2 Sheets—Sheet 1.

F. VAN DORN.

COTTON-HARVESTER.

No. 194,854. Patented Sept. 4, 1877.

Fig. 1.

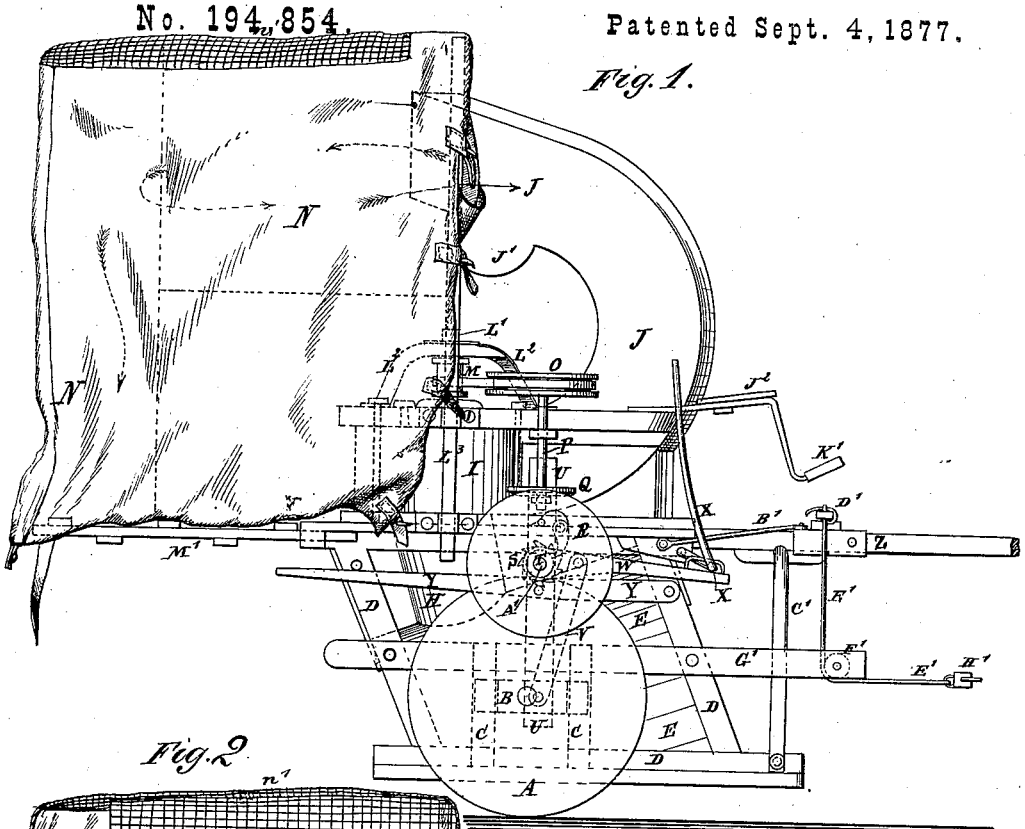

Fig. 2

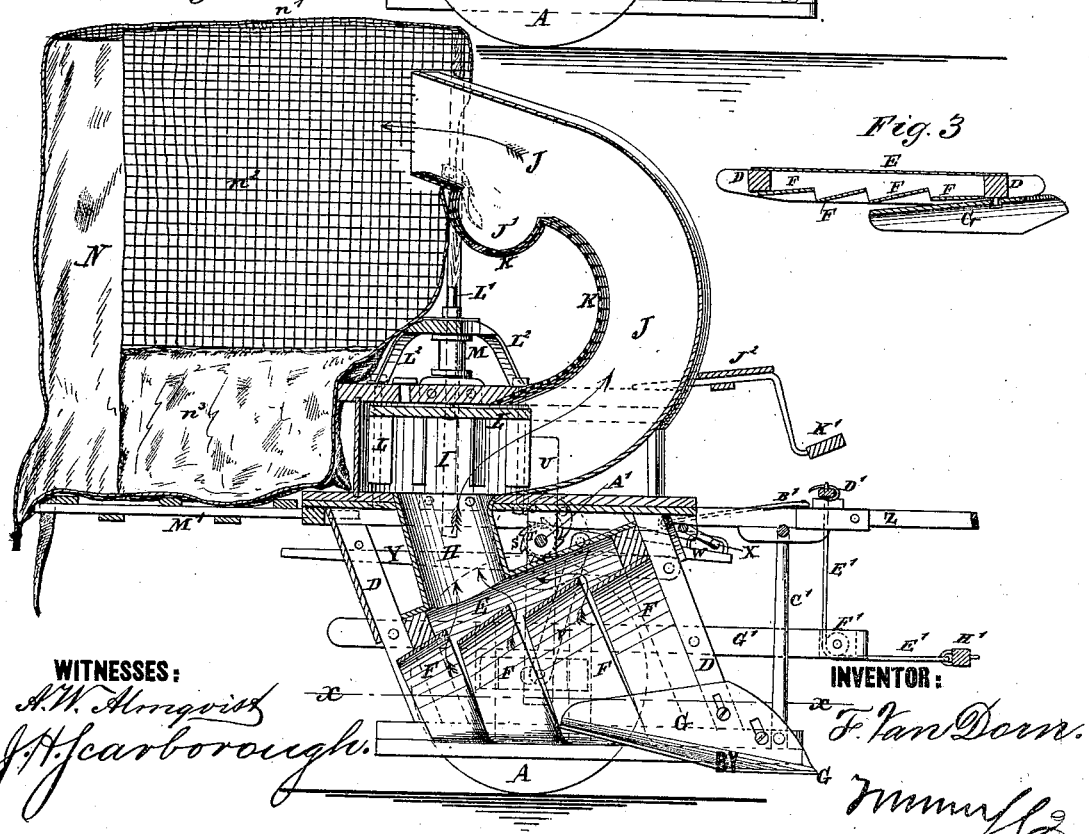

Fig. 3

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2 Sheets—Sheet 2.

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COTTON-HARVESTER.

No. 194,854. Patented Sept. 4, 1877.

