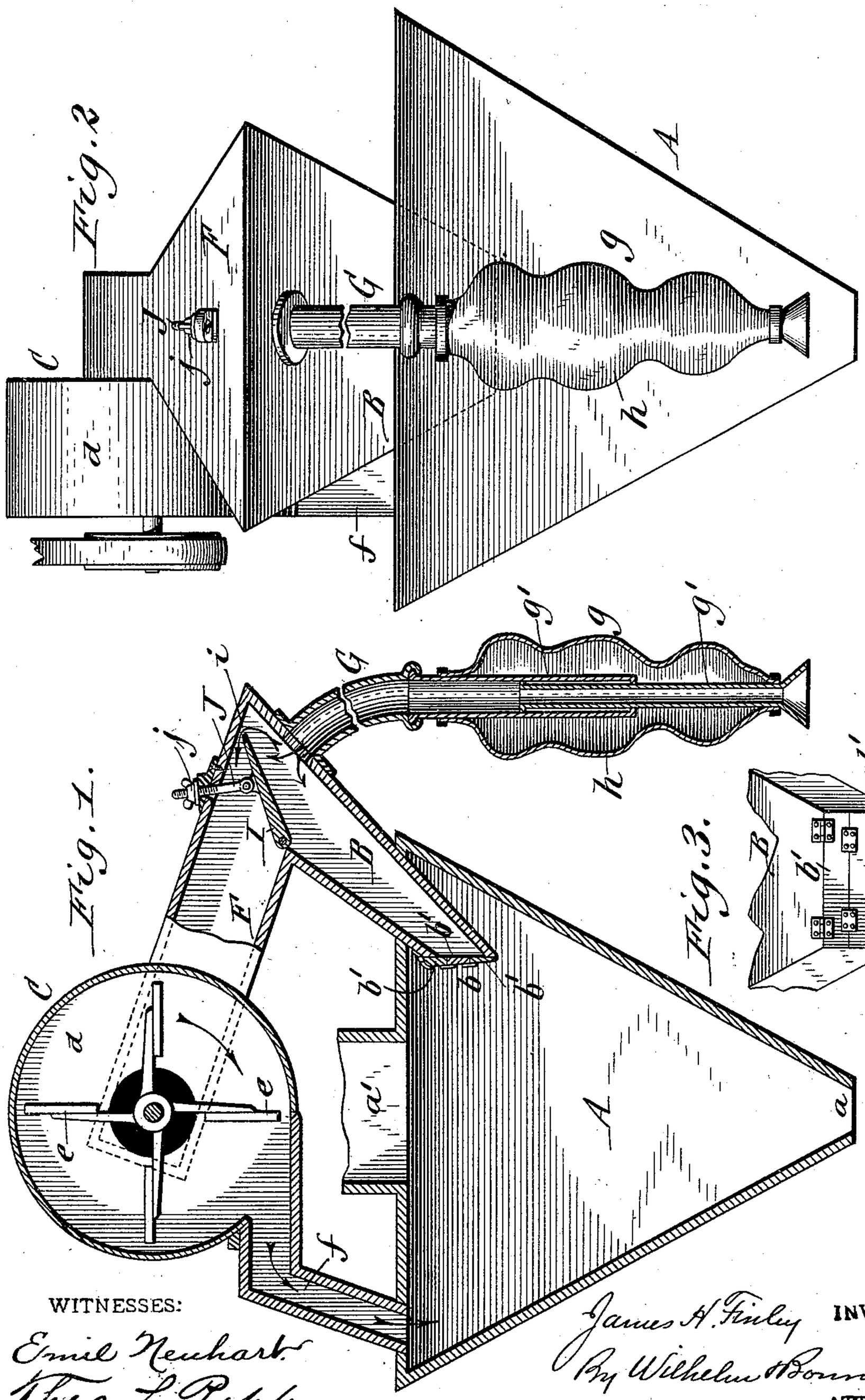
(No Model.)

J. H. FINLEY.

PNEUMATIC ELEVATOR.

No. 512,873. Patented Jan. 16, 1894.



WITNESSES:

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JAMES H. FINLEY, OF BUFFALO, NEW YORK, ASSIGNOR OF THREE-FOURTHS TO GEORGE S. GATCHELL, DENNIS M. DOYLE, AND JAMES MURPHY, OF SAME PLACE.

PNEUMATIC ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 512,873, dated January 16, 1894.

Application filed October 16, 1893. Serial No. 488,230. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. FINLEY, a citizen of the United States, residing at the city of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Pneumatic Elevators, of which the following is a specification.

