

(No Model.)

3 Sheets—Sheet 1.

J. BUCHANAN.
STRAW ELEVATOR.

No. 467,476.

Patented Jan. 19, 1892.

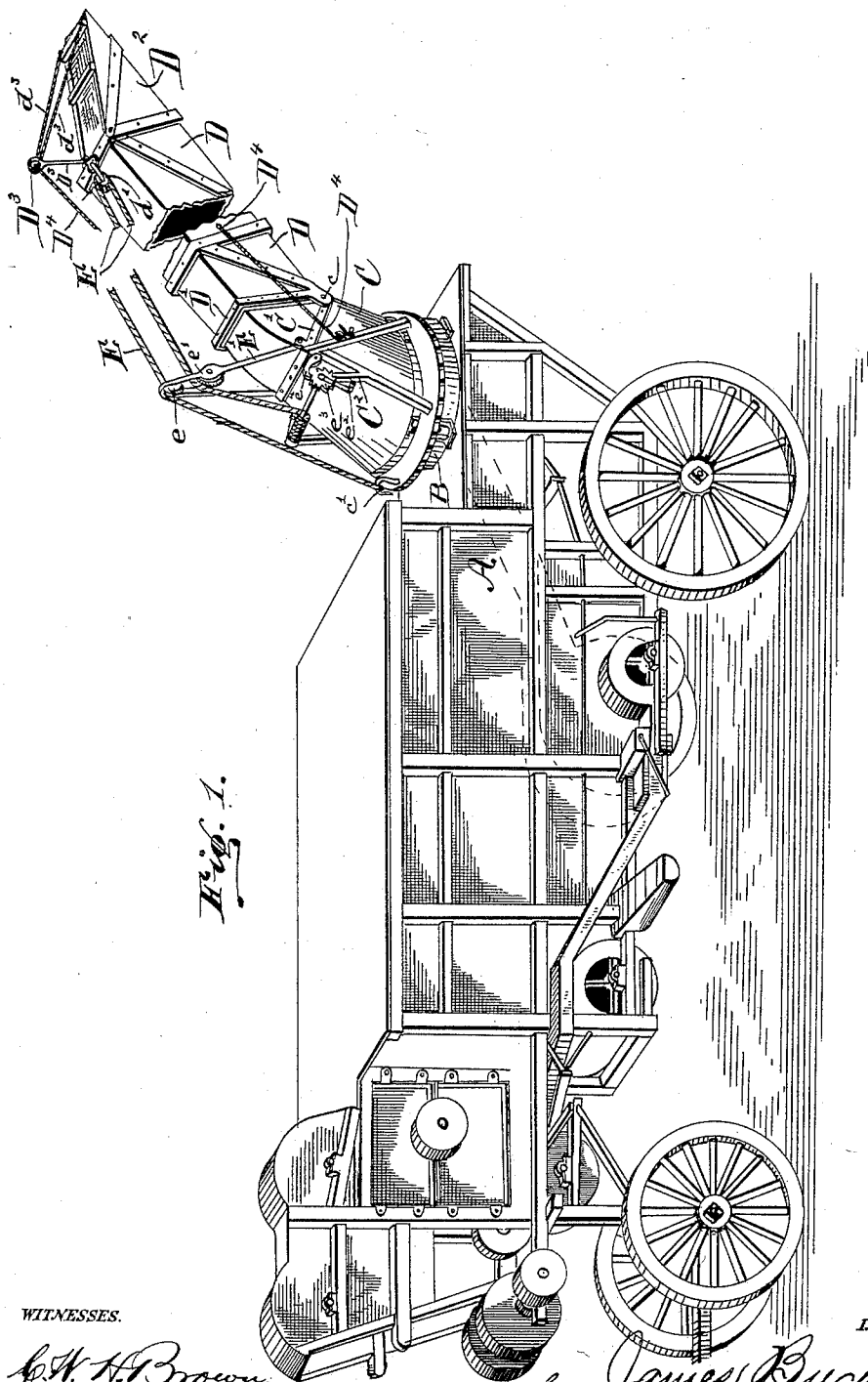


Fig. 1.

WITNESSES.

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ATTORNEYS.

