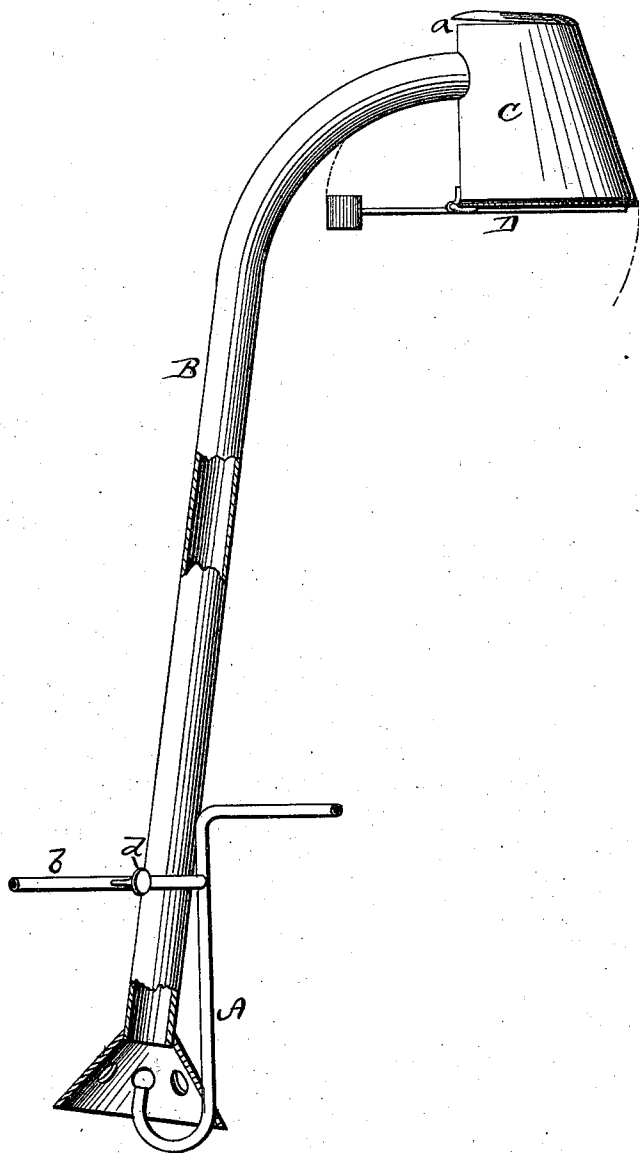


A. C. RAND.
ELEVATING GRAIN, &c.

No. 173,342.

Patented Feb. 8, 1876.



WITNESSES
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IMPROVEMENT IN ELEVATING GRAIN, &c.

Specification forming part of Letters Patent No. **173,342**, dated February 8, 1876; application filed September 18, 1875.

To all whom it may concern:

Be it known that I, ALONZO C. RAND, of Minneapolis, in the county of Hennepin and in the State of Minnesota, have invented certain new and useful Improvements in Elevating Grain, &c.; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention is especially intended for elevating and cleaning grain, but may also be used for elevating sand, fine coal, or other granular substances; and it consists in a receiver having its top open and provided with a self-adjusting bottom, in combination with a grain-pipe and an air-blast, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a side elevation, partly in section, of my apparatus.

A represents an air-pipe, the outlet pointing up and into the bottom of the grain-delivery pipe B. This pipe is so arranged at the extreme lower end in funnel shape, with perforations that the grain passes through and comes in contact with the blast of air. The motion of the grain is accelerated by the partial vacuum created by the air-blast. C represents the outlet-receiver for the grain, which may be of any desired size and shape. The roof of this receiver is open, as shown at *a*, so that the dust, &c., from the grain may find a ready exit. The bottom D of the receiver C is self-adjusting, and opens to a greater or less extent, in proportion to the weight of grain lying upon it. This arrangement prevents the dust from passing with the grain

into the conveyers. The grain-tube B is made with as gradual a curve as is practicable that the friction of the grain may be as little as possible.

A pressure-gage is intended to be used in connection with this device, so that the pressure of air may be always known, as the quantity of grain delivered in a given time depends upon the force of the air-current, and the current that will deliver the most without injury to the grain is the desideratum, and the proper measure of the capacity of the apparatus.

The advantages possessed by this plan over the old method are that the expensive buckets and belting, and great wear and tear of the same, are gotten rid of. The grain is well cleaned, and the expense of elevating lessened.

The hold of a vessel or car may be ventilated by the use of the air-pipe *b*, attached to the main pipe A. This pipe *b* is provided with a stop-cock, *d*, and by the use of a hose the air may be directed into a ventilating-tube, and thus withdraw the dust, that is so great a nuisance to the shovelers.

This general arrangement is also adapted to elevating other substances, such as sand, gravel, fine anthracite coal, &c.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The receiver C, having its top open at *a*, and provided with self-adjusting bottom D, in combination with the grain-pipe B and air-blast pipe A, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of August, 1875.

A. C. RAND.

Witnesses:

HARRY W. BROWN,
HEZ DUNHAM.