No. 717,642. PATENTED JAN. 6, 1903.

G. W. WADE.

AUTOMATIC RELIEF VALVE FOR PNEUMATIC SEED COTTON DISTRIBUTERS.

APPLICATION FILED JAN. 6, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

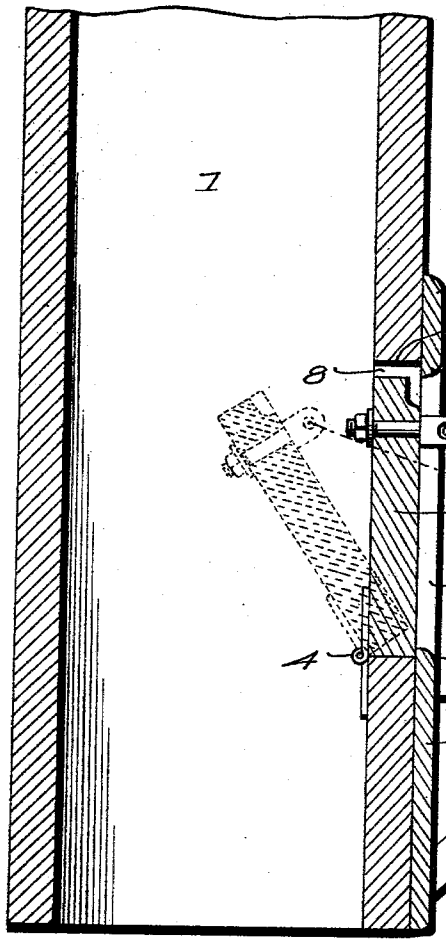
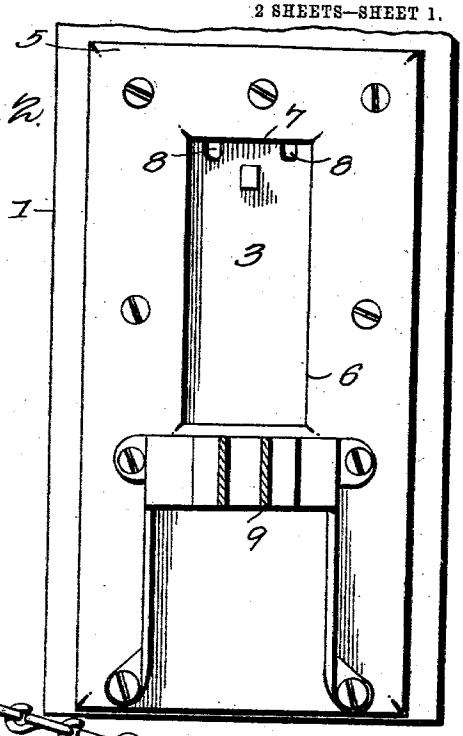
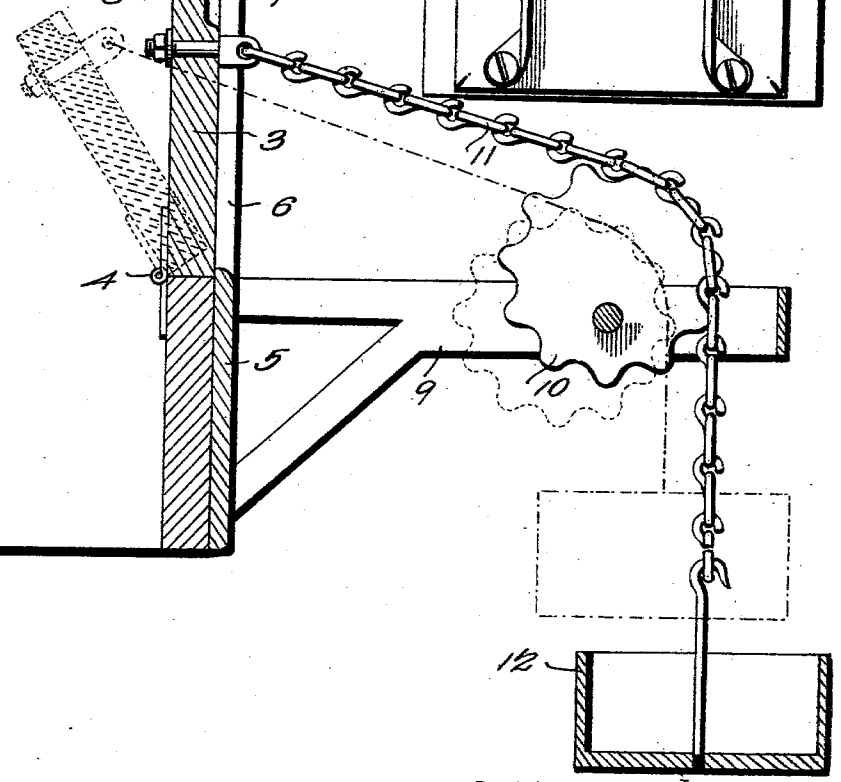


Fig. 2.





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NO MODEL. 2 SHEETS--SHEET 2.

