No. 714,358. Patented Nov. 25, 1902.

C. BRADFORD & R. B. HILLEARY.

PNEUMATIC ELEVATOR AND WEIGHER.

(Application filed Dec. 18, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

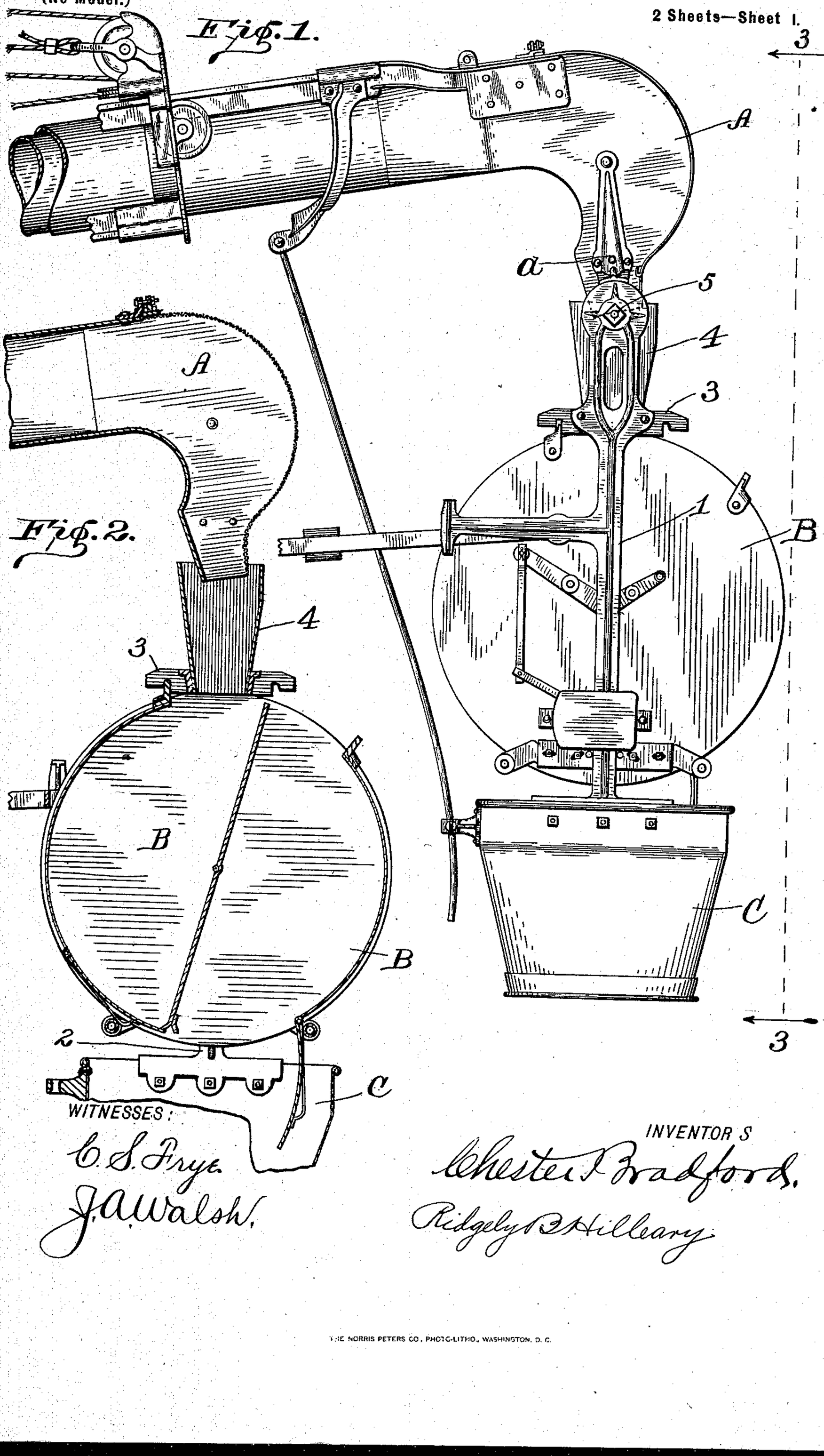

Fig. 2.