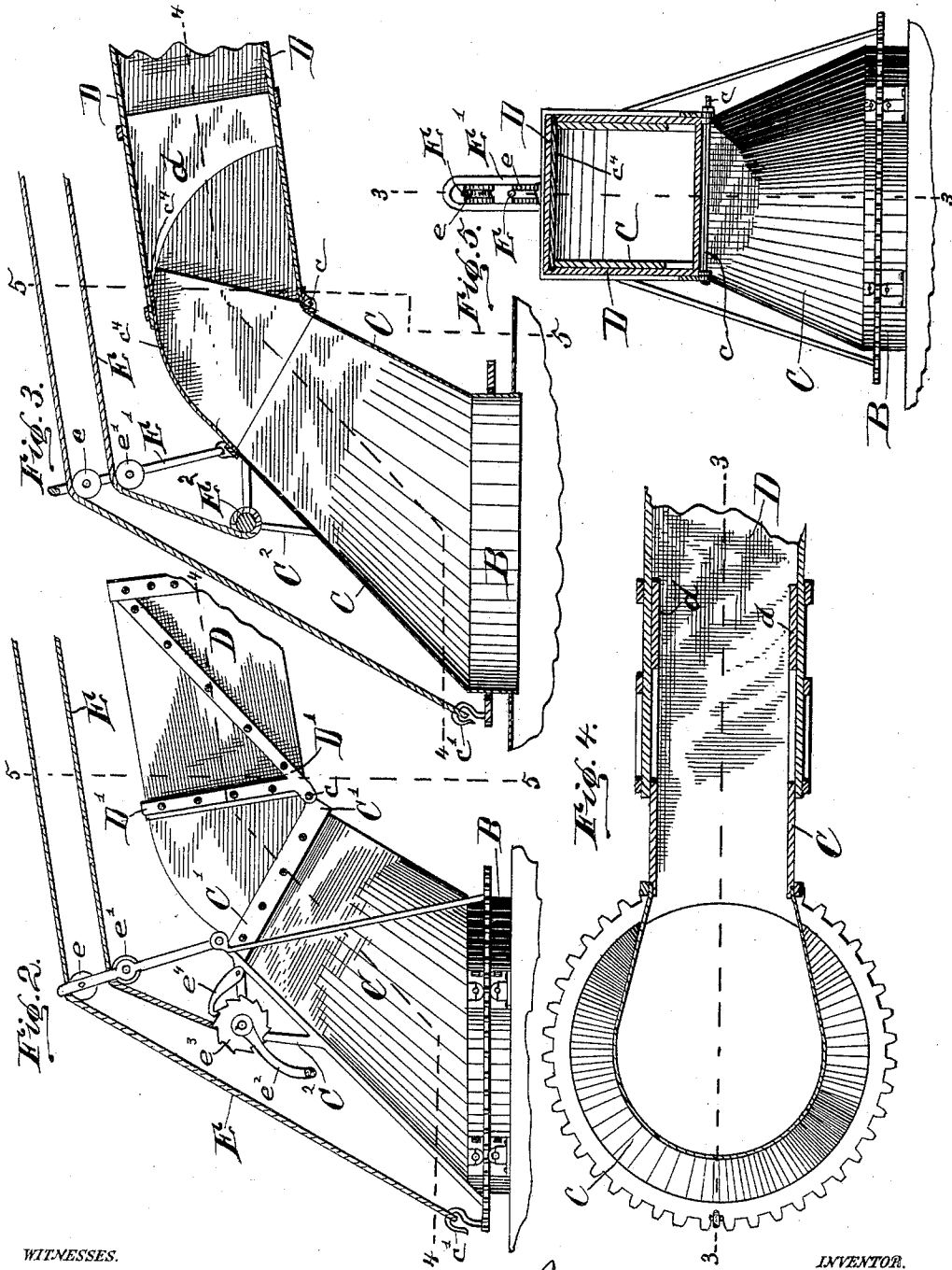
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J. BUCHANAN.
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 6.

