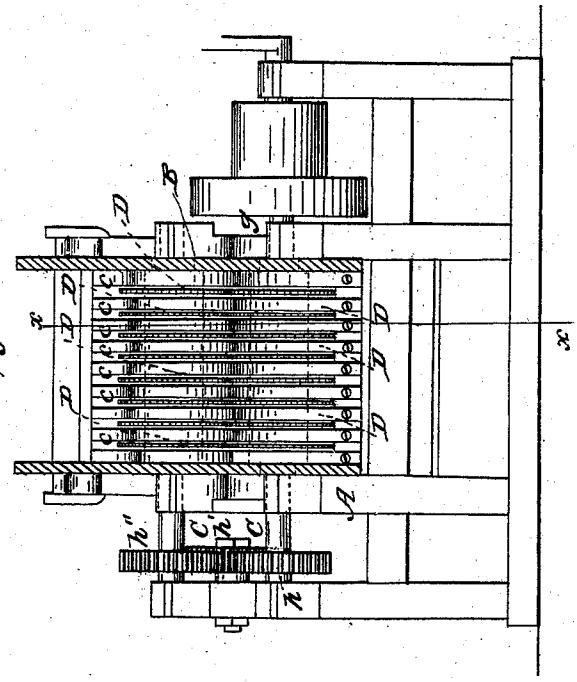
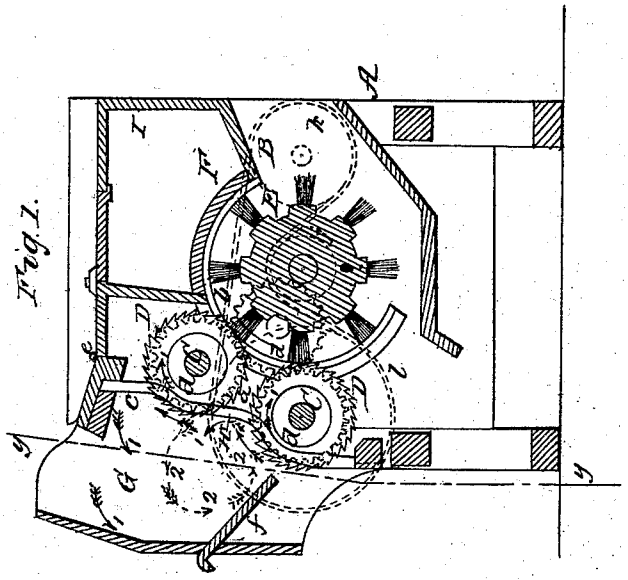
I. F. BROWN.

Cotton Gin.

No. 32,116. Patented April 23, 1861.





Witnesses
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UNITED STATES PATENT OFFICE.

ISRAEL F. BROWN, OF COLUMBUS, GEORGIA.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 32,116, dated April 23, 1861.

To all whom it may concern:

Be it known that I, I. F. BROWN, of Columbus, in the county of Muscogee and State of Georgia, have invented an 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 annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a front sectional view of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

In ordinary saw-gins, as well as those where two sets of saws are employed, the cotton is apt to become so packed on the breast as to have its fibers torn or injured by the saws. When a single set of saws is made to operate with a comb projecting from a case or shrouding, the cotton will be packed directly against the comb. So when two sets of saws work through a concave breast and revolve toward one another in opposite directions, the mass of cotton will not be rotated, but will remain stationary and become so packed as to have its fibers greatly injured by the saws. In my improved gin two sets of saws operate with one breast, and each set works through it and is revolved in the same direction, the breast, the saws, and the hopper being so arranged that the mass of cotton is kept in continual rotation, and besides what is drawn from it through the breast large portions of it are separated by the upper set of saws, and so thrown upward and over upon the mass as to have their fibers separated and so laid as to be easily seized by the lower set of saws. The action of the machine under the hereinafter-described particular arrangement and combination of the working parts is very advantageous and peculiar. The rotary brush as arranged with the two series of saws operating in connection with and disposed with respect to one breast, as described, not only performs its functions of cleaning the saws or receiving the cotton therefrom; but creates currents of wind and causes such to pass between the two series of saws and the breast or parts thereof in which the saws work, such aerial currents operating to excellent advantage, not only in separating the fibers, but in discharging from them the dirt, seeds, and extraneous matters.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular frame, in which a box, B, is fitted or placed, said box having two shafts, C C, passing transversely through it, each shaft having a series of ordinary gin-saws, D, placed on it. The shafts C C are placed one over the other in the same plane, which is somewhat inclined, as shown clearly in Fig. 1, a space, *a*, being allowed between the two series of saws.