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Fig. 3.

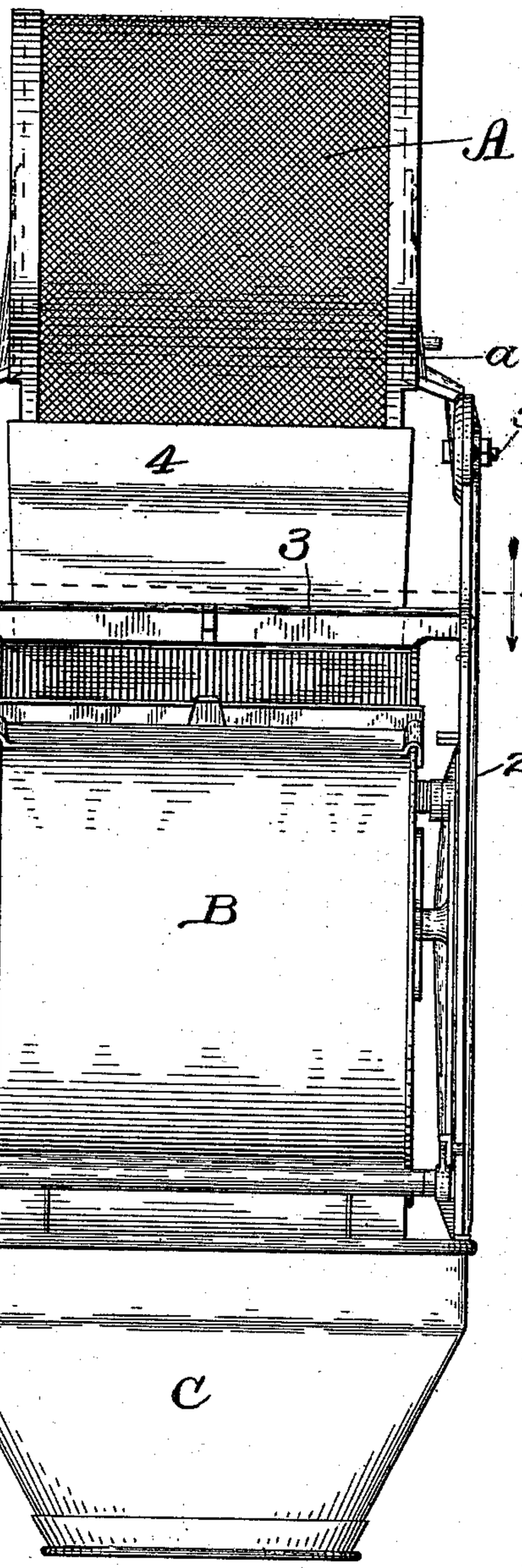
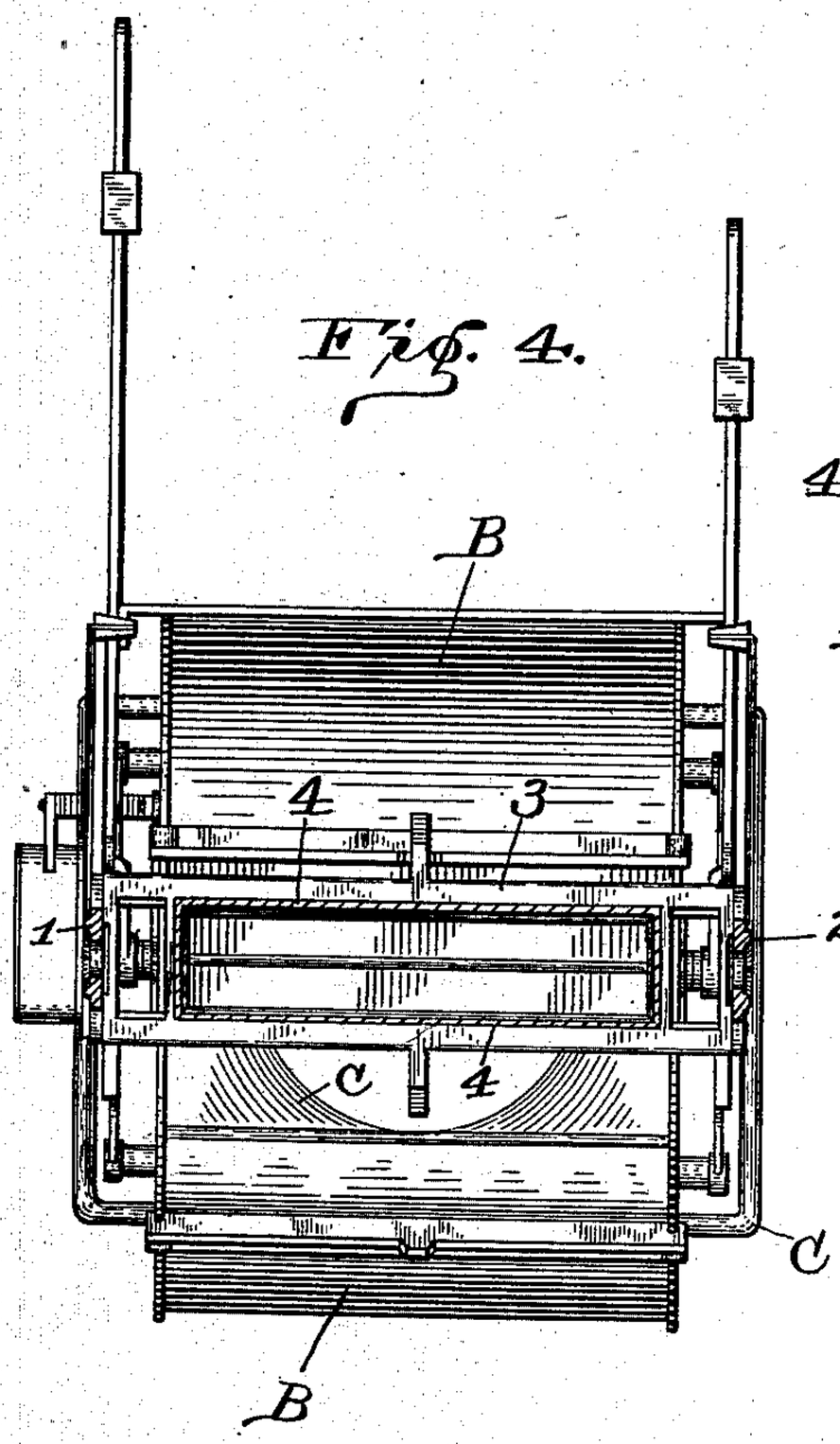


