

I. E. NEER.
COTTON PICKER.
APPLICATION FILED JAN. 31, 1911.

1,020,838.

Patented Mar. 19, 1912.

2 SHEETS—SHEET 1.

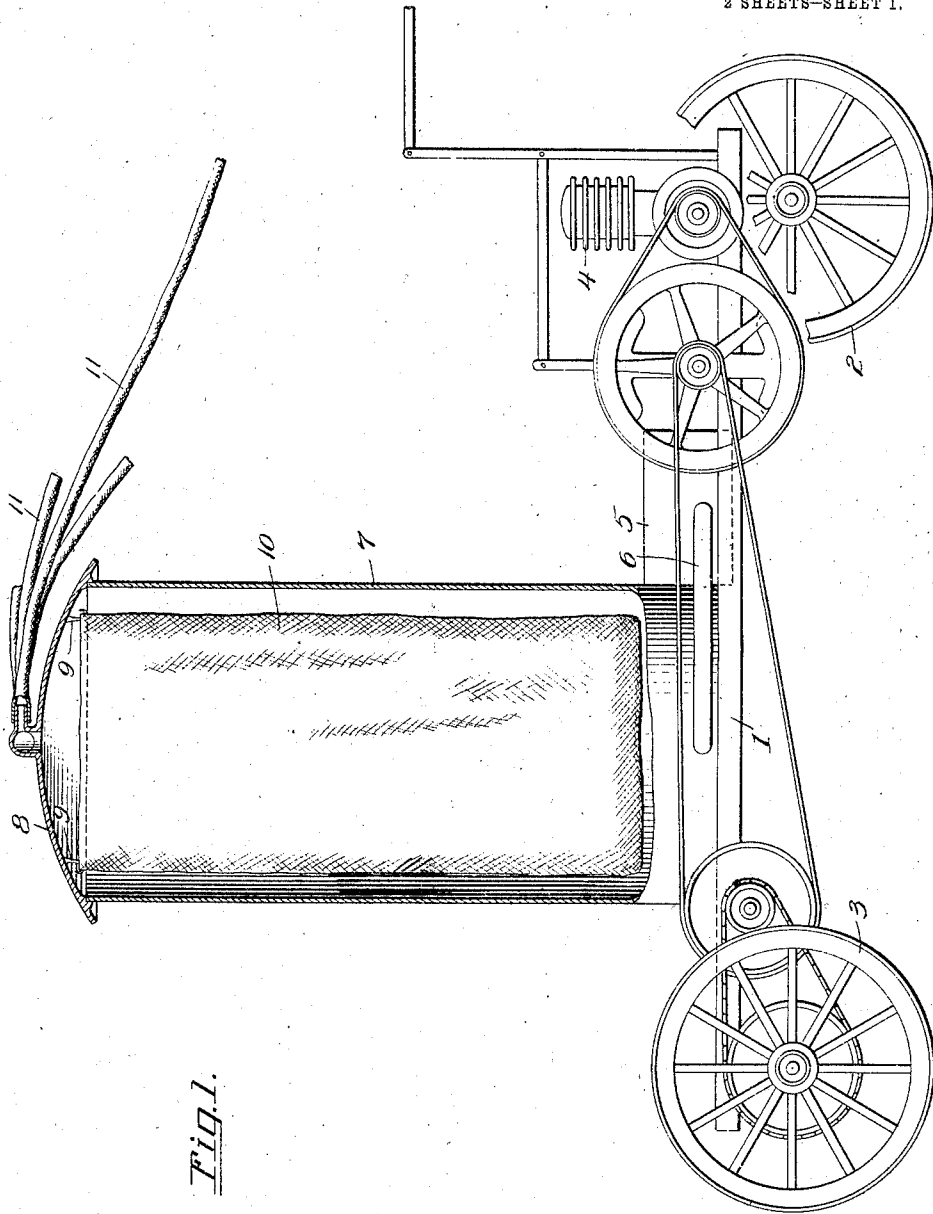


Fig. 1.

