

July 31, 1928.

E. S. TOWNS
COTTON REGULATOR

1,679,280

Filed Aug. 4, 1927

Fig. 1.

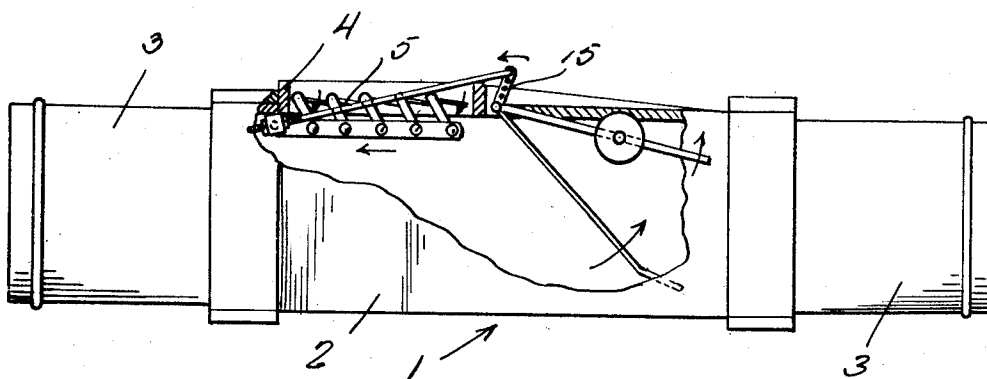


Fig. 2.

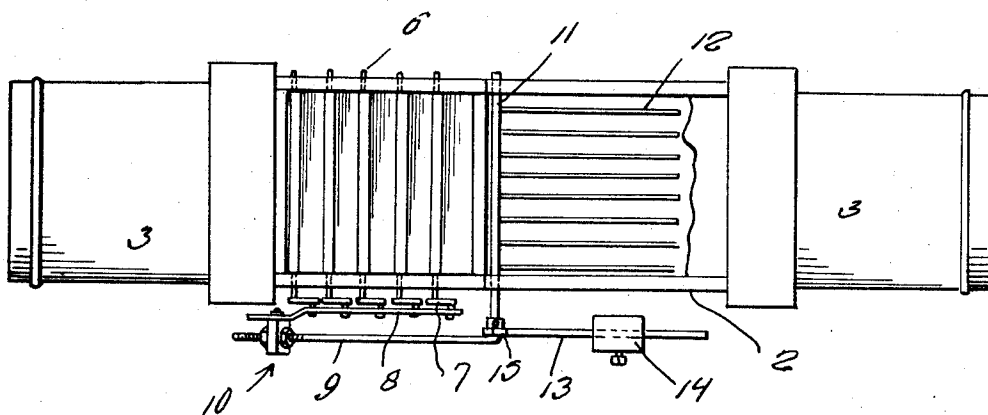
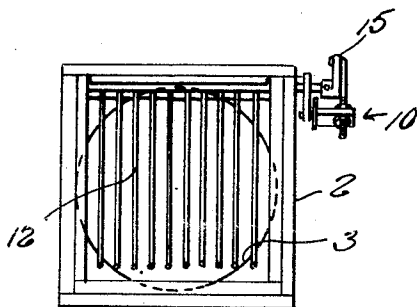


Fig. 3.



Inventor
E. S. TOWNS,

By *Clarence A. O'Brien*
Attorney

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EUGENE S. TOWNS, OF PHARR, TEXAS.

COTTON REGULATOR.

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This invention relates to a device which is adapted to be used in connection with a cotton gin, and owing to the function which it serves, it has been entitled a cotton regulator.

The device is to regulate the flow of cotton to the cleaning and distributing machine of a cotton gin.

It controls the amount of cotton drawn thru the conduit or pipe to prevent overloading the cleaning machinery when fed too fast, thereby materially aiding the cleaner to do more efficient work in cleaning the cotton, as well as preventing choking of the machinery.

Broadly, the invention has reference to an especially designed conduit which is constructed to permit it to be incorporated in the suction pipe. This conduit is provided with a port for introduction of air to act upon the suction for reducing the flow of the cotton, in the event the same becomes too dense or packed to permit efficient operation of the machinery.

Located in the conduit is a cotton actuated device which is automatically active upon a novel valve means located in the air intake.

The particular details as well as their association and arrangement will become more readily apparent from the following description and drawings.

In the drawings:—

Figure 1 is a side view with portions broken away and shown in section to disclose the internal mechanism more plainly.

Fig. 2 is a top plan view of the same.

Fig. 3 is an end view with one of the couplings removed, the view being in a direction from right to left in Fig. 1.

Considering the drawings by referring to the parts by the numerals, it will be seen that the numeral 1 designates generally the conduit which may be said to include a suction box 2 of rectangular cross section. Telescopically fitted into the opposite ends of this box are couplings 3 which are constructed to permit them to be attached to the suction (not shown).