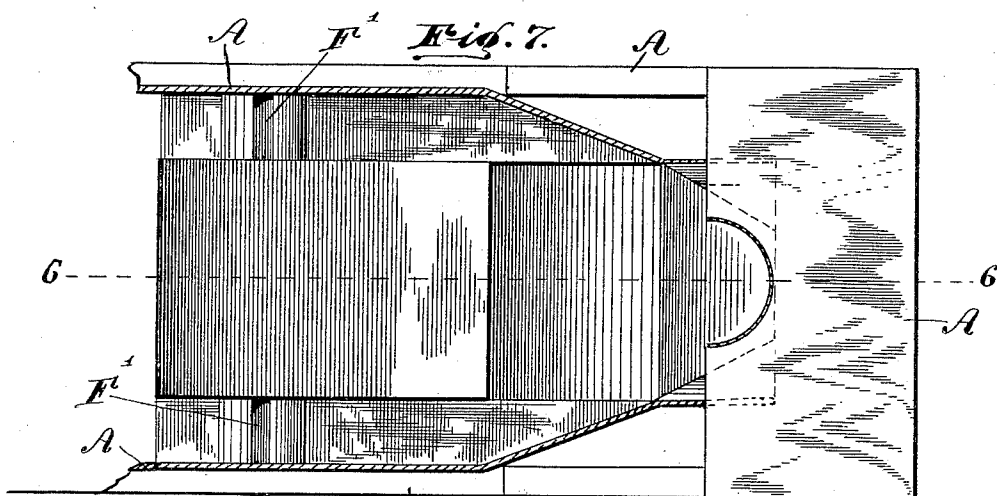
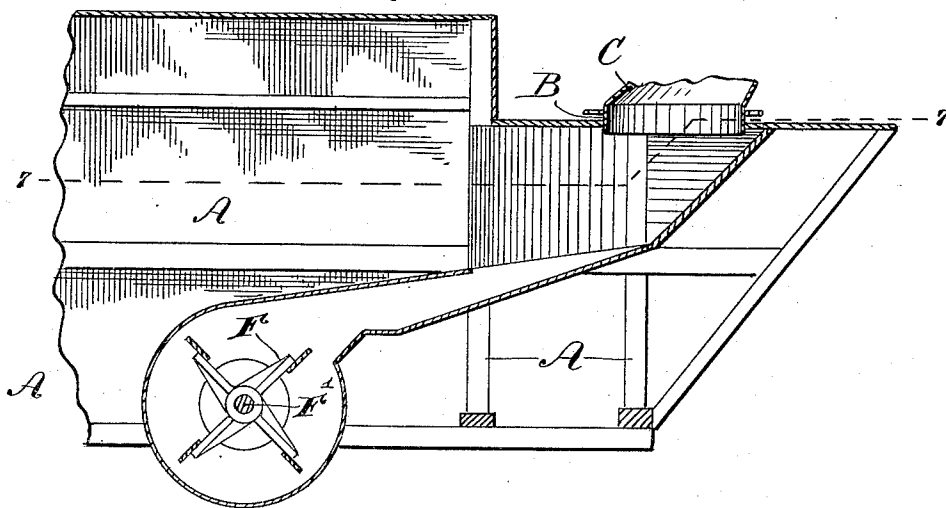
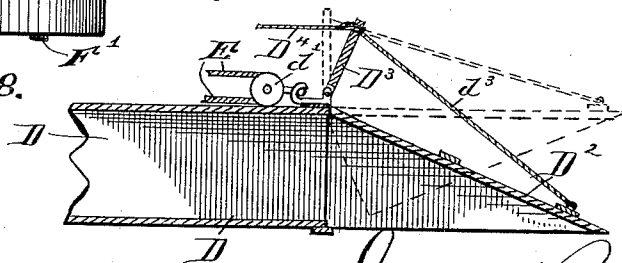


Fig. 8.



WITNESSES.

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UNITED STATES PATENT OFFICE

JAMES BUCHANAN, OF INDIANAPOLIS, INDIANA.

STRAW-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 467,476, dated January 19, 1892.

Application filed February 16, 1891. Serial No. 381,623. (No model.)

To all whom it may concern:

Be it known that I, JAMES BUCHANAN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Straw-Elevators for Thrashing-Machines, of which the following is a specification.

