

994,808.

W. WATTS.
PNEUMATIC STACKER.
APPLICATION FILED JULY 10, 1908.

Patented June 13, 1911.

3 SHEETS—SHEET 2.

Fig. 2.

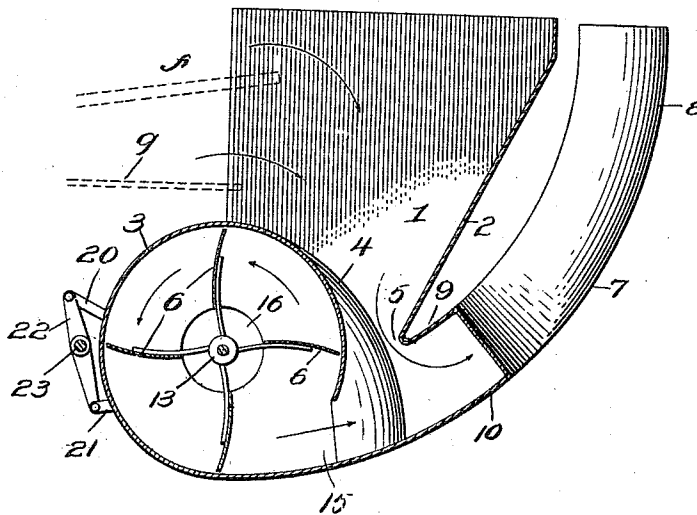
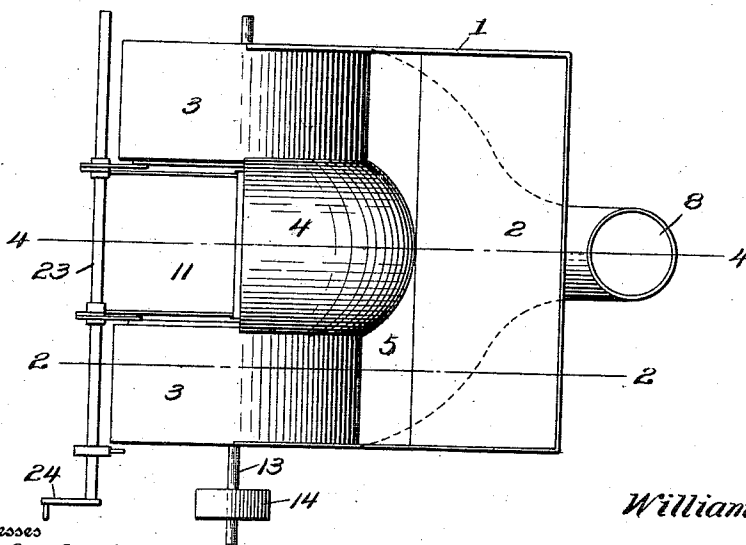


Fig. 3.



Witnesses

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3 SHEETS—SHEET 3.

Fig. 4.

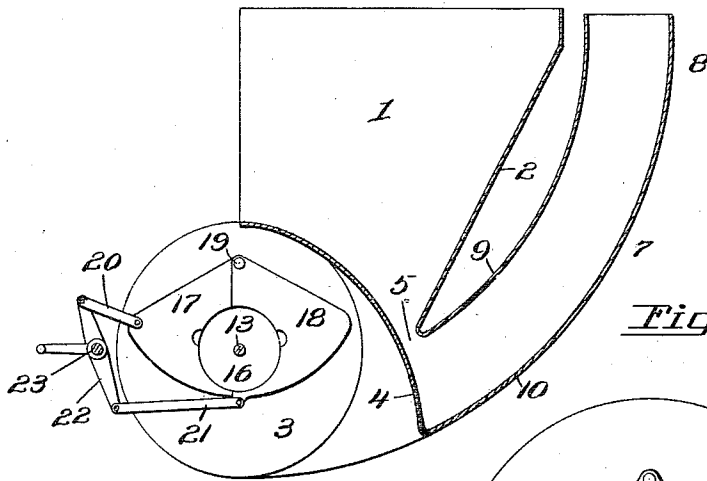


Fig. 5.

