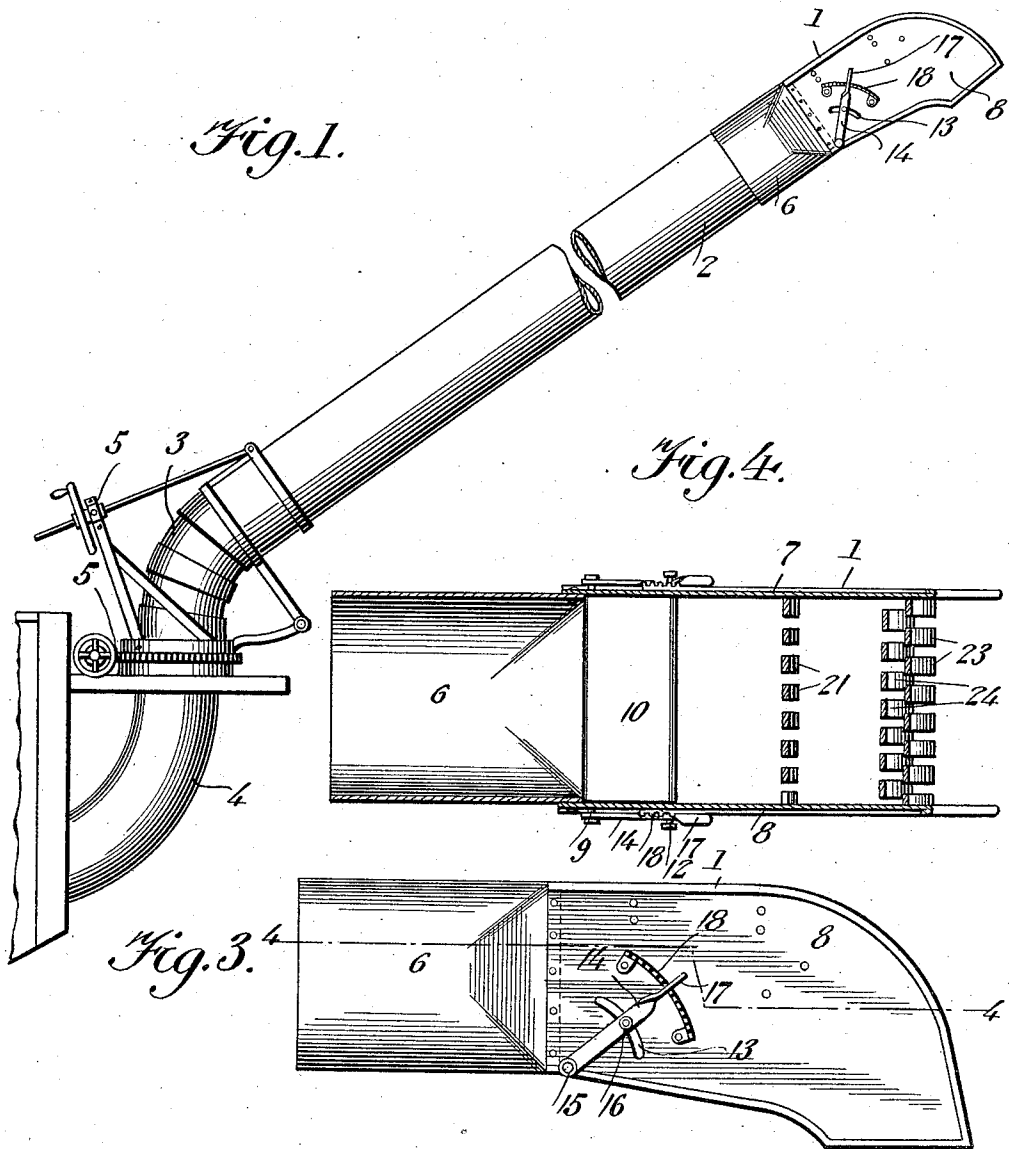


A. P. DETERMANN.
PNEUMATIC STRAW STACKER.
APPLICATION FILED FEB. 18, 1913.

1,066,260.

Patented July 1, 1913.

2 SHEETS—SHEET 1.



Witnesses
W. Ackman Jr.
F. W. Ruppert.

