

J. C. RIETH & J. H. CHAMBERLAIN.
PNEUMATIC GRAIN MOVING APPARATUS.

APPLICATION FILED JUNE 5, 1905.

2 SHEETS—SHEET 1.

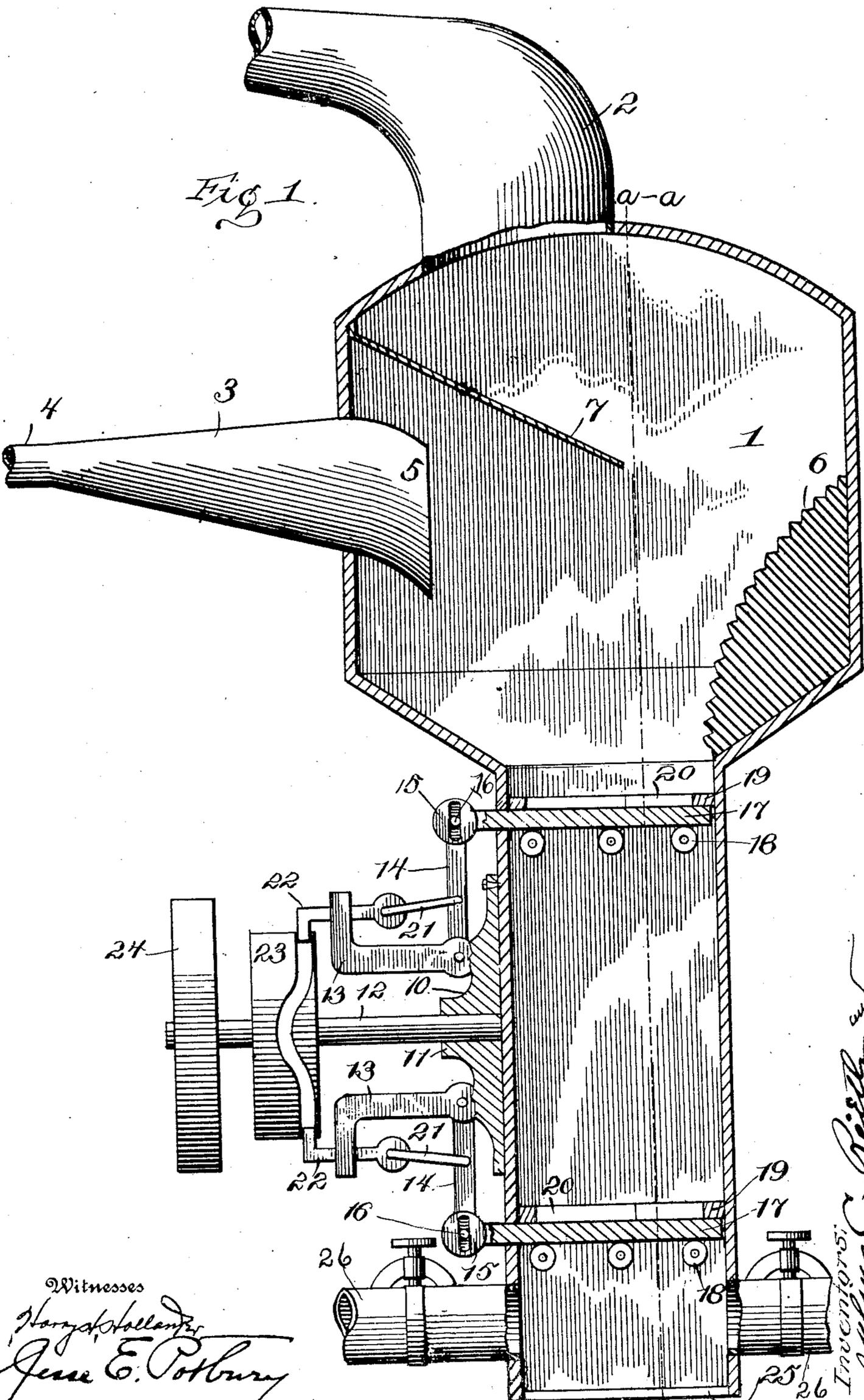


Fig. 1.

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No. 824,585.

