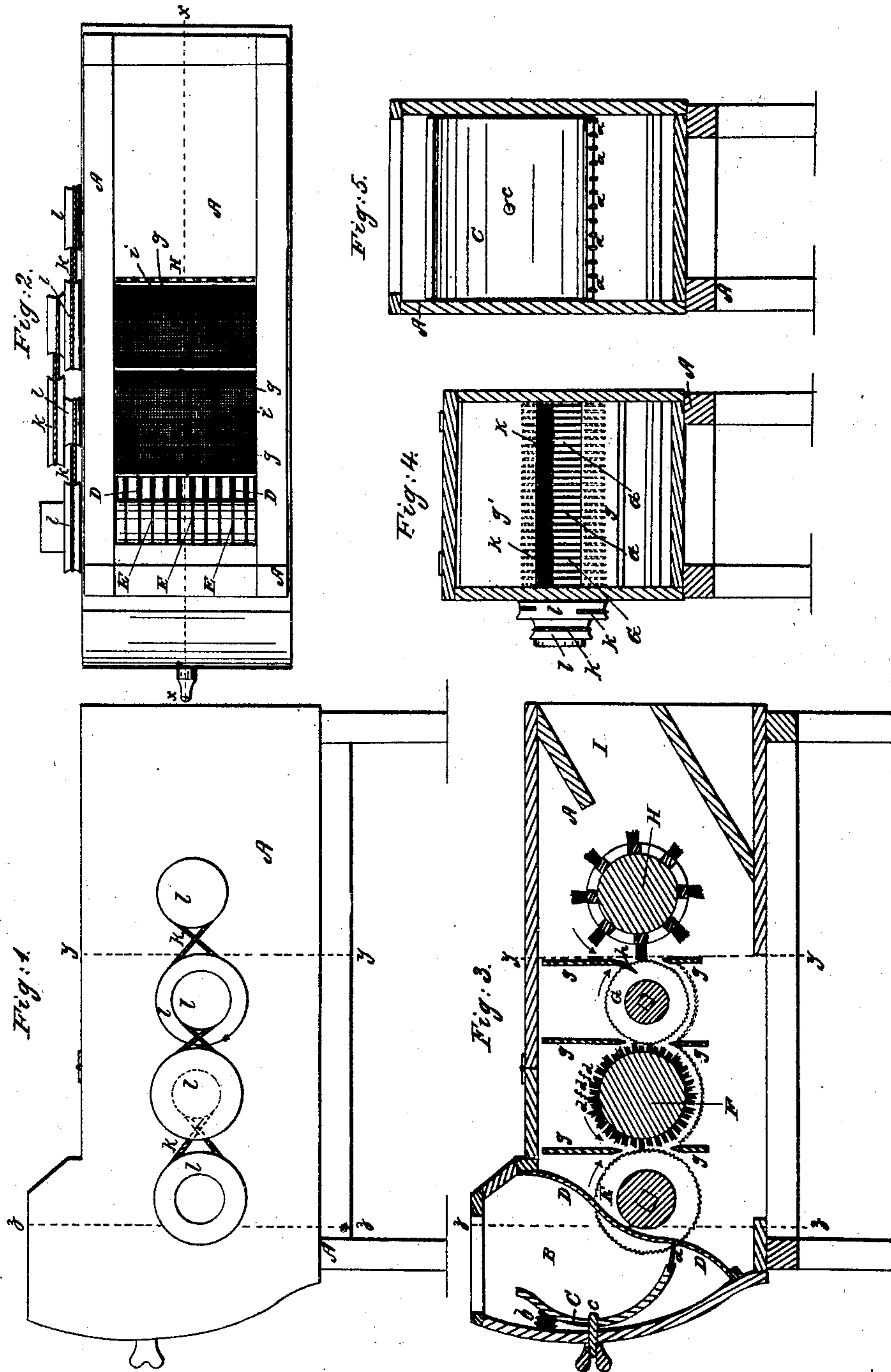


A. Q. WITHERS.

Cotton Gin.

No. 21,714.

Patented Oct. 5, 1858.



UNITED STATES PATENT OFFICE.

A. Q. WITHERS, OF BYHALIA, MISSISSIPPI.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 21,714, dated October 5, 1858.

To all whom it may concern:

Be it known that I, A. Q. WITHERS, of Byhalia, in the county of Marshall and State of Mississippi, have invented a new and Improved Cotton-Gin; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a side elevation of the gin; Fig. 2, a plan of the bottom thereof; Fig. 3, a longitudinal vertical section thereof in the plane indicated by the line *x x*, Fig. 2; Fig. 4, a transverse vertical section thereof in the plane indicated by the line *y y*, Figs. 1 and 3; Fig. 5, a similar section thereof in the plane indicated by the line *z z*, Figs. 1 and 3.

Like letters designate corresponding parts in all the figures.

A stand, A, is provided of ordinary construction, except that it is somewhat deeper from front to rear than the usual gin-stand, in order to receive the additional parts hereinafter described. I use ordinary ribs D D and ginning-saws E E, arranged in any usual manner.

