(No Model.)

2 Sheets-Sheet 1.

# R. S. MUNGER. SEED CONVEYER FOR COTTON GINS.

No. 555,789.

Patented Mar. 3, 1896.



(No Model.)





AN DREW B. GRAHAM, PHOTO LITHD, WASHINGTON, D.C.

Witnesses. Advat Enalt. Dennis Sumby

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# UNITED STATES PATENT OFFICE.

## ROBERT S. MUNGER, OF BIRMINGHAM, ALABAMA.

#### SEED-CONVEYER FOR COTTON-GINS.

SPECIFICATION forming part of Letters Patent No. 555,789, dated March 3, 1896.

Application filed March 31, 1891. Serial No. 387, 179. (No model.)

### To all whom it may concern:

Be it known that I, ROBERT S. MUNGER, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State 5 of Alabama, have invented new and useful

Improvements in Seed-Conveyers for Cotton-Gins, of which the following is a specification. It is the purpose of my present invention

- to provide simple means whereby the cotton-10 seed which is separated from the cotton by the gin or gins may be carried from the point or points where such separation takes place to one or more distant points and deposited either in suitable bins for storage or placed
- 15 in cars or other suitable vehicles for transportation.

It is my further purpose to simplify and improve the conveying apparatus whereby it may be rendered applicable to the removal

- 20 from point to point of any refuse or other matter without the same being driven through the fan or blower, to provide novel and simple cut-offs adapted to the several purposes specified, and to provide mechanism by which
- 25 the seed coming from the gins may be blown either to the bins where it is stored, to a car standing upon a track outside the building, or to a wagon or other receptacle suitable for the purpose.
- The invention consists of the several novel 30 features of construction and new combination of elements hereinafter fully set forth and then definitely pointed out in the claims concluding this specification.
- To enable others skilled in the art to make 35 and use my said invention I will now describe the same in detail, reference being had to the accompanying drawings, in which-
- Figure 1 is a view of a cotton-ginning house, 40 partly broken away to show the interior construction, the latter comprising an end ele-vation of the series of gins, an elevation of the pneumatic cotton.-conveyer, a fan or blower, the vacuum-box, the seed-carrying
- 45 pipes, the seed vacuum-feeder, and their several connections. Fig. 2 is a detail vertical section showing one form of seed-feeder,
- whereby the blast is maintained in the seed conveyer or pipe, and whereby, also, dust or
- 5° other foreign matter is prevented from being blown back through the mechanism. Fig. 3 is a similar detail section showing a slight | ing wings or flexible strips 13 projecting ra-

modification in construction. Fig. 4 is a detail section showing my improved apparatus for carrying the seed from the seed-flue be- 55 neath the hoppers into the seed-conduit. Fig. 5 is a similar section showing a modification of the parts shown in Fig. 4.

In the said drawings the reference-numeral 1 denotes the ginning-house, within which is 60 arranged a gin or series of gins 2, supplied by a distributer 3. This distributer is fed by a vacuum-box 4, which receives the cotton through a pneumatic conveyer 5, in which a suction is maintained by an air-current-creat- 65 ing device, preferably a fan 6, in communi-cation with the vacuum-box. The pneumatic conveyer may communicate by a flexible joint with a telescoping drop-pipe 7 or with a cotton-conveyer leading to a distant cotton- 70 house, or with both, as shown in the patent granted me December 2, 1884, No. 308,790, whereby the cotton may be taken from different points and drawn by the suction-blast to the vacuum-box and distributer. As this 75 construction forms no part of my present invention, and is fully shown and described in my former patent referred to, it is not necessary to give any further description thereof in this specification. 80

The construction of the vacuum-box, through which the cotton passes from the conveyer-pipe to the distributer, and the manner of connecting the vacuum-box with the distributer are novel features, which have all 85 been fully set forth in other applications made by me of even date herewith and numbered in serial, respectively, 387,178 and 387,180, and are therefore not herein claimed.

The two applications named have become 90 merged in Letters Patent numbered, respectively, 478, 883, dated July 12, 1892, and 509, 759, dated November 28, 1893.

Arranged at suitable points with reference to the gins, where more than one gin is em- 95 ployed, are seed-hoppers 8, so situated as to readily receive the cotton-seed as it is discharged from the gins. These hoppers communicate with a seed-flue 9, which may be, and which preferably is, common to all the 100 hoppers. Beneath the hopper 8 is arranged a seed-feeder, comprising a chamber 10, within which is arranged a central shaft 12, hav-

555,789

dially from the surface, their edges forming a close fit against the inner surface of the seed-feeder 10. The number of these wings is such that one, two, or more are always in 5 engagement with the inner surface of the seed-feeder 10 upon both sides of the opening passing centrally through said feeder, whereby any dust or other foreign matter which may be intermingled with the seed 10 when delivered into the seed-conduit 14 will be prevented from being blown back through the feeder, and whereby also the exhaustblast of the fan or blower is preserved in the seed-conduit, and avoiding any loss of power 15 of such exhaust which would otherwise occur by the escape of air through said feeder

- in the seed-conduit at all times and under all circumstances. The seed-flue 9 communicates at a suitable point with a pneumatic
  seed-conduit 14, passing beneath the seed-feeder 10 and communicating therewith by a suitable opening, said conduit being extended to any suitable point or points and provided with a forced current of air from the fan 6, or
  other suitable device, by which the seed is driven, drawn, or carried to any suitable point or points.
- Where two, three, or more gins are used a device of some kind must be employed to corry the seed from the points where it enters the seed-flue from the hoppers to the point where it is discharged from the seedflue into the seed-conduit.
- The fan box or casing 6 communicates with 35 a blast-flue or air-box 15, which passes from the point of communication downward and is first curved and carried beneath the gins and then curved toward and united to the seedconduit 14, with which it communicates.
- 40 From this point of communication the seedconduit may be extended to any suitable outhouse or other shelter, within or under which a wagon can be driven—such, for example, as that shown at 1° in the drawings. This end is
- 45 preferably provided with a telescoping prolongation 16, provided with a curve 17, by which its discharge end is directed downward, and the convex surface of the curve is either perforated or formed of foraminous material.
- 50 It will be seen that as the seeds are swept through the prolongation they will be driven with force over this perforated surface, which is inclosed by a hood 18, having communication with a chimney or flue 19, through which
  55 a considerable portion of the air driven
- through the conveyer escapes, thereby carrying off the dust and more finely-divided impurities, which pass up the chimney and escape outside. To the discharge end of the
  curve 17 is attached a sack 20, of any suit-
- able flexible material, its open mouth lying upon or near the floor of the wagon to prevent the rebound and loss of the seed.
- Between the telescoping prolongation and 65 the point where the blast-flue 15 unites with the seed-conveyer 14 I prefer to curve the latter upward to provide a section or portion veyer 14. In order to carry the seed from

which shall be inclined at a suitable angle between a vertical and horizontal plane, such a section or portion being shown in Fig. 1 in 7° dotted lines, as it is concealed by the wall of the ginning-house. In the under inclined face or portion of this part of the conveyer are formed perforations or openings, beneath which is arranged a chest 15<sup>a</sup>, usually divided 75 into a series of compartments. The perforations in the conveyer are of such size as to prevent the seed from dropping through, but will permit the passage of small particles of foreign matter, such as sand, gravel, &c. So These substances are caught in the chest and may be removed therefrom by any suitable means.

From the point where the seed-conduit 14 is joined by the blast-flue 15 it is usually ex- 85 tended in both directions, the direction of travel of the seed being controlled by a suitable valve 24<sup>a</sup>, one portion passing into the shed or outhouse 1ª, as described, and another portion running in the opposite direc- 90 tion to the bins, which, as shown in Fig. 1, are placed on the same floor with the gins, but in a separate room or building. Here the conduit unites with a horizontal branch 21, which passes through the bin-compartment 95 and is carried out of the building, its end being provided with a telescoping pipe or discharge portion 22, which may be inserted in a car or other vehicle. Communicating with this branch conduit 21 at any proper point is 100 a standing pipe 23, the point of communication being opened and closed by a valve 24, operated by a valve-rod 25. The lower end of the standing pipe is curved or turned slightly toward the direction from which the 105 seed is received, so that the latter may pass easily from the branch conduit 21 when the valve is properly arranged. The upper portion of the stand-pipe is curved to a half-circle, or nearly so, and swiveled upon the body 110 portion, so that it may be swung around from point to point to discharge the seed into any one of a series of bins or other receptacles.

A second and substantially similar standing pipe 23<sup>a</sup> may open laterally from the 115 branch conduit 21 and be used to discharge seed into a bin. The upper end of this pipe may be curved also, the convex face of such curve being perforated or formed of foraminous material, inclosed by a hood or by a por-120 tion of a chimney or flue 26, the construction being similar to that already set forth in connection with the prolongation 16 and hood 18.

I have shown in Fig. 2 one form of construction by which the seed delivered from 125 the gin or gins may be carried out of the seed-flue 9 into the seed-conduit. In this figure the section is taken at the end of the seed-flue next to the seed-conduit 14. Where there is a plurality of gins and gin-hoppers 130 8, the seed-flue must be of sufficient length and the seed will be most conveniently carried to one end and discharged into the convever 14. In order to carry the seed from the point or points where it is delivered thereinto by the hopper or hoppers 8, I provide a worm or screw conveyer carried by a shaft 28, extending from end to end of and within the good fine and driver has a sufficient to be a sufficient of the second field of th

- 5 the seed-flue and driven by a pulley 30, as shown in Fig. 4. This seed-flue discharges into the seed-feeder 10, and from the latter into the seed-conduit 14, the seed-feeder or cut-off serving to prevent inrush of air which
- 10 would impair the force of the blast, and also to prevent the dust and other foreign matter which may accompany the cotton-seed from being blown back into the seed-flue. Where a single gin only is used the seed-flue may be
- 15 omitted, and where the seed is dropped upon the floor it may be swept into a hopper 8<sup>a</sup>, having its mouth level with the floor, as in Fig. 3.
  I may arrange the seed-feeder or cut-off 10
- 1 may arrange the seed-feeder or cut-off 10
  20 at the end of the said flue, as in Fig. 4, or in the center, as in Fig. 5, and in the latter case the worm or screw shaft will be duplex, the two portions 29<sup>a</sup> being mounted on the same shaft 28, their pitch being opposite, so that
  25 both will feed toward the center.
- It will be seen that the exhaust of the fans 6, whose suction draws or conveys the cotton to the gins, drives or blows the seed through the conduit 14 to the place or places where 3° such seed is to be stored or deposited.
  - In machines provided with my improved devices for conveying the seed from the gins to the places of storage or transportation hereinbefore referred to, but having means
- 35 for conveying the seed-out on the fing includes like those herein illustrated and described, it may be found essential to provide an aircreating current or blast-fan which shall not be in communication with the mechanism for
- 40 delivering the seed-cotton to the gins, and in such cases a blast-fan 6<sup>a</sup> is arranged in a casing located at one end of the seed-conduit 14, as seen in Fig. 3.

It will be observed that the construction 45 and arrangement of a screw for conveying the seed to the conduit is a distinguishing feature of my invention, and as the screw is

- journaled at each end and made of stout stiff metal all sagging during the operation of said 5° screw is avoided, and during the action of
- said screw a uniform and positive force feed or conductor of the seed to the conduit is secured.

What I claim is—

- 1. In a cotton feeding, cleaning, conveying and ginning apparatus, the combination with one or more gins, of a distributer supplying the same, a vacuum-box communicating with the distributer, a seed-conduit, a seed hopper
- 60 or hoppers having communication with the seed-conduit, means for driving the seed through said conduit, a delivery spout, or tube, receiving the seed from the conduit,

and having a plurality of outlets, and means by which said outlets are closed and opened 65 relatively to the seed-conduit substantially as described.

2. In an apparatus for handling seed-cotton, the combination with a series of gins, of seed-hoppers beneath the gins, and a seed- 70 flue communicating therewith, of a seed-conduit supplied with a blast, and having a curved, perforated or foraminous, convex portion upon its curved discharging end, a hood covering said perforated portion and a chimney leading from said hood, substantially as described.

3. In an apparatus for handling seed-cotton, the combination with the gins having seed-hoppers, of a seed-flue beneath said hop- 80 pers, a worm or screw conveyer traveling within said flue, a seed-conduit arranged beneath the seed-flue in which the seed drops, and means for maintaining a blast within said conduit, substantially as described. 85

4. In a ginning mechanism, the combination with a pneumatic seed-conduit, and one or more gin-stands, of a cut-off, or seed-feeder located in operative relation to said pneumatic seed-conduit, an air-current-creating 90 device, a seed-flue receiving the seed from the gin stand or stands, and a screw conveyer within said seed-flue for conveying the seed to the pneumatic seed-conduit, substantially as described. 95

5. In an apparatus for handling seed-cotton, the combination with a series of gins, of seed-hoppers beneath the gins and a seedflue communicating therewith, of a seed-conduit supplied with a blast and having a 100 curved, perforated or foraminous convex portion upon its curved discharging end, a hood covering said perforated portion, a chimney leading from said hood, and one or more branch pipes, or conduits, opening from the 105 main conduits and provided with valves, substantially as described.

6. In a cotton-feeding, dust-separating, and ginning apparatus, the combination with one or more gins of a seed-conduit, a seed-flue 110 having communication with the seed-boxes of the gin or gins and with the seed-conduit, a fan to create an air-current to drive the seed through the seed-conduit, a screw conveyer within the seed-flue, and a plurality of out-115 lets communicating with the seed-conduit said outlets having valve-controlled communication with the seed-conduit, whereby the seed can be delivered at any one of a plurality of points, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses. ROBERT S. MUNGER.

Witnesses:

THOS. HARDEMAN, D. C. BUCKSHAW. 3