

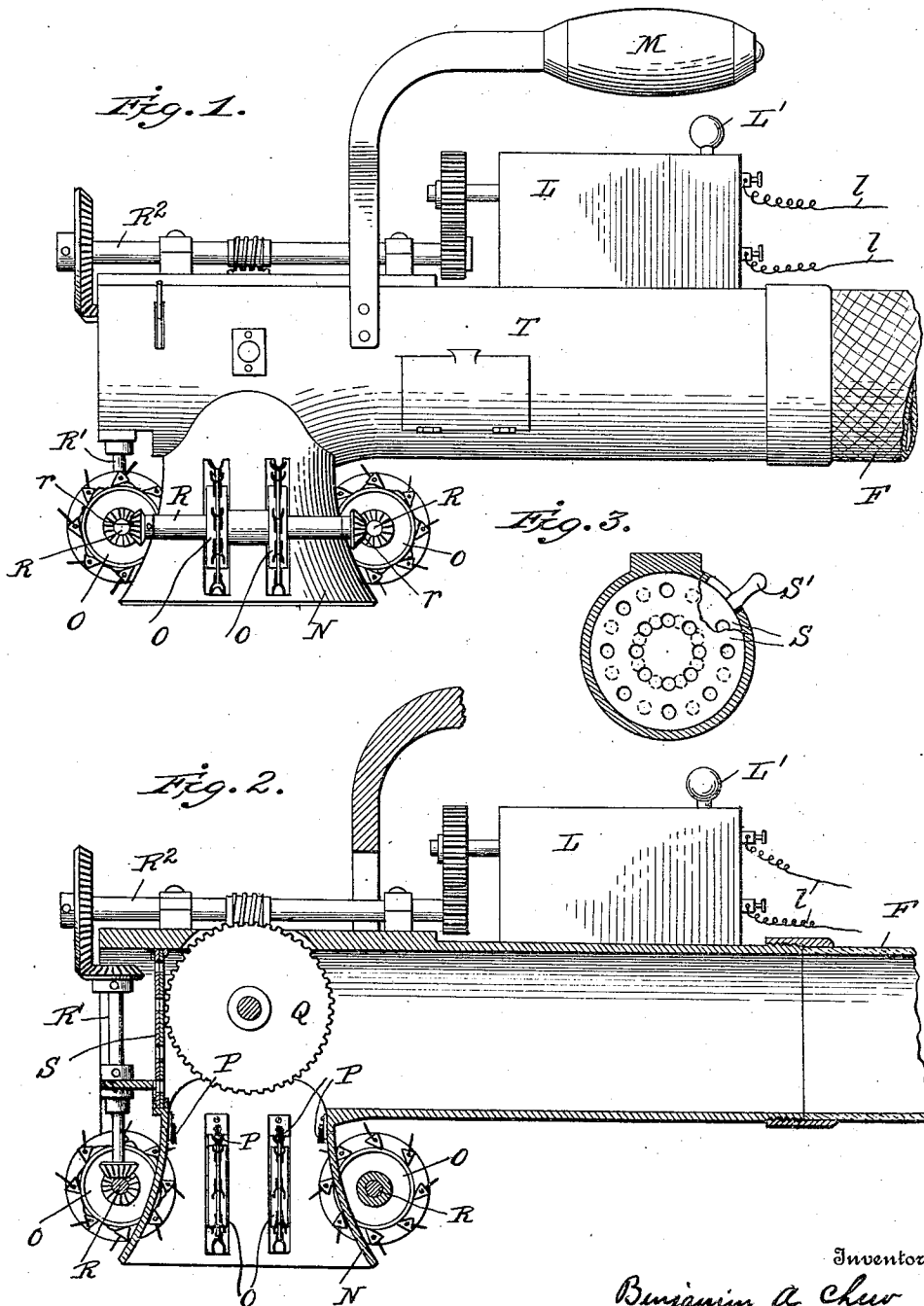
No. 848,967.

PATENTED APR. 2, 1907.

B. A. CHEW.
COTTON PICKER.

APPLICATION FILED MAY 23, 1906.