Fig. 4

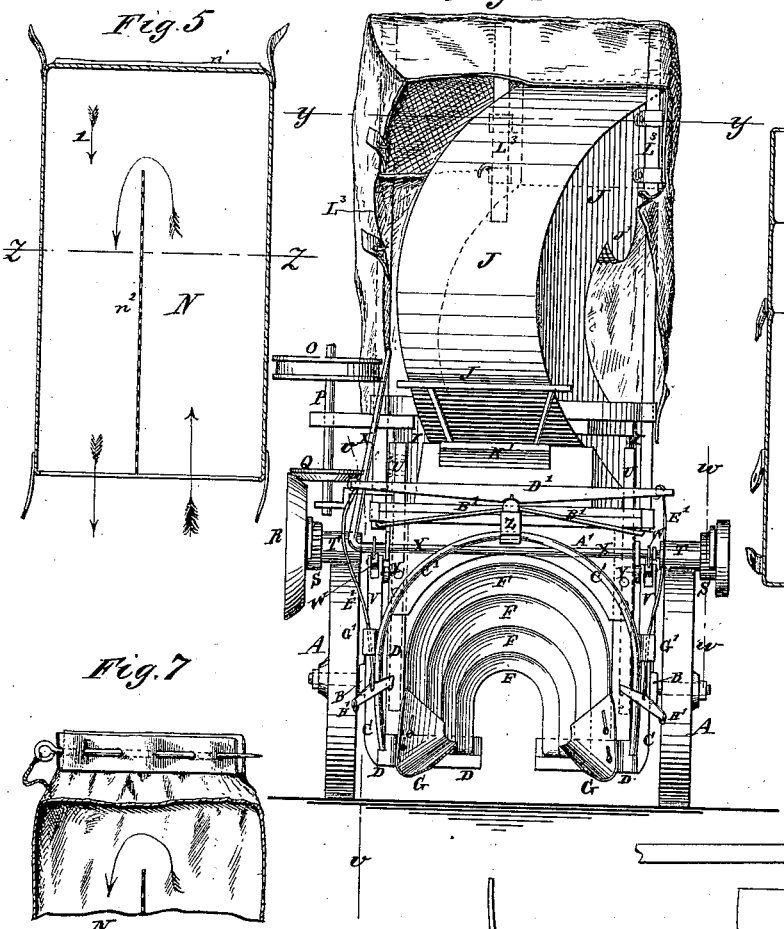

Fig. 5

Fig. 6

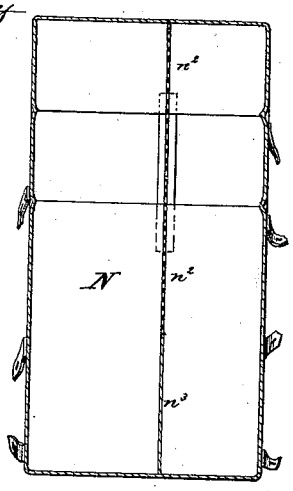

Fig. 7

Fig. 8

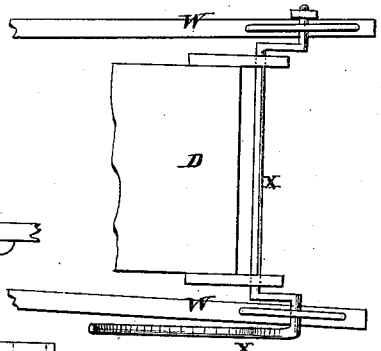

Fig. 9

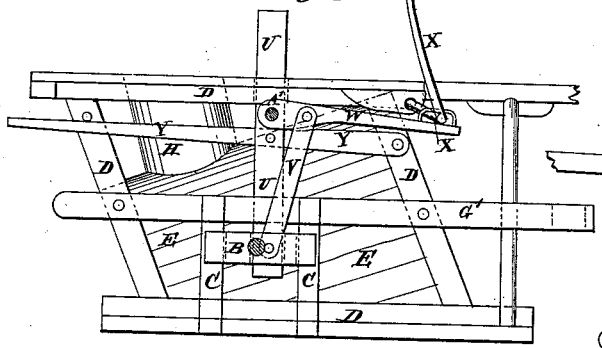

Fig. 10

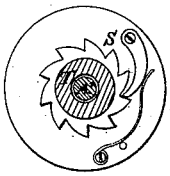

Fig. 11

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UNITED STATES PATENT OFFICE.

FERDINAND VAN DORN, OF BASKING RIDGE, NEW JERSEY.

IMPROVEMENT IN COTTON-HARVESTERS.

Specification forming part of Letters Patent No. **194,854**, dated September 4, 1877; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, FERDINAND VAN DORN, of Basking Ridge, in the county of Somerset and State of New Jersey, have invented a new and useful Improvement in Cotton-Picker, of which the following is a specification:

Figure 1, Sheet 1, is a side view of my improved machine. Fig. 2, Sheet 1, is a vertical longitudinal section of the same. Fig. 3, Sheet 1, is a detail section taken through the line *x x*, Fig. 2. Fig. 4, Sheet 2, is a front view of the machine. Fig. 5, Sheet 2, is a horizontal section of the sack taken through the line *y y*, Fig. 4. Fig. 6, Sheet 2, is a vertical section of the same taken through the line *z z*, Fig. 5. Fig. 7, Sheet 2, is a detail sectional view of the lower outer corner of the sack. Fig. 8, Sheet 2, is a detail plan view of the mechanism for throwing the machine out of gear. Fig. 9, Sheet 2, is a detail side view of the mechanism for throwing the machine out of gear, and for raising and lowering it, partly in section, through the line *v v*, Fig. 4. Fig. 10, Sheet 2, is a detail section taken through the line *w w*, Fig. 4. Fig. 11, Sheet 2, is a detail view of the neck-yoke, the tongue being shown in cross-section.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a machine for removing the cotton from the ripe bolls without injuring the unripe bolls or the plants, and deliver the fiber clean and free from leaves and other impurities ready for ginning.

