Oct. 23, 1923. 1,471,927

H. A. SCHUTT ET AL

CONVEYER

Filed Oct. 10, 1921

Fig. 1.

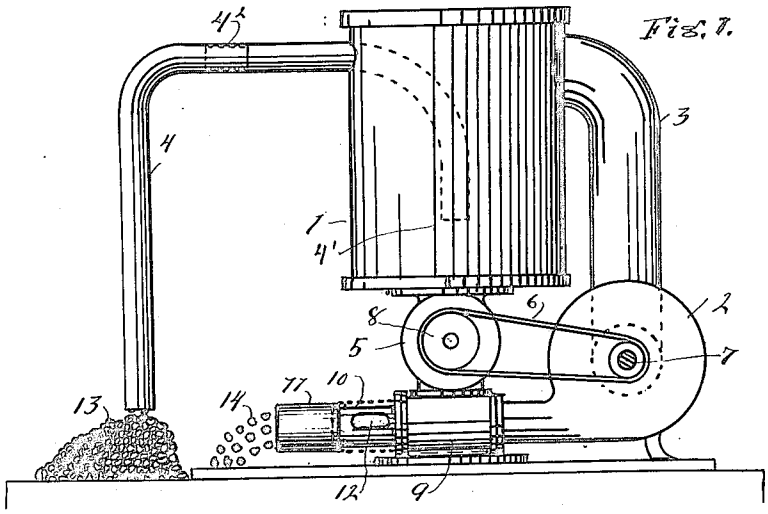


Fig. 2.

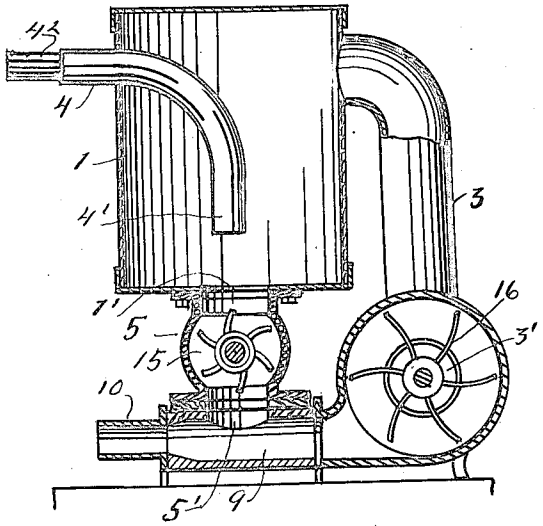
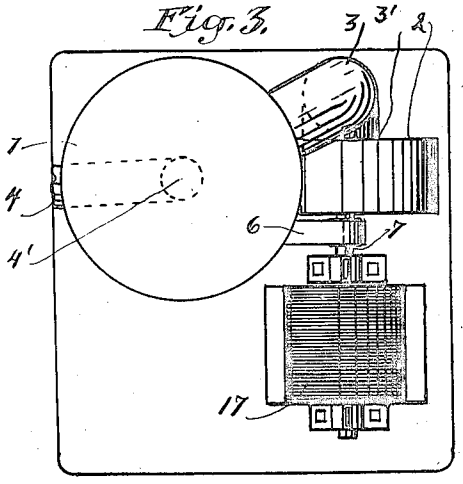


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY A. SCHUTT AND JULIUS N. DUNNEBACKE, OF GRAND RAPIDS, MICHIGAN.

CONVEYER.

Application filed October 10, 1921. Serial No. 506,688.

To all whom it may concern:

Be it known that we, HENRY A. SCHUTT and JULIUS N. DUNNEBACKE, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

Our invention relates to improvements in appliances for pneumatically taking up and conveying substances, as pulverized or nut coal, fine gravel, grains, &c., and its objects are: first, to provide a means whereby one air conveyer fan wheel will be made to take up the material to be conveyed and pass it through the machine and out to the point of delivery without the danger of any of the material passing through the fan hood, or coming in contact with the fan; second, to provide a means whereby the force of delivery, that is, the forcible outflow of the air and material may be readily adjusted, and, third, to provide a means whereby the material will be dropped, or forced into the outflow conveyer pipe in such a manner that a perfectly clear passage of the material is assured.

We attain these objects by the mechanism and distribution of parts shown in the accompanying drawing, in which Fig. 1 is an elevation of the machine complete. Fig. 2 is a vertical section of the same, and Fig. 3 is a plan of the same with a motor attached.

Similar reference characters indicate similar parts throughout the several views.

In the accompanying drawing 1 represents the receiving and distribution chamber into which the material, as coal, represented at 13, is drawn through the pipe 4, by reason of a strong current of air produced by the rapid revoluble movement of the fan 16 within the case 2, which draws the air from the distribution chamber 1, through the pipe 3 thus creating a current in the chamber 1 which will draw the substance from the pile 13, through the pipe 4 and drop it through the opening 1′ in the bottom of the chamber 1, into the transfer case 5 where the transfer wheel 15 will separate the particles and drop them through the opening 5′ into the discharge chamber 9 whence it is carried to the desired distribution or storage point by the pressure of air from the fan 16 through the chamber 9 and the pipe 10, the current of air passing from the pipe 3 into the fan case 2 through the opening 3′.

The transfer wheel 15 is driven from the pulley 7 by means of a belt 6 over the pulley 8. The inner end of the pipe 4 should be carried to a point directly over the opening 1′ and well down toward the bottom of the case 1, as indicated at 4′ so the incoming material will have been carried so far downwardly before being released from the pipe 4 that no part of it may be carried upwardly, after passing out of the pipe 4, and through the pipe 3 and passed into the fan case 2. This renders it possible to pass the material through the machine without the danger of passing through the fan case and injuring the fan.

We provide for governing the force with which the material 14, from the pile 13, is discharged from the pipe 10, by making available vents, as 12, through the pipe 10 and governing the working size of said vents by means of a slidable sleeve 11 that may be passed over, or removed from over the vents, as indicated by the solid, and the dotted lines referring to this element, in Fig. 1.

This machine may be driven by means of any available motor, as, for instance, the electric motor 17, shown in Fig. 3 as connected directly with the shaft that carries the fan 16 and the driving pulley 7.

While the pipe 4 may be made stationary and readily available for the purpose for which it is provided, and the coal or other material, indicated at 13, may be shoveled or otherwise placed in position to be taken up by the inrushing air, we prefer that it be so mounted that the intake end may be adjusted, to a certain extent, to the position of the material to be passed through the machine, as indicated at 4^2 in Figs. 1 and 2.

It will be readily understood that the pipe 4 may be made adjustable, or movable in other directions than directly sidewise, as indicated in the drawing, by means of any one of several well known mechanical means of adjustment, without the necessity of illustrating any of them.

Having thus fully described our invention, what we claim as new in the art, is:

In a pneumatic conveyer, a vertically disposed cylindrical distribution chamber, an intake pipe entering said chamber near the upper end and curving inwardly and down-

wardly to a point near the center of the bottom of the chamber, a discharge chamber below the distribution chamber, a discharge pipe below the discharge chamber, the discharge chamber forming an opening between the distributing chamber and the discharge pipe, an exhaust pipe opening from the upper end of the distributing chamber, passing downwardly, then horizontally and opening into one end of the discharge pipe, an exhaust fan in the line of said exhaust pipe, a revoluble hub mounted in the discharge chamber and having radiating fans thereon arranged to choke the discharge chamber against the free passage of air through the discharge chamber, and to convey material from the distributing chamber into the discharge pipe, and a governor in the discharge pipe consisting of an opening through the side of the pipe and a slide for adjusting the size of said opening.

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