H. L. WEEKS.

Cotton Gin.

No. 9,998. Patented Sept. 6, 1853.

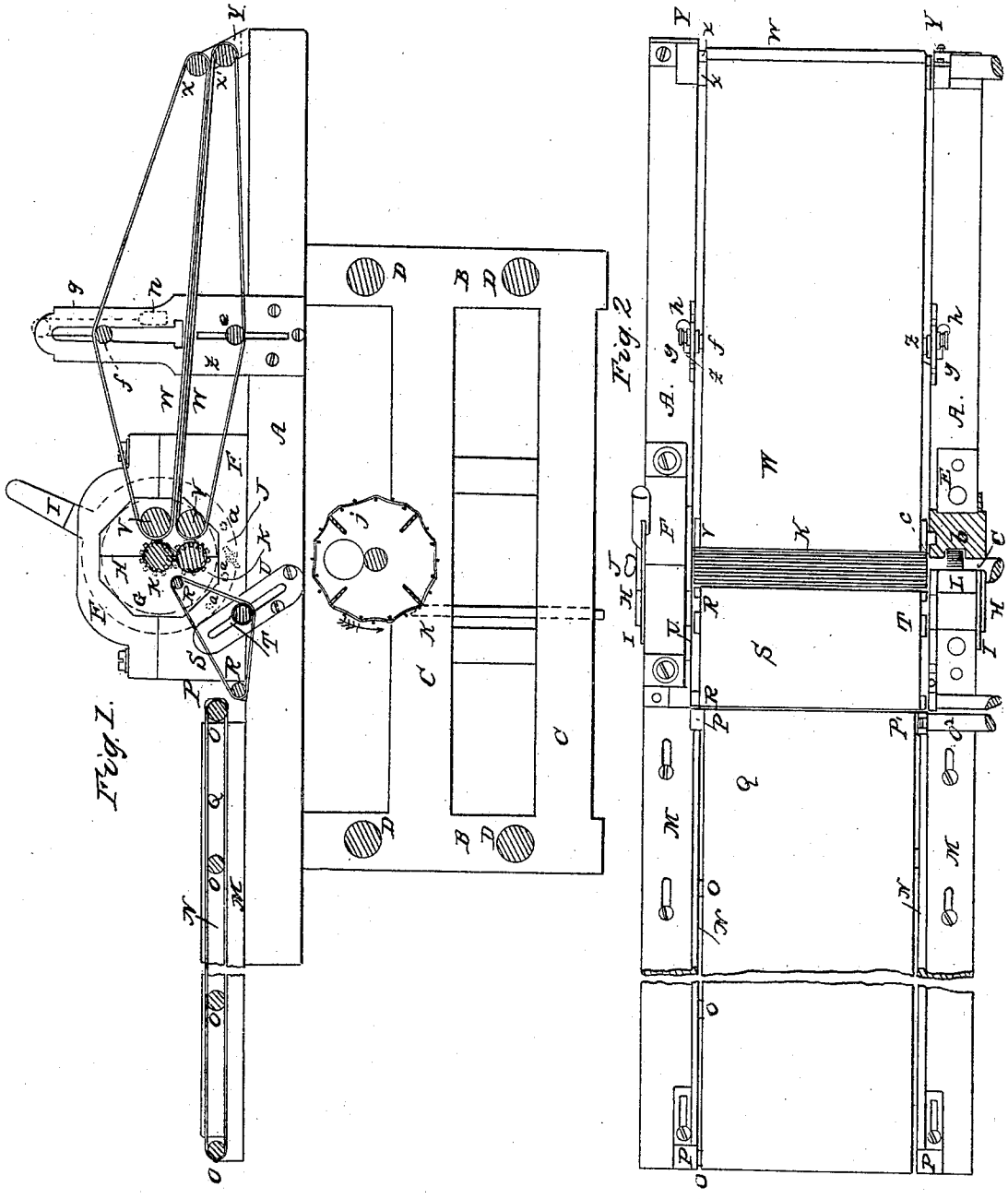


Fig. 1.

Fig. 2.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HENRY L. WEEKS, OF HANNAHATCHEE, GEORGIA.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. **9,998**, dated September 6, 1853.