Within the box B a cylindrical stripping-brush, E, is placed, said brush being of such diameter and placed in such a relative position with the two series of saws that it may act efficiently on both series for the arrangement of the brush with respect to the two series of saws. (See Fig. 1.) This stripping-brush may be constructed in the usual way, and be covered at each end by a metal flange, *b*. The said flanges may be attached to the inner sides of the box B and serve as supports for a segment cap or cover, F.

G is a hopper, which contains a breast, H. This breast is constructed of metal ribs *c*, formed with two concavities, *d d*, corresponding to the two series of saws, (see Fig. 1,) the saws D projecting through the breast at the concaves. The hopper G is connected at its upper end to a box, I, by hinges *e*, the box I being placed directly over the box B. The hopper G is provided with the usual inclined seed-discharge board, *f*, which serves as a bottom for the hopper. The shaft of the lower series of saws D is the driving-shaft. This shaft has a pulley, *g*, on it at one end, and the opposite end has a toothed wheel, *h*, on it, which wheel gears into a corresponding wheel, *h'*, the latter gearing into a wheel, *h''*, on the upper saw-shaft C. Around the pulley *g* a belt, *i*, passes, said belt passing over a pulley, *j*, on the shaft of the brush-cylinder E, and over a pulley, *k*. (See dotted lines, Fig. 1.)

The operation is as follows: the lower saw-shaft C being rotated by any convenient power the upper saw-shaft C will be rotated from the lower one and in the same direction by means of the gearing *h h' h''*. The stripping-brush cylinder E is rotated in the direction indicated

by arrow 2, by means of the belt *i*. The cotton in the hopper G is acted upon by the saws D D, so far as the ginning or separating of the fiber from the seed is concerned, in the usual way, the saws drawing the fiber through the breast H, and thereby stripping it from the seeds, the latter not being able to pass through the breast or between its ribs. The stripping-brush cylinder E also performs its usual function, to wit: stripping the cotton from the saws by rotating more rapidly than the saws. The cotton-seed, as the fiber is drawn from it, passes down through the space *l* between the lower edge of slide *f* and the breast H. In consequence of employing the two series of saws the cotton has a movement in the hopper G, as indicated in Fig. 1 by the red arrows Λ. This movement of the cotton in the hopper causes its fibers to be changed in position, so that fresh portions will be constantly presented to the action of the saws. In the ordinary saw-gins having but one shaft of saws, the latter by their action communicate a rotary motion to the mass, as indicated by the red arrows 2, and this rotating movement prevents the fibers of the mass changing position, and consequently the work progresses slowly. By employing, however, the two series of saws, the revolving motion is broken or destroyed and an irregular motion produced, causing a change of aggregation of the fibers, so that the saws continually work on fresh masses or parts of the cotton in the hopper and perform the desired work in a rapid manner.

I do not claim a saw-gin having two sets of saws cleaned by one rotating brush and with one set only of such saws working within a set of teeth, or a comb projecting inward from a case or shrouding covering such set of saws, the other set of such saws operating with a set of feed-rollers. Nor do I claim a gin having two hooked rollers working through a concave breast and running in opposite directions, so as to cause the mass of cotton or fibrous material on the breast to be estopped from revolving, there being two brushes or cleansers applied respectively to the two hooked rollers.

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

The improved saw-gin having its separate parts—viz., its hopper, breast, two sets of saws, and brush—constructed and arranged in relation to each other and so as to operate together, substantially as described.

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