame. On the shaft B′ is secured a wooden or other core B^2 covered by a fabric, preferably a canvas fabric, with asbestos B^8 as a facing so that a comparatively rough surface is presented exteriorly to the cotton, to readily draw the same from the knives, as hereinafter more fully described.

One outer end of the shaft B′ carries a pulley B^3, over which passes a belt B^4, also passing over a pulley C′ secured on the main driving shaft C journaled in suitable bearings in the frame A and provided with a pulley C^2 adapted to connect with other machinery for imparting a rotary motion to the said driving shaft, and consequently by the pulleys C′, B^3 and the belt B^4 to the shaft B′ of the roller B.

Directly above the roller B is arranged a saddle or breast D, formed at its ends with projections D′ extending into guide-ways A^2 formed on the sides of the main frame A, as is plainly illustrated in Figs. 1 and 8. In the projections D′ screw the screw rods D^2, journaled in the tops of the said guide-ways A^2 and provided at their upper ends with hand wheels D^3 adapted to be taken hold of by the operator to turn the said screw rods D^2 to raise and lower the saddle D, to bring the same either up or down so as to move the knife E secured on the said saddle closer to or farther from the peripheral surface of the covering B^8 of the roller B.

The stationary knife E is formed with a concave knife edge corresponding to the peripheral surface of the roller B, and the said knife is securely held in place by a transversely-extending curved blade E′ fastened by screws E^2 to the saddle D. By this arrangement, the blade E′ has a bearing throughout the entire length of the said knife so as to prevent the same from being twisted or otherwise distorted or bent out of shape.

The movable knife operating in conjunction with the fixed knife E is made in the two parts F and F′ secured on the rearwardly-extending rods F^2 and F^3, respectively, fastened on transversely-extending rock shafts F^4 and F^5, respectively, journaled in the frame A, as will be readily understood by reference to Figs. 3, 4 and 5.

The rods F^2 and F^3 are threaded on their front ends and engaged by nuts F^{21}, F^{31} (see Fig. 4) on opposite sides of the movable knife sections, to permit of readily disconnecting the rods for repair of the rods or knife sections.

In order to hold the rods F^2 and F^3 securely in place on their rock shafts, I form each rod at its rear end with a screw thread, on which screw the nuts F^6 and F^7, abutting on opposite sides of the corresponding rock shaft. Thus, each rod is securely held in place on the rock shaft and can be adjusted at any time by adjusting the nuts F^6 and F^7, so as to bring the knife F or F′ into the proper position relative to the fixed knife E.

A reciprocating motion is given to each of

the knives F and F′ by eccentrics G secured on the main driving shaft C and connected by adjustable eccentric rods G′ with the said knives F and F′. By making the eccentric rods adjustable so as to lengthen or shorten the same, I am enabled to properly set the upper cutting edges of the knives F and F′ to the proper position relative to the fixed knife E and the roller B.

The lower end of each rod G′ is secured on a block G^2 to which the segmental strap G^3 is attached, and in this block G^2 a recess *g* is preferably formed as shown in dotted lines Fig. 4, said recess being adapted to be filled with a lubricant to render the eccentric self acting for a considerable length of time. An opening g^2 in the side of the block leads to the recess (see Fig. 4), to fill the recess and to permit of inserting a plug after filling, to prevent dust from passing to the lubricant.

In the rear of the movable knives F and F′ extends the transverse grate H provided at its ends with up-turned flanges H′ secured on the sides of the frame A, as is shown in Fig. 6. The grate H also rests at its ends on brackets H^2, parts of which are curved upward to cover the joint between the ends of the roller B, and the frame to prevent the cotton from passing therein and also to form abutting places for the fixed knife E as will be readily understood by reference to Figs. 4 and 6. Over the grate H operates the feed plunger I, provided with rearwardly-extending arms I′ engaging crank arms I^2 formed on a transversely-extending shaft I^3, journaled in suitable bearings in the sides of the frame A. One outer end of the shaft I^3 carries a pulley I^4 connected by a belt I^5 with a pulley I^6 secured on the shaft B′, whereby the feed plunger I is driven from the shaft B′ of the ginning roller B, instead of from the main driving shaft.