3 SHEETS—SHEET 1.



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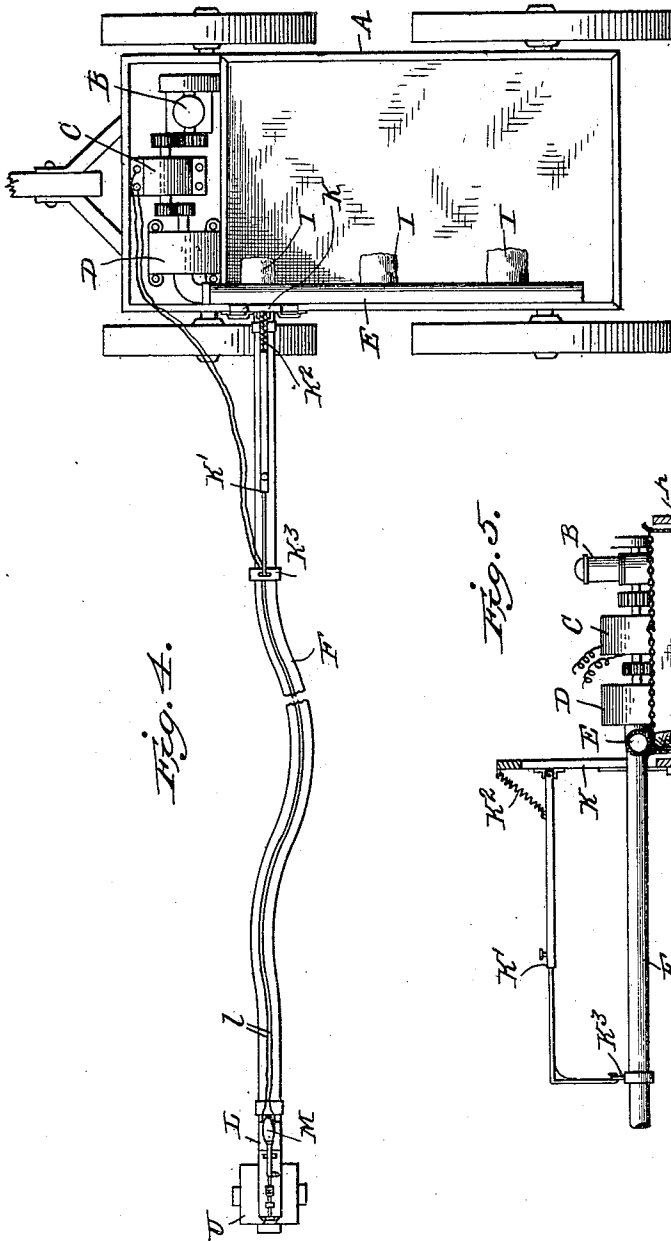
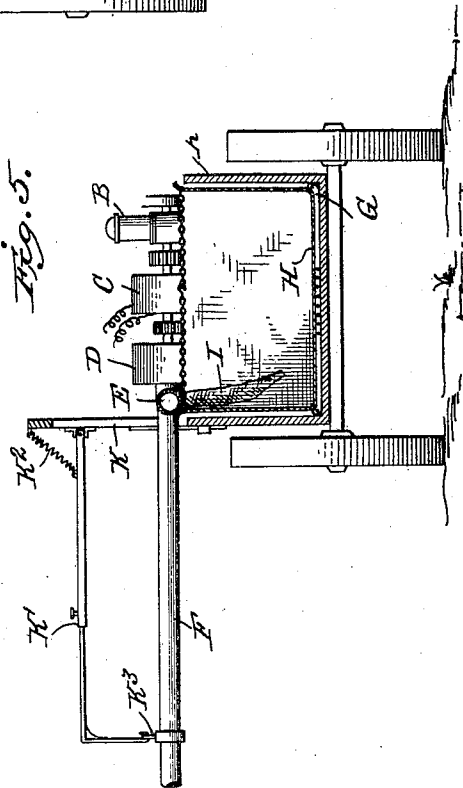


Fig. 4.

Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

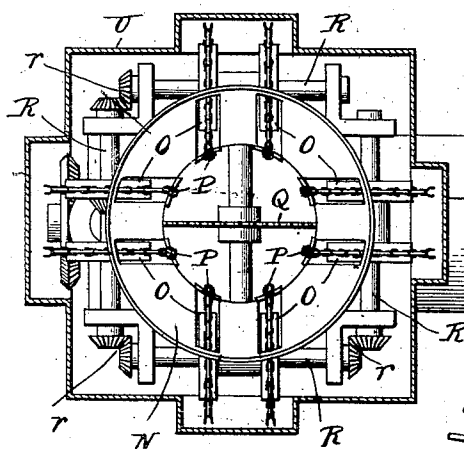


Fig. 7.

