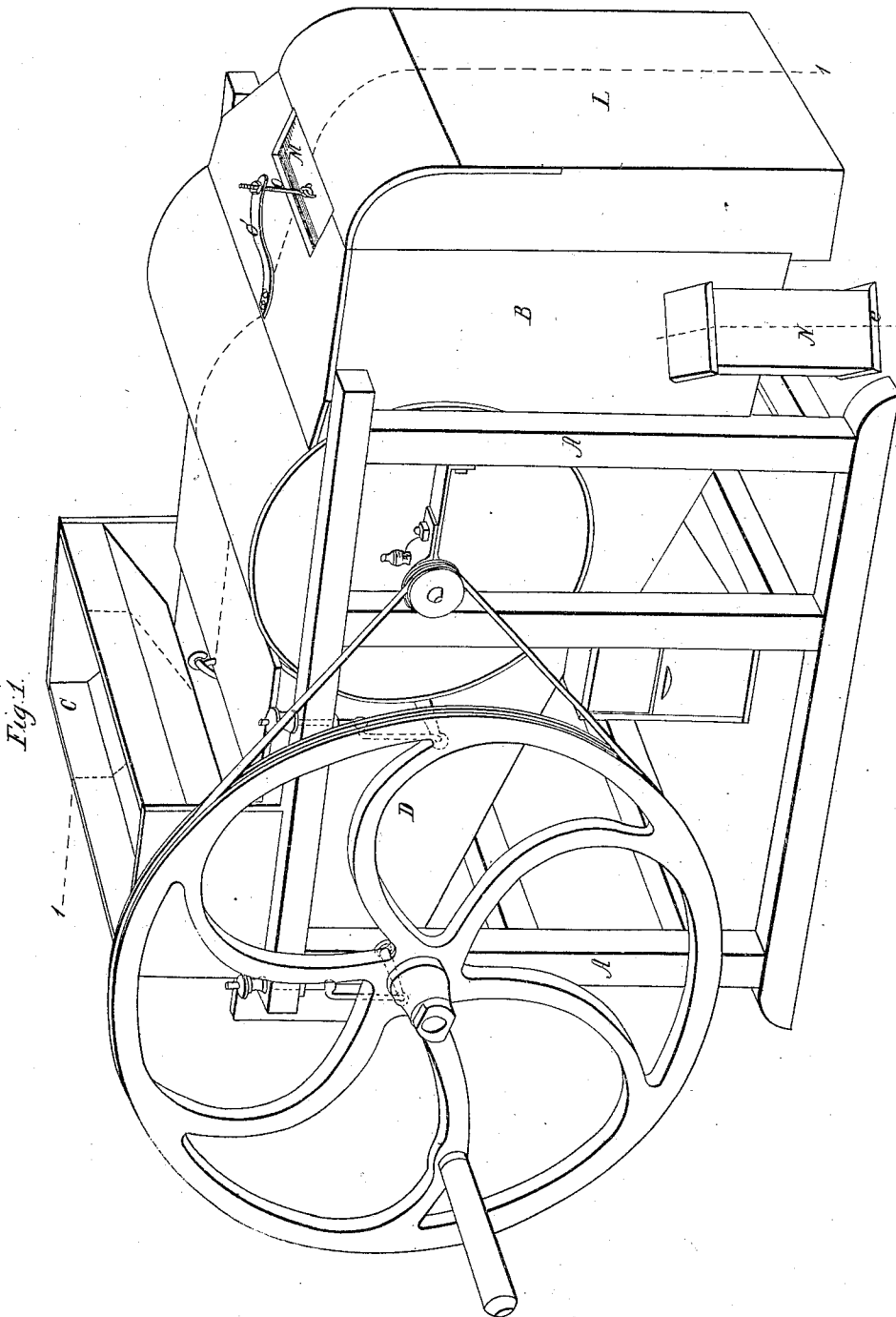


Sheet 1, of 2 Sheets.

A.B. Childs.
Grain Winnower.