My said invention relates to attachments for thrashing-machines, by which the thrashed straw as it is discharged from the machine is forced to any desired elevation and delivered upon the stack or otherwise, as may be desired. My straw-elevator device is in the form of a large tube mounted upon the rear end of the machine and provided with gearing or tackle by which it may be adjusted to the desired elevation and by which it may be revolved, and it embodies a practically airtight joint, which is a leading feature of my present invention.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a thrashing-machine and straw-elevator embodying my said invention, said straw-elevator being broken out in the center, showing the ends only, together with the gearing or tackle by which it is operated; Fig. 2, a side elevation of the lower end of said straw-elevator separately; Fig. 3, a central vertical sectional view of the same on the dotted line 3 3 in Figs. 4 and 5; Fig. 4, a sectional view looking downwardly from the dotted line 4 4 in Figs. 2 and 3; Fig. 5, a vertical sectional view looking toward the left from the dotted line 5 5 in Figs. 2 and 3; Fig. 6, a central vertical sectional view of the rear end of a thrashing-machine, including the blast-fan to the straw-elevator, and the lower end of said elevator on the dotted line 6 6 in Fig. 7; Fig. 7, a horizontal sectional view looking downwardly from the dotted line 7 7 in Fig. 6; and Fig. 8, a vertical sectional view of the upper end of a straw-elevator, showing the mouth portion in its lower position in full lines and in its upper position in dotted lines.

In said drawings, the portions marked A represent the body of a thrashing-machine; B, a turn-table, upon which the straw-elevator is mounted; C, the base of said straw-e-

vator; D, the main body of said straw-elevator; E, a rope or tackle by which the elevation of said straw-elevator is adjusted, and F the fan by which the straw and dust are forced through said straw-elevator.

The thrashing-machine A, while it embodies certain novel features which are the subject-matter of other applications for Letters Patent, is not peculiar to this invention, except in so far as it is fitted at the rear end to receive it, and will not be further described herein, except incidentally in connection with the straw-elevator.

The turn-table B supports the straw-elevator at its lower end, and serves as the means by which said straw-elevator may be swung from side to side as it is desired to vary the point at which the straw shall be delivered therefrom. It embodies anti-friction rollers, as is common in turn-tables of this character.

The straw-elevator proper consists of the base C and main body D. The base rests upon or within the turn-table B and is provided with gearing by which it may be revolved or rotated as it is desired to move the structure from side to side. It is circular at the bottom where it rests upon the turn-table; but as it approaches the point where it is united to the main body it is reduced to a rectangular shape, as shown in the drawings. It is connected to said main body D by pivots or a hinge-rod c, and a portion of its upper end, which extends inside said main portion D, is in the form of a sector of a circle, the center of which is this hinge-rod. The upper side c¹ of its upper end is of sheet metal and is flexible. It possesses sufficient elasticity so that it is caused to bear at all times against the under side of the top of the portion D, being held there by its own spring force. The pressure of the straw and of the air-blast when the device is in operation also aids in holding it into close contact with said part D. The bearings for this hinge-rod are corresponding pivots or ears upon stout metal bands C' and D', secured upon the portions C and D, respectively, and which serve to sustain and hold said portions in place and reinforce or strengthen them at the point where they unite. The main portion of said elevator D is preferably rectangular throughout its entire length. It is slightly wider than the mouth of the por-

tion C at the point where they come together, and said portion C enters a short distance into its lower end. In said lower ends are secured two pieces of board d , (see Figs. 3 and 5,) one upon each side, one edge of which is cut convex upon the same radius as the upper portion of the base C, which enters this part D, and as said main part D is raised and lowered its sides will follow around and remain in close contact with the edges of these pieces of board, thus forming with the flexible portion c a joint through which no air can enter and which, as the inside surfaces of the portion C and of these pieces of board d are on the same plane, will not interfere in any way with the free passage of the straw when the device is in operation. By this means not only is a free adjustment of the device provided for, but a close and perfect joint at all times secured.

The main portion D of the elevator is provided upon its outer end with a portion D^2 hinged thereto, which forms its mouth, which I have denominated a "hood." This hood is triangular in longitudinal section, with its top and sides closed and bottom open, as shown most plainly in Fig. 8, its general character being shown also in Fig. 1. When in its ordinary position, as shown by the full lines in Fig. 8, its downwardly-sloping top deflects the straw as it issues from the mouth and throws it down onto the top of the stack. This hood, however, is adjustable independently of the body of the stacker. A hinged standard D^3 is mounted upon the extreme end of the straw-elevator just about the same point where the hood is hinged thereto, and from the upper end of this standard to near the point of the hood run small guy wires or ropes d^3 . From the same point the rope D^4 runs back to near the base of the stacker, where it is attached to any convenient part of the frame-work or to a belaying-pin thereon.