The invention consists in the combination of the outer shell, the inner sectional shell, the flue, the fan, and the curved spout with each other and with the frame of the machine; in the combination of the wire-gauze with the rear or concave side of the spout; in the concavity formed in the lower side of the upper part of the spout; in the combination of the upright sliding bars, the levers, the connecting-bars, and the crank-lever with the cross-head axles, the shaft of the driving mechanism, and the frame of the machine, for throwing the said driving mechanism out of gear; in the combination of the levers and the upright sliding bars with the frame of the machine and with the shaft of the driving mechanism and the drive-wheels, for raising and lowering the body of the machine; in the sack provided with the opening in front, the gauze top, and the gauze partition, in combination with the spout and the frame of the machine; in the combination of the double-tree, the ropes or chains, and the whiffletrees with the tongue and the bars attached to the frame of the machine; and in the combination of the adjustable guide-plates with the shells and the frame of the machine.

A are the wheels, which revolve upon short axles B.

The axles B have cross-heads formed upon their inner ends, which slide upon bars or ways C attached to the frame D.

To the frame D is attached the outer shell E, which is made in the form of a section of a truncated cone. To the frame D, within the shell E, and at a little distance from it, is secured the inner shell F.

The shell F is made of strips of sheet metal bent into the form of a section of a truncated cone, and so arranged that the rear edge of each forward strip may be of a less diameter than the forward edge of each rear and smaller strip, as shown in Figs. 2 and 3, so as to leave spaces between the said strips for the air and cotton to pass through.

The openings between the lower parts of the strips F are somewhat enlarged, so that sand and other heavy dirt that may be drawn in by the air with the cotton may fall down into the space between the shells E F and fall out when the machine is stopped.

To the lower forward part of the frame D are attached two plates, G, the lower edges of which are bent forward to serve as guides to raise short and bent stems, and expose their cotton to the suction. The guides G are slotted to receive the bolts that secure them to the frame D, so that they may be raised and lowered, as required.

With an opening in the upper rear part of the shell E is connected a short tube or flue, H, the other end of which opens into the case I of the fan-wheel L.

From the fan I L the air and cotton pass into the lower end of the spout J, which is

ırved upward and rearward, as shown in igs. 1, 2, and 4, and from which the air and)tton pass into the large receiving-sack N.

The concave side of the spout J is formed f wire-gauze K, to allow a portion of the air) escape, and thus diminish the force of the urrent before it enters the sack N. In the)wer side of the upper part of the spout J is)rmed a recess or cavity, J^1, to receive any dry eaves or other impurities that may be brought p with the cotton.

The fans L are attached to the lower end of shaft, L^1, which revolves in bearings in the op of the case I, and in a spider, L^2, attached o said case, so that there may be no shaft or spindle within the case I for the cotton to wind around.

To the shaft L^1 is attached a pulley, M, around which passes a belt that also passes around the pulley O attached to the upper end of the shaft P. The shaft P revolves in bearings attached to the frame of the machine, and to its lower end is attached a bevel-friction or gear wheel, Q, which engages with a bevel-friction or gear wheel, R, attached to a shaft, A′, that passes through the machine, revolves in bearings in the upright bars U, and has friction-wheels T placed upon its end parts.

The friction-wheels T bear upon the faces of the drive-wheels A, and are connected with the shaft A′ by pawls and ratchet-wheels S, so as to carry the said shaft with them in their revolution when the machine is drawn forward. The bars U are placed in guide-holes in the frame of the machine, and to them and to the shaft A′ are pivoted the rear ends of the levers W.

To the levers W, a little in front of the shaft A′, are pivoted the upper ends of the bars V, the lower ends of which are pivoted to the cross-heads of the axles B.

To the upper sides of the forward ends of the levers W are attached long keepers, in which work the cranks of the shaft X, which works in bearings attached to the frame of the machine. One end of the shaft X extends upward into such a position that it may be reached and operated by the driver from his seat.

By this construction, by operating the crank-lever X, the bars U, the shaft A′, and the body of the machine will be raised, raising the wheels T away from the wheels A, and throwing the machine out of gear.

