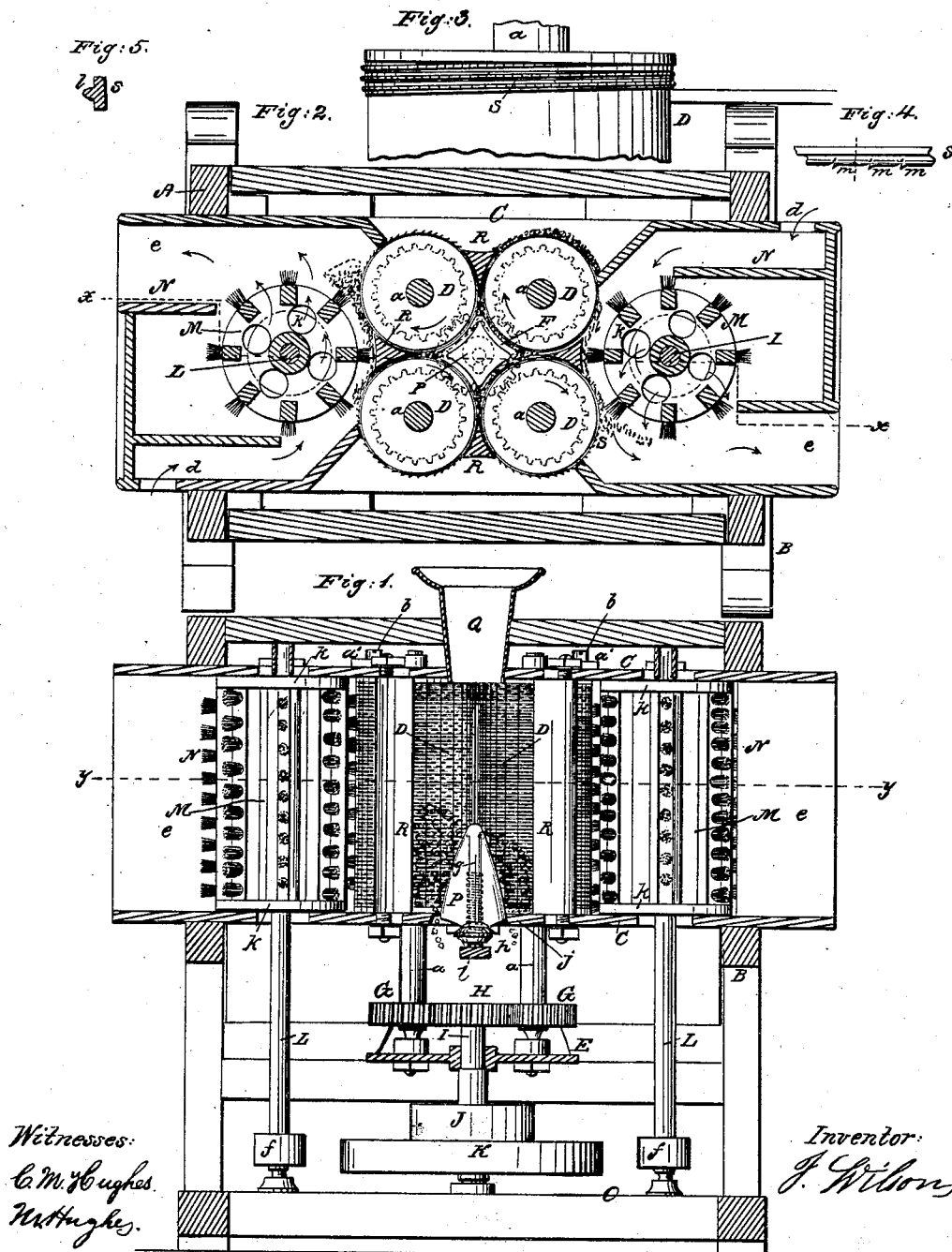


J. WILSON.

Cotton Gin.

No. 25,600.

Patented Sept. 27, 1859.



UNITED STATES PATENT OFFICE.

JOHN WILSON, OF ANDERSON COURT-HOUSE, SOUTH CAROLINA.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 25,600, dated September 27, 1859.

To all whom it may concern:

Be it known that I, JOHN WILSON, of Anderson Court-House, in the district of Anderson and State of South Carolina, 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 annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a horizontal section of the same, taken in line *y y*, Fig. 1. Fig. 3 is a detached sectional view of one of the cylinders of the same. Fig. 4 is a detached sectional view of a piece of the serrated wire which encompasses the cylinders. Fig. 5 is a transverse section of the same.

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

The object of this invention is to obtain a cotton-gin that will gin both the long and short staple cotton equally well without injuring the fiber and with a rapidity equal to the ordinary saw-gin.

The invention consists in the employment or use of three or more finely-toothed or serrated cylinders set vertically, and so arranged or disposed as to rotate nearly in contact one with another, and form a cotton-chamber or inclosure at their inner sides, the contiguous cylinders rotating in the same direction, so that they will present at the space between them oppositely-moving surfaces to the cotton, and by the action of said surfaces effectually separate the cotton from the seed.

The invention also consists in using in connection with the cylinders aforesaid stripping-brushes and a register, the former to strip the "lint" from the cylinders and the latter to regulate the discharge of the seed from the cotton-chamber.

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

A represents a box or case, which may be constructed of wood, and supported by a suitable frame, B.

