

No. 795,809.

PATENTED AUG. 1, 1905.

A. W. BANISTER.  
PNEUMATIC CONVEYER.  
APPLICATION FILED MAR. 13, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

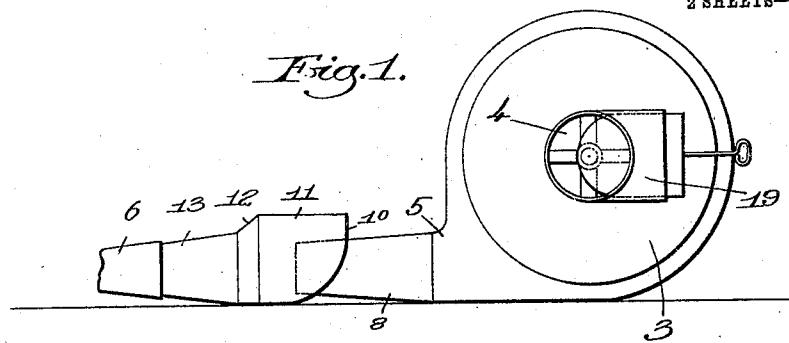


Fig. 2.

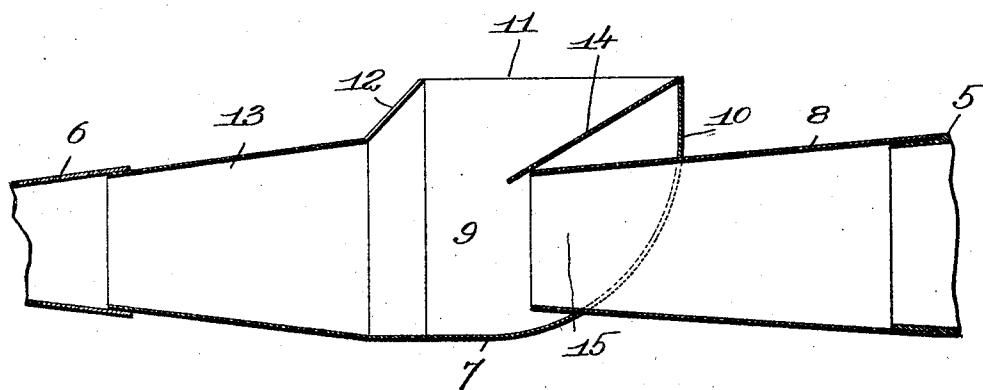
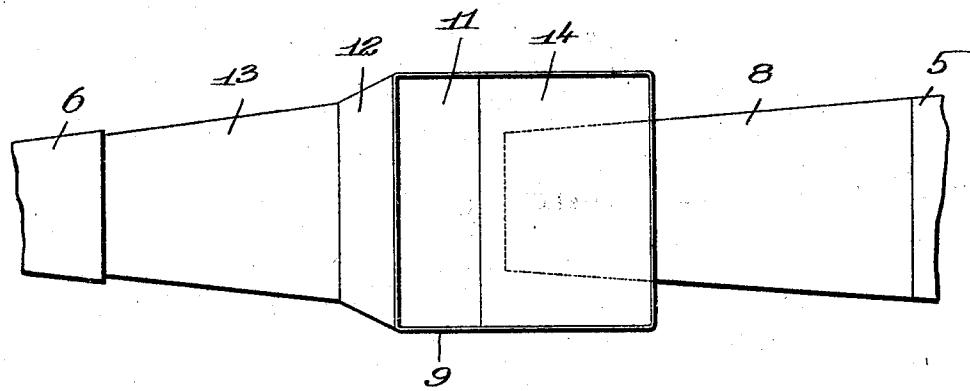


Fig. 3.



witnesses:

Fred. S. Grunhof.  
A. W. Knapp.