Y are levers the forward ends of which are pivoted to the frame D. The levers Y are pivoted to the bars U, and their rear ends project at the rear of the machine, so that by operating the said levers Y the body of the machine will be raised without throwing it out of gear, thus enabling the machine to be adjusted to work at any desired distance from the ground.

Z is the tongue which is attached to the forward part of the frame of the machine at such a distance above the ground as to be above the plants, and which is strengthened by the braces or hounds B′ and by the arched bar C′.

D′ is the double-tree, which is pivoted to the tongue Z in such a way that its ends may vibrate vertically. To the ends of the double-tree D′ are attached the ends of two ropes or chains, E′, which pass around pulleys F′ pivoted in slots in the forwardly-projecting ends of the bars G′ attached to the sides of the frame D.

To the forward ends of the ropes or chains E′ are attached the whiffletrees H′. By this arrangement the draft appliances will be kept away from the plants, so that they will not knock off the ripe cotton or injure the unripe bolls or the stalks.

I′ is the neck-yoke, the middle part of which is arched, and has an eye formed in its center or highest part, to receive the end of the tongue Z, and keep it and the end of the said tongue Z away from the plants.

J^2 is the driver's seat, which is attached to the upper forward part of the frame of the machine, and is provided with a foot-board, K′.

L^3 are three posts, two of which are attached to the upper parts of the sides of the spout J, and the third is attached to the frame of the machine. The posts L^3 are inserted in sockets or keepers attached to the machine, so that they can be detached when desired.

To the side edges of the forward side of the sack N are attached eye-straps, to be hooked upon hooks attached to the posts L^3 and to the side parts of the machine to keep the said forward part of the sack spread out.

In the upper part of the forward side of the sack N is formed an opening, in one end of which is inserted the end of the spout J. The other part of said opening is left open so that the air can escape through it.

The top of the sack N is formed of gauze or netting n^1 to allow a portion of the air to escape. The sack N is divided into two parts by a gauze partition, n^2, through which another portion of the air escapes. The partition extends about three-fourths of the distance to the rear side of said sack, and to its lower edge is attached the upper edge of a piece of canvas, n^3, the lower edge of which is attached to the bottom of the said sack.

With this construction the air and cotton enter the sack N, and the force of the blast is so weakened by the gauze K of the spout J and the gauze n^1 n^2 of the sack N that the cotton will sink to the bottom of the said sack while the current of air passes around the inner edge of the partition n^2 n^3, and out through the open part of the front opening of said sack.

Any cotton that may be carried out by the air will settle down in front of the machine, and be again drawn through it. The bottom of the sack N rests upon a rack or frame, M′, attached to the rear part of the machine. The cotton is removed from the sack N when required through an opening between the rear edge of its bottom and the lower edge of its

rear side, which opening may be closed by means of a long pin, as shown in Fig. 7, by a lace, or by other convenient means.

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

1. The combination of the outer shell E, the inner sectional shell F, the flue H, the fan I L, and the curved spout J, with each other, and with the frame D of the machine, substantially as herein shown and described.

2. The combination of the wire-gauze K with the rear or concave side of the spout J, substantially as herein shown and described.

3. The concavity J^1, formed in the lower side of the upper part of the spout J K, substantially as herein shown and described.

4. The combination of the sliding bars U, the levers W, the connecting-bars V, and the crank-lever X with the cross-head axles B, the shaft A′ of the driving mechanism, and the frame D of the machine, for throwing the said driving mechanism out of gear, substantially as herein shown and described.

5. The combination of the levers Y and the upright bars U with the frame D of the machine, and with the shaft A′ of the driving mechanism, and the drive-wheels A, for raising and lowering the body of the machine, substantially as herein shown and described.

6. The sack N, provided with the opening in front, the gauze top n^1, and the gauze partition n^2, in combination with the spout J and the frame-work of the machine, substantially as herein shown and described.

7. The combination of the adjustable guide-plates G with the shells E F and the frame D, substantially as herein shown and described.

FERDINAND VAN DORN.

Witnesses:
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R. S. VAN DORN.