(No Model.) 2 Sheets—Sheet 1.

G. LEMOINE.

SEED COTTON ELEVATOR AND CLEANER.

No. 586,906. Patented July 20, 1897.

Fig. 1.

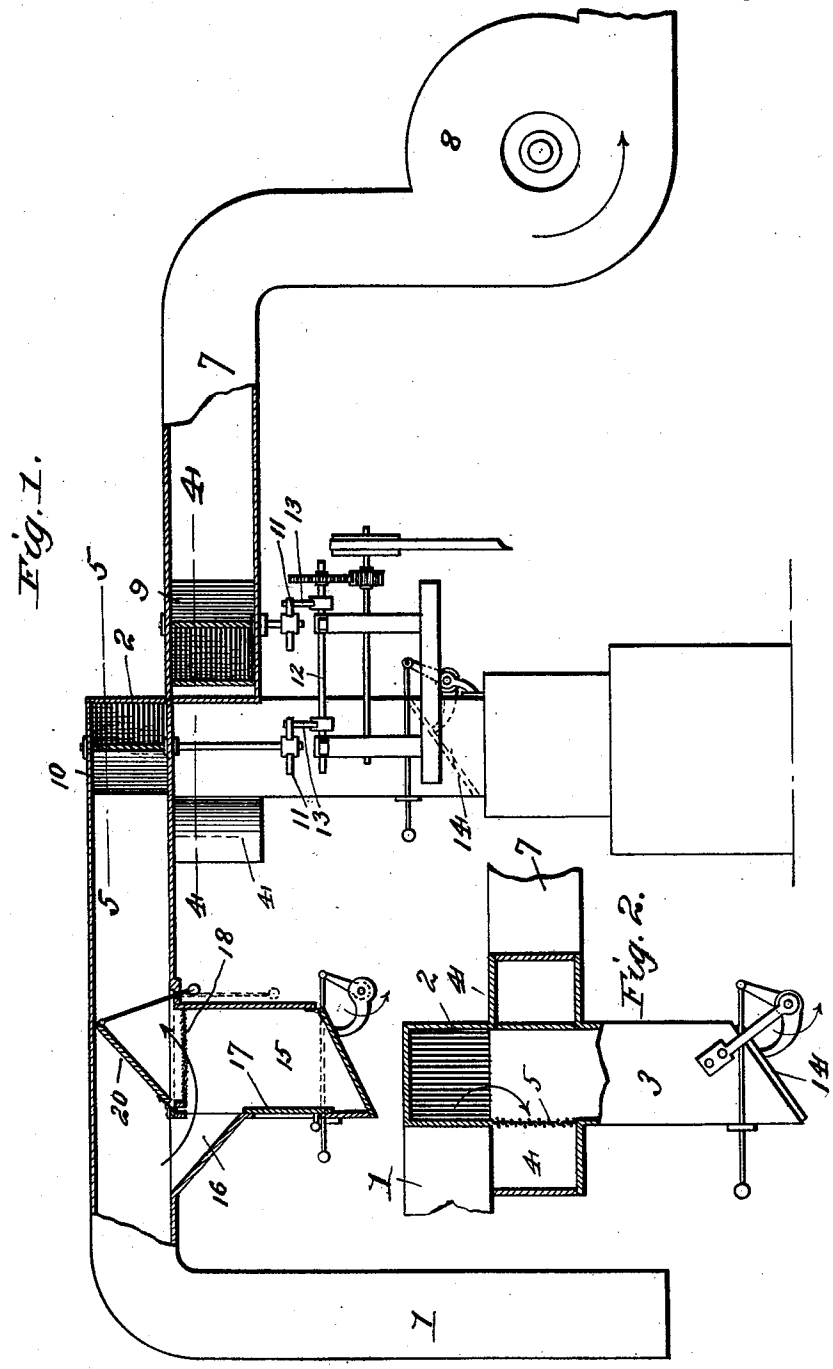

Fig. 2.

Witnesses
G. M. Lamasure
E. H. Walmsley.

Inventor
George Lemoine
By Alexander & Dennis
Attorneys

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

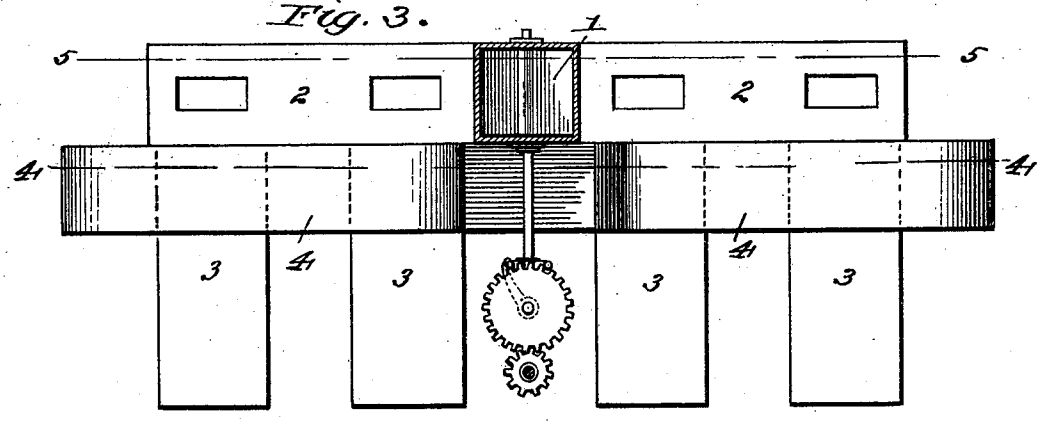


Fig. 4.

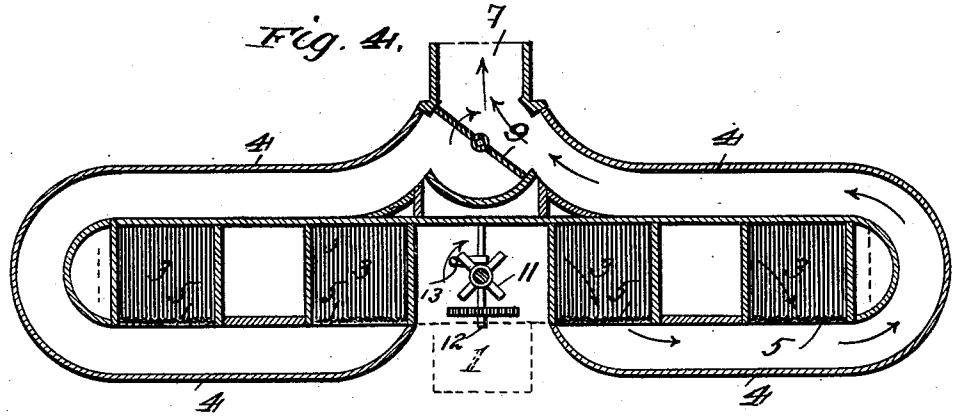
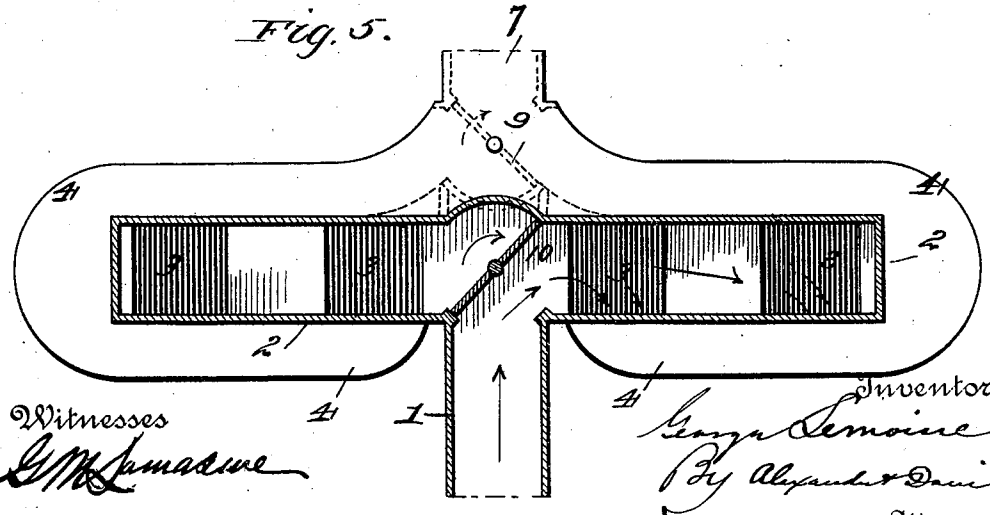


Fig. 5.



Witnesses
G. M. Lamadrue
G. H. Walmsley.

Inventor
George Lemoine
By Alexander Davis
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE LEMOINE, OF PAWTUCKET, RHODE ISLAND.

SEED-COTTON ELEVATOR AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 586,906, dated July 20, 1897.

Application filed November 30, 1896. Serial No. 613,993. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LEMOINE, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Seed-Cotton Elevators and Cleaners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improved seed-cotton elevator and cleaner in which the cotton is elevated by the suction of an exhaust-fan; and it has for its object to provide a mechanism whereby the flow of cotton is continuous and whereby the use of cut-off valves in the air-pipe beyond the gins is obviated.

A further object of the invention is to provide means for feeding the cotton to a plurality of gins arranged in sets and for automatically changing the direction of the air and cotton at intervals, whereby the cotton will be fed alternately to the different sets of gins, and the screens of the cotton-boxes of the gins forming each set will be automatically and alternately cleaned, as more fully hereinafter set forth.

The invention consists in the novel combination and arrangement of parts hereinafter described, and particularly pointed out in the claims appended.

In the drawings, Figure 1 is a side elevation, partly in section, of the apparatus. Fig. 2 is a detail vertical sectional view. Fig. 3 is a front elevation showing the cotton-delivering flue in cross-section. Fig. 4 is a horizontal section taken on line 4 4 of Figs. 1 and 3, and Fig. 5 is a similar view on line 5 5 of Figs. 1 and 3.

Referring to the various parts by numerals, 1 designates the cotton-elevating flue, which leads to any suitable point, its open end extending downwardly, as shown. Beneath the lower end of this flue the cotton to be ginned is deposited. The other end of this pipe 1 is connected to the middle of a horizontal cross flue or trunk 2, from the under side of which a plurality of cotton-boxes 3 depend. There are four of these boxes shown in the drawings, but, as is manifest, as many as is desired or found convenient may be used. These boxes open at their upper ends into the trunk or flue 2, as shown in Figs. 2 and 5.

The cotton-boxes are divided into two sets, two being in each set, and each box of each set is connected to the other boxes of the same set by a horizontal flue 4. The openings from each box into these flues are of any suitable dimensions and are covered by screens 5. These flues 4 are located on the same side of the boxes 3 as flue 1 and are just below the flue or trunk 2 and pipe 1. The flues 4 4 extend around the ends of the sets of boxes and connect with each other at the center of the sets of boxes 3 at a point directly opposite the entrance of flue 1 into cross-flue 2.

At the point of connection of the two flues 4 with each other is connected the flue 7, which leads to the exhaust-fan. This flue 7 is connected to the vertical side of flues 4, as shown, and at the junction of these flues is a rotary valve 9, which as it is rotated cuts off the flue 7 from communication with first one flue 4 and then the other, and thereby cuts off the exhaust-fan from communication with first one set of cotton-boxes and then the other set.

In the flue 2, at the junction therewith of flue 1, is a rotary valve 10, which is similar to valve 9, and as it is rotated it puts flue 1 in communication with first one set of cotton-boxes and then the other set. This valve 10 operates at the same time with valve 9 and puts flue 1 in communication with the same set of cotton-boxes which the valve 9 puts the fan 8 in communication with, for a purpose which will presently appear.

The stems of the valves 9 and 10 extend below the flues 2 and 7 and have secured to their lower ends four-armed spiders 11. A horizontal shaft 12 is mounted in suitable bearings a short distance below the spiders 11, and on this shaft in a position to engage the arms of the spiders are two arms 13, which as said shaft revolves strike the arms of the spiders and turn the valves 9 and 10 one-quarter of a revolution. The shaft 12 may be revolved by any suitable mechanism.

In the bottom of each cotton-box is a suit-

able valve 1, which may be operated by hand, or it may be an automatic valve of any usual construction used in cotton-boxes.

The operation of this part of my mechanism is as follows: Cotton is deposited at the receiving or lower end of flue 1 and the pan 8 is put in operation. The cotton is drawn up into flue 1 and is directed by valve 10 into one half of cross-flue 2. It then passes down into the set of cotton-boxes connected to that half of the flue 2 and against screens 5 located therein and covering the openings into flue 4. The dust and air pass through the screens 5 into flue 4, connected to this set of boxes, and out through flue 7. The shaft 12 is revolved by suitable mechanism, so that at the desired moment the arms 13 will contact with one arm of each of the spiders 11 and revolve the valves one-quarter of a revolution, so that valve 10 will put flue 1 in communication with the set of cotton-boxes connected with the other half of flue 2, and valve 9 will put flue 7 in communication with the same set of cotton-boxes through flue 4, as will be readily understood. By a continued rotation of the valves the cotton and air will be caused to pass first through one set of cotton-boxes and then through the other without stopping the fan or the continuous flow of cotton through flue 1.