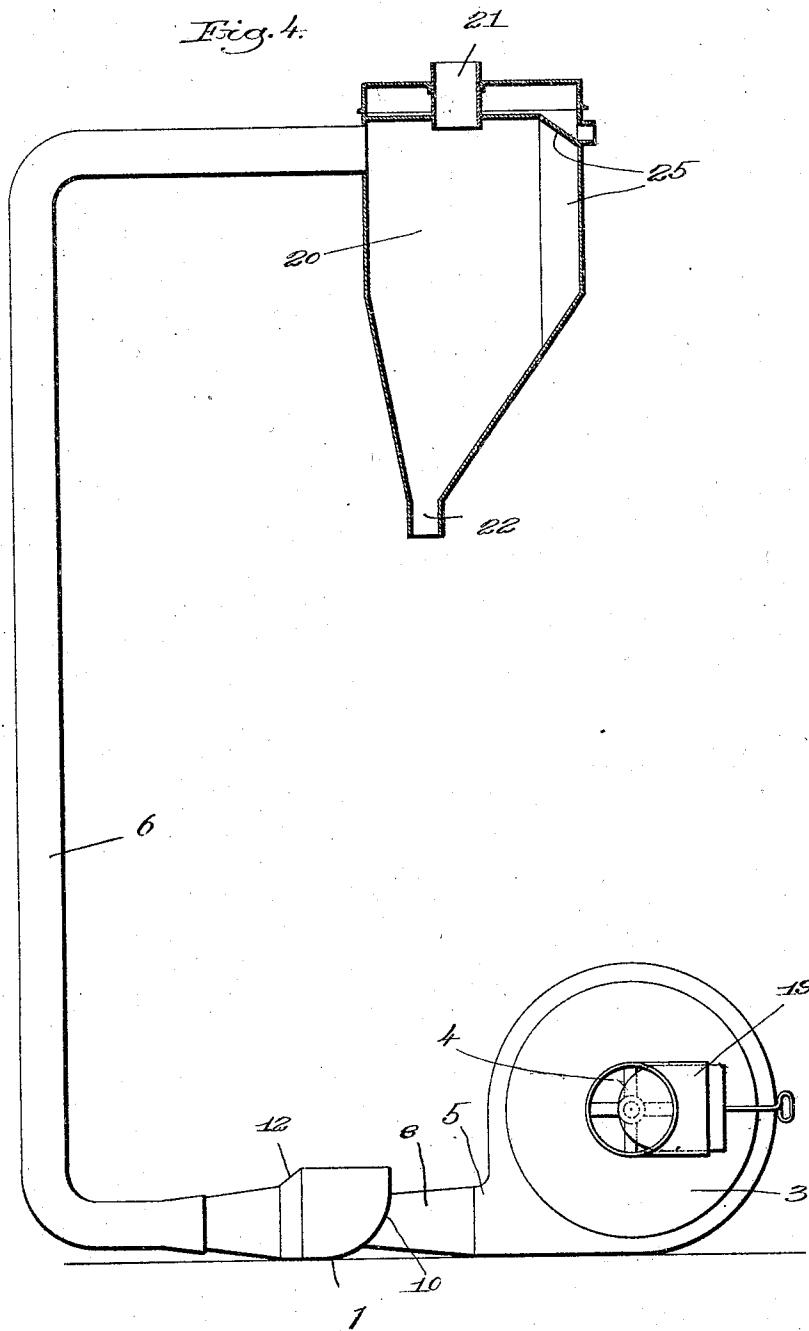
Invantor.  
Arthur W. Banister,  
by Ernest D. Engay, atty.

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2 SHEETS—SHEET 2.



witnesses:

Fred. S. Grumbay  
A. W. Knapp.

Freevector.  
A. W. Banister,  
by C. L. Engry  
Attest.

# UNITED STATES PATENT OFFICE.

ARTHUR W. BANISTER, OF BOSTON, MASSACHUSETTS.

## PNEUMATIC CONVEYER.

No. 795,809.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed Mar<sup>c</sup> 13, 1905. Serial No. 249,728.

*To all whom it may concern:*

Be it known that I, ARTHUR W. BANISTER, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Pneumatic Conveyers, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

A centrifugal blower is often used to remove dust, chips, shavings, &c., from a room or from machines in a room by connecting the inlet of the blower-easing to the mouthpiece, into which the chips, shavings, &c., are fed, and then blowing the material thus gathered through the delivery-pipe to the point where they are to be deposited. It is not possible to convey large articles or materials of a stringy nature from one point to another in this way, because their character is such that they will either clog the blower or wind on the blades, and thus throw the runner out of balance.

It is often desirable to use a blower for forcing large articles, such as laundry, stringy material, such as coarse shavings, and other bulky material through a pipe from one point to another by air-pressure, and to permit this to be done I have devised a novel feeding-in device which is adapted to be placed in a pipe between the blower and the point of delivery and through which bulky articles which could not pass through the blower may be fed into the delivery-pipe.

In the drawings, Figure 1 is a view of a blower having my improved feeding-in device attached thereto. Fig. 2 is a vertical section through my improved feeding-in device. Fig. 3 is a top plan view thereof, and Fig. 4 is a view showing a complete pneumatic conveyer having a separator therein.