The rope E runs from a hook c' on the lower end of the part C up over a sheave e on a frame E' , around the sheave d' , secured to the main portion of the elevator D at or near its end, and back over a sheave e' on the frame E' to a windlass E^2 , which is mounted in a frame C^2 on said base C. Said windlass is provided with a crank e^2 , by which it may be turned, a ratchet-wheel e^3 , and a pawl e^4 , with which said ratchet-wheel may engage, and, as will be readily understood, by manipulating said crank and said ratchet and pawl the main part D may be elevated or lowered to the point desired. All the mechanism being upon the elevator itself, it of course moves with it and operates equally well without regard to the position of the elevator.

The fan F, by which the air-blast for the straw-elevator is produced, is or may be any ordinary blast-fan, and is mounted on a shaft F' . It is located inside and underneath the machine, as shown in Figs. 6 and 7 and by the dotted lines in Fig. 1. The eye of the fan is inside an inclosure formed by the sides

and bottom of the machine, and being so located, with outside communication cut off, it draws its supply of air from inside the machine and with it draws the dust generated by the operation of thrashing and forces it, with the air-blast, up into the straw-elevator, whence it is carried off with the straw instead of flying about in the air about the body of the machine.

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

1. The combination, in a pneumatic straw elevator and stacker, of the fan, the base portion C, and an upper portion D, hinged thereto, the adjacent ends of said two portions being fitted one within the other, whereby a sliding union is provided as the relative positions are changed, thus permitting one portion to be elevated relatively to the other while still maintaining a substantially air-tight relation between said two parts, substantially as set forth.

2. The combination, in a pneumatic straw elevator and stacker, of the fan, a tubular base portion mounted on a turn-table, a tubular upper portion united to said base portion by a joint, said joint being flexible and air-tight, and a tackle mounted upon and connected to said two portions and consisting of the rope E, the frame E' , the sheaves e , e' , and d' , and the windlass, whereby said upper portion can be elevated in relation to said lower portion, all substantially as shown and described.

3. The combination, in a pneumatic straw elevator and stacker, of the two tubular portions C and D, hinged together, said portion C having its upper end in the form of a sector of a circle and arranged inside of the lower end of said upper part when the device is in operative condition, and said upper part having pieces secured inside with concave edges corresponding to the convex surfaces of said lower portion, substantially as shown and described.

4. The combination, in a pneumatic straw elevator and stacker, of the tubular part C, having a flexible portion c , and the tubular part D, into which the upper end of said portion C, including said flexible part, extends, said parts C and D being hinged together, substantially as set forth.

5. The combination, in a pneumatic straw elevator and stacker, of the two portions C and D, united by a hinge or pivot, and a rope E, secured to the lower portion at one end, passing around the sheave on the upper portion, and returning to a windlass, also secured to the lower portion, substantially as shown and described.

6. The combination, with a pneumatic straw elevator and stacker, of a mouth portion hinged thereto, having an inclined upper side and an open under side, and means whereby said mouth portion may be adjusted to a desired position, substantially as set forth.

7. The combination, with a pneumatic straw

elevator and stacker, of a mouth portion D², hinged thereto and adjustable thereon from a position substantially in line with the main portion of the stacker to a position at an angle therewith, whereby the direction the straw takes at the point of the discharge may be controlled, substantially as shown and described.

8. A pneumatic straw elevator and stacker having a mouth portion provided with an inclined upper side and an open under side, the inclination being at an obtuse angle with the general direction of the main portion, substantially as shown and described.

9. The combination, with a thrashing-machine, of a pneumatic straw elevator and

stacker attached thereto, as described, and a fan located within the machine and communicating with said straw-elevator, said fan being arranged centrally of said machine and arranged to take its supply of air from the interior of the machine, thus drawing into itself the dust caused by the operation of said machine and discharging said dust into the straw, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 11th day of February, A. D. 1891.

JAMES BUCHANAN. [L. S.]

Witnesses:

CHESTER BRADFORD,
EDWARD T. PLANK.