In the "roll-box" B of the gin is placed a curved board, C, which has such a curvature and position as to correspond nearly with the shape of the "roll." From the lower edge of this board projects a set of wires or teeth, *a a*, backward toward the ribs D D, between the ginning-saws. A spring, (or springs,) *b*, is situated behind each end of said board a little above the center thereof, the action of which arrangement is to press the upper edge of the board in a direction toward the ginning-point on the ribs, while the lower edge is thereby moved in the opposite direction, or away from the ribs. This board may be kept in proper position in any convenient manner, that represented in the drawings being, by means of a bolt, *c*, held by a set-screw, on which it may turn, and slide backward and forward to adapt itself to the size of the roll. As the roll increases in size, the springs are compressed, thereby bringing the teeth in the lower edge of the spring-board into contact with the ribs; but when the roll decreases in size, the springs expand, and thus separate the teeth *a a* from the ribs. By this arrangement the seeds are retained in the roll-box till they are completely stripped of "lint," while at the same time the

stripped seeds, hulls, and trash are allowed to escape; but if at any time the seeds and hulls are not discharged as fast as disengaged, by slackening the feed, and thus allowing the roll to become smaller in the roll-box, the teeth of the spring-board are separated from the ribs, thereby permitting the escape of the stripped seeds and trash. Thus the operation of ginning is entirely regulated by simply increasing or diminishing the rate of feeding the cotton into the roll-box. The spring-board is also useful in keeping the roll in constant contact with the ginning-saws, and thereby enhancing the rapidity of ginning.

Instead of using the stripping-brush, which discharges the lint, in immediate connection with the ginning-saws, as in the ordinary manner, I interpose between them an additional brush and set of saws, constructed, arranged, and operating as follows: The additional brush-cylinder, F, is situated immediately behind the ginning-saws, nearly in the position of the common stripping-brush, is of about the same diameter as said saws, (say ten or twelve inches,) and revolves at about twice their speed in the opposite direction, as indicated by the arrow in Fig. 3. This cylinder is provided with a continuous covering of bristles, or bristles arranged in close rows, extending both in horizontal and vertical directions, the alternate horizontal rows, *d d*, being somewhat shorter than the intermediate horizontal rows, *f f*, as represented in the drawings. This brush strips the cotton from the ginning-saws and conveys it to the carding-saws G, which revolve in the direction opposite to that of the brush-cylinder, and at about once and a half, or double its velocity. These saws are smaller than the ginning-saws, (say from six to ten inches in diameter,) with much finer teeth, and their number is twice or three times that of the ginning-saws.

The stripping and discharging brush H, which takes the lint from the carding-saws, may be of ordinary construction, and revolves at a speed of about once and a half or double that of the carding-saws. It discharges the lint through the spout I, in the usual manner.

Thin plates or boards *g g*, which I denominate "break-currents," are placed in vertical positions nearly opposite to the line of contact of the saws and brushes, as represented in the drawings, for the purpose of breaking or

preventing the currents of air which would otherwise be produced by the motions of said saws and brushes, and act injuriously in wasting portions of the lint. In order that they may be brought as near to the saws and brushes as possible, their inner edges are sharpened or beveled. Wire teeth or bristles *h h* are secured to the bottom of the upper board, *g'*, situated above the junction of the carding-saws and discharging-brush, and extend down a sufficient distance for the teeth of said saws to pass between them, so that notes which may remain in the cotton after being acted on by the carding-saws may be separated therefrom before the cotton is removed by the stripping-brush. If desirable, both teeth and bristles may be employed, being arranged so that the cotton may first pass through the teeth and then through the bristles.

To catch and prevent the waste of lint, which may become disengaged with notes from the brush *F* and saws *G*, concave concentric screens *i i* of wire-gauze are situated at as little distance as practicable from the under side of said brush and saws, (say about three-fourths of an inch therefrom,) and secured to the boards *g g*, as represented in the drawings, or in any other convenient manner. The screens thus arranged allow the notes to fall through their meshes, while the lint is again taken up by the brush and saws and saved. The saws and brushes may be actuated by bands *k k k*, passing round pulleys *l l l*, as represented in the drawings; or, better, the stripping-brush

may be driven by a band passing from the driving-shaft, situated on one side of the gin, in the usual manner, and the additional brush and carding-saws by a band or bands passing round pulleys on the shafts at the other side of the gin. With these improvements the cotton comes from the gin in a greatly improved state, being almost entirely freed from impurities, and resembling carded cotton rather than the matted bunches frequently coming from ordinary gins.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The curved spring-board *C*, situated in the roll-box, and provided with teeth projecting from its lower edge, arranged and operating substantially as specified.

2. The employment of the additional brush, *F*, and carding-saws *G*, situated between the ginning-saws *E* and discharging-brush *H*, and acting in combination therewith, substantially as herein described.

3. In combination with the additional brush, *F*, and carding-saws *G*, the concentric screens *i i* and break-currents *g g g'*, when arranged in close proximity to said brush and saws, and for the special purposes set forth in connection with their action.

The above specification of my improved cotton-gin signed by me this 11th day of May, 1858.

A. Q. WITHERS.

Witnesses:

WILSON DURRUM,
F. S. RODGERS.