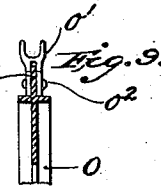
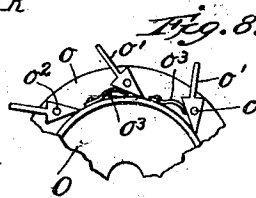
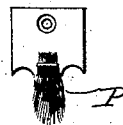


Fig. 10.

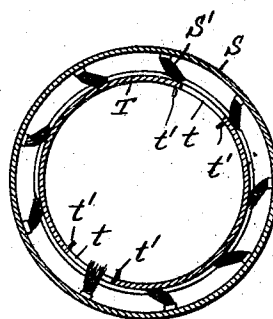
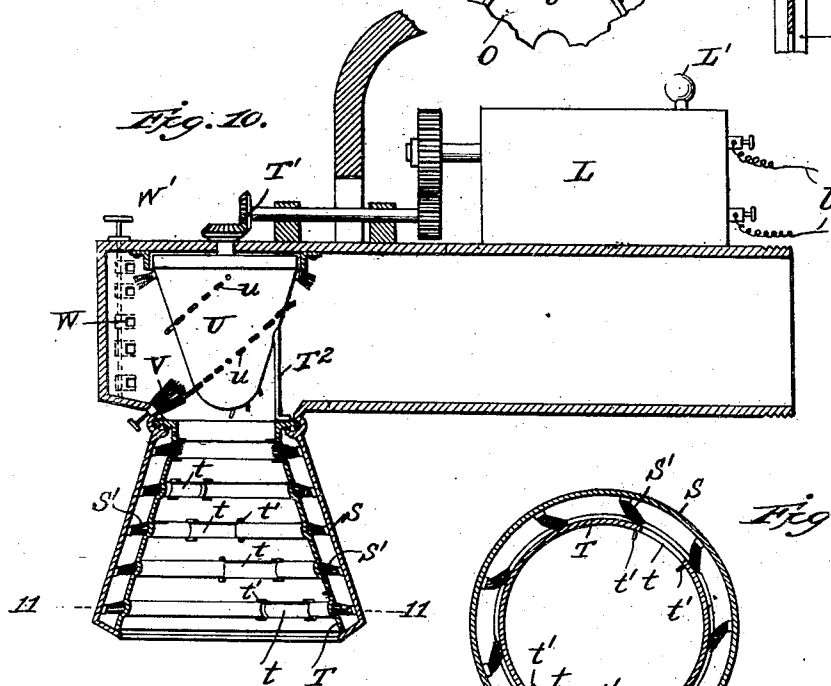


Fig. 11.

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UNITED STATES PATENT OFFICE.

BENJAMIN A. CHEW, OF AUGUSTA, GEORGIA.

COTTON-PICKER.

No. 848,967.

Specification of Letters Patent.

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Application filed May 23, 1906. Serial No. 318,341.

To all whom it may concern:

Be it known that I, BENJAMIN A. CHEW, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Cotton-Pickers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to improvements in cotton-pickers of that type wherein the cotton is detached from the bolls by mechanical means directed by the hand of an attendant and when detached is conveyed to a suitable receptacle, the conveying means usually and preferably employed consisting of a flexible pipe, through which the cotton is drawn by suction, and the receiver preferably employed consisting of a hopper mounted on a wagon or truck.

The invention comprehends certain novel details of construction of the nozzle, including the mechanical means for detaching the cotton and its driving mechanism, whereby not only may a larger quantity of cotton be gathered with less labor on the part of the attendant and in less time, but the quality of the cotton picked is bettered by excluding therefrom leaves, trash, &c., and at the same time each boll is cleaned completely of all adherent fiber.

