2 Sheets—Sheet 1.

J. B. HULL.
Cotton-Gin.

No. 209,049. Patented Oct. 15, 1878.

Fig. 1.

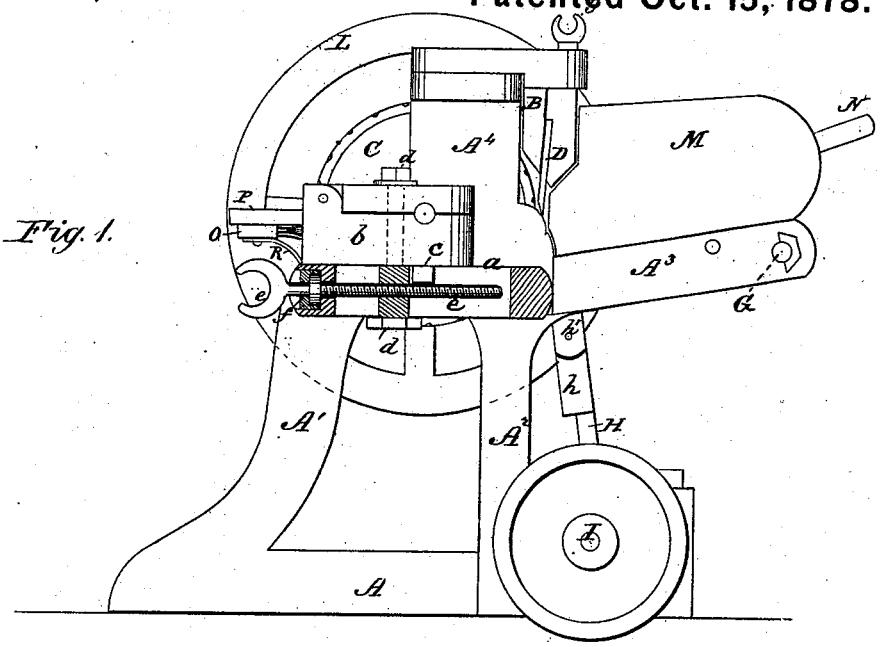
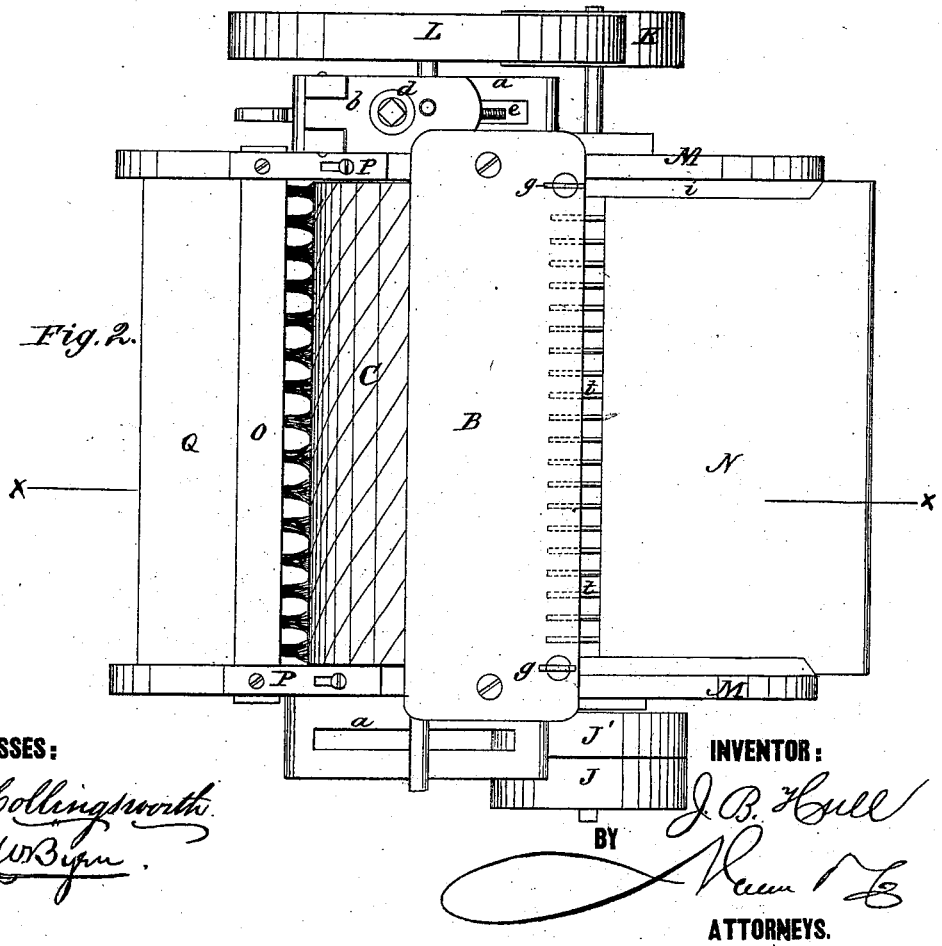