C C are two horizontal metal plates, which are placed within the box or case A, and between which four vertical cylinders, D, are placed. The shafts *a* of these cylinders have their upper bearings in metal bars *a'*, which

are attached to the upper surface of the uppermost plate, C, by set-screws *b*, said set-screws passing through oblong slots in the bars *a'*, and into the upper plate, C, the holes in the upper plate, C, through which the upper ends of the shafts *a* pass, being sufficiently large to admit of a certain degree of adjustment of the cylinders D. The shafts *a* extend down through the lower plate, C, and are stepped in a plate, E, in the frame B. The cylinders D, it will be seen by referring to Fig. 2, have their axes or shafts placed at the angles of a square, the cylinders not being quite in contact, and a space, F, allowed at their center, said space forming a cotton-chamber, into which the cotton to be ginned is fed. The lower part of each shaft *a* has a toothed wheel, G, on it, and these wheels gear into a central wheel, H, which is placed on the upper part of a shaft I, the lower part of said shaft having a driving-pulley, J, on it.

On the shaft I there is also placed a pulley, K, the latter being just below J and considerably larger than it. This pulley K, by means of a belt, gives motion to two shafts, L L, which extend up through the plates C C, and have each a stripping-brush, M, on them, the brushes M running quite closely to the cylinders, so that each will strip two cylinders, as shown clearly in Fig. 2. The stripping-brushes M M are inclosed by boxes N, which have induction and eduction air-passages *d e*, the latter also serving as eduction-passages for the lint or ginned cotton. The shafts L L of their stripping-brushes have their lower ends stepped on a bar, O, the shaft I being also stepped on said bar. On the lower part of each shaft L a pulley, *f*, is placed, and a belt passes around these pulleys and the pulley K, as previously alluded to.

At the lower part of the cotton-chamber a taper plug, P, is placed. This plug may be of wood, and a horizontal section of it corresponds in form to that of the chamber F, as shown plainly in Fig. 2. This plug is fitted loosely on a screw-rod, *g*, the lower end of which is attached to a bridge, *h*, said screw-rod having a nut, *i*, on it, by adjusting which the plug may be raised or lowered, and the space between it and the sides of the opening *j* in the bottom plate, C, made more or less wide, as occasion may require.

Q is a hopper, which is fitted in the top of

the box or case and communicates with the cotton-chamber F, as shown clearly in Fig. 1.

Between the cylinders D, and at their outer sides or parts, partition-bars N are placed. The form of these bars, which is tri-lateral, is shown in Fig. 2, and the cylinders, in rotating, just clear them.

The top and bottom heads, *k*, of the frame of each brush M are perforated to allow a current of air to pass through them while rotating, as indicated by the blue arrows, Fig. 2.

The cylinders D may be constructed in various ways; but the following mode of construction, however, will probably be as good as any. I have steel wire S drawn in T form, as shown in Fig. 5. This wire is wound spirally around the cylinders, with the projecting side *l* outermost, said side being serrated by means of a cutter, so as to form a burr or fine teeth, *m*, as shown clearly in Fig. 4.

The operation of the gin is as follows: Motion is given the pulley J by any convenient power, and the cylinder D and brushes M rotate in the direction indicated by the arrows on them. The cotton to be ginned is fed into the hopper Q, and passes down into the cotton-chamber F, from which it is drawn by the serrated cylinders D, each cylinder grasping the fibers within its reach, and the seed being rippled therefrom by the oppositely-moving surface of the contiguous cylinder. It will be seen by referring to Fig. 2 that the seed cannot be drawn between the cylinders, as the latter present surfaces to the cotton that move in reverse directions, and as the spaces between the cylinders are too small to allow the seed to pass between them with the cotton it follows as a matter of course that it will be repelled from them and detached from the fiber, as each cylinder while drawing a portion of cotton out from the cotton-chamber F at a point opposite one contiguous cylinder serves as a stripper to detach the seed from the fiber at a point opposite its other contiguous cylinder. The seeds pass out through the space *j* at the bottom of the chamber F, the size of said space

being regulated, as desired, by adjusting the plug P, so that the seeds can escape as fast as they are detached from the cotton without permitting any of the cotton to pass out with them. The stripping-brushes M take the lint from the cylinders D, and discharge it through the eduction-passages *e* of boxes N, the draft through the brush-frames, as indicated by the blue arrows, favoring the discharge of the fiber, and preventing it winding around the brushes—a contingency which would otherwise occur in ginning long-staple cotton.

The bars R may serve to prevent one cylinder from stripping a contiguous one of fiber; but I do not consider them essential, and they may in a majority of cases be dispensed with.

This invention has been practically tested, and has been found to operate well, ginning both the long and short staple cotton without at all injuring the fiber or breaking the hulls of the seed.

It will be seen from the above description that three cylinders at least would be required in order to carry out fully the invention, as each cylinder must have two contiguous cylinders. Four cylinders, however, would be preferable in order to form a proper cotton-chamber, F. More than four cylinders, however, might be advantageously used.

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

1. The employment or use of three or more toothed or serrated cylinders, D, arranged and disposed so as to operate substantially as and for the purpose set forth.

2. In connection with the cylinders D, thus arranged and disposed, the rotating stripping-brushes M, and adjustable plug or register P to insure respectively the proper discharge of the lint and the seed.

JOHN WILSON.

Witnesses:

MICH. HUGHES,

CHS. M. HUGHES.