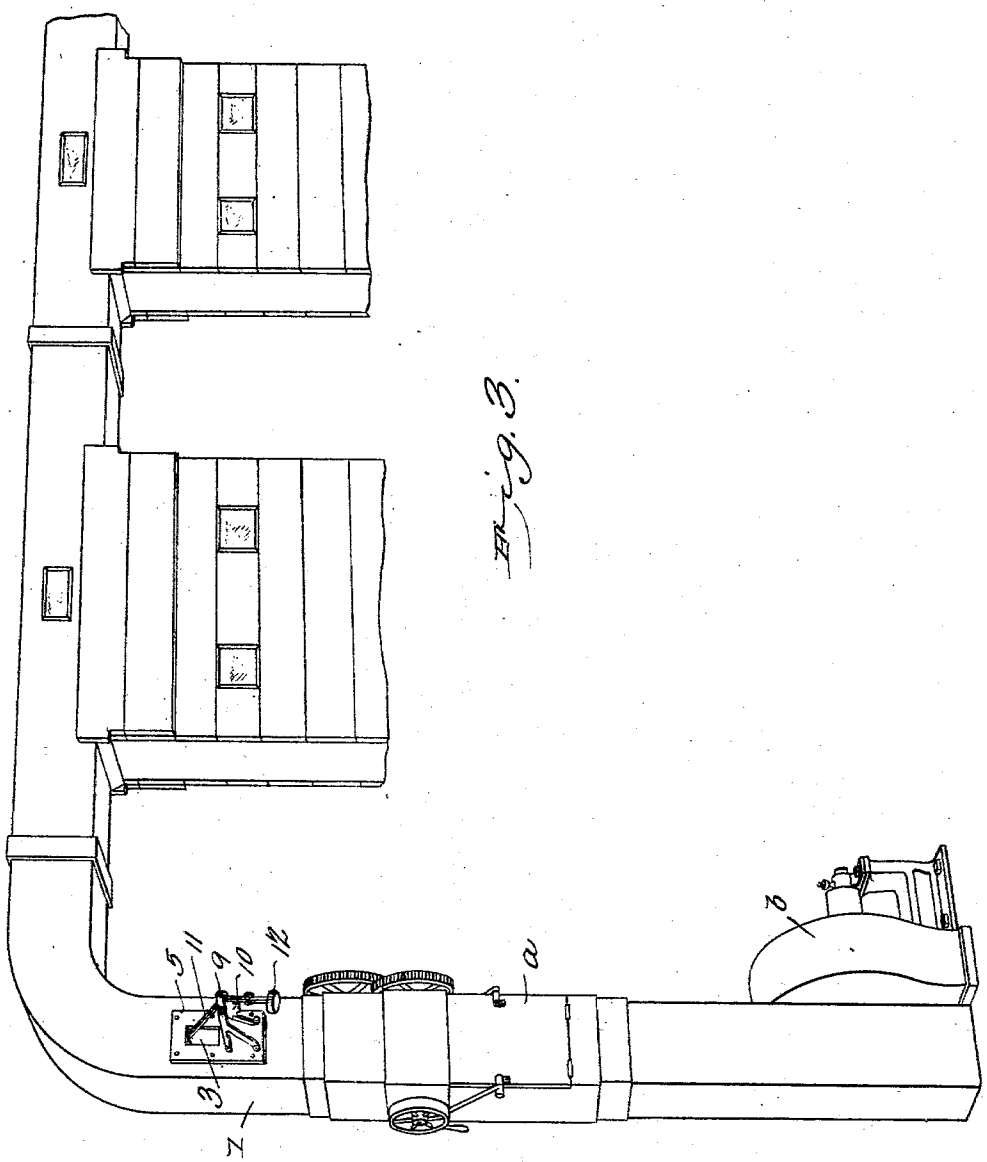


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE W. WADE, OF OAKFOREST, TEXAS.

AUTOMATIC RELIEF-VALVE FOR PNEUMATIC SEED-COTTON DISTRIBUTERS.

SPECIFICATION forming part of Letters Patent No. 717,642, dated January 6, 1903.

Application filed January 6, 1902. Serial No. 88,653. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WADE, a citizen of the United States, residing at Oakforest, in the county of Gonzales and State of Texas, have invented a new and useful Automatic Relief-Valve for Pneumatic Seed-Cotton Distributers, of which the following is a specification.

My invention is an improved automatic relief-valve for pneumatic seed-cotton distributers, in which seed-cotton is carried through a pneumatic flue by an exhaust-current of air maintained by an exhaust-fan, the object of my invention being to provide an improved valve, which is attached to the flue at a point between the automatic trip and the last section of the distributer, and means to permit the said valve to open upon an abnormal attenuation of the air in the flue when the screens in the distributer become clogged with cotton to relieve the consequent pressure upon the exhaust-fan by supplying the same with air; and my invention consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a sectional view of a portion of the flue of a pneumatic seed-cotton distributer provided with my improved automatic relief-valve. Fig. 2 is a detail elevation. Fig. 3 is a perspective view of a pneumatic seed-cotton distributer equipped with a mechanically-operated trip-valve and an exhaust-fan and showing my improved automatic relief-valve in the flue thereof in correct operative position with relation to the mechanically-operated trip-valve.

