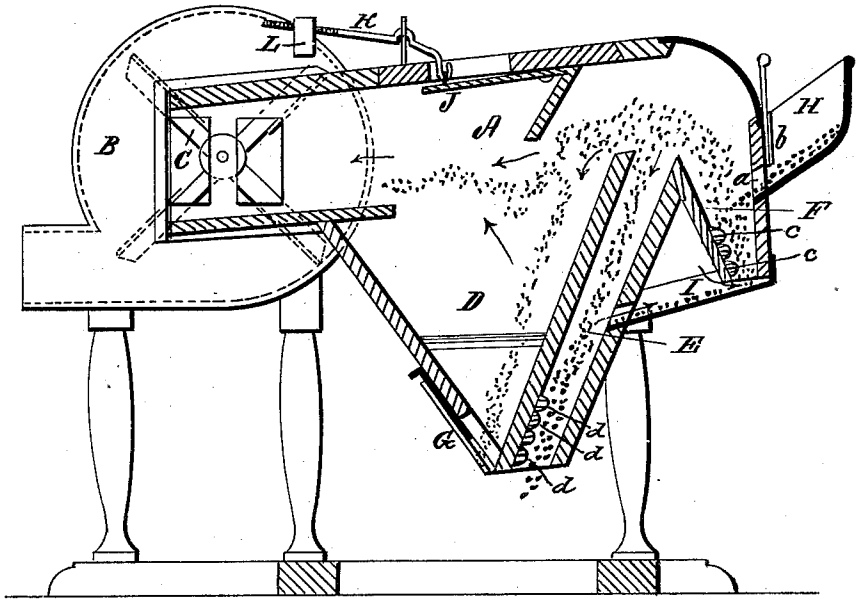
W. R. COX.

Grain Separator.

No. 21,945. Patented Nov. 2, 1858.



N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

WM. R. COX, OF DELHI, IOWA.

GRAIN-SEPARATOR.

Specification of Letters Patent No. 21,945, dated November 2, 1858.

To all whom it may concern:

Be it known that I, WILLIAM R. COX, of Delhi, in the county of Delaware and State of Iowa, have invented a new and Improved Grain-Separating Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, said drawing being a longitudinal vertical section of my invention.

This invention consists in the employment or use of a series of suction blast spouts provided with deflectors and attached to an inclined trunk which communicates with a fan box, the several parts being constructed and arranged in such relation with each other, as hereinafter shown, that dirt, chaff and all foreign impurities may be separated from grain in a very expeditious and thorough manner.

The invention further consists in using in connection with the above named parts a regulating valve attached to the inclined trunk and provided with a lