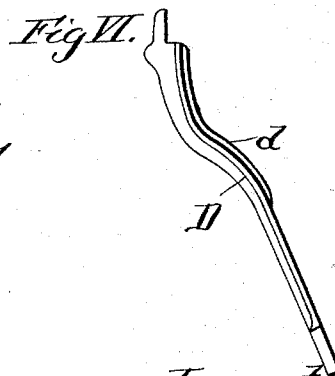
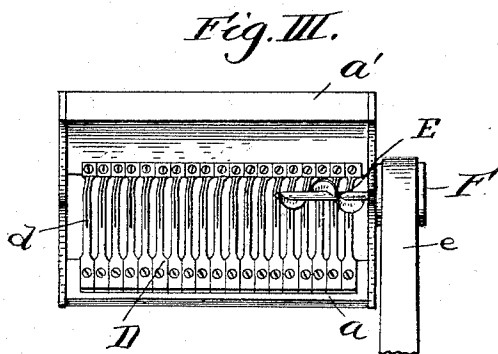
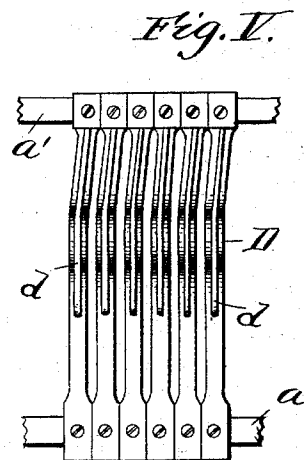
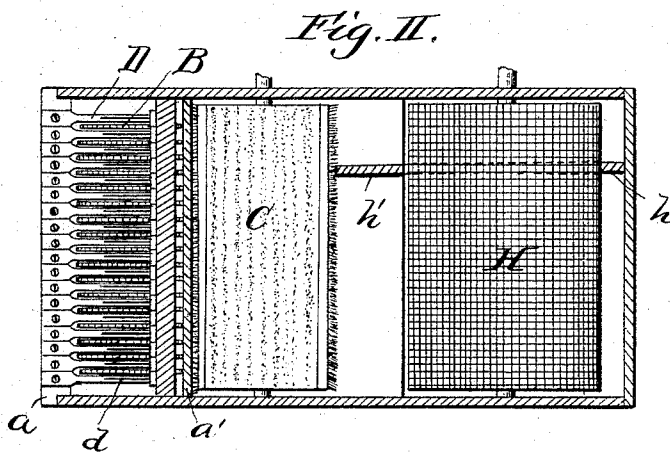
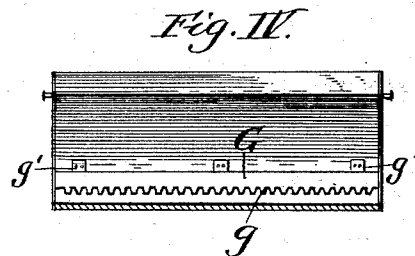
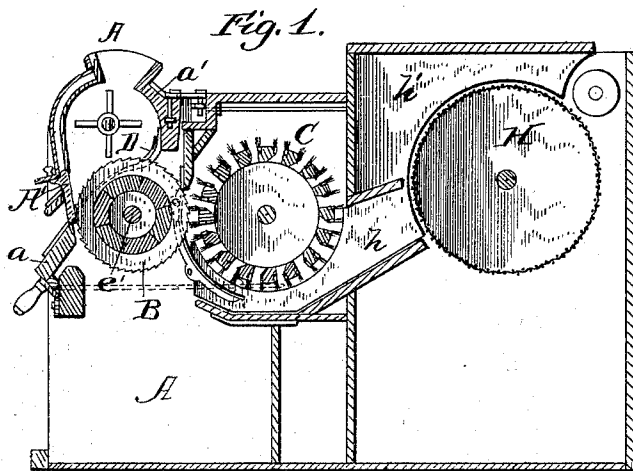


(No Model.)

S. Z. HALL.
COTTON GIN.

No. 483,216.

Patented Sept. 27, 1892.



Witnesses:
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William O. Belt.

Inventor:
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Edwin D. Brod,

UNITED STATES PATENT OFFICE.

SAMUEL Z. HALL, OF LITTLE ROCK, ARKANSAS.

COTTON-GIN.

SPECIFICATION forming part of Letters Patent No. 483,216, dated September 27, 1892.

Application filed December 24, 1891. Serial No. 416,036. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL Z. HALL, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Cotton-Gins; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in cotton-gins, particularly to that class which employ saws to remove the cotton fibers from the seed; and the objects are, first, to present a new line of fiber to the saws at each revolution thereof; second, to lint and gin the seed at one operation, and, third, to improve the construction of the gin to promote the efficiency of its operation. In the construction of the ordinary cotton-gin of this description the practice hitherto has been to construct and arrange the grid-bars or breast throughout the length thereof parallel with the saws. By reason of this construction the seed-cotton rotates in a plane parallel with the saws, and consequently it is required to be fed into the roll-box or breast in larger quantities at the ends than at the center in order to prevent the roll from breaking. All the saws therefore do not perform their proportionate amount of work, and the seed-cotton being fed into the roll-box in the above-described manner will rotate in the same line or plane with the saws until the lint is stripped from the seed.

My invention contemplates, essentially, a novel construction of the breast of the gin, whereby the seed-cotton can be fed into the roll-box at one end thereof and the seed discharged at the opposite end perfectly ginned and linted; also, in the provision of means for maintaining the seed and cotton in a constant state of agitation, and, furthermore, to provide an adjustable shield or partition, combined with a condensing-roller, whereby the lint may be discharged in two or more grades, varying in the length of the fibers thereof.