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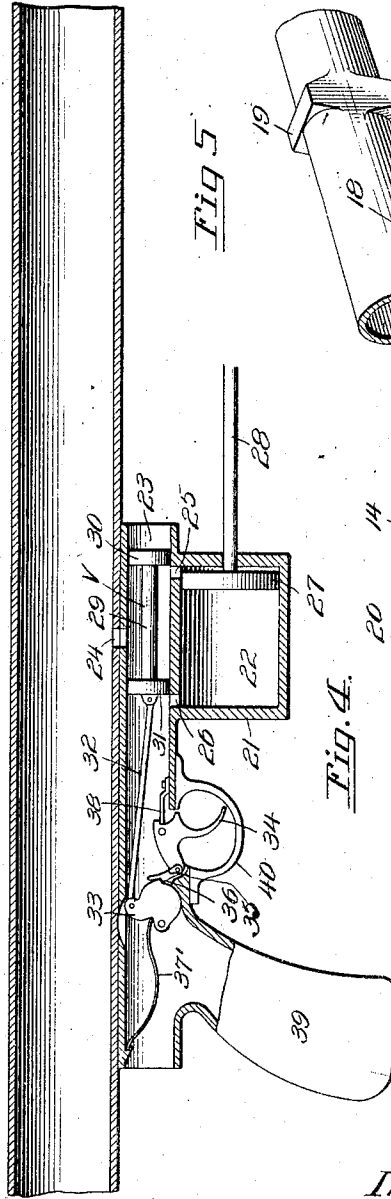
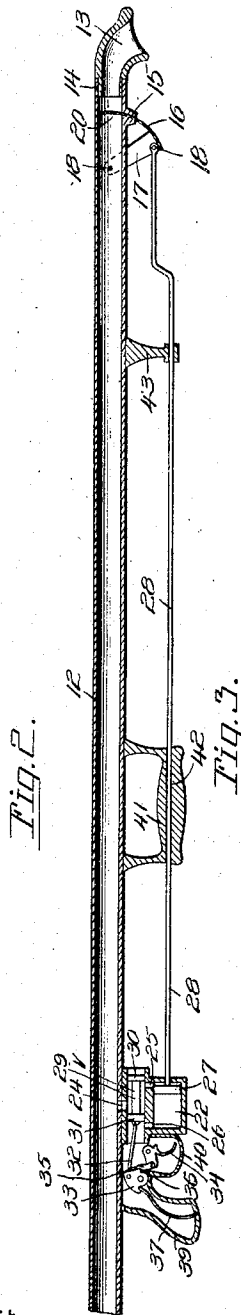


Fig. 5.

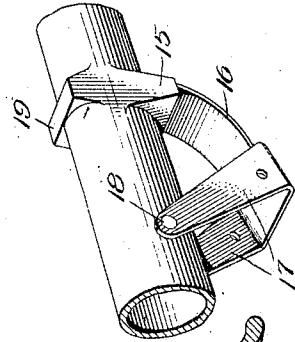
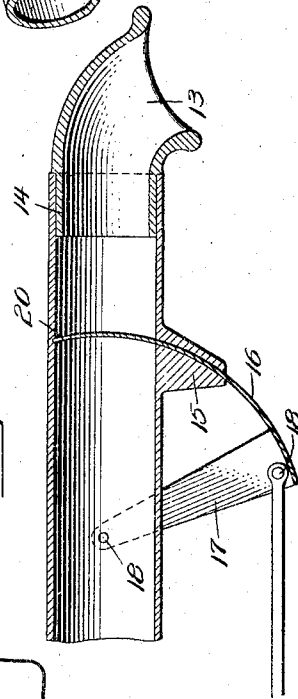


Fig. 4.



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UNITED STATES PATENT OFFICE.

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COTTON-PICKER.

1,020,838.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed January 31, 1911. Serial No. 605,699.

To all whom it may concern:

Be it known that I, IRA E. NEER, a citizen of the United States of America, residing at Edinburg, in the county of Christian and State of Illinois, have invented new and useful Improvements in Cotton-Pickers, of which the following is a specification.

This invention relates to cotton picking devices of that class in which a suction tube or tubes are connected with a reservoir from which the air is exhausted to produce a partial vacuum within such receptacle or reservoir; the suction tube or tubes being equipped with picking devices which may be applied to the cotton boll, the atmospheric pressure causing the cotton to become detached and to be conveyed through the tube to the reservoir within which a bag may be suspended to receive the cotton.

The present invention has for its object to provide the picking implement with a valve which normally obstructs the passage of air through the suction tube, but which when the picking implement is held in position adjacent to a cotton boll may be quickly and easily moved to a non-obstructing position, causing a sudden inrush of air, whereby the cotton will be quickly and completely detached and carried through the suction tube into the receptacle.

A further object of the invention is to provide simple and improved actuating means for the obstructing valve, whereby said valve may be actuated exactly at the proper time, and whereby it may be quickly restored to an obstructing position without material effort on the part of the operator.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a sectional elevation of a cotton picking machine constructed in accordance with the invention.

Fig. 2 is a sectional elevation of one of the picking implements attached to the end of one of the suction tubes. Fig. 3 is a longitudinal sectional view on a larger scale of the valve operating means associated with the picking implement, showing a slight modification. Fig. 4 is a sectional view, enlarged, of the valved end of the picking implement. Fig. 5 is a perspective detail view of the valved end of the picking implement.