To all whom it may concern:

Be it known that I, HENRY L. WEEKS, of Hannahatchee, in the county of Stewart and State of Georgia, have invented a new, useful, and Improved Machine for Ginning Sea-Island or Long-Staple Cotton; and I do hereby declare that the same is described and represented in the following specification and drawings.

The nature of my invention consists in arranging and securing the boxes in which the ginning-rollers operate in a revolving or adjustable frame or box, so as to adjust and fasten said box at such an angle as it may be necessary or desirable, so as to operate upon the cotton to the best advantage, whether it is dry or moist, so as to allow the seed, after the cotton is removed, to drop from the rollers, and thereby adapt the rollers to cotton with large or small seed, whether picked early or late; also, in the use of one fluted metal roller in conjunction with one or more rollers covered with prepared hide, leather, gutta-percha, or india-rubber, or, instead of one fluted metal roller and one covered, as above mentioned, two rollers with longitudinal sections of metal fluted alternating with sections of either of the materials above mentioned, operated so that the sections of fluted metal act in conjunction with the sections of other materials above stated; and, further, in the use of the two feeding aprons, one moving faster than the other, so as to spread the cotton and allow the sand, &c., to fall out between them through a space left for that purpose; and, lastly, in arranging and operating two aprons so as to take the cotton from the ginning-rollers and condense it into thick sheets or parcels, so as to save the labor of one person in attending the machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, referring to the above-mentioned drawings, in which the same letters indicate like parts in each of the figures.

Figure 1 is a sectional elevation, representing the machine as cut through the center longitudinally. Fig. 2 is a plan of the top of the machine.

In the accompanying drawings, A A are two parallel rails fastened to and supported by the posts B B, which posts are connected together by the girders C C and by the cross-bars D D D D, which posts above mentioned constitute the frame of the machine, to which the several posts are fitted and fastened, as required. The boxes E E are fastened to the rails A A, and provided with caps F F. Between these boxes and caps there is a large round hole, (represented by the dotted circle G.) To this hole the boxes H H are fitted so as as turn. The ends are made octagonal and provided with wrenches I I, so as to turn the boxes to set the ginning-rollers at the desired angle and fasten them in the proper position by putting the pin J through one of the holes in the wrench (represented by the dotted circles *a a a*) into a hole in the box E. The boxes H H may also be retained in the desired position by screwing down the caps F F. The boxes H H are made in two parts and perforated for the journals of the ginning-rollers K K, and the boxes are cut out in the center, as represented at *b*, so as to make room for the gears on the rollers K K, one of which is partially shown at L. These gears insure the rollers to operate in concert as they draw the cotton from the seed, and, cutting out the space *b*, leaves two separate and distinct supports or boxes for the journals of the rollers *k k*, as represented in the drawings, *c c*. These ginning-rollers may be provided with fluted, grooved, or other rough or cohesive surfaces, to catch the fiber of the cotton, and they must be small enough in diameter to repel the seed, and if one is fluted the other must be smooth, for if both were fluted they would be apt to catch and crush the seed; or, instead of one fluted and one smooth roller, each of the rollers may be partially fluted in one or more sections longitudinally, and when so fluted they must be operated so that the fluted portion on one roller will come opposite and work in concert with the smooth portion of the other, and I think that this will be found the most efficient and desirable, for the fluted portion will roll the seed one way upon the smooth portion of the other roller until the fluted portion of the roller comes in contact with the seed, so as to roll it in an opposite direction against the smooth surface of the roller that first acted upon it, and in this way the cotton may be drawn or separated from the seed faster than with any other kind of rollers heretofore invented, and at the same time leave the seed cleaner than heretofore.