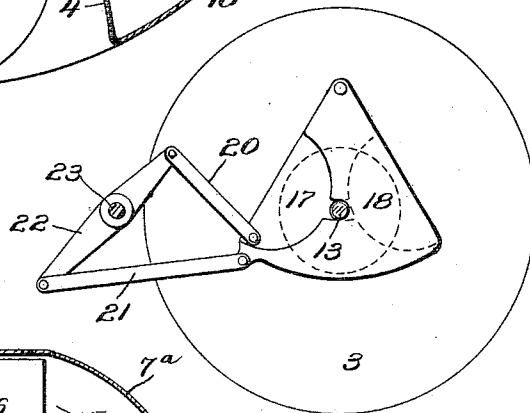
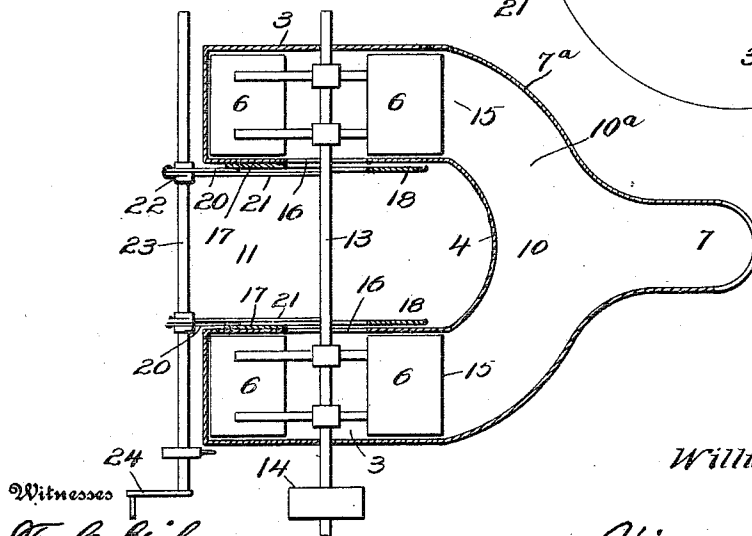


Fig. 5.



Witnesses

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PNEUMATIC STACKER.

994,808.

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To all whom it may concern:

Be it known that I, WILLIAM WATTS, a citizen of the United States of America, residing at Champaign, in the county of Champaign and State of Illinois, have invented new and useful Improvements in Pneumatic Stackers, of which the following is a specification.

This invention is an improved pneumatic stacker for use in connection with a threshing machine or grain separator to deliver straw directly from the machine to a stack and the said invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

One object of the invention is to provide an improved device of this character in which the fan shaft is not subjected to injurious side stress.

A further object is to effect improvements in the construction of the fan casing, the hopper and the intake end of the pneumatic conveyer trunk whereby the fans are disposed out of the path of the straw and the straw is prevented from coming in contact with the fans during its passage through the hopper and trunk.

A further object is to effect improvements in the construction of the hopper, the fan casings and the intake end of the trunk whereby the weight of the pneumatic stacker is distributed evenly across the rear end of the separator or thresher.

A further object is to effect improvements in the construction of the valves for regulating the supply of air to the fans and in the construction of the means for actuating such regulating valves.

In the accompanying drawings, Figure 1 is an elevation of a pneumatic stacker constructed in accordance with my invention and also an elevation of the rear portion of a separator to which the pneumatic stacker is attached. Fig. 2 is a detail vertical sectional view of the hopper, the lower intake end of the pneumatic trunk and the fan casing on the plane indicated by the line 2—2 of Fig. 3. Fig. 3 is a plan of the same. Fig. 4 is a vertical sectional view of the same on the plane indicated by the line 4—4 of Fig. 3. Fig. 5 is a horizontal sectional view of the same on a plane coincident with the fan shaft, the fan shaft being shown in plan, and Fig. 6 is a detail elevation showing one side of one of the fan casings and the blast regulating valves and

operating connections therefor, the fan shaft and the valve actuating rock shaft being indicated in cross section.

For the purposes of this specification the rear portion of the body or casing of a separating machine is indicated at *a* in Fig. 1, a stub shaft being indicated at *b* and a pair of connected pulleys *c, d* of different sizes being indicated on said stub shaft, a driving belt for said pulleys, engaged with the smaller pulley *c*, being indicated at *e*.