To enable others to more readily understand my invention, I have illustrated the same in the accompanying drawings, in which—

Figure I is an end sectional elevation of the

cotton-gin. Fig. II is a top plan view, partly in section, showing the saws, condensing-roller, &c. Fig. III is a view showing the rear portion of the roll-box, the conveyer, and the breast. Fig. IV is a view of the front of the roll-box. Fig. V is a plan view of a portion of the breast, and Fig. VI is a side elevation of one rib.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the roll-box, B the saws, and C the brush-cylinder, all of which are constructed in the usual manner, except as modified by the improvements hereinafter noted.

The ribs D are fastened to the bottom bar *a* and top bar *a'* by screws, preferably, to form the breast of the gin. All of the ribs are constructed and arranged in substantially the same manner, and it will therefore only be necessary to particularly describe one of them. On the upper side of the rib, in the center thereof, is a fin *d*, which begins at a point on the rib opposite where the saws pass up between the ribs and extends to the upper end thereof, as shown, the rib itself being bent or curved vertically in the usual manner. The rib D and fin *d* are both inclined laterally from a line nearly above where the saws draw the cotton through between the ribs to the upper end thereof, the fin projecting above the face of the rib and conforming to the inclination of the upper end. These ribs, constructed as shown and described, form, in effect, a construction analogous to a conveyer in conjunction with the saws, and they operate to work the seed spirally toward the end of the roll-box, where they are discharged.

All saw-gins require the seed-cotton to be fed into the roll-box from end to end and the ginned seed are discharged along the entire length of the cotton-box; but in the present case the seed are not discharged at the front of the gin, but at the end, as will appear hereinafter.

As before stated, by the action of the saws and peculiar construction of the ribs the seed-cotton is worked spirally over the periphery of the saws. At a given point in the breast or roll-box the seed, being so nearly stripped of the fibers, will cease to rotate, and to keep

them in motion and insure their discharge at the end of the box a spiral conveyer E is arranged at that end of the box, and it extends a sufficient distance into the box to contact with the ginned seed. This conveyer is driven by a belt e, or equivalent means, connected to the saw-shaft e', and said conveyer operates to keep the seed in constant agitation over the peripheries of the saws and discharge them, when properly linted, through an opening F in the end of the roll-box. The roll of cotton is constantly revolving, and the circular movement of the saws causes the seed to gradually work down to the end of the roll-box toward the exit; but as the seed are ginned they tend to remain immovable, and to remove the short fibers left on the seed and keep them moving the conveyer is employed, which contacts with the seed and causes them to assume a revolving motion.

To retain the seed in the roll-box until properly ginned and linted, the front A' of the box is provided with an adjustable strip G to prevent the seed from falling out of the box at the front, and it is attached thereto by hinges g' or other desired means, which permit the strip G to adjust itself as the quantity of seed, &c., varies. The lower edge of said strip is provided with a series of projections g, preferably as wide as the ribs, which extend between the saws and rest on the ribs to prevent the seed from falling out.

In ginning cotton on the improved machine herein described at a certain point in the roll-box all the lint is stripped from the seed, except the short fibers which usually remain on the seed, and to prevent the short fibers from becoming mixed with the long fibers I employ a condensing-roller H, having a covering of fine wire-gauze. A laterally-adjustable shield or partition constructed in two sections h h' is arranged over the condensing-roller, by which the draft is directed onto said roller at any desired point to separate the two classes of lint. The front section h of this shield or partition projects under the brush-cylinder C and up between said cylinder and the saws and the rear section h' is arranged over the condensing-roller.

I am aware that a breast for cotton-gins has been constructed and composed of a wide central rib above the peripheries of the saws and side ribs inclined laterally to the right and left of said central rib; but this construction of the breast requires the cotton to be fed into the roll-box from end to end. It is also old to provide a rib with a short straight fin at the point where the saws pass between the ribs; but neither of these constructions fall within the scope of my invention.

Changes in the form and proportion of parts

and details of construction can be made without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such changes as fall within the scope of my invention.

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

1. A grate-fall for cotton-gins, comprising a series of ribs having fins on their upper surfaces at one end, all of said ribs being inclined laterally at the upper ends in the same direction, substantially as and for the purpose set forth.

2. In combination with the roll-box of a cotton-gin, the saws, the ribs having their upper ends inclined laterally in the same direction, and a screw conveyer projecting into the end of said cotton-box to agitate the seed and discharge the same at the end of the roll-box, substantially as described.

3. In a cotton-gin, the combination, with the roll-box, the ribs having their upper ends inclined laterally and provided with fins on their upper sides, of a conveyer arranged in the opening at one end of said roll-box and extending into the same to agitate the seed and discharge the same at the end of said roll-box, and the adjustable strip secured to the front of the roll-box and having projections on its lower edge to enter between the saws, substantially as described.

4. In a cotton-gin, the combination, with the brush-cylinder, of the condensing-roller and an adjustable shield or partition made in two sections, the front section extending under the brush-cylinder and in rear of the same, and the rear section being arranged over the condensing-roller to separate the different grades of fiber, substantially as described.

5. In a cotton-gin, the combination, with a condensing-roller, a brush-cylinder, and means for stripping the cotton fiber from the seed, of a laterally-adjustable shield or partition arranged over the condensing-roller and extending under the brush-cylinder, substantially as described.

6. In a cotton-gin, the combination, with a condensing-roller, a brush-cylinder, and means for stripping the cotton fiber from the seed, of a laterally-adjustable shield or partition arranged over the condensing-roller and adapted to separate the different grades of fiber, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL Z. HALL.

Witnesses:

C. O. KIMBALL,
BRUNO BODEMANN.