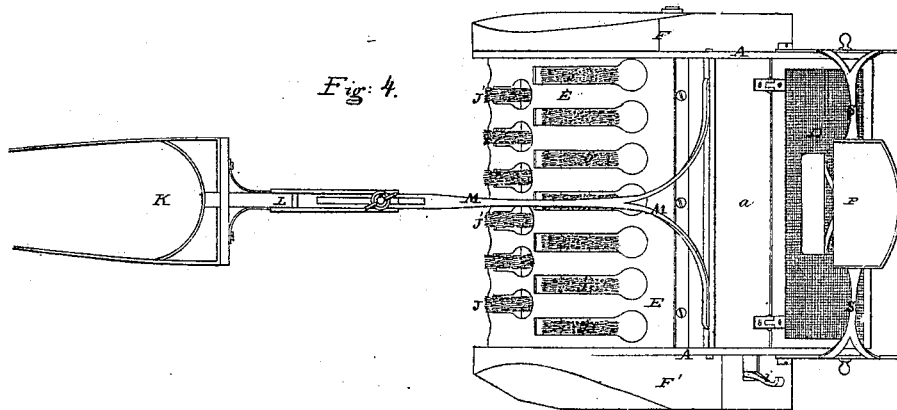
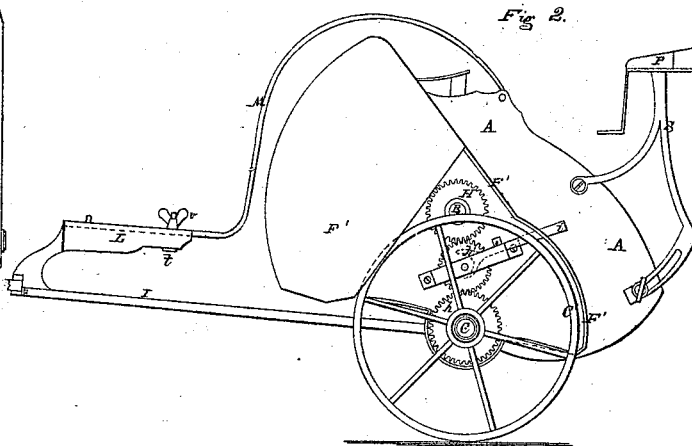
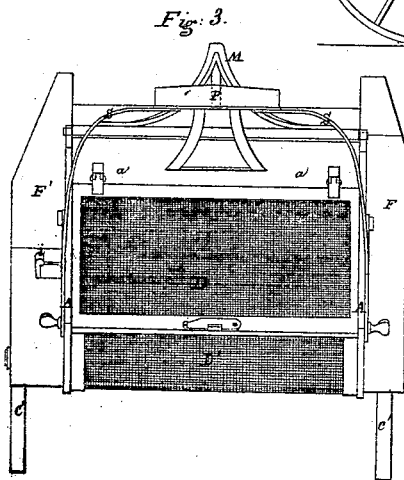
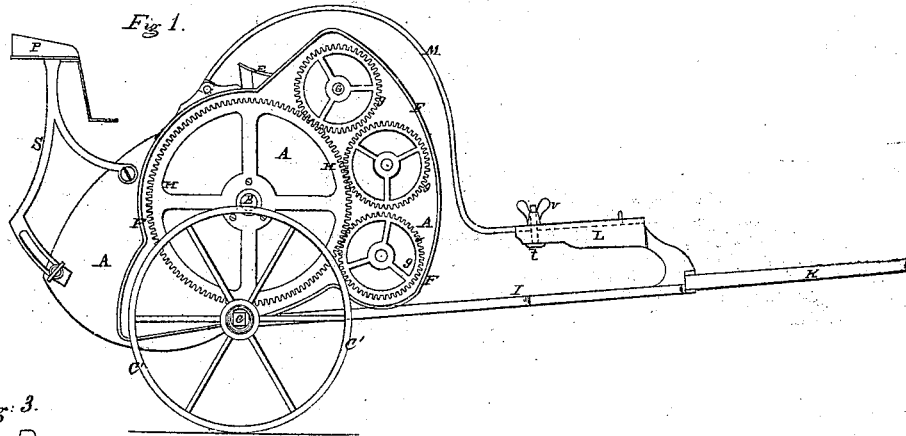


A. Tiensch.

Cotton Harvester.

Nº 53901

Patented Apr. 10, 1866.



Witnesses.

R. T. Campbell.

Cholera Scher

inventor.

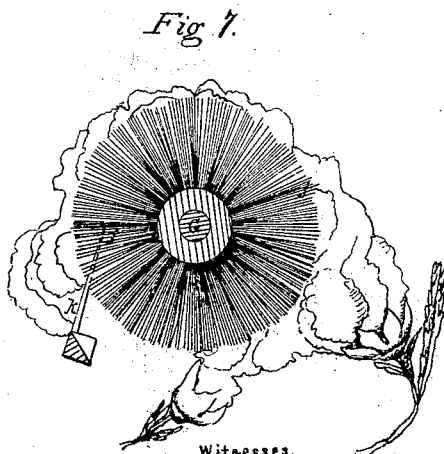
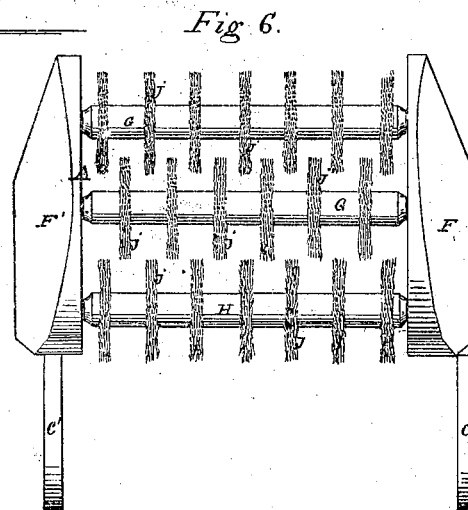
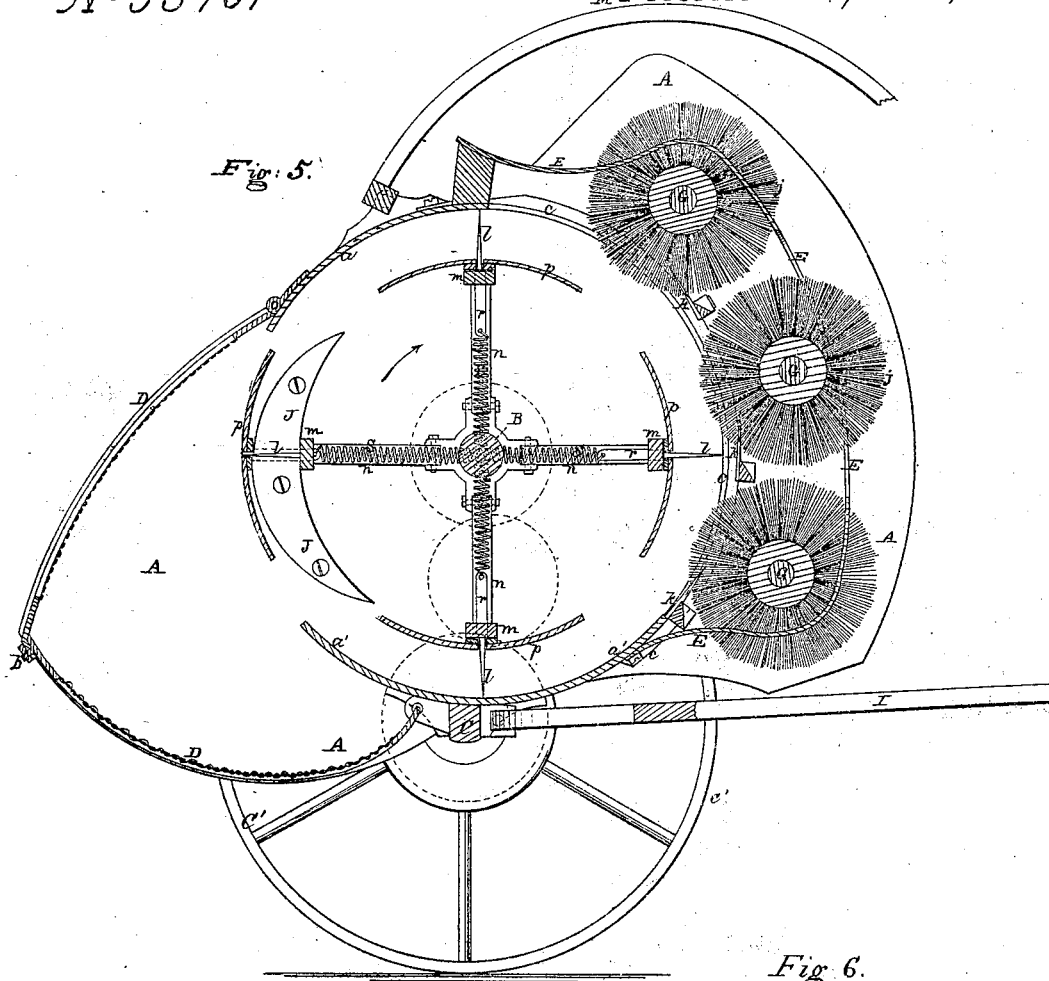
Per A. Lemch.
Mason, Jewett & L. L. Lemch, Attys.

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Witnesses.
R. T. Campbell.

Ernst Schaefer

Inventor.

A. Jensch

For Mason, Benoit & Lawrence.

UNITED STATES PATENT OFFICE.

A. TIENSCH, OF MEMPHIS, TENNESSEE.

IMPROVEMENT IN COTTON-PICKING MACHINES.

Specification forming part of Letters Patent No. 53,901, dated April 10, 1866.

To all whom it may concern:

Be it known that I, A. TIENSCH, of Memphis, in the county of Shelby and State of Tennessee, have invented a new and useful Machine for Picking Cotton; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, Sheet 1, is an elevation of one side of the cotton-picker, with the guard-plate removed to show the gearing. Fig. 2 is an elevation of the opposite side of the machine, with the guard-plate removed to show the gearing on this side. Fig. 3 is an elevation of the rear end of the machine. Fig. 4 is a plan view. Fig. 5, Sheet 2, is an enlarged longitudinal section taken in a vertical plane through the center of the machine. Fig. 6 is a view representing the operation of circular brushes upon the cotton bolls.

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

This invention relates to a novel machine which is intended for gathering or picking cotton from the pods of the cotton-plants, which machine is so constructed that on being drawn over the cotton-plants it will gather only the ripe cotton, leaving that which is unripe for future gathering.

The first part of my invention, and that which is most essential, consists in the employment of movable brushes, or their equivalent, for the purpose of picking the cotton from the pods, said brushes being so arranged upon a carriage that by drawing this carriage over the plants the ripe cotton will be pulled from the pods and delivered upon combs or other suitable contrivances acting upon the brushes, as will be hereinafter described.

The second part of my invention consists in the employment of a series of rotary combs, in conjunction with a series of rotary gathering-brushes, for the purpose of delivering the gathered cotton into a suitable receptacle upon the carriage, from which the load can be discharged at pleasure, as will be hereinafter described.

The third part of my invention consists in combining, with a series of brushes, arranged upon a carriage and adapted for gathering cotton from the plants, a contrivance by means

of which the said brushes can be raised or lowered, according to the height of the cotton-plants, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The carriage for containing and supporting the contrivances for gathering cotton may be constructed in any suitable manner. The most preferable mode of constructing this carriage is as follows:

A A are two side plates of the form shown in the drawings, which are secured together at a suitable distance apart by the transverse plates *a a'*, which are curved so as to form segments of a cylinder of which the shaft B is the center or axis. These plates are concentric to the axis of said shaft, and they are arranged at such distance apart as to admit of the gathering of the cotton from the brushes by rotary combs upon shaft B, and its discharge into a receptacle at the rear part of the machine. The sides A A of the carriage-body project out in rear of the axle C of the transporting-wheels C' C', and form the sides of a receptacle for receiving the cotton, the top and bottom sides of which are composed of hinged doors D D'. These doors may be made of some light material, such as woven wire applied to frames, and the doors being hinged to the back edges of the plates *a a'*, they can be brought together at their rear edges and fastened by a single latch, *b*. Any form of receptacle may be employed. That which is represented in the drawings will offer less resistance to the cotton-plants on account of its bottom being curved upward, and when the doors D D' are unfastened the entire contents of the receptacle will readily fall out. I use wire-cloth for the doors D D' because it is very light and strong, and can be seen through by the person attending the machine.