The invention further comprehends certain novel details in the construction and arrangement of the several mechanisms which as a whole constitute the complete apparatus all as will be hereinafter described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a side elevation of a nozzle or intake end of one tentacle of a cotton-picker embodying the present improvements, a portion of the inclosing casing being omitted. Fig. 2 is a vertical section longitudinally of the same. Fig. 3 is a detail sectional elevation showing the air-inlet valve. Fig. 4 is a top plan view of a complete apparatus embodying the present improvements. Fig. 5 is a sectional elevation of the same looking toward the front of the vehicle. Fig. 6 is a bottom plan view of a nozzle or intake end with the casing in section. Figs. 7, 8, and 9 are detail views of the mechanical picking

devices and one of the cleaners therefor. Figs. 10 and 11 are views of a modification.

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

Generally speaking, the invention contemplates the employment of a wagon or other vehicle adapted to be drawn or propelled over the cotton-field to be picked, such vehicle carrying power-generating means and preferably, also, carrying a receiver or receptacle for the picked cotton. Suitable flexible ducts or pipes are provided, which at their inner ends discharge into the cotton-receptacle, while their outer or intake ends are adapted to be directed by the attendants into proximity to the cotton-bolls and by mechanically-operated devices detach the fiber and present the same to the duct, through which it is conveyed by air suction to the receiver.

The vehicle illustrated is an ordinary wagon A, adapted for use with draft-animals and upon it, preferably near the forward end, is mounted the power mechanism, which may, as shown, consist of an internal-combustion engine B for the prime mover, an electric generator C, and a suction-fan D, the generator and fan being driven from the prime mover, as will be readily understood. Obviously the power may be a storage battery instead of an engine, and the generator may be a motor, inasmuch as the particular form of power-generator is not material so far as the present invention is concerned.

The suction-fan D takes its air through a trunk E, which may extend along one or both sides of the body of the wagon, and this trunk is branched into as many flexible pipes or tentacles F as may be necessary or desired. The body of the wagon preferably holds a removable folding receptacle formed of folding ribs G and a fabric lining H, so as to be readily slipped into position or withdrawn when filled. Discharge-spouts I lead from the trunk into the receptacle, and any of the well-known means (not shown) for separating the cotton from the air and discharging the same into the receptacle may be employed.

The flexible pipes or tentacles are made of sufficient length to enable the attendants to cover a wide section of the field in each passage across the same, and to relieve the attendants as far as possible of the weight of the tentacles and to elevate the same above

the plants in immediate proximity to the vehicle an extensible trolley or crane is provided on the vehicle and attached to the tentacle at a suitable distance from the vehicle. The trolley or crane, as shown, embodies a standard K, detachably secured to the body of the vehicle and having near its upper end a pivoted extensible arm K', preferably supported by a spring K². The tentacle is suspended by a connection K³ from the end of the arm K'.

The mechanical picking devices are located at the nozzle or intake end of each tentacle and are preferably driven by a small electric motor L, located on the nozzle and supplied with current from the generator by feed-wires l, running along the tentacle. For controlling the motor a switch-arm L' is provided, located in position to be conveniently operated by one of the fingers of the hand of the attendant where the handle M is grasped for presenting the picking devices to the bolls of cotton.

The cotton intake or receiving opening of the nozzle has a bell-shaped or flaring wall N projecting laterally from the nozzle, so as to be in most convenient position for presentation to the cotton-bolls. Around the bell-mouth of the nozzle are grouped a series of pickers in the form of wheels or disks O, having picker-teeth (preferably such as will be described specifically hereafter) on their peripheries. These pickers project in through the wall of the bell-mouth on all sides—that is to say, there are four sets of pickers grouped around the bell-mouth in such relation that a tuft of cotton presented to the open end of the bell will be engaged on four sides, lifted bodily, and pushed through the bell-mouth into the nozzle-duct.

The cotton is cleared from the pickers by cleaners or clearing-brushes P, Figs. 2 and 7, and immediately above the bell-mouth is a kicker-wheel Q, which in its rotation starts the cotton along the duct and prevents any clogging in the cotton-intake opening.

The pickers are preferably arranged in pairs on shafts R, journaled in bearings on the bell-mouth and connected through gearing, such as the miter-wheels r, while rotation is secured by intermediate shafts R' and R² between one of the picker-shafts and motor.

The kicker-wheel may be driven by a worm on the shaft R² engaging the teeth of the wheel which may be properly formed for this purpose.

The air-intake is at the end of the duct or nozzle, and a means is provided to regulate the quantity of air entering the duct, consisting of a valve, preferably consisting of perforated disks S, the movable one of which is provided with a handle S', projecting through the wall of the nozzle.