N^o 9,564.

Patented Jan 25, 1853.

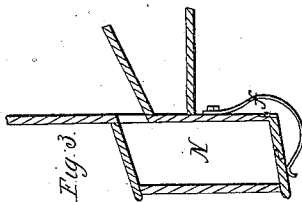
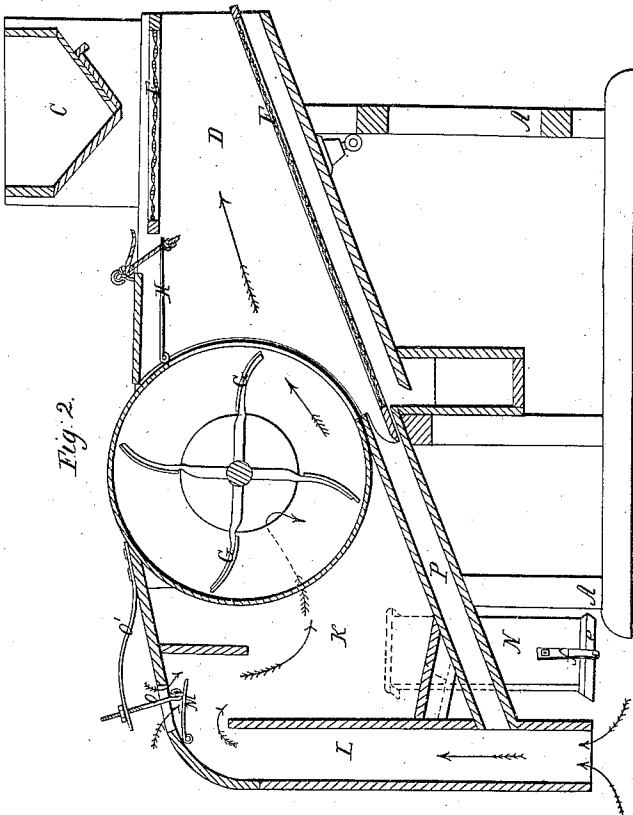


Sheet 2, 2 Sheets

A. B. Childs.
Grain Winnowers.

N^o 9, 564.

Patented Jan. 25, 1853.



UNITED STATES PATENT OFFICE.

AUGUSTUS B. CHILDS, OF ROCHESTER, NEW YORK.

WINNOWER OF GRAIN.

Specification of Letters Patent No. 9,564, dated January 25, 1853.

To all whom it may concern:

Be it known that I, AUGUSTUS B. CHILDS, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in the Machine for Winnowing Grain Twice by Means of a Single Fan-Blower, patented by me on the 5th day of August, 1851, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings of the same, in which—

Figure 1, is a view in perspective of my said machine; Fig. 2 is a vertical longitudinal section, and Fig. 3 is a vertical section of the delivery valve and of its chamber.

My invention and improvements consist in a method of regulating the blast for the second winnowing of the grain by combining with the revolving fan, which generates the blast for both the first and second winnowing, a compensating supply valve, situate at some point intermediate between the fan and the place at which the grain is winnowed the second time, the operation of this valve being such that it can be opened to admit an increased quantity of air to supply the fan, whenever the latter demands more than could be drawn through the grain without increasing the strength of the blast to such a degree as would endanger the carrying away of the sound grain along with the impurities.

My invention further consists of a self-regulating delivery valve, which prevents the admission of air, while it opens to discharge grain, or impurities separated from the grain, and collected in any receptacle within the machine.

The general plan and arrangement of the machine is substantially the same as that invented and patented by me as aforesaid, in the accompanying drawings A being the frame; B, the casing; C the hopper, and D the vibrating shoe carrying the riddle E, and screen F. Behind the shoe is a radial fan G with a hinged board or plate H in front of it, to be raised and lowered to give direction to the blast. Behind the fan is an air chamber K through which all the air to supply the fan must pass.