The flue 1 of a pneumatic seed-cotton distributer is provided with an opening 2 at a point between the automatic trip and the last section of the distributer. The said opening 2 is herein indicated as of oblong rectangular form; but the same may be of any other suitable form and should be of suitable size to admit air to relieve the pressure on the exhaust-fan *b* when the screens in the dristributer become clogged with cotton. In the said opening 2 is an automatic relief-valve 3, the lower side of which is hinged to one side of the flue at the bottom of the said opening, as at 4. On the outer side of the flue 1 is secured a plate 5, of suitable size and shape, and the said plate has an opening 6, which is preferably of the same shape as the opening 2 in the flue 1, but is somewhat smaller than the said opening 2, the sides of the said opening 6 forming overhanging flanges 7 on the outer side of the opening 2, said flanges constituting the stops against which the valve 3 bears when the latter is in the position shown in full lines in Fig. 1 and is wholly disposed in the opening 2, so as to close said opening. Said valve is adapted to open inwardly, as indicated in dotted lines in Fig. 1, to admit air to the flue 1. In practice I provide the relief-valve 3 with air-channels 8 of slight capacity, which when the valve 3 is closed admit the small quantity of air to the interior of the flue 1 and tend to relieve the partial vacuum created in the flue by the action of the exhaust-fan.

On the outer side of the plate 5 is a support 9, here shown as a laterally-extending bracket detachably connected to the said plate, in which bracket is mounted an eccentrically-disposed sprocket-wheel 10. A sprocket-chain 11 is attached to the relief-valve 3, near the upper end thereof, and passes over and engages the outer side of the eccentric sprocket-wheel 10, and to the said chain is suspended a weight 12. The said weight is so constructed that it may be loaded to any desired extent in order that the valve 3 may be set to open at any desired pressure. To this end the weight may be a hollow body adapted to be filled to any desired extent with heavy material, or it may be of any other suitable construction, such as will occur to any person skilled in the art to which my invention relates, and I do not, therefore, desire to limit myself in this particular.

The pneumatic seed-cotton distributer and gin-feeder known as the "Murray elevator and feeder" is provided in the flue which leads to the exhaust-fan, at a point between the screens and the exhaust-fan, with a mechanically-operated trip-valve *a*, (shown in Fig. 3,) which operates at regular intervals, in practice about once a minute, to admit air to the flue and cause the cotton to drop from the screens; but at times the cotton is fed so rapidly that it clogs the screens notwithstanding the action of the mechanically-operated trip-valve and during the intervals at which

the mechanically-operated trip-valve is inoperative, thereby causing the exhaust-fan to run very heavily, owing to the extreme attenuation of the air in the pneumatic flue. In the event that the screens become thus clogged my automatic relief-valve opens upon an abnormal attenuation of the air in the pneumatic flue and relieves the pressure upon the exhaust-fan.

It will be understood from the foregoing description and an inspection of Fig. 1 of the drawings that the sprocket-wheel 10, owing to its eccentric disposition, constitutes a cam which by its partial rotation during the opening of the valve 3 increases the leverage of the valve 3 and decreases progressively and correspondingly the resistance of the weight 12. When the relief-valve has been thus opened by the attenuation of the air in the pneumatic flue, it is held open by the pressure of the external air passing over it to the fan *b* until the trip-valve *a* opens to admit air to the exhaust-fan, whereupon the relief-valve 3 is relieved of pressure and is automatically closed by the action of the weight, chain, and eccentrically-mounted sprocket-wheel, as will be understood.

I do not desire to limit myself to the precise construction and combination of devices herein shown and described, as it is evident that modifications may be made therein without departing from the spirit of my invention.

Having thus described my invention, I claim—

1. A pneumatic flue of the class described having an air-inlet opening, in combination with a valve to open and close said opening, a weight, a flexible element connecting the weight to the valve, to normally maintain the valve in a closed position, and an eccentrically-mounted revoluble direction element engaged by said flexible connecting element, for the purpose set forth, substantially as described.

2. A pneumatic flue of the class described, having an air-inlet opening, in combination with a valve to open and close said opening, a weight connected to said valve to normally maintain the latter in a closed position and means to progressively decrease the leverage of said weight as said valve opens, substantially as described.

3. A pneumatic flue of the class described, having an air-inlet opening, and means to maintain an exhaust-current of air therethrough, in combination with a relief-valve to open and close said opening, said valve being adapted to be opened automatically upon the attenuation of air in said flue, means to normally maintain said valve in a closed position and to vary the resistance to the opening thereof, and a mechanically-operated trip-valve operative at regular predetermined intervals of time, to admit air to the flue at a point between the relief-valve and the air-exhaust means.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. WADE.

Witnesses:
C. C. WALSH,
W. N. LAWLEY.