It is usual in ginning cotton to set apart a small quantity as toll to the owner of the gin. This is usually done by an attendant taking the required quantity from the wagon or from the pile of cotton at the receiving end of the flue. This is objectionable and cumbersome, and to avoid it I have devised a toll-box 15, which depends from the flue 1 at any suitable point between the receiving end thereof and the cotton-boxes. This box is connected to the flue by a short inclined flue 16, and a valve 17 is provided to close this flue when the box is not in use. The upper end of the box opens directly into the flue 1, and a screen 18 is placed over the upper end. A hinged valve 20 closes the upper end of box 15 above the screen 18 and is so arranged that when it is raised to open the upper end of box 15 it closes the flue 1, as shown in Fig. 1, any suitable device being provided to hold it in its raised position. In the operation of taking toll valves 17 and 20 are placed in the positions shown in Fig. 1, the cotton being lodged in the box, while the air and dust pass up through screen 18 and out. When the box is not in use, valves 17 and 20 are closed and the cotton passes uninterruptedly through flue 1.

It will thus be seen that I provide a mechanism whereby a continuous flow of cotton through flue 1 is maintained and whereby the screens in the cotton-boxes are alternately cleaned of the cotton without the necessity of stopping the flow of cotton in flue 1.

Having thus fully described my invention, what I claim is—

1. In a cotton elevator and cleaner, the combination of an elevator-flue, a plurality of cotton-boxes connected therewith, said boxes being divided into sets, screens in said boxes, an exhaust-fan connected to the cotton-boxes, and arranged to draw air through the screens thereof, and means for alternately cutting off each set of boxes from the exhaust-fan and the elevator-flue and simultaneously putting another set of boxes into communication with the exhaust-fan and the elevator-flue whereby the cotton-boxes may be emptied and the screen cleaned without stopping the flow of cotton through the elevator-flue, substantially as described.

2. In a cotton elevator and cleaner, the combination of an elevator-flue, a plurality of cotton-boxes connected therewith, screens in said boxes, an exhaust-fan connected to said boxes and arranged to draw air through the screens thereof, and means for cutting off the elevator-flue and the exhaust-fan from communication with a portion of the boxes and simultaneously putting said fan and flue into communication with another portion of said boxes, whereby the screens of the boxes may be cleaned and the boxes emptied, without interfering with the continuous flow of cotton through the elevator-flue, substantially as described.

3. In a cotton cleaning and elevating mechanism, the combination of an elevating flue, a cross-flue connected thereto, a rotary valve at the junction of these flues, a plurality of cotton-boxes connected to the cross-flue, said boxes being divided into sets, a flue connecting the boxes of each set, said flues being connected at their outlet ends, an exhaust-flue connected to these flues at their connected ends and a rotary valve in this flue at its junction with the connected flues, and means for operating said valves, whereby the cotton will be alternately fed to the different sets of boxes, substantially as described.

4. In a cotton cleaning and elevating mechanism the combination of an elevator-flue, a cross-flue connected thereto, a rotary valve at the junction of these flues, a plurality of cotton-boxes connected to the cross-flue, said boxes being arranged in sets, a flue connecting the boxes of each set, at a point below the cross-flue, these latter flues being joined at their outlet ends, an exhaust-flue connected to these flues at the point where they meet, and a rotary valve at the junction of these three flues, screens in the boxes, said screens covering the openings into the flues which connect the boxes of each set, substantially as described.

5. In a cotton elevator and cleaner the combination of an elevator-flue 1, a cross-flue 2 connected thereto, a rotary valve 10 at the junction of said flues, a plurality of cotton-boxes connected to the cross-flue said boxes being divided into sets, flues 4 connecting the boxes on each set, said flues being connected to the boxes on their front sides and

just below the elevator-flue, said flues 4 extending around the ends of the sets of boxes, the outlet ends of said flues 4 being connected together at a point opposite the point of connection of the flue 1 with cross-flue 2, an exhaust-flue connected to these flues at their point of junction, a rotary valve 9 in this flue at its junction with the connected flues 4, and means for simultaneously operating valves 9 and 10, substantially as described and for the purpose set forth.

6. In a cotton elevator and cleaner, the combination of an elevator-flue, cotton-boxes connected thereto, an exhaust-fan connected to said boxes and adapted to draw the cotton into them, a toll-box depending from the elevator-flue between its receiving end and the cotton-boxes, a screen covering its opening into the elevator-flue, a gate closing the upper end of the toll-box and covering the screen, said gate being adapted to be swung into position to close the elevator-flue and at the same time to put the exhaust-fan into communication with the toll-box, a chute or short flue extending from the toll-box to the elevator-flue forward of the gate, whereby the cotton and air will be caused to dip down into the toll-box and the air and dirt will be caused to pass upward into the flue from the toll-box, substantially as described.

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

GEORGE LEMOINE.

Witnesses:
A. T. GARNER,
T. W. HOCKER.