Corresponding parts in the several figures are denoted by like characters of reference.

The improved machine includes a vehicle comprising a truck or platform 1 supported upon front and rear wheels 2 and 3 and carrying a motor 4 which may be utilized for driving or propelling the vehicle, suitable means being provided for transmitting motion from said motor to the rear wheels. The motor may also be utilized for actuating an air exhausting device, such as a suitably constructed air pump 5, which is connected by an exhaust pipe 6 with a casing or reservoir 7, from which the air may thus be exhausted to create within said casing or reservoir a partial vacuum. The casing 7 has been shown as being provided with a tightly fitting detachable lid or cover 8 having means such as a projection with a flange 9 upon which a receptacle, such as a bag 10, may be supported. A plurality of flexible suction tubes 11 are provided, each of said tubes being connected at one end with the lid of the casing or reservoir above the bag or receptacle 10, and each of said tubes carrying at its opposite end a tubular picking implement 12.

The picking implement 12 consists of a tube, made of metal, or other rigid material, and provided at one end with a downturned bell-shaped mouth piece 13 which may be detachably connected therewith by a threaded or other suitable connection 14. The tube 12 is provided adjacent to the mouth piece with a projection 15 constituting a guide for a valve 16 whereby the tube 12 may be obstructed. In the form of the invention represented in the drawings, the valve 16 is shown as consisting of an arcuate slide valve having an arm 17 which is pivotally connected with the tube 12 by means of a pin 18 the axis of which is concentric with the arc of the valve. It is obvious that when the arm 17 swings upon the pivot 18 the valve 16 may be moved to an obstructing or

to a non-obstructing position with reference to the tube. The latter has been shown as being provided with an enlargement 19 of rectangular cross section, the side walls of said enlargement being provided with arcuate grooves 20 wherein the arcuate valve member is guided, but it is desired to be distinctly understood that a valve of any type controlling the entrance of air may be used at will.

Suitably attached to or connected with the picking implement 12 is a casing 21 comprising a cylinder 22 and a valve box 23, the latter being in communication with the interior of the tubular picking implement 12 through a port 24, and with the atmosphere through the ends of the box, which are open. Ports 25, 26 are also provided to connect the front and rear ends of the cylinder 22 with the corresponding ends of the valve box 23. The cylinder 22 contains a piston 27 having a stem 28 which is terminally connected with the slide valve 16 which may thereby be actuated. The valve chamber 23 contains a valve V comprising a stem 29 having heads 30, 31 adapted to alternately obstruct the ports 25, 26. The valve V is connected by a link 32 with a pivotally supported cam member 33 adapted to be actuated by a trigger 34 having a pivoted tongue 35 adapted to engage a shoulder 36 of said cam member. The latter is engaged by a spring 37 whereby it may be retained in adjusted position, and a spring 38 may also be provided, as seen in Fig. 3, to restore the trigger to normal position after being actuated to operate the cam 33. A pistol grip 39 is provided in suitable proximity to the trigger, said grip being adapted to be grasped by the operator, and a trigger guard 40 is also provided.

The tension of the spring 37 is exerted to normally move the valve V in a forward direction, thus establishing communication through the ports 25 and 24 between the forward end of the cylinder 22 and the suction tube connected with the implement 12, thereby establishing in front of the piston 27 a partial vacuum, causing said piston to be forced forward, thereby actuating the valve 16 to place said valve in obstructing position with reference to the implement 12 and the suction tube with which said implement is connected. By pressing the trigger 34, the cam member 33 will be partially rotated, thereby shifting the position of the valve V, and thus establishing communication through the ports 26 and 24 between the rear ends of the cylinder 22 and the suction tube. By the resultant action the piston 27 will be quickly moved in a rearward direction, thereby actuating the valve 16 to move the latter to a non-obstructing position with reference to the suction tube. When pressure upon the trigger is carried past a cer-

tain point the pivoted tongue 35 is disengaged from the shoulder 36 of the cam 33 which latter will be instantly restored to the initial position by the action of the spring 37 or 37', as the case may be, thus likewise restoring to its initial position the valve V and establishing communication between the front end of the cylinder 22 and the suction tube through the ports 24, 25. The pistons 27 will thus be actuated in a forward direction to move the valve 16 to an obstructing position with reference to the suction tube. It will be observed that this cycle of operations resulting in the rapid opening and closing of the valve 16 will be effected while the trigger 34 is being moved in one direction by pressure thereon by the finger of the operator, continued pressure in one direction being effective to disengage the tongue 35 from the shoulder 36 of the cam 33. After the cycle of operations has been completed, pressure upon the trigger 34 may be released, and the latter will then be restored to its initial position by the action of the spring 38.