In the drawings, 3 designates any suitable force-blower having the axial inlet 4 and the tangential outlet 5.

6 designates the delivery-pipe, through which the material is forced by air-pressure, said delivery-pipe leading to any point where it is desired to convey the articles.

My improved feeding-in device is designated generally by 7 and is herein shown as attached to the outlet 5 of the blower, although it might be placed at any suitable point in the pipe 6. This feeding-in device has an inlet-nozzle 8, which is connected to and forms a continuation of the outlet 5 of the blower and which leads into a feeding-in

chamber 9. Said chamber is herein shown as having an open mouth 11, into which the articles are fed, and the front wall 12 of said chamber inclines downwardly and forwardly to meet the outlet-nozzle 13.

14 designates a deflecting plate or partition, which extends from one side of the mouth downwardly and forwardly over the end 15 of the inlet-nozzle, said deflector forming with the inclined front wall 12 of the chamber an inclined passage-way which is free and unobstructed and through which the materials are guided into the inner end of the outlet-nozzle 13. The back side 10 of the chamber is preferably rounded, as shown.

It will be noted that the inlet-nozzle 8 and also the outlet-nozzle 13 are tapered slightly and the end of the inlet-nozzle is so placed with reference to the opening or mouth 11 and the deflector 14 that the current of air delivered through the inlet-nozzle passes through the chamber 9 and into the outlet-nozzle 13. Any material fed into the opening 11 gravitates into the current of air and is forced by said air-current into the outlet-nozzle 13 and thence into and through the delivery-pipe, as will be obvious. It will thus be seen that with my improved feeding-in device it is possible to use an ordinary blower 3 for forcing any articles, however large or stringy, through a conduit from one point to another and without subjecting said articles to the direct action of the blades of the blower, as would be the case if they were fed into the blower-inlet 4.

For feeding some articles—such, for instance, as laundry and other heavy articles—through a certain sized conduit and with a certain sized blower the full air-pressure developed by the blower may be necessary, while for feeding other articles—such, for instance, as shavings and like articles—through the same apparatus a less pressure will be necessary. I have therefore provided the inlet-opening 4 of the blower with a gate or valve 19, by means of which the size of the opening can be varied, thereby to regulate the pressure developed in the blower without changing its speed or the size of the feeding-in device.

It is often desirable to separate from the air in the conveyer the shavings, dust, or other material, and for this purpose I may use a separator such as shown in Fig. 4. Said separator comprises the receiving-chamber 20, which communicates with the conduit 6

and in which the separation of the heavy material from the air takes place, and a discharge-opening 21 in the upper end of the receiving-chamber for the air and a discharge-opening 22 for the heavy material. In the upper corner and in the vertical corners are deflectors 25, which deflect the air-current downwardly and inwardly. As the air-current enters the receiving-chamber its force is materially reduced, because the said chamber is so much larger in cross-section than the conduit 6. The heavier particles therefore gradually settle to the bottom, and this action is augmented by the deflectors, which deflect the air-current toward the bottom of the receiving-chamber.

It may not be necessary to use the separator herein shown where some articles are conveyed; but I have found it of great value in separating the heavy materials from the air when shavings and similar articles are being conveyed.

Various changes in the construction and operation of the device may be made without departing from the invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A force-blower, a conduit connected thereto, a feeding-in device interposed between the blower and the conduit, said feeding-in device comprising a receiving-chamber having an open unobstructed mouth, an inlet-nozzle leading into said chamber, an outlet-

nozzle leading therefrom, and an inclined deflector-plate situated over the end of the inlet-nozzle and arranged to deflect the material into the outlet-nozzle, the front end 12 of said chamber inclining forwardly and downwardly from the front side of the mouth, thereby forming with the deflector-plate an inclined passage-way leading to the outlet-nozzle.

2. A force-blower having an axial inlet and a tangential outlet, a valve controlling said inlet, a conduit connected to the outlet, and a feeding-in device interposed between the blower-outlet and the conduit, said feeding-in device comprising a receiving-chamber 9 having an open unobstructed mouth, an inlet-nozzle leading into said chamber and connecting with the outlet-nozzle of the blower, an outlet-nozzle leading from said chamber and connected with said conduit, and a deflector-plate 14 extending from one side of said mouth downwardly and forwardly, the front side 12 of said chamber also inclining downwardly and forwardly from the front side of the mouth whereby an inclined passage-way is formed between said deflector-plate and the front side of the chamber.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR W. BANISTER.

Witnesses:

LOUIS C. SMITH,  
MARGARET A. DUNN.