The front part of the carriage-body consists of a slotted guard-plate, E, which presents a curved or convex surface to the plants, as shown in Figs. 4 and 5. The upper and the lower edges of this guard E are secured to the front edges of the transverse plates *a a'*, and the sides of said guard are sustained by the curved ribs *c* on the inside of the side plates, A A. The front edges of these latter plates project out beyond the surface of the guard-

plate E, and serve as side guards for keeping the plants between them upon the slotted guard-plate.

Outside of these guards or side plates, A A, boxes F F' are formed for housing or inclosing the spurred gearing used for operating the gathering contrivances. These boxes may be made as narrow in front as possible, so as to offer the least resistance to the movement of the machine through the rows of plants. The upper portions of the transporting-wheels may also be inclosed by said boxes, as I have represented in the drawings.

G G G represent three brush-shafts, which are arranged transversely across the front part of the machine and equidistant from the axis of the shaft B. These three shafts have their bearings in the side plates, A A, and they each carry on one end, outside of one of the plates A, a pinion spur-wheel, *g*. The three spur-wheels *g g g* engage with the teeth of a large spur-wheel, H, on one end of the shaft B, as shown in Fig. 1. These four wheels are inclosed by the housing F, which also partially incloses the transporting-wheel on this side of the machine.

On the opposite side of the machine, and inclosed in the housing F', are three spur-wheels, *h h' H'*. The wheel *h* is secured to and turns with the hub of the transporting-wheel C', and gives motion to the wheel H' through the medium of the spur-wheel *h'*, turns loosely on its short shaft, and can be engaged with or disengaged from the wheels *h H'* at pleasure by moving the lever *i*. (Shown in Figs. 2 and 4, sheet 1.)

The brushes *j j j* are suitably secured to their respective shafts G G G at suitable distances apart. They are of a circular form, and may be made of any of the well-known substances of which common brushes are made, which will answer the purpose of picking cotton from the pods. These circular brushes should be made of such diameter as to project through the slots which are made through the guard-plate E, as shown in Figs. 4 and 5. The brushes may be all arranged in the same vertical planes, or they may be arranged as shown in Fig. 4—i. e., the brushes of one shaft being arranged between the spaces of the brushes on the next higher or lower shaft. This latter plan is believed to be preferable, as the cotton will be more thoroughly picked from the plants, there being no blank spaces which might allow pods or bolls of cotton to escape over the guard E.

Each row or set of brushes is provided with a comb, *k*, (shown in Figs. 5 and 6,) the teeth of which are inclined at such an angle as will cause the combs to clear the brushes of the adhering cotton which has been drawn into the machine through the slotted guard-plate E.

The teeth *k* prevent any cotton from being carried back or out of the machine by the brushes, and as the cotton is combed from said brushes it is taken from the combs *k* by a series of revolving combs or gatherers, *l l l*, which are secured in rows upon the outer sides of

transverse bars *m m*. These bars are secured to radial arms *n n* projecting from the shaft B, as shown in Fig. 5. The spurs or pins which make up the combs *l* project out, so that their points nearly touch the plates *a a'*, and these combs are each provided with a wide stripping-plate, *p*, which is perforated to receive through it the pins or spurs. These stripping-plates are intended for preventing any cotton from getting tangled in the machine, and also for discharging the cotton from the combs *l* into the receptacle at the rear of the machine. Their operation is automatic, as I will here show. Each stripping-plate *p* (they are all made alike) is provided with two guides, *r*, located near the extremities of it, which guides pass loosely through slots made through the bars *m*, and have springs *s* secured to them, which springs are secured, at their opposite ends, to the guides of a corresponding stripper, *p*, as shown in Fig. 5.

The coiled springs *s* keep the stripping-plates firmly against their respective cross-bars *m*, so as to expose the combs or pins outside of said strippers.

As the shaft B is revolved in the direction indicated by the arrow in Fig. 5, and the combs are brought successively opposite the rear opening between the plates *a a'*, the stripping-plates *p* will be forced outward the full length of the comb-pins *l* by the fixed cams J on the inside surfaces of the side plates, A A, as shown in Fig. 5, Sheet 2, thus clearing the combs *l* of all adhering cotton, and depositing the cotton into the receptacle at the rear part of the machine. As the combs *l* successively leave the discharge-opening the cams J will allow the springs *s* to retract the clearing-plates *p*, so that these combs can again clear the cotton from the fixed combs *k k k*.