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHESTER BRADFORD AND RIDGELY B. HILLEARY, OF INDIANAPOLIS, INDIANA.

PNEUMATIC ELEVATOR AND WEIGHER.

SPECIFICATION forming part of Letters Patent No. 714,358, dated November 25, 1902.

Application filed December 18, 1901. Serial No. 86,341. (No model.)

To all whom it may concern:

Be it known that we, CHESTER BRADFORD and RIDGELY B. HILLEARY, citizens of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Pneumatic Elevators and Weighers, of which the following is a specification.

Our present invention relates to that class of machines commonly used for handling grain in connection with threshing-machines fully shown and described in Letters Patent of the United States No. 623,109, issued, upon the application of James B. Schuman, April 11, 1899. In machines of this character it is necessary in order to secure the best results and do the greatest range of work that the delivery-point of the apparatus shall be elevated and lowered from time to time, according to the position of the machine and according to whether it is desired that the receptacles into which the grain is discharged shall rest upon the ground or in a wagon or otherwise. The weighing apparatus is suspended to the separating-head by means of pivots, and the position of said weighing apparatus should at all times be vertical, whatever the angle at which the pipes of the elevating apparatus may extend. Heretofore it has been difficult to secure accuracy of operation in the weighers. It has been perfectly practicable to secure such accuracy in a single position—that is to say, that position where the mouth or nozzle of the separating-head discharges directly downwardly into the weighing-drum. However, as said separating-head is raised or lowered from this one position the discharge of grain therefrom is deflected, and thus caused to strike the wall of the weighing-drum too forcibly or not forcibly enough, and thus disturb the accuracy of the weighing.