It will be seen from the foregoing description, taken in connection with the drawings hereto annexed, that the picking implement 12 may be very readily and conveniently grasped by the operator who grasps the grip or handle 39 and places his forefinger upon the trigger. The picking implement may thus be pointed like a pistol in the direction of the cotton that is to be picked. When the bell-shaped mouth or nozzle 13 is in suitable proximity to the cotton, the trigger is pressed, thus causing the valve 16 to be moved to a non-obstructing position which is followed by a sudden inrush of air at high pressure, whereby the cotton is detached and carried through the suction tube into the receptacle provided to contain it. Immediately following the picking of the cotton from the boll, without releasing the pressure upon the trigger, the valve 16 is restored to an obstructing position where it is retained, thus maintaining a partial vacuum of a high degree while the picking implement is pointed toward another cotton boll. By the suction established in the tube 11, the cotton is carried to the casing or reservoir 7 where it is discharged into the bag or receptacle 10, which latter also constitutes a strainer, whereby parts of the cotton, twigs, leaves or the like which may accidentally pass into the receptacle along with the cotton are prevented from entering the air pump or exhaust apparatus.

The construction of this improved picking apparatus, as will be seen from the foregoing, is simple. The improved picking implements may be readily applied to and used in connection with the various forms of suction apparatus, thus increasing

their suction force and applying the same suddenly; and the device has been found to be thoroughly efficient for the purposes for which it is provided.

5 The pistol grip 39 with which the device is provided and whereby it is manipulated is found to be particularly convenient in enabling the operator to hold the device securely and to present it properly to the
10 plants in the act of picking the cotton. Said pistol grip enables the operator to hold and to manipulate the device with one hand, the first finger being placed upon the trigger, a rapid pressure upon which is all
15 that is needed in order to operate the mechanism whereby the inlet valve is moved to a non-obstructing position; the cotton is detached; and the valve is restored to an obstructing position.

20 The spring 37 whereby the cam 33 is actuated may be accommodated within the pistol grip of the device, as shown in Fig. 2, or in one end of the valve box, as shown in Fig. 3, where said spring is specially
25 designated 37'. The picking implement may be provided with a handle member 41 adapted to be grasped by the left hand of the operator, as will be seen in Fig. 2, said handle member being also longitudinally
30 apertured, as shown at 42, to constitute a guide for the pistol stem or rod 28. Additional or auxiliary guide means for said stem may also be provided, as shown at 43.

Having thus described the invention, what
35 is claimed as new, is:—

1. In a cotton picker, a tubular picking implement having a pistol grip handle, means for setting up suction in the tubular implement, a valve normally positioned to
40 obstruct the passage of air therethrough, a cylinder communicating with the tubular member, a piston in said cylinder having a rod connected with the obstructing valve to actuate the latter, a valve to obstruct
45 communication between one end of the cylinder and the suction means, and means for actuating said last mentioned valve including a spring actuated cam and a trigger having a tongue engaging the cam, said
50 trigger being positioned in front of the pistol grip constituting the handle.

2. In a cotton picker, a picking implement comprising a tubular member, a suitably guided slide valve adapted to obstruct the passage therethrough, means for set- 55
ting up suction in such tubular member behind the valve, a cylinder communicating with the tubular member, a piston in said cylinder, connecting means between said piston and the slide valve, a valve to ob- 60
struct communication between one end of the cylinder and the suction means, and means for actuating the last mentioned valve, said means including a spring actuated cam and a trigger having a tongue 65
engaging the cam.

3. In a cotton picker, a picking implement comprising a tube, a valve adapted to obstruct the passage therethrough, a cylinder, a piston operating in said cylinder 70
and connected with the valve to actuate the latter, ports connecting the cylinder with the tubular picking member, means for setting up suction in the tubular member behind the valve, a valve cooperating with 75
the ports to obstruct communication between one end of the cylinder and the suction means, and means for actuating said valve including a spring actuated cam and a trigger having a tongue engaging the 80
cam.

4. In a cotton picker, a picking implement comprising a tubular member, a suitably guided valve adapted to obstruct the passage therethrough, means for setting up 85
suction in the tubular member behind the valve, a cylinder communicating with the tubular member, a piston in said cylinder, a piston rod connecting said piston with the valve, a handle upon the tubular mem- 90
ber, said handle being longitudinally apertured to provide guiding means for the piston rod, and valve means to obstruct communication between one end of the cylinder and the suction means. 95

In testimony whereof I affix my signature in presence of two witnesses.

IRA E. NEER.

Witnesses:

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L. E. SWIGERT.