In order to supply and feed the cotton to the ginning-rollers to advantage, I fasten two parallel bars, M M, to the rails A A, as represented, which bars have the perpendicular side boards, N N, fastened to them, which boards are perforated for the pivots of the rollers O O, and slide-stands P P are fastened to the bars M for the pivots of the roller O′, and the stands P′ P′ to the boards N for the pivots of the roller O². These rollers support and carry the apron Q, which may be put in motion by a belt or pulley on the end of the roller O². The roller R turns in holes in the boxes H H and the roller R′ in stands fastened to the rails A A. This roller may be put in operation by applying a pulley to the end, or otherwise, so as to carry the apron S, which surrounds rollers R R′ and the tightening-roller T, as represented, the pivots of which roller turn in the slots of the stands U U, fastened to the rails A, and this roller should be made heavy enough to keep the apron always tight, whether the roller R is carried nearer to or farther from the roller R′ by any alteration in the position of the boxes H H. The apron S should be made to move about one-fifth as fast as the surfaces of the rollers K K, so as to allow the rollers to catch a lock of cotton and gin it, letting the seed fall before another lock is caught, and the apron Q, upon which the cotton is fed, should only move half as fast as the apron S, so as to spread the cotton fed upon the apron Q and open the locks of cotton as they pass from Q to S and allow the sand and dirt to drop down between the aprons; and if the cotton is not sufficiently spread and opened by the use of two aprons, one moving as fast again as the other, a series of rollers may be introduced between the aprons, the one next to apron Q moving faster than the apron, and the one next to it faster than the first, and the third faster than the second, and so on through the entire series, using as many rollers as may be desirable and operating them at such different speeds as may be necessary to spread the cotton as desired.

To take the cotton from the rollers K K after it is ginned, I make two rollers, V V′, and fit their pivots to turn in boxes H H, and make two aprons, W W′, to surround said rollers, and the rollers X X′, which have their pivots fitted to turn in stands Y Y, fastened to the rails A, as represented. The power to operate these rollers and aprons may be communicated by a belt to a pulley upon the end of the roller X′ or otherwise, and as the roller X presses the apron W against the apron W′, so that the friction of the latter against the former propels it, these aprons should be made to move one-fifth as fast as the surfaces of the rollers K K; and if it is desirable to collect or gather the cotton into thicker sheets or parcels, the stands Z Z are made in the form represented, and fastened to the rails A, and are provided with slats for the pivots of the lower tightening-roller, *e*, which lies across the lower part of the apron W′, so as as to keep it properly distended, whether the roller V′ is moved toward or from the roller X′ when the rollers K are set. The slots in the upper part of the stands Z Z permit the boxes for the pivots of the tightening-roller *f* to traverse, so as to keep the apron W always distended as the boxes are drawn up by the cords *g g* attached to the boxes and to the weights *h h* for that purpose. The seed of the cotton falls from the ginning-rollers onto the wove-wire cylinder *j*, the meshes of which permit the seed to fall through it onto the floor, if there is no cotton sticking to them; but if any of the cotton is left sticking to the seed, such cotton and seed are carried so as to fall to the left of the separating-board *k* by the cylinder *j*, which is turned in the direction of the arrow for that purpose.

I contemplate arranging adjustable boxes in the boxes H H, so that the rollers may be kept in the desired position, notwithstanding the wear of the journals and boxes; also, that one of the ginning-rollers may have a permanent box, and the other a movable one, so that it may be set in such a position in relation to the permanent roller that the angular position of the rollers will be obtained, as desired; also, that teeth may be made upon the flanges of the boxes H H, to be acted upon by pinions on a shaft fitted to turn in holes in the boxes E E, so as to move both of the boxes by turning the shaft instead of the wrenches I I.

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

1. Arranging and securing the boxes in which the ginning-rollers operate in a revolving or adjustable frame or box, or its equivalent, so that the rollers can be adjusted or set at such an angle as may be requisite or desirable, as the condition of the cotton or other circumstances may require, so as to discharge the seed or facilitate its falling from the rollers after the cotton is drawn off by the rollers.

2. Giving the feeding-aprons or equivalent feeding devices different velocities for the purpose of spreading, distributing, or drawing apart the bolls of cotton, so that sand and dirt may fall out and not be carried to the ginning-rollers.

3. Passing the cotton after it is ginned between double aprons or equivalent devices, when said apron or devices move with less velocity than the ginning-rollers, for the purpose of compressing and making more compact the cotton after it is ginned.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

HENRY L. WEEKS.

Witnesses:

J. DENNIS, Jr.,

SAML. GRUBB.