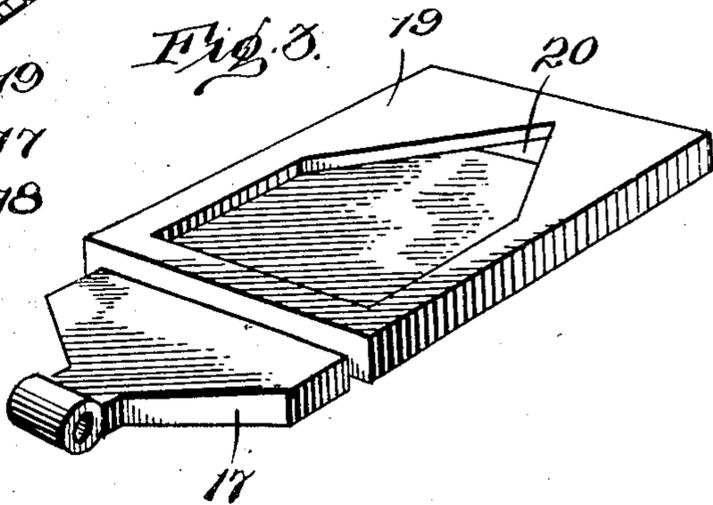
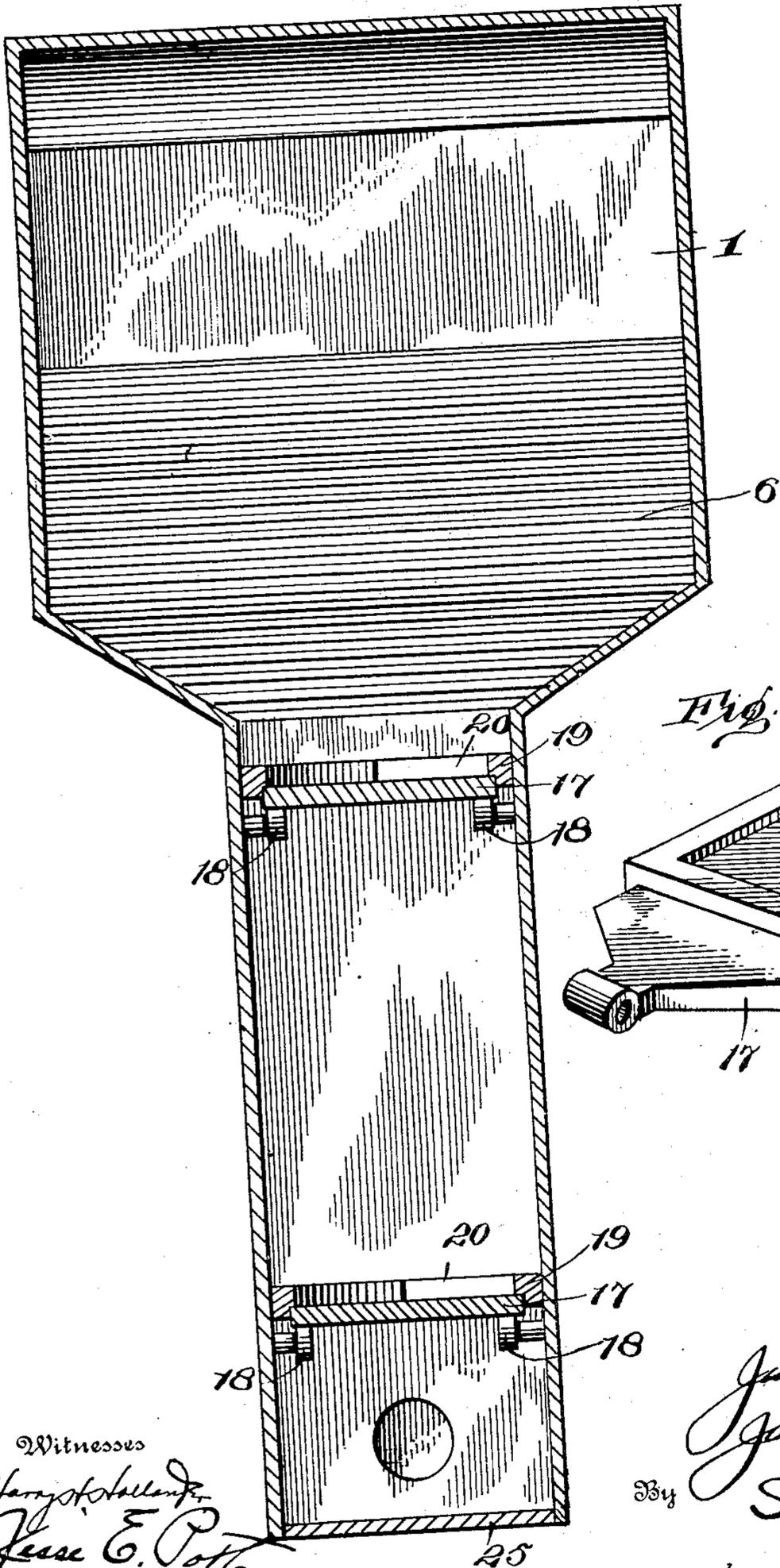
PATENTED JUNE 26, 1906.

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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JULIUS C. RIETH AND JOHN H. CHAMBERLAIN, OF CHICAGO, ILLINOIS.

PNEUMATIC GRAIN-MOVING APPARATUS.

No. 824,585.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed June 5, 1905. Serial No. 283,767.

To all whom it may concern:

Be it known that we, JULIUS C. RIETH and JOHN H. CHAMBERLAIN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pneumatic Grain-Moving Apparatus, of which the following is a specification.

This invention relates to improvements in an apparatus for moving grain by pneumatic means, and more particularly to that class adapted for unloading cars and boats.