While the pickers may be simple disks or wheels with teeth or projections thereon, bet-

ter results are secured by the use of pickers having pivotally-mounted double prongs or teeth. In this preferred construction the wheels or disks are provided with peripheral flanges o, and the bifurcated inner parts of the double prongs or teeth o' are pivotally connected with the flange by rivets o². Springs o³ serve to hold the teeth normally projected in position to engage the cotton; but it will be noted that the teeth when projected are inclined to the radii, and the direction of rotation is such that the inclination is backward, whereby the teeth will clear themselves more effectually and at the same time will entangle with the cotton sufficiently to insure its being drawn into the bell-mouth and pushed back into the duct.

To assist in clearing the teeth, the openings in the wall of the bell-mouth through which the pickers work preferably conform to the contour of the pickers, as shown in the drawings.

In operation the cotton engaged by the pickers and carried into the bell-mouth will practically fill the bell-mouth, thereby cutting off the entrance of air; but the air-current is not interrupted, for the normal air-supply is entirely independent of the cotton-opening, and, in fact, it is desired to prevent as far as possible any influence by the air on objects in proximity to the outer end of the bell-mouth, as by avoiding any inrush of air at this point there is little or no effect on trash or leaves, and consequently the clean cotton entangled by the pickers will alone be taken up and pushed into the conveyer-duct. The bell-mouth or flaring shape of the cotton-entrance opening is an important factor, inasmuch as such formation not only facilitates the entanglement and picking of the cotton, but it so distributes the indraft of air, if any there be, that trash and leaves not actually within the bell-mouth will not be drawn into the conveyer or duct.

It will be noted that no part of the pickers projects within the conveyer-duct, but, on the contrary, they are entirely to one side of the same, with the result that the duct is free and unobstructed save for the presence of the kicker-wheel, which assists rather than retards the progress of the cotton, although it will be understood that, if so desired, the said kicker-wheel may be omitted and the air suction alone relied on to take the cotton delivered by the pickers away from the cotton-entrance opening.

To give access to the interior of the nozzle, it is provided at one side with a door T, and the pickers are housed in a casing U, Figs. 4 and 6, to shield them from contact with the plants or other objects, as well as to prevent the entanglement of cotton therewith outside of the bell-mouth.

In the modification Figs. 10 and 11 the nozzle has the laterally-projecting bell-mouth

S provided on the inner side with a series of brushes S', while within the bell-mouth is a similarly-shaped rotary liner T, having openings *t* therein, arranged in stepped or spiral order, as shown in Fig. 10. At the ends of the openings *t* or in proximity to said openings are entangling projections or pins *t'*, whereby as the liner is rotated the cotton will be entangled by the projections and subsequently freed by the brushes, and at the same time, owing to the suction and arrangement of the openings, the cotton will be moved into and through the bell-mouth. The liner is preferably rotated through a connection T² with a conical clearer U, journaled in the nozzle, and itself rotated through gearing T' from the motor.

The conical clearer has spirally-arranged pins *u* thereon, and a brush V serves to prevent cotton from wrapping about the clearer.

Air-entrance openings W are provided in the nozzle and a valve W' for regulating the same.

The operation is obvious.

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

1. In a cotton-picker the combination with the conveyer duct or tentacle and the laterally-projecting bell-mouth forming the cotton-entrance opening, of the mechanically-operated pickers projecting in through the wall of said bell-mouth, means for mechanically operating said pickers and means for creating an air suction through the conveyer-duct.

2. In a cotton-picker, the combination with the conveyer duct or tentacle having the nozzle end provided with a laterally-projecting bell-mouth forming the cotton-entrance opening, of the rotary pickers projecting in through the wall of the bell-mouth, gearing for rotating said pickers and means for creating an air suction through the conveyer-duct; substantially as described.

3. In a cotton-picker, the combination with the conveyer duct or tentacle having a nozzle end and bell-mouth cotton-entrance, of a series of rotary pickers projecting through the wall of said bell-mouth in angular relation to each other, means for rotating said pickers and means for creating an air-current through the duct transversely of the inner end of the bell-mouth.

4. In a cotton-picker, the combination with the nozzle having a laterally-projecting bell-mouth forming the cotton-entrance, of a series of rotary pickers grouped around the bell-mouth at one side of the nozzle and projecting through the wall of said bell-mouth in angular relation to each other and means for simultaneously rotating the pickers; substantially as described.