Fig. 2.



WITNESSES:

W. W. Hollingsworth.

Edw. W. Byrn.

INVENTOR:

J. B. Hull

BY

Munn & Co

ATTORNEYS.

2 Sheets—Sheet 2

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Fig. 3.

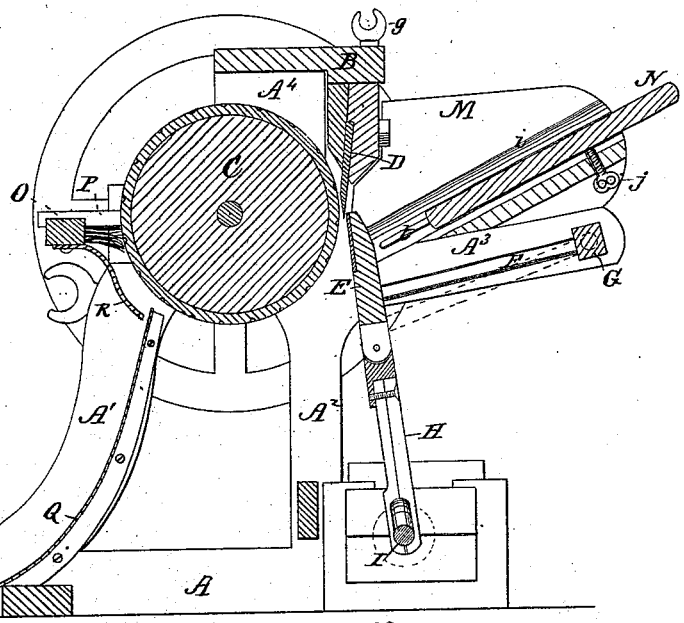


Fig. 4.

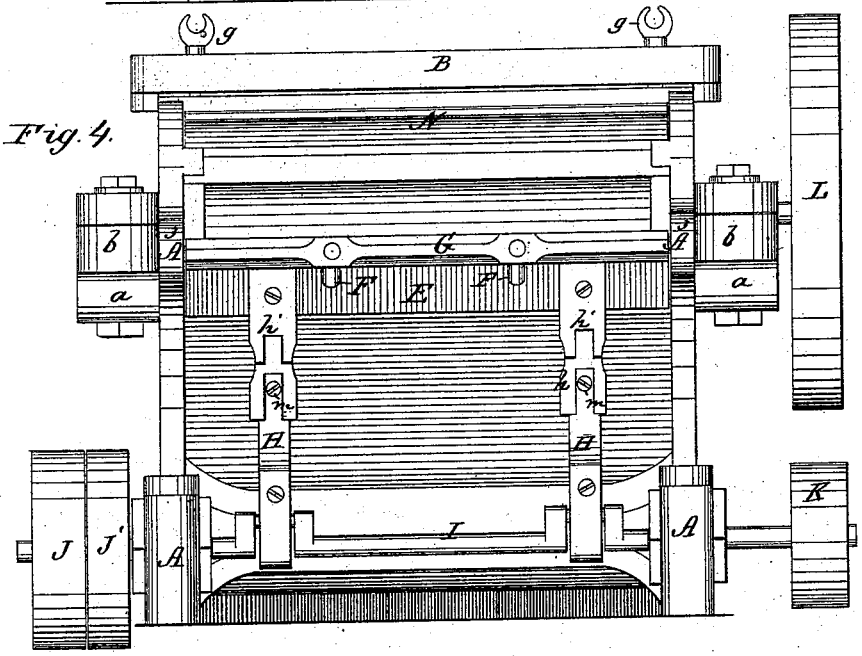
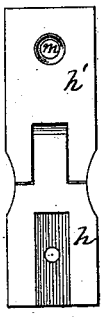


Fig 5.