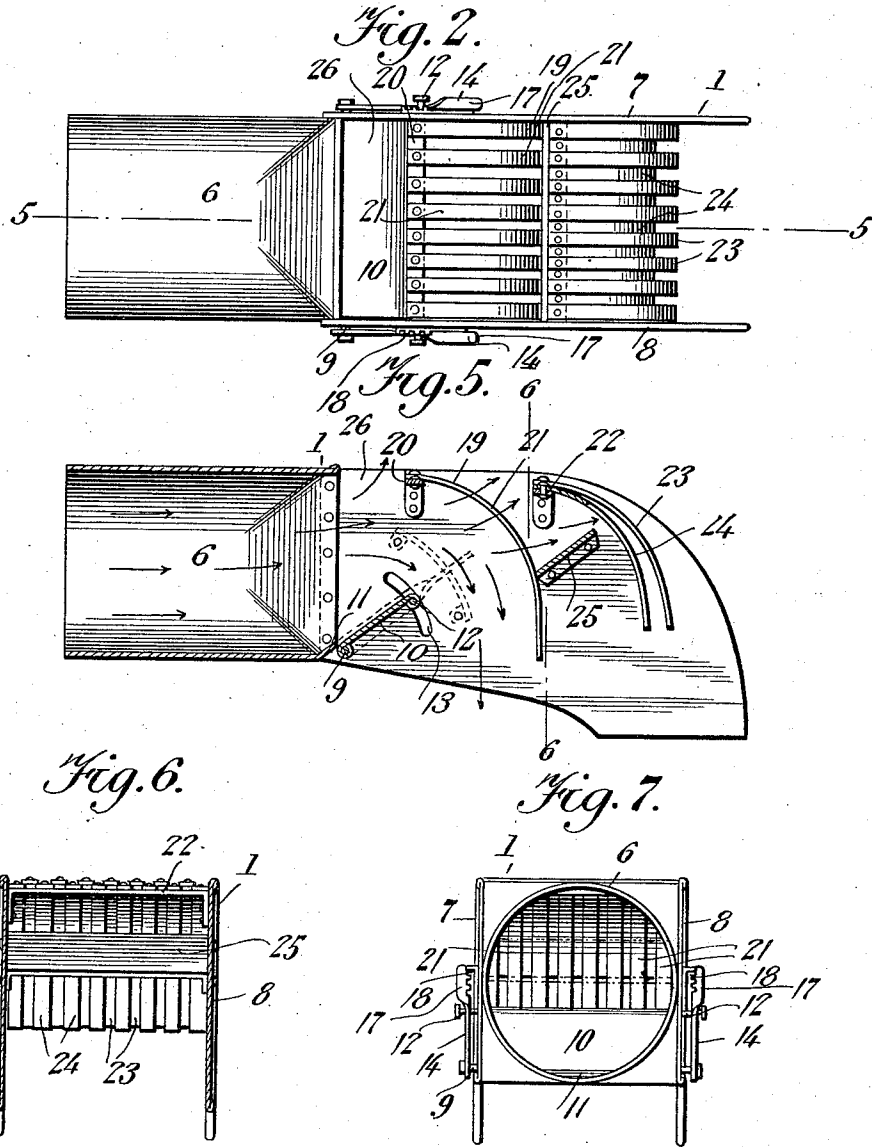
Inventor
August P. Determann
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UNITED STATES PATENT OFFICE.

AUGUST P. DETERMANN, OF LYONS, IOWA.

PNEUMATIC STRAW-STACKER.

1,066,260.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed February 18, 1913. Serial No. 749,149.

To all whom it may concern:

Be it known that I, AUGUST P. DETERMANN, a citizen of the United States of America, residing at Lyons, in the county of Clinton and State of Iowa, have invented certain new and useful Improvements in Pneumatic Straw-Stackers, of which the following is a specification.

The invention relates generally to an improvement in pneumatic straw stackers, and particularly to a hood for use with the movable trunk of any particular type of stacker, which hood is constructed to effectively dissipate the air blast at the delivery throat of the hood, to prevent such blast affecting the material during and succeeding its delivery, the hood being further constructed to compensate for varying conditions of the material to avoid choking.

The main object of the present invention is the provision of a hood for pneumatic straw stackers in which means are provided for relieving the material immediately adjacent the point of delivery of the hood from the effect of the blast to a very material extent, said means permitting the utilization of a portion of the blast for effective delivery, and finally dissipating such delivery-compelling portion of the blast by dividing the same into a series of fine deflected streams, whereby the material subsequent to its delivery from the hood is wholly beyond the influence of the air blast.

A further object of the invention is the provision of a hood for pneumatic stackers in which the throat plate at the delivery opening may be adjusted to vary the size of the hood immediately adjacent said opening, whereby to compensate for different conditions of material and permit an effective delivery of either wet or dry material without choking.