5. In a cotton-picker the combination with the nozzle having a lateral cotton-entrance

opening with a converging wall, of rotary pickers projecting through the converging wall of the entrance-opening on opposite sides thereof in position to entangle cotton in the larger part of the entrance-opening and force the same through the smaller part into the nozzle; substantially as described.

6. In a cotton-picker, the combination with the nozzle having the cotton-entrance opening therein, of a mechanical picker for detaching the cotton from the boll, embodying a rotary carrier, picker-teeth pivotally mounted thereon and springs for holding said teeth projected; substantially as described.

7. In a cotton-picker, the combination with the nozzle having the cotton-entrance opening therein of a mechanical picker for detaching the cotton from the boll, embodying a rotary carrier, rearwardly-inclined picker-teeth pivotally mounted thereon and springs for holding said teeth projected.

8. In a cotton-picker the combination with the nozzle having the bell-mouth cotton-entrance opening, of a mechanical picker for detaching the cotton from the boll embodying a rotary carrier, rearwardly-inclined picker-teeth pivotally mounted thereon and projecting through an opening in the wall of the bell-mouth and springs for holding said teeth projected; substantially as described.

9. In a cotton-picker, the combination with the nozzle having the bell-mouth cotton-entrance opening, of a mechanical picker for detaching the cotton from the boll, embodying a rotary carrier and spring-pressed picker-teeth pivotally mounted on the carrier and a clearing-brush against which the teeth are deflected for detaching adherent fiber; substantially as described.

10. In a cotton-picker, the combination with the nozzle having the cotton-entrance opening, of the mechanical picker for detaching the cotton from the bolls embodying a rotary carrier, double-pronged picker-teeth pivotally mounted on the carrier and springs for holding said teeth projected; substantially as described.

11. In a cotton-picker, the combination with the nozzle having the laterally-projecting bell-mouth cotton-entrance opening, of the mechanical pickers grouped in pairs on opposite sides of said bell-mouth; substantially as described.

12. In a cotton-picker, the combination with the nozzle having the laterally-projecting bell-mouth cotton-entrance opening of the mechanical pickers embodying rotary toothed carriers arranged in pairs on opposite sides of said bell-mouth and projecting into the same and means for simultaneously rotating said pickers; substantially as described.

13. In a cotton-picker, the combination with the suction-nozzle having the air-entrance opening and the lateral cotton-en-

trance opening and mechanical pickers for advancing the cotton through said cotton-entrance opening, of the kicker-wheel at the inner side of and intersecting said cotton-entrance opening for advancing the cotton in the nozzle; substantially as described.

14. In a pneumatic cotton-picker, the combination with the tubular tentacle through which the cotton is carried by pneumatic pressure and a nozzle on the outer end of said tentacle having a lateral cotton-entrance opening, of a kicker-wheel in said nozzle extending in a plane parallel with the axes of the nozzle and lateral cotton-openings for inaugurating the movement of the cotton away from the entrance-opening; substantially as described.

15. In a pneumatic cotton-picker the combination with the tubular tentacle through which the cotton is carried by pneumatic pressure and a nozzle on the outer end of said tentacle, having a lateral cotton-entrance opening and an air-entrance opening, of a valve controlling the air-entrance opening and means for adjusting said valve; substantially as described.

16. In a pneumatic cotton-picker the combination with the tubular tentacle through which the cotton is carried by pneumatic

pressure and a nozzle at the outer end of said tentacle, having a cotton-entrance opening and a separate air-entrance opening, of mechanical pickers for advancing the cotton through the cotton-entrance opening and an adjustable valve for regulating the entrance of air through the air-entrance opening; substantially as described.

17. In a pneumatic cotton-picker the combination with the vehicle, the power-generator and suction-fan carried thereby, of the flexible tubular tentacle connected with the fan and a pivoted supporting-arm mounted on and projecting laterally from the vehicle and connected with the tentacle at a point remote from the vehicle; substantially as described.

18. In a pneumatic cotton-picker, the combination with the vehicle, the power-generator and suction-fan carried thereby, of the flexible tubular tentacle connected with the fan and an adjustable supporting-arm pivotally supported by the vehicle and connected with the tentacle at a point remote from the vehicle; substantially as described.

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