L is a pipe, through which a constant current of air passes into the air chamber and M is the compensating valve which is opened occasionally to admit an additional quantity of air into the chamber K to prevent the force of the draft up the pipe L,

from increasing to a sufficient extent to interfere with its proper action upon the grain.

At the top of the air chamber is a hanging plate to deflect downward the blast entering from the top of the pipe L, in order that any impurities borne along by the air may by the downward momentum thus given to them be thrown without the range of the current when it turns to pass to the fan and be precipitated upon the bottom of the chamber K. This bottom is inclined to one side, so as to cause the particles that fall upon it to run down into the valve chest N. The valve M at the top of the chamber is of considerable area, and it opens inward. It is held up by a link O, and an adjustable spring O' that projects from the top of the casing. The link O' is fitted with a set screw by which it may be adjusted to hold the valve more or less open, to admit a greater or less quantity of air, as may be required. The object of this valve is to enable me to vary the speed of the fan, and the volume and force of the front blast, without altering the force of the current of air up the pipe L, and it effects this object when the valve is so adjusted as to lessen the entrance for air when the speed of the fan is lessened and demands a less supply of air, so that the draft up the pipe L may not be reduced, and it is so adjusted as to increase the entrance for air when the speed of the fan increases and demands more air to supply it, so that the increased demand by the fan may not increase the draft up the pipe L. Under this arrangement the pipe L can be made to supply a regular and constant quantity of air, not exceeding the minimum demand by the fan, the complement over and above this regular supply being furnished by the valve M. Thus it will be seen that there need be no variation in the force of the draft up the pipe L, when the velocity of the fan and the force and volume of the front blast are varied.

Beneath the chamber K an inclined trough P is placed, whose lower end enters the front side of the pipe L. The lower end of the screen F enters the upper end of this trough.

Instead of the hinged valve M, any other form of valve may be employed, whose application as a substitute for this is so obvious that a description in detail is deemed entirely unnecessary.

The valve-box N is attached to the casing B at the lowest line of the inclined bottom of the chamber K, the upper extremity of this box communicating by an aperture at its side with the chamber, and the seeds, etc., which fall upon the bottom of the chamber run through this aperture into the valve box. The bottom of this box is closed by a valve *e* which opens downward and is pressed upward by a spring *f* of barely sufficient strength to overcome its gravity and keep it closed when the box is empty. Instead of a spring a weight may be used to close the valve or a balance valve with a slight preponderance on one side just sufficient to keep it closed can be used. Whenever in the operation of the machine a sufficient quantity of the impurities have accumulated to about half fill the box N, its bottom *e* opens by their weight to permit the contents to run out until the weight of the quantity left is insufficient to hold the door open against the action of the spring *f*. In this way the door opens and closes itself so as to empty the chamber without admitting air. I have shown this valve applied so as to prevent an undue accumulation of matter in the waste box, but it can be applied to any other receptacle in the machine. If light grain or seeds are to be cleansed, a lighter blast must be employed than when heavier grain is to be purified; but changes of this kind must be left to the judgment of the attendant, and they will have to be made, as in the common winnowers, to suit almost every different lot of grain that is

operated upon. The strength of the blast is of course regulated by the speed at which the fan is turned, and the strength of draft up the pipe by the position of the valve M.

It is obvious that the form and arrangement of the devices I have employed to carry my improvements into effect may be varied considerably without departing from the principle of my invention, and I contemplate making such changes and modifications whenever circumstances may render them expedient to adapt the machine to special uses or to suit the views of different constructors.

I claim—

1. Regulating of the blast for the second winnowing of grain, by combining with the revolving fan which generates both the first and second blast, a compensating supply valve as herein set forth, but I make no claim to a spring valve in itself as such a contrivance is well known for various purposes.

2. I also claim the self regulating valve which prevents the admission of air into the machine, while it opens to discharge the impurities separate from the grain, and thus prevents an undue accumulation of them at the bottom of the air chamber.

In testimony whereof I have hereunto subscribed my name.

A. B. CHILDS.

Witnesses:

F. G. FONTAINE,
P. H. WATSON.