UNITED STATES PATENT OFFICE.

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PNEUMATIC-STACKER HOOD.

1,394,812.


Patented Oct. 25, 1921.

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-Stacker Hoods, of which the following is a specification.

This invention relates to an improvement in hoods for pneumatic straw stackers, and is directed more particularly to improving the construction shown, described, and claimed in a Patent No. 1,294,889, issued to me January 29, 1919.

A desirable feature in hoods of this type, on which the material is delivered through the hood under air blast, is means for directing the material in its delivery from the hood, and also a throat plate for the hood to vary the size of the delivery opening of the hood as may be required by different kinds of material being handled.

The present invention contemplates a throat plate which may be set for a proper condition of a particular material being handled, and which will automatically yield to increase the size of the delivery opening under increased pressure from such material, as for example when such material has increased weight, as when damp.

The invention also contemplates an improvement in the material directing means or guide, whereby such guide is rendered more effective in use.

In the accompanying drawings:

Figure 1 is a view in elevation of the trunk of a stacker with the improved hood applied thereto.

Fig. 2 is an enlarged longitudinal section of the hood.

Fig. 3 is a section on line 3—3 of Fig. 2.

Fig. 4 is a broken perspective of the straw guide.

Fig. 5 is a perspective view of the throat plate.

The improved hood 1 is here shown as removable mounted on the end of the usual stacker trunk 2, through which the material is delivered under air blast. The trunk is capable of usual movement, through means 3, whereby to control the delivery point of the material delivered upon the hood.

The hood proper comprises a cylindrical section 4, adapted for removable connection with the end of trunk 2, and spaced parallel side plates 5 secured to and projecting beyond such section 4.

The plates are spaced apart providing an opening between their upper edges for the reception of the straw guide, and an opening between their lower edges for the delivery of the material.

A throat plate 6 is pivotally supported between the plates 5 at the junction of such plates with the hood-section 4, such throat plate thus forming an inclined baffle across the throat of the delivery opening, and acting to deflect the material upwardly and forwardly for a purpose which will later appear.

With given material and in proper condition, the throat plate will properly function as described, but for other material, or when such material is of increased weight or mass as when wet or damp, there is a decided tendency for such material to accumulate against the throat plate and choke the delivery. It is therefore highly desirable that such throat plate be arranged for yielding under such increased pressure and further that such throat plate be adapted to be set for holding in normal position against any predetermined pressure. This adapts the throat plate to be set for any particular material and to yield under any increase beyond such set or predetermined resistance.

To secure this result, the throat plate is provided on the under side with depending extensions 7, projecting at right angles to the throat plate, and having outwardly turned terminals 8 of a length to extend beyond the side plates 5.

Chains or similar connectors 9 are removably connected to hook eyes in such terminals 8, and extension springs 10 are terminally connected to such chains and to projections 11 from the side plates near their upper edges. Obviously, by connecting the appropriate link of the chain to the terminal 8, any desired spring-tension may be secured on the throat plate, and the latter held against yielding under any other than an increase in such pressure. The adjustable connection for the chains may, if desired, be between the springs and chain, and additionally the spring connections with the projections 11, may be of the threaded bolt and nut type, as at 12, to secure further adjustment.

The springs act in substantial line with
the parts and hence the throat plate will be held in throat limiting position with a pre-determined pressure, yielding under increased pressure, however, to enlarge the throat opening to prevent choking up the delivery.

The straw guide is shown as provided with a means for dissipating the air blast from the material and the deflecting of the material in a downward path for delivery. A shaft 13 is pivotally mounted in the side plates 5 adjacent their rear ends, and a series of spaced parallel bars 14 project forwardly from such shaft. The bars are of a length to cover the throat area in the line of direction controlled by the throat plate, so that the material is directed against such bars, and the very fine material is blown through the bars, and the air blast similarly dissipated. A deflecting plate 15 is secured to the forward ends of the bars, such plate curving forwardly and downwardly between the side plates to direct the material through the delivery opening. The rear end of the plate is turned upwardly, at 16. The deflecting plate is a solid, preferably sheet-metal plate, and has a series of longitudinally extending integral ribs 20 thereon for strengthening purposes.

The straw guide is adapted for manual adjustment to change the direction of material delivery, through levers 25, secured on the shaft 13, and having lower extensions 26, connected to the side bars of the straw guide by arms 27. The upper ends of the levers 25 are connected by springs 28 to the side plates 5 of the hood, thus operating the straw guide in one direction, the opposite movement, and manual control of the straw guide position, being secured through a connector 29 extending longitudinally of the trunk 2 to a position convenient for the operator.

The improved hood is thus provided with a throat plate adapted to be held in adjusted position with a predetermined pressure, such throat plate yielding under an increased pressure to enlarge the throat opening. Choking of the hood under unusual or undesirable conditions of the material being handled, is thus automatically prevented.

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

1. A stacker hood having side plates, a throat plate arranged between said side plates, hook members secured to said throat plate and extending outwardly of the side plates, and springs fixed to said side plates and to said hook members.

2. A hood for pneumatic stackers having a discharge opening and a throat plate pivotally mounted in the hood in advance of said opening, and means to permit said plate to yield on its pivotal mounting under an increased pressure of material in the direction of the discharge opening.

3. A hood for pneumatic stackers having a discharge opening, a throat plate pivotally mounted in the hood at the juncture with said discharge opening, and means for yieldingly supporting said plate in a predetermined position in the hood, said means permitting movement of the plate to increase the interior of the hood immediately adjacent the discharge opening under increased pressure of the material.

4. A hood for pneumatic stackers having a discharge opening, a throat plate arranged at one end of said opening and mounted for pivotal movement, and spring means for normally holding said plate in a predetermined position while permitting the plate to move to increase the interior dimensions of the hood adjacent said discharge opening under increased pressure of material.

5. A hood for pneumatic stackers having a discharge opening, a throat plate arranged at one end of said opening and mounted for pivotal movement, and adjustable spring means for normally holding said plate in a predetermined position while permitting the plate to move to increase the interior dimensions of the hood adjacent said discharge opening under increased pressure of material.

In testimony whereof I affix my signature.

AUGUST P. DETERMANN.