The invention in its preferred form of details will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in elevation illustrating the trunk of a pneumatic stacker, my improved delivery hood being shown applied thereto. Fig. 2 is a plan of the improved hood. Fig. 3 is a side elevation of the same. Fig. 4 is a horizontal section on line 4—4 of Fig. 3. Fig. 5 is a longitudinal vertical section through the hood. Fig. 6

is a transverse vertical section on the line 6—6 of Fig. 5. Fig. 7 is an end elevation.

Referring particularly to the accompanying drawings, my improved hood 1 is designed for removable connection to the free end of the movable trunk 2 of a pneumatic stacker, which trunk 2, through the medium of the usual elbow 3 is connected to the fixed trunk 4 of the stacker, and adapted for desired and usual adjustment with relation to said fixed trunk through the medium of adjusting mechanism generally designated by 5.

The present invention is directed particularly to improving the construction of the delivery hood, and in this connection I contemplate the use of the hood described with any type of stacker. It will therefore be understood that the remaining parts of the structure illustrated in Fig. 1 are shown to conventionally illustrate cooperating parts and that as illustrated they are designed to represent the similar parts of any type of stacker in which the hood may be used.

The hood 1 includes a tubular extension designed to engage the free end of the movable trunk 2, which extension may be of any size or detailed construction necessary to provide for its effective cooperation with the trunk. Beyond the extension 6 the hood includes side plates 7 and 8 extended in parallel relation from and preferably integral with the extension 6, said side plates being spaced apart to provide the usual space therebetween for the delivery of material forced through the trunk and extension 6 by the usual air blast.

Mounted in the respective side plates immediately in advance of the lower forward edge of the extension 6 is a rod 9 on which is hingedly or otherwise loosely mounted a throat plate 10. The throat plate, which is of a length to bridge the space between the side plates 7 and 8, forms in effect a continuation of the bottom of the extension 6, and the forward lower edge of the latter is preferably provided with a lip 11 to overlie the inner or connected edge of the throat plate and avoid obstruction at this point through the hood.

The forward or free edge of the throat plate 10 is provided with a rod 12 projecting beyond the side edges of the plate and through arcuate slots 13 in the side plates 7 and 8. Adjusting levers 14 are pivotally

connected at 15 to the side plates, at points immediately adjacent the rod 9, said levers intermediate their ends being secured to the terminals of the rod 12, as at 16, the free ends of the levers being formed to provide handle members 17 arranged to cooperate with notched segments 18 secured to the side plates 7 and 8 whereby the throat plate may be secured in any desired adjustment within the limits of the lengths of the arcuate slots 13.

A straw guide 19 is arranged between the side plates 7 and 8 in advance of the throat plate 10, said straw guide comprising a bar 20 secured between and transversely of the side plates immediately adjacent the upper edges thereof and practically in vertical alinement with the free or forward edge of the throat plate. From the bar 20 there is extended a series of parallel spaced fingers 21 which curve forwardly and downwardly approximately concentric with the pivot point of the throat plate and terminate at their lower ends slightly above the lower edges of the side plates 7 and 8. The fingers are spaced apart to permit the free passage of the air between them, said fingers as a whole serving as a means for directing the material passing over the throat plate into a downward path and thereby causing its delivery to a particular point in accordance with the manner in which the trunk and hood are adjusted by the operator.

Secured between the side plates 7 and 8 in advance of the straw guide is arranged what I term an air deflector comprising a bar 22 secured between and transversely of the side plates and a series of fingers projecting from the bar. The fingers are arranged practically in upper and lower sets 23, 24, the fingers of each set being similarly spaced apart, with the spaces of one set registering with the fingers of the other. That is to say, the fingers of the lower set underlie the spaces between the fingers of the upper set, providing in effect a partition through which the air under pressure can freely find its way but by reason of the non-registering fingers such air body is broken up into a series of streams and deflected laterally. At the juncture with the bar 22 the respective sets of fingers have a comparatively small vertical spacing, but this spacing is gradually increased throughout the lengths of the fingers, so that at their lower or free ends the vertical spacing of the finger sets is materially increased to provide considerably enlarged air outlet spaces.

The fingers 23, 24 curve forwardly and downwardly from the bar 22 approximately concentric with the fingers 21, terminating however above the lower ends of the fingers 21, as will be obvious from Fig. 5 of the drawings. A deflector plate 25 is arranged intermediate the fingers 21 and 23, 24, said

plate inclining forwardly and upwardly from the finger 21 and occupying approximately the full longitudinal space between the fingers, said plate of course occupying the full transverse space between the side plates 7 and 8 in practically vertical alinement to said side plates as shown.