This invention relates to pneumatic grain elevators and has for its object to produce an elevator of this character, which is simple in construction and which will elevate grain and similar material in bulk, in an expeditious manner.

In the accompanying drawings:—Figure 1 is a longitudinal sectional elevation of my improved grain elevator. Fig. 2 is an end elevation thereof. Fig. 3 is a fragmentary elevation of the main grain spout and its outlet valve.

Like letters of reference refer to like parts in the several figures.

A represents an elevated receiver or hopper provided in its bottom with an outlet opening *a*, from which the grain is conducted to a grain scale or storage bin, and in its top with an air outlet opening *a'*.

B represents a main delivery spout, arranged preferably in an inclined position and extending with its lower or discharge end into the receiver A. The lower end of this spout is provided with an automatic or gravity valve *b* for preventing the admission of air into the spout through its discharge opening. This valve is hung at its upper end to the upper edge of the discharge opening of the spout, in the usual manner and preferably consists of several horizontal sections *b'* which are hinged together one above the other, as shown in Figs. 1 and 3. When a small quantity of grain is in the spout its weight opens only the lowest section of the valve, to permit the grain or other material to escape. The remaining sections are successively opened as the amount of grain in the spout increases.

C represents a fan or other suitable exhaust device. The eye of the fan case is connected with the upper end of the main grain spout by a suction pipe or passage F and the blast or discharge passage *f* of the fan opens into the top of the receiver.

G represents a flexible elevator tube opening at its upper end into the main grain spout and provided at its lower end with a suction head *g* which is placed into the body of grain in the hold of a vessel or other place from which it is to be elevated. This suction head consists preferably of several telescopic sections *g'* the joints of which are made air tight by a flexible covering *h* inclosing said joint.

I represents a deflector which is arranged transversely in the main grain spout opposite the outlet of the elevator tube and whereby the grain or other material entering the grain spout is intercepted and separated from the air current. This deflector is pivoted with one end at one side of the grain spout and its free end is separated from the opposite side of the grain spout by a passage *i*. The width of this passage can be varied for regulating the force of the suction of the fan or other exhaust device by an adjusting screw J pivoted at its inner end to the deflector and passing with its other end through the suction pipe, and a thumb nut *j* applied to the screw and bearing against the outer side of the suction pipe.

The suction of the fan raises the grain through the elevator tube into the grain spout B where the deflector causes an abrupt turn in the air current whereby the greater portion of the grain is separated from the air, the latter passing to the fan and the grain dropping by gravity into the grain spout. When a sufficient amount of grain has accumulated in the grain spout to overcome the weight of the valve, the latter opens and permits the grain to discharge into the receiver.

Any grain which may be carried past the deflector by the air current is drawn with the latter through the fan case and its blast passage and delivered into the top of the receiving hopper, where the grain separates from the air and passes through the lower opening of the receiver, while the air passes out through the upper opening thereof. The blast passage of the fan thus serves as an

auxiliary grain spout through which any grain not received by the main spout is carried into the receiver.

I claim as my invention—

1. In a pneumatic elevator, the combination with a receiver, of an exhaust device having its blast or discharge passage connected with said receiver, an elevating tube connected with the suction passage of the exhaust device and a delivery spout entering said receiver and having its receiving end connected with said elevating tube, substantially as set forth.

2. The combination with the receiver having an air outlet in its top, of a grain spout having its discharge end connected with said receiver and provided with an automatic valve, an exhaust device having its suction passage connected with the receiving end of the grain spout, and its blast passage opening into the receiver, and an elevator tube connected with the grain spout, substantially as set forth.

3. The combination with the receiver, of a grain spout having its discharge end arranged in said receiver and provided with an automatic valve, an exhaust device having its suction passage connected with the receiving end of the grain spout and its outlet opening into the receiver, an elevator tube connected with the grain spout and a deflector arranged in the grain spout opposite the outlet of the elevator tube, substantially as set forth.

4. The combination with the receiver, of a grain spout having its discharge end arranged in said receiver and provided with an automatic valve, an exhaust device having its suction passage connected with the receiving end of the grain spout and having its outlet opening into the receiver, an elevator tube connected with the grain spout, a deflector arranged in the grain spout opposite the inlet of the elevator tube and pivoted at one end to one side of the grain spout, while its free end is separated from the opposite side of the grain spout by a passage, and an adjusting device connected with said deflector, substantially as set forth.

5. The combination with the receiver, of a grain spout entering said receiver and a gravity valve applied to the discharge end of said spout and consisting of several pivotally connected sections, substantially as set forth.

Witness my hand this 5th day of October, 1893.

JAMES H. FINLEY.

Witnesses:
CARL F. GEYER,
JNO. J. BONNER.