WITNESSES:

W. W. Hollingsworth

Edw. W. Byrn

INVENTOR:

J. B. Hull

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES B. HULL, OF LIVE OAK, FLORIDA.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. **209,049**, dated October 15, 1878; application filed August 10, 1878.

To all whom it may concern:

Be it known that I, JAMES B. HULL, of Live Oak, in the county of Suwannee and State of Florida, have invented a new and Improved Cotton-Gin; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a side elevation, with the offset which carries the sliding box shown in section. Fig. 2 is a plan view with one of the sliding boxes removed, showing the slotted offset. Fig. 3 is a vertical section through the line *x x* of Fig. 2. Fig. 4 is a front elevation. Fig. 5 is a detail.

My invention relates to a novel construction of cotton-gin specially applicable to ginning sea-island cotton having a long fiber. It is constructed upon the general principle of the McCarthy gin, the essential features of which consist in a revolving roller having a rough surface of leather, which seizes the lint, a stationary blade arranged tangentially to the roller, and a reciprocating blade or stripper operating in conjunction with the stationary blade to separate the seed from the lint, which latter is carried over by the roller between the same and the stationary blade, and is removed by a brush.

The chief features of novelty consist in the construction and arrangement of a guard-plate with respect to the brush, the roller, and the chute, for separating the dust brushed off the roller from the lint; the arrangement of the revolving cylinder in sliding boxes, and adjusting it toward the stationary and movable blade, for the purpose hereinafter explained, and in contradistinction to adjusting said blades; the peculiar construction of journal-box for said roller, and the peculiar means for connecting the pitmen to the cross-head carrying the movable blade, all as hereinafter fully described.

In the drawing, A represents the base-bars; A^1 A^2, standards, one of which is curved; A^3, laterally-projecting arms; and A^4, upright piece rising from the rest of the frame to a position above the roller, and carrying the cross-piece B, forming the breast of the gin. C is the roller, covered with a rough surface of leather, and provided with spiral grooves. D is the stationary blade, and E is the movable blade or stripper.

In arranging the roller in its adjustable bearings, I form upon each side of the frame a slotted offset, *a*, Figs. 1 and 2. Upon this offset I place a sliding box, *b*, the upper portion of which is hinged to the lower portion, and the lower portion of which is provided with a guide-lug, *c*, which drops into the slot of the offset. Vertically through both sections of the hinged box and through the slot of the offset passes a bolt, *d*, having a head, which binds with the under surface of the offset, and a nut, which is screwed upon the threaded end of the bolt above the box. Longitudinally through the offset *a* extends a screw-rod, *e*. This rod is provided with a thumb-piece upon the outside for turning the same, and is retained in a plate, *f*, at the end of the offset, so as to swivel therein. The threaded end of the rod extends through a screw-threaded perforation in the bolt *d*, and serves, when turned, to move said bolt and box *b* horizontally upon the offset. These devices, it will be seen, at the same time provide means for holding the two sections of the box together in securing the journal of the roller, and also afford means for nicely adjusting the roller toward the blades. As heretofore generally used, the axis of the roller has been stationary, and the blades have, at the expense of cutting the frame-work, been adjusted toward the roller. The adjustment of the blades is especially undesirable for another reason—to wit., when the blades are adjusted by several set-screws one portion of the blade is, by reason of its flexibility, apt to be set closer against the roller than another, which results in wearing away the leather periphery of the roller at that point more than at others; then when a change in the adjustment is to be made the blades cannot be made to fit to these worn portions of the periphery of the roller, and the consequence is that the seed are caught, cut, and carried through with the lint, and the commercial value of the cleaned cotton is thereby impaired. Now, by fixing the plane of the stationary blade once for all and adjusting the cylinder bodily toward the blade, the close relation of the two is uniformly preserved

throughout its entire length, and the difficulty before mentioned is avoided.