It will be noted that the bar 20 of the straw guide is secured between the side plates 7 and 8 in practically vertically alinement with the forward or free edge of the throat plate, thereby providing an open space 26 between the bar 20 and the forward edge of the hood extension 6. This space 26 which forms the initial and main air outlet is of the full width between the side plates 7 and 8, and directly overlies the throat plate, which latter forms the last bottom support of the material within the hood.

In operation the material directed through the trunk and into the hood by the air blast will first be slightly packed and deflected by the throat plate 10, and by reason of such slight banking cause the greater portion of the blast to pass outwardly through the opening 26. A sufficient portion of the blast however is still utilized to force the material over the free forward edge of the throat plate and into contact with the straw deflector 19. The fingers of this deflector which are more or less yieldable direct the material downwardly from between the side plates 7 and 8, the air body under pressure carried with this portion of the material finding its way freely between the fingers 21. If the air blast is not controlled at this point it would tend to partially react upon the material with the effect to scatter the material already delivered and being delivered. For this purpose I provide the deflector plate 25 and the air deflector described, through the use of which in the arrangement shown practically all of the remaining air blasts contacts with the plate 25 and is directed between the fingers 23, 24, by means of which it is broken up into thin streams, directed into divergent paths and dissipated.

In the event the material is in dampened condition, with the consequent tendency to choke or ball adjacent the delivery opening of the hood, I adjust the throat plate 10 to increase the sectional area of the hood immediately adjacent such delivery opening, thereby increasing the sectional area of the hood at this point, providing for a freer passage of the material and avoiding the possibility of choking.

The invention as described provides an effective means for the practically complete dissipation of the air blast immediately the same has performed its work of forcing the material to the hood outlet, thereby permitting the material to fall from the hood solely by gravitation and prevent the air current from in any way affecting the material be-

yond the hood, avoiding the objectionable scattering of the material usually incident to the delivery from hoods of pneumatic stackers.

5 What is claimed is:—

10 1. A hood for pneumatic stackers formed with a delivery opening, a straw guide carried by the hood beyond the opening and formed for the passage of air therethrough, and means arranged beyond the straw guide for breaking the blast into a series of diver-

15 2. A hood for pneumatic stackers formed with a delivery opening, a straw guide carried by the hood beyond the opening and formed for the passage of air therethrough, and an air deflector arranged beyond the straw guide, said deflector comprising super-

20 3. A hood for pneumatic stackers formed with a delivery opening, a straw guide carried by the hood beyond the opening and formed for the passage of air therethrough, and an air deflector arranged beyond the straw guide, said deflector comprising super-

25 imposed sets of spaced fingers, the fingers of the respective sets being relatively offset to deflect the air currents passing there-through.

30 4. A hood for pneumatic stackers formed with a delivery opening, a straw guide carried by the hood beyond the opening and formed for the passage of air therethrough, and an air deflector arranged beyond the straw guide, said deflector comprising super-

35 imposed sets of spaced fingers, the fingers of one set opposing the spaces between the fingers of the other set.

40 5. A hood for pneumatic stackers formed with a material delivery opening, an adjustable throat plate arranged in advance of said opening, a downwardly curved straw guide arranged in rear of the opening and

formed for the passage of air therethrough, and an air deflector arranged in rear of the straw guide.

6. A hood for pneumatic stackers formed with a material delivery opening, an adjustable throat plate arranged in advance of said opening, an air escape formed in the hood immediately above the throat plate, a straw guide arranged in rear of the opening and formed for the passage of air there-

55 7. A hood for pneumatic stackers formed with a material delivery opening, an adjustable throat plate arranged in advance of said opening, an air escape formed in the hood immediately above the throat plate, a straw guide arranged in rear of the opening and formed for the passage of air there-through, and an air deflector arranged in rear of the straw guide and formed to break the air blast into a series of divergently di-

60 8. A hood for pneumatic stackers formed with a material delivery opening, an adjustable throat plate arranged in advance of said opening, an air escape formed in the hood immediately above the throat plate, a straw guide arranged in rear of the opening and formed for the passage of air therethrough, an air deflector arranged in rear of the straw guide and formed to break the air blast into a series of divergently directed streams, and an imperforate deflecting plate arranged intermediate the straw guide and air deflector.

In testimony whereof I affix my signature 80 in presence of two witnesses.

AUGUST P. DETERMANN.

Witnesses:

J. L. HOLMES,
MILO J. GABRIEL.