By this contrivance I am enabled to transfer the cotton which has been gathered by the revolving brushes, and left upon the combs *k* from these combs to the receiver at the rear of the machine.

To the front part of the axle-tree C a tongue, I, is secured by pivots, and to the forward end of this tongue the thills K are secured, so that the horse walks in a path which is between the two transporting-wheels. From the rear end of the thills a tongue-piece, L, projects upward and backward, having a groove or channel formed in its upper surface for receiving the straight slotted end of a curved brace, M, which brace is hinged to the side plates, A A, of the machine over the transporting-wheels C' C', as shown in Figs. 1, 2, and 4. The forward end of the curved brace M has a longitudinal slot through it of considerable length, through which slot a bolt, *t*, passes vertically and receives upon it a nut, *v*, by means of which the brace M can be secured rigidly to the tongue-piece L. By loosening the nut *v* the machine can be rocked on the axle C and its forward end elevated or depressed, as may be desired. When the front part of the machine has been adjusted to the

desired position the nut *v* is set up tight, and the tongue and the brace thus secured rigidly together.

In rear of the machine, or just over the receiver, is a driver's seat, *P*, which is mounted upon curved braces *S*, which are attached to the side plates, *A A*, in such manner that the seat can be adjusted and always kept level, whether the front part of the machine be adjusted to run high or low. The driver, when stationed upon this seat, can control his horse, and also see the amount of cotton which is gathered in the receptacle below the seat. The manner of gathering cotton from the bolls with my machine is to adjust the lowest brushes with reference to the height of the plants, so that the cotton which is in the bolls near the ground will come within range of said brushes. The horse walks in the center of two rows, and the machine passes over two rows at the same time. As the machine is drawn along the cotton-plants will be pressed down so as to allow the machine, or the brushes thereof, to pass over them, the brushes gathering the cotton from the ripe bolls on one side of the bushes or plants.

On arriving at the end of the row of plants the machine is turned around and drawn back again over the same row, so as to press the plants over in the opposite direction to that above mentioned, and thus to pick the cotton from the bolls or pods on this side of the plants. The machine is thus drawn twice over every two rows, picking the cotton first from one side of the plants and then from the opposite sides thereof.

I do not desire to extend that part of my invention which relates to the brushes to carding surfaces or metallic spurs or points of any kind, as these will injure the pods of the unripe cotton and tear the plants, but confine my invention to bristle-brushes and brushes made of other material than metal.

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

1. The employment of rotary-brushes, or their equivalent, substantially as described,

for the purpose of gathering cotton from the plants.

2. Mounting a series of movable brushes upon a carriage in such manner that upon moving the carriage over rows of cotton-plants said brushes will draw the cotton from the pods and deliver it in the machine, substantially as described.

3. The combination of movable and stationary combs *k l*, or their equivalents, with rotary brushes which are adapted for gathering cotton from the pods, substantially as described.

4. Providing the movable combs *l* with clearers *p*, or their equivalents, substantially as described.

5. The combination of a slotted or open guard-plate, *E*, with a series of brushes adapted for picking cotton from the pods, substantially as described.

6. The hinged doors *DD'*, forming the upper and lower sides of a cotton-receiver, in combination with the devices for gathering cotton from the pods, substantially as described.

7. Locating the driver's seat *P* in such relation to the cotton-receptacle that the driver can see when this receptacle is filled, and also manage the horse drawing the machine.

8. Constructing the sides *A A* of the carriage-body so as to form side guards on each side of the gathering part of the machine, substantially as described.

9. Providing for adjusting the brushes and securing them at any desired height, according to the height of the cotton-plants, substantially as described.

10. The hinged brace *M* and tongue *I*, applied to the carriage of a cotton picker or gatherer, substantially as described.

11. The combination of an adjustable seat, *P*, with contrivances which will admit of the adjustment of the front part of the machine, substantially as described.

A. TIENSCH. [L. s.]

Witnesses:

L. L. ARNOLD. [L. s.]

R. KOERBER. [L. s.]