F. L. WILKINSON.

COTTON GIN.

No. 19,598. Patented Mar. 9, 1858.

Fig. 1.

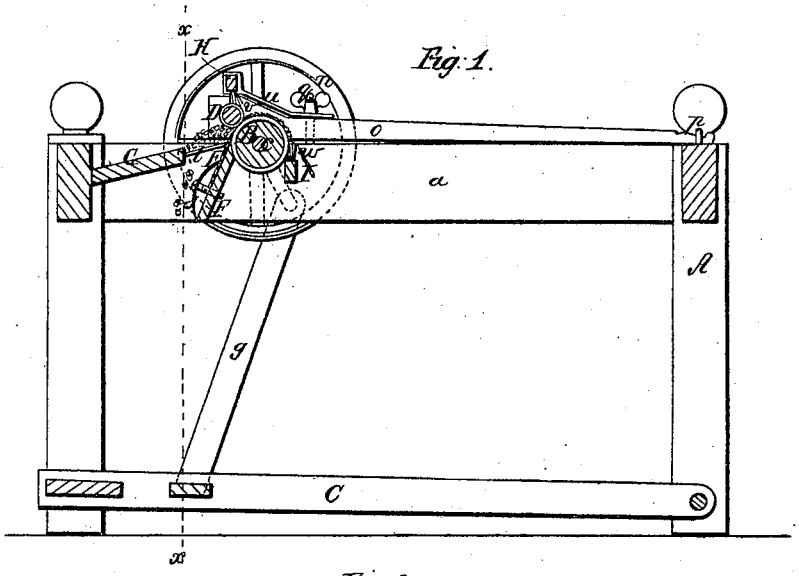


Fig. 2.

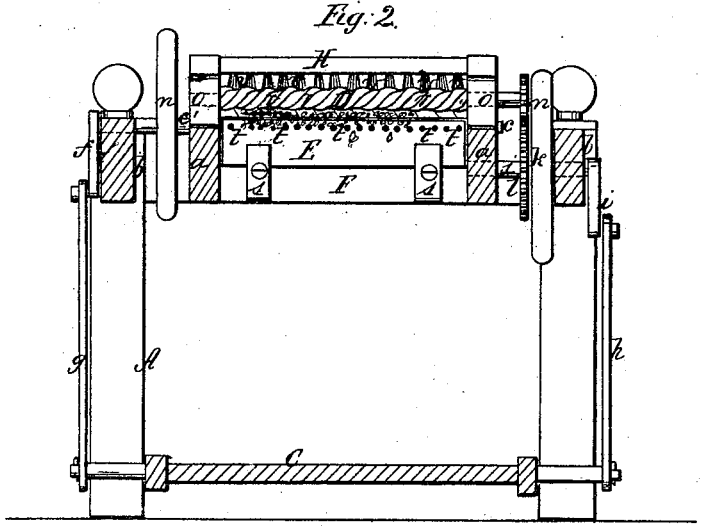
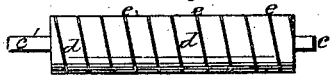


Fig. 3.



UNITED STATES PATENT OFFICE.

F. L. WILKINSON, OF ADAMS RUN, SOUTH CAROLINA.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. **19,598**, dated March 9, 1858.

To all whom it may concern:

Be it known that I, FRANCIS L. WILKINSON, of Adams Run, in the District of Colleton and State of South Carolina, have invented a new and useful Improvement in the Roller 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 longitudinal vertical section of my improvement. Fig. 2 is a transverse vertical section of the same, taken on the line *x x*, Fig. 1. Fig. 3 is a detached view of the lower roller.

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

This invention consists in having one or both of the rollers of the gin grooved spirally similar to a screw, for the purpose of readily detaching the seed from the cotton; and also using, in connection with the spirally-grooved roller or rollers, stripping-brushes and a guard-plate, arranged as hereinafter shown, whereby the usual slow process of ginning cotton by means of rollers is much expedited without the least injury to the staple.

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 the upper part of which two beams, *a a*, are placed, said beams being parallel with each other and with the top side rails, *b b*, of the framing.