The principal object of our invention is to provide a pneumatic grain-moving apparatus and to construct the same in such a manner that in its operation the grain will not be broken or shattered.

Another object of this invention is to provide a vacuum-chamber, having integral therewith a dumping means consisting of a series of slides so operated as to always maintain a vacuum in the chamber, and thus render the apparatus operative at all times.

With these objects in view and such others as may hereinafter appear our invention consists in the particular construction of the various parts and in the novel manner of combination and arrangement of said parts, all of which will be more fully described, and specifically pointed out in the appended claims.

In the drawings forming a part of this specification, Figure 1 is a vertical sectional view. Fig. 2 is a sectional view taken on line A A, Fig. 1. Fig. 3 is a perspective view of one of the slides and diaphragms.

Referring by numerals to the drawings, 1 represents a vacuum-chamber having in the top thereof an air-outlet 2, adapted to be connected to an air-pump. Mounted in the wall of the chamber is a grain-intake pipe 3, one end of which, 4, is adapted to be connected to a pipe or hose (not shown) which extends into a granary car or boat, as the case may be. The other end of the pipe 3 is enlarged, as shown at 5, and is curved downward, so as to throw the grain against the rubber cushion or pad 6, arranged within the chamber opposite the intake-pipe. The grain is also deflected against said pad by the deflector 7, arranged just above the intake-pipe. Mounted upon one side of the chute is a casting 10, having a journal 11 therein for the reception of a shaft 12 and two corresponding arms 13, pivoted to which are corresponding lever-arms 14, having slots 15,

which receive pins 16 in one end of the slides 17, the said slides resting upon rollers 18 in a transverse position in the chute beneath diaphragms 19, which are provided with substantially diamond-shape openings 20, designed to prevent the crushing of the grain in the operation of the slides. Pivoted to the lever-arms 14 by one end are couplings 21, the other ends of which are connected to angular-shaped slides 22, mounted upon the free ends of the arms 13. These angular-shaped slides are in engagement with an eccentric wheel 23, mounted upon the shaft 12, which is driven by a pulley-wheel 24, adapted to be connected to any suitable power. The bottom of the chute is provided with an air-tight door 25 and oppositely-disposed pipe connections 26, thus providing means for depositing the grain at the end of the chute or for conveying it farther, as may be desired.

Assuming that a pump is attached to the pipe 2 and that the grain-intake pipe is connected with a granary, upon the pump being set in operation a partial vacuum is produced in the vacuum-chamber, whereby the grain is caused to rush in through the pipe 3, which is gradually enlarged and so curved as to deflect the grain against the rubber pad, thereby reducing the force with which it would naturally enter if the pipe was not enlarged at its depositing end and throwing the grain with less force against the pad. The grain after striking the pad falls to the bottom of the chamber, where it rests upon the upper slide until said slide is drawn out by the lever-arms operated by the eccentric wheel, the slides being so arranged and operated that when one slide is in the other is out. Thus when the upper slide is drawn out the grain drops through the chute to the bottom slide, and upon shoving in the top slide the bottom slide is drawn out and the grain deposited in the bottom of the chute, from which it may be dropped or conveyed farther, as may be desired.

We do not limit ourselves to the exact construction, for various minor changes may be resorted to without sacrificing any of the advantages of this invention.

Having thus described the various features of our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a pneumatic grain-moving apparatus, a vacuum-chamber, having inlet and outlet pipe connection, the inlet-pipe being

gradually enlarged toward its discharge end and curved downwardly, a rubber cushion within the chamber opposite the inlet-pipe, a chute communicating with the bottom of the chamber, diaphragms arranged transverse within the chute, there being substantially diamond-shaped openings in the diaphragms, slides mounted upon rollers beneath the diaphragms, means for alternately operating said slides, substantially as specified.

2. In a pneumatic grain-moving apparatus, a vacuum-chamber, having inlet and outlet pipe connections, the inlet-pipe being gradually enlarged toward its discharge end, a deflector arranged within the chamber above the inlet-pipe, a rubber cushion opposite the discharge end of the inlet-pipe, a chute communicating with the bottom of the chamber, diaphragms having substantially diamond-shaped openings, arranged transverse within the chute, transverse slides mounted upon rollers beneath the diaphragms, lever-arms operated by an eccentric wheel for alternately opening and closing the slides, substantially as specified.

3. In a pneumatic grain-moving apparatus, a vacuum-chamber, having an air-outlet in the top, an inlet-pipe in the wall of the chamber, the inlet-pipe being gradually enlarging toward its discharging end, the discharging end of the inlet-pipe projecting into the chamber and curved downward, a deflector in the chamber arranged above the inlet-pipe, a rubber cushion in the chamber arranged opposite the inlet-pipe, a chute communicating with the bottom of the chamber, transverse diaphragms having substantially diamond-shaped openings therein arranged within the chute, transverse slides mounted upon rollers beneath the diaphragms, lever-arms connected to the slides and operated by the eccentric wheel for alternately moving said slides in and out, means for opening or closing the bottom of the chute, and pipes communicating with the bottom of the chute, substantially as specified.

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