Another result attained is that the single adjustment of the roller in many respects is equivalent to, and for the most part renders unnecessary, the adjustment of both blades.

The stationary blade D, it will be seen, is arranged vertically on the breast of the gin tangential to the roller, and facing the hopper, and as its edge becomes worn it is adjusted downwardly in its plane by the set-screws *g*.

In constructing the movable blade E it is made (as is also blade D) with a body portion and a removable edge, which may be replaced when worn. This blade is fixed firmly upon the ends of radial rock-arms F, which are attached to a rock-shaft, G, journaled in bearings in the extremities of the horizontal arms A^3, which bearings are made removable, so as to be renewed when they wear, it being necessary to have as little lost motion from the looseness or wear of the bearing here as possible, in order to prevent the movable blade from receding from the stationary blade, which would allow the seed to get between and be cut. This blade E, then, it will be seen, rocks on the shaft G in close proximity to the stationary blade, so as to strip the seed from the lint, which is seized by the roller and carried under the stationary blade D.

In imparting motion to the movable blade, it is connected through a peculiar hinged joint to the pitman H, whose lower ends are connected with the double cranks of the shaft I. This shaft at one end carries a drive-pulley, J, and loose pulley J′, and is journaled in removable boxes in the base-piece A of the frame. At the end of this shaft opposite the drive-pulley there is fixed a band-pulley, K, which, through a belt, transmits motion to a band-wheel, L, which latter is fixed to the shaft of the roller C, and imparts the necessary rotary motion thereto.

In connecting the crank-shaft I with the movable knife, the pitmen H are made of wood in two longitudinal sections, with half-bearings in each, as shown in Fig. 3, which pieces are bolted upon opposite sides of the crank-shaft. The upper ends of these pitmen are tenoned and formed with shoulders, and the tenons are secured by a bolt, *m*, in a recessed metal box, *h*, Fig. 5, which is hinged to a corresponding metal piece, *h′*, secured to the blade. This arrangement allows the pitmen, which rapidly wear out, to be easily renewed without the expense of providing a whole new jointed connection for the blade.

In arranging the hopper the side pieces M are provided with guide-strips *i* or grooves, and the bottom N of the hopper is made detachable, and is arranged to slide therein, a set of teeth or fingers, *t*, being provided at the lower end of said adjustable bottom to allow the seed to fall through, as usual.

After the lint is separated from the seed and carried around with the roller it is removed from the roller upon the opposite side by a brush, O, supported upon slotted arms P, which are adjustably held to the frame by set-screws. As the lint is scraped off the roller by this brush it descends upon the curved chute Q, which conforms to the curve of the standard A^1, the dirt which is brushed off from the roller being prevented from mixing with the lint by a curved guard-plate, R.

Having thus described my invention, what I claim as new is—

1. In a cotton-gin of the type described, the combination, with a relatively stationary blade, D, and the reciprocating blade E, of a roughened-surface roller having its bearings in movable boxes, and made bodily adjustable toward the blades, substantially as and for the purpose described.

2. The combination, with the adjustable ginning-roller, of the adjustable brush, provided with the guard-plate R, and the chute Q, substantially as shown and described.

3. The combination, in a cotton-gin, with the slotted offset *a* and the grinding-roll, of the hinged sliding box *b*, the perforated bolt *d*, and the screw-rod *e*, substantially as and for the purpose described.

4. The combination, with the movable blades and the crank-shaft I, of the longitudinally-divided pitman H, tenoned at the upper end, and the jointed metal pieces *h h′*, provided with a recess to receive the tenon of the pitman, substantially as and for the purpose described.

The above specification of my invention signed by me this 8th day of August, 1878.

JAMES B. HULL.

Witnesses:

EDWD. W. BYRN,

SOLON C. KEMON.