It is the object of our present invention to overcome this difficulty, and this we have done by lengthening the frame of the scale mechanism in which the weighing-drum is carried upwardly and interposing between said weighing-drum and the mouth of the discharging-head of the elevating apparatus an intermediate hopper, whose position shall always be fixedly maintained relatively to the weighing-drum and which shall receive the force of the discharge from the separating-head, thus relieving the weighing-drum altogether from such force.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of the upper and outer end of a pneumatic elevator and weigher, such as is above described, embodying our present invention; Fig. 2, a central sectional view of a portion of the parts shown in Fig. 1; Fig. 3, a front elevation of the parts shown in Fig. 1 as seen from the dotted line 3 3 alongside said figure, and Fig. 4 a horizontal sectional view looking downwardly from the dotted line 4 4 in Fig. 3.

In said drawings the portions marked A represent the separating-head of a pneumatic elevator such as is above described, B the weighing-drum of the weigher to such an elevator, and C the receiving-hopper positioned below said weighing-drum. These parts are in the main similar to those shown and described in the Patent No. 623,109, above referred to, although improved in construction, and as they do not constitute our present invention will not be further described herein, except incidentally in describing said invention.

The framework of the scale mechanism, as heretofore, consists mainly of the side frames 1 and 2 and the rectangular cross-frame. The side frames 1 and 2 instead of stopping, as heretofore, at the level of the transverse frame 3 continue up a considerable distance beyond said cross-frame, so that the pivots by which the said side frames are united to the ears *a* on the head A are several inches above the weighing-drums B instead of being close to the peripheries of said drums, as heretofore.

Within the cross-frame 3 we secure the small stationary intermediate hopper 4, which constitutes the leading feature of our present invention, and we locate the pivots 5, by which the whole structure is carried from the separating-head A, at a point close to the upper end of these intermediate hoppers.

As will be readily seen, the force of the grain as it is delivered from the mouth of the separating-head will, where our invention is

used, strike the interior walls of this intermediate hopper, which being stationary and fixed in its relation to the weighing-drum B will deliver said grain into said weighing-drums always in the same direction and with the same force, so that the scale mechanism will not be affected thereby differently at one time than at another, and this irrespective of the elevation to which the separating-head A is raised or the position of said separating-head relatively thereto.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a pneumatic elevator and weigher, with a separating-head changeable in its position, and a weighing-receptacle located therebelow, of an intermediate hopper arranged between said separating-head and said weighing-receptacle and held in substantially unvarying relation to said receptacle and adapted to receive the discharge from said separating-head and guide it into said weighing-receptacle.

2. The combination, in a pneumatic elevator and weigher, of the separating-head, the weighing-receptacle, a framework in which said weighing-receptacle is mounted having members which are prolonged above said weighing-receptacle and connected to said separating-head by pivots at the upper end, and an intermediate hopper secured to said framework the lower end of which is arranged to discharge into said weighing-receptacle while its upper end extends up to the mouth of said separating-head adjacent to the pivotal point, substantially as set forth.

3. The combination, in a pneumatic elevator and weigher, of a weighing-receptacle, a framework carrying the same, a separating-head to the elevator capable of assuming varying positions, and a stationary hopper mounted on said framework between said separating-head and said weighing-receptacle and adapted to guide the material in a fixed course on its way from said head to said receptacle.

4. The combination of a shiftable discharging-head, a weighing apparatus including a suitable shiftable receptacle positioned below said discharging-head, and an intermediate guiding-hopper secured between said discharging-head and said weigher-receptacle and supported free from said weigher-receptacle whereby the material issuing from said discharging-head is guided in a fixed course into said weigher-receptacle irrespective of the position of the said discharging-head or the direction in which said material issues therefrom.

In witness whereof we have hereunto set our hands and seals, at Indianapolis, Indiana, this 9th day of December, A. D. 1901.

CHESTER BRADFORD. [L. S.]
RIDGELY B. HILLEARY. [L. S.]

Witnesses:
ALBERT F. ZEARING,
C. S. FRYE.