Between the sides of the frame A is held a removable hopper J, resting at its rear end on cleats J′, secured on the sides of the frame A, the said hopper being supported at or near its middle by a transversely-extending beam J^2, likewise fastened in the sides of the frame A. The hopper J is provided with the downwardly-extending, transverse and inclined front plates J^3, over which the cotton passes upon the grate H to be moved by the plunger I, to the moving knives F and F′, so that the latter, in conjunction with the roller B, gin the cotton in the usual manner, whereby the seeds are removed from the lint and the latter is taken hold of by the ginning roller B and moved outward, while the seeds fall through the grate H.

The stripper plate K on the outside of the roller B is adapted to remove the lint from the ginning roller, so that the latter falls downward over the front plate A^3 of the frame A. The stripper plate K is hung on links K′ extending upward and rearward to pivotally connect with the arms K^2 fulcrumed on the top of the sides of the main frame A, whereby the stripper plate can be moved closer to or farther from the peripheral surface of the ginning roller as the case requires. It is understood that the said stripper plate K is formed with the usual knife edge extending toward the peripheral surface of the ginning roller to readily remove the lint.

The ginning roller B is adjustable relative to the vertically-adjustable saddle or breast D carrying the knife E, and for this purpose the journal bearings B^5 for the shaft B′ are connected with screw rods B^6, see Fig. 7, screwing in the sides of the frame A, and carrying at their outer ends hand wheels B^7 under the control of the operator.

On the rear end of the frame A is arranged a transversely-extending back plate L, hinged at its lower end to the base of the frame and adapted to extend upward to rest against a post A^5 forming part of the frame A, and also carrying the journals for the inner ends of the rock arms F^4, F^5. See Fig. 5. A button L′ on the said post A^5 serves to securely hold the back plate L in a suitable position. The sides of the frame A are formed at their front upper corners with the hinged portions A^6, swinging over the journal bearings D^5, so that the operator is enabled to readily get at the said journal bearings whenever desired, by swinging the said portions A^6 upward. See Fig. 7.

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

1. In a cotton gin, the combination with a roller and a stationary knife, of a movable knife made in two parts, the combined length of the said parts being approximately equal to the length of the stationary knife, and means for alternately reciprocating the said parts of the knife, substantially as described.

2. In a cotton gin, the combination with a ginning roller, of a vertically adjustable breast, a stationary knife carried thereby, a movable knife formed in two parts, the combined length of the said parts being approximately equal to the length of the stationary knife, and means for alternately reciprocating the parts of the said knife, substantially as described.

3. In a cotton gin, the combination with a ginning roller, and a vertically adjustable stationary knife, of a movable knife formed in two parts, the combined length of the said parts being approximately equal to the length of the stationary knife, means for alternately reciprocating the parts of the knife, a reciprocating plunger, and means for operating the plunger, substantially as described.

4. In a cotton gin, the combination with the frame, and the ginning roller mounted therein, of a stripper plate, links secured to the ends of the said plate, and arms pivoted to the frame and with which the links engage, substantially as described.

5. In a cotton gin, the combination of an adjustable ginning roller, a vertically adjust-

able breast, a stationary knife secured to the breast, a movable knife made in two parts, the combined length of the said parts being approximately equal to the length of the stationary knife, means for alternately reciprocating the parts of the knife, a grate in rear of the knives a reciprocating plunger, and means for operating the plunger, substantially as described.

6. In a cotton gin, the combination with the roller, the main driving shaft, and gearing between the said shaft and the shaft of the roller, of a knife made in two parts, the combined length of which is approximately equal to the length of the roller, rock shafts, rods secured to the rock shafts and to each section of the knife, eccentrics on the driving shaft, blocks to which the eccentric straps are secured, and rods connected to the blocks and to the knife sections, substantially as herein shown and described.

JAMES E. COLEMAN, JR.

Witnesses:
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B. W. DURDEN.