B represents a wooden roller, the journals *c c'* of which have their bearings on the beams *a a*. The roller B is parallel with the ends of the framing, and is covered with a leather strip, *d*, which is coiled spirally around it. The edges of the strip *d* are not brought quite in contact with each other, and a spiral groove, *e*, is formed by the space between the edges of the strips *d*, as shown clearly in Fig. 3. The journal *c'* of the roller B extends beyond the side of one of the beams *a*, and has a crank, *f*, formed on it, said crank being connected by a pitman, *g*, with one side of a treadle, C, at the lower part of the frame A. To the opposite side of the treadle C the lower end of a pitman, *h*, is attached. The upper end of this pitman is attached to a crank, *i*, of a shaft, *j*, which shaft has a fly-wheel, *k*, on it, and a toothed wheel, *l*, said toothed wheel gearing into a pinion, *m*, on one of the journals of a roller, D, which bears on the leather of the roller B. A fly-wheel, *n*, is placed on the journal *c'* of the lower roller, B. The journals of the roller D are fitted in one end of bars *o o*, the opposite ends of which are attached to one end of the frame A at *p*. (See Fig. 1.) Screws *q q* pass through the bars *o o* near the roller D, each screw being provided with a thumb-nut by which the pressure of the rollers D and B may be graduated, as desired. The roller D is constructed of metal, and has a spiral groove, *r*, running its whole length, so that the roller resembles a screw, as shown in Fig. 2. The roller D is smaller in diameter than the roller B, as shown plainly in Fig. 1.

E is a metal plate, which is screwed to a board or strip, F, placed transversely in the frame A. The plate E is secured to the board F by clamps *s*, and the upper edge of the plate rests upon the roller B. The plate E may be adjusted higher or lower, as desired, and it will be seen by referring to Fig. 1 that this plate E serves to diminish the capacity of the angle formed by the contact of the two rollers, and prevent the seed from being drawn between the rollers.

G is the feed-board, which is slightly inclined, and has parallel rods *t* fitted to or driven in its inner edge to form a grating or riddle. The feed-board is placed in the usual position relatively with lower roller, B.

H is a brush-bar, the ends of which are attached to elastic plates *u* on the bars *o o*. The brushes *v* are attached to the under side of bar H at equal distances apart, and the lower ends of the brushes extend down a little back of the roller A, as shown clearly in Fig. 1.

I is a brush-bar fitted in the frame A, and having brushes *w* attached to its upper surface. The upper ends of the brushes *w* bear against the back side of roller B. (See Fig. 1.)

The operation is as follows: The cotton to be ginned is placed on the feed-board G and fed by hand to the rollers D B, which are rotated by operating the treadle C with the foot, an arbitrary motion being communicated to the upper roller, D, by means of the wheels *l m*, the relative size of which is such that the periphery of the smaller roller, D, will move as fast as the lower one, B. The cotton passes between the rollers D B, it being drawn be-

tween them in consequence of the "bite" formed by the contact of the two rollers, and the spiral groove *r* in roller D, assisted by the spiral groove *e*, formed by the leather strips *d*, move the seed slightly forward and backward, and have a tendency to give it a twisting movement, which causes the staple or fibers to be readily detached from the seed without being the least broken or injured, and consequently the cotton may be rapidly ginned. The plate E prevents the rollers from drawing the seed between them, as it diminishes or contracts the angle formed by the bite or line of contact of the rollers, and the seed, therefore, instead of being drawn between the rollers by their rotation, will be repelled from them. The brushes *v v* of the bars H I strip the ginned cotton from the rollers, and in consequence of said brushes being placed relatively with their respective rollers, as shown, the cotton cannot pass the brushes by pressing them from the rollers. The seed falls through or between the rods *t*.

I would remark that the roller B, by having a spiral groove, *e*, formed on it by placing the leather *d* around it, as shown and described, will assist the roller D in moving or acting upon the seed as herein set forth; but the groove in the lower roller, B, may be dispensed with, although I prefer to have it.

This machine has been practically tested, and it operates well, not injuring the fiber or staple, and performing its work much more rapidly than the ordinary or any other roller gin with which I am acquainted.

I am aware that the plate E has been previously used for the purpose herein stated, and stripping-brushes have also been used. I therefore do not claim separately the plate E.

I am also aware that grooved rollers have been used in cotton-gins, and therefore I do not claim them as my invention; nor do I claim separately and irrespective of their relative position with the rollers D B the brushes *v w* on the bars H I; but,

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

The arrangement, as herein shown and described, of the spirally-grooved rollers B D, one or both, stripping-brushes *v w*, and plate E, for the purposes set forth.

F. L. WILKINSON.

Witnesses:
WM. W. CLEMENT,
JAS. LEGAIE.