In the construction of my improved pneumatic stacker I provide a hopper 1 which is disposed at the rear end of the machine to receive the straw from the screens or riddles indicated at *f, g*, in Fig. 2, the said hopper being provided with a sloping or inclined front side or wall 2. The bottom of the said hopper is formed by a pair of substantially cylindrical fan casings 3 which are spaced apart and are situated at opposite sides of the hopper and by a wall 4 which is concave on its rear side and convex on its front side, which serves to connect the fan casings 3 together and coacts with the inclined front wall 2 of the hopper to form a downwardly contracting throat 5 between the front wall of the hopper and the fan casings and also serves as a distributor to distribute the straw which drops into the hopper evenly across the bottom of the same and through the throat 5 so that the work will be evenly distributed between the fan casings. The lower or intake portion 7 of the pneumatic trunk is cylindrical at its upper end as at 8 and is widened and flattened at its upper and lower sides 9, 10, downwardly, the lower side 10 merging in and forming a continuation of the lower sides of the fan casings, and the upper side 9 being connected to the lower edge of the inclined front wall 2 of the hopper whereby the width of said lower portion or intake portion of the pneumatic trunk is rendered equal to that of the hopper and equal to the combined widths of the fan casings plus the width of the space 11 between them as is clearly illustrated in Figs. 3 and 5. The side walls 7^a of the intake lower portion of the pneumatic trunk converge forwardly and merge into the cylindrical portion of said trunk. The wall 4, by reason of its convex front side and which wall is disposed midway between the wall 7^a coacts with said walls to form intake passage arms 10^a at the lower intake end of the pneu-

matic trunk and the blasts from the fan casings are discharged directly into the said intake arms or passages of the pneumatic trunk. The upper portion 12 of the pneumatic trunk is mounted for pivotal movement as is usual in machines of this type to enable the straw discharged therefrom to be directed in any required direction.

It will be observed by reference to the drawings that the fan casings are below the hopper and in rear of the intake of the pneumatic trunk so that the fans 6 which revolve in the fan casings are out of the path of the straw and the straw is prevented from entering the fan casings and impairing the operation of the fans. Said fans 6 are both secured on a shaft 13 which is mounted in bearings with which the separator frame is provided and on one end of the said shaft is a pulley 14 which is connected to the pulley *c* by a belt *h*, hence the said fan shaft is driven by a pulley and belt connection directed from the separating machine and the use of beveled gearing such as is ordinarily employed for driving the fan shaft in machines of this class is entirely obviated.

In the operation of my improved pneumatic stacker the straw, as it descends in the hopper 1 is, by the action of the inclined front wall 2, the concave upper sides of the fan casings and the ridged or the convex surface between the fan casings formed by the wall 4, distributed evenly across the bottom of the hopper and across the bottom of the lower portion of the intake 7 of the trunk. The blast discharge openings 15 of the fan casings are in the front sides thereof directly opposite the forwardly converging intake arms or passages 10^a of the trunk so that the straw as it falls through the throat of the hopper is subjected to the action of the blast from said fans and discharged pneumatically up through the pneumatic discharge trunk.

Each of the fan casings is provided on its inner side with an air intake opening 16 and is provided with a pair of blast regulating valves 17, 18, which are pivotally mounted at their upper corners as at 19, are adapted to move across said opening from opposite sides thereof so as to entirely close such opening or close it to any desired extent and the said valves are connected, respectively, by links 20, 21, to the upper and lower ends of yokes 22 which are secured on a rock shaft 23. Said rock shaft is mounted in suitable bearings and is provided at one end with a crank or other suitable device 24 whereby it may be turned as may be required to cause the valves to open or close so as to increase or diminish the strength of the blast from the fans.

The width of the hopper and the lower end or intake portion of the pneumatic trunk is coextensive with that of the casing or frame of the separator and hence the stress on the separator frame is equalized at all points thereof.

Having thus described the invention, what is claimed as new is:—

In a pneumatic stacker, a hopper, fan casings in the lower part of said hopper at the sides thereof, a rearwardly bulging breast plate connecting the fan casings, said breast plate coöperating with the fan casings to form the bottom of the hopper and with the rear wall of the hopper to form a contracted throat which constitutes the outlet from the hopper, and a pneumatic trunk bulged at its lower end and communicating with the discharge openings of the fan casings at either side of the bulging breast plate.

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

WILLIAM WATTS.

Witnesses:

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