Incidentally, the inner ends of the couplings are polygonal in cross section telescopically fitting in the box, and the outer ends are cylindrical to permit them to be coupled to the suction pipes. Formed on the top of the box in one end is an air inlet opening 4 including a series of shutters 5.

These shutters cooperate in forming a closure for the opening. They are in the form of fins or plates carried by rock shafts 6 mounted for oscillation and extending crosswise of the opening as shown in Fig. 2.

These rock shafts are provided on their outer ends with individual crank arms 7 all of which are connected with a controlling link 8. This link is in turn connected with an operating arm 9 through the medium of the adjustable connection shown at 10. The arm 9 is formed integrally with and extends at right angles to a rock shaft 11 mounted for oscillation in suitable bearings in the box. This rock shaft 11 is provided with a multiplicity of spaced fingers 12 cooperating and forming what may be designated as a grid.

This grid is actuated by the cotton being raised and lowered according to the density and packing of the cotton as it flows through the box. A regulating arm 13 is fastened upon the rock shaft 11, and is provided with an adjusting weight 14.

The aforesaid connection between the arm 9 and the rock shaft is preferably made through the medium of the apertured crank arm 15 to permit the arm 9 to be adjusted to regulate the sensitivity of operation.

From the foregoing description it is obvious that the device as herein shown, is incorporated in the usual suction line and when the cotton becomes too heavy or thick so that it might interfere with the operation of the machinery, it engages the grid 12 and lifts the grid up and through the medium of the mechanism associated with this grid, the shutters are opened in order to introduce air to relieve the suction. Thus, the density of the cotton in transit serves to automatically regulate, so to speak, the flow of the cotton itself. In this way, choking of the machinery is practically prevented.

It is thought that the description, taken in connection with the drawings will permit a clear understanding of the invention to be had, for which reason a more lengthy description is thought unnecessary.

Minor changes in the shape, size, and arrangement of parts coming within the field of invention claimed, may be resorted to if desired.

Having thus described my invention, what I claim as new is:—

1. A cotton regulator for use in association with a cotton gin comprising a suction con-

duit thru which the cotton is adapted to flow, said conduit provided with an air inlet port for retaining a substantially constant mixture of air and cotton in these conduits, and means for producing said constant mixture embodying a control valve for said air port which is automatically operated by the amount of cotton passing through said conduit.

2. A cotton regulator for use in association with a suction pipe on a cotton gin comprising a suction conduit through which the cotton is adapted to pass, said conduit being adapted for connection with the suction pipe and being provided with an air inlet port for obtaining a substantially constant mixture of air and cotton in the conduit, and means for producing said constant mixture comprising a control valve for said air port, and operating means for the valve controlled by the density of the cotton in transit, through the conduit.

3. A cotton regulator for use in association with a suction pipe in a cotton gin comprising a conduit adapted for connection with the suction pipe, said conduit including a suction box, and couplings carried by the ends, of the box for connection with said suction pipes, said suction box being provided with an air inlet port which is adapted to provide means for obtaining a substantially constant mixture of air and cotton in said conduit, and means for producing said constant mixture comprising a control valve for said port, the control valve including cooperating shutters normally closing said port, together with a cotton actuated grid located in the box in the path of travel of the flowing cotton, the grid being operable by the cotton to actuate the shutters to automatically regulate the mixture of air and cotton.

4. A cotton regulator for use in association

with the cotton gin comprising a conduit embodying an elongated suction box having an air inlet port for retaining a substantially constant mixture of cotton in said conduit, the latter also including couplings for connection with the suction pipe on said cotton gin, a control valve for said air inlet port embodying a plurality of cooperating swingably mounted shutters, a cotton actuated member located in said box in the path of the travel of the flowing cotton, means between the member and said shutters for actuating said shutters, an arm carried by said member, and an adjusting weight carried by said arm.

5. A cotton regulator for use in association with the suction pipe of a cotton gin comprising a suction conduit embodying an elongated hollow box provided with an air inlet port, along its length for retaining a substantially constant mixture of air and cotton in said conduit, couplings carried by the ends of said box, and adapted for connection with said suction pipe, a plurality of oscillatory shafts mounted upon the box and bridging the said ports, shutters carried by said shafts, crank arms on said shafts, a link connecting said crank arms together for simultaneous operation, said shutters being disposed for cooperation with each other in providing a control valve for said port, a rock shaft also mounted on said box, a plurality of spaced fingers carried by said rock shaft and depending into the interior of said box and located in the path of travel of the flowing cotton, an operating connection between said rock shaft and said links, an arm carried by said rock shaft, and a weight adjustably mounted on said arm to vary the sensitivity of operation of said shutters.

In testimony whereof I affix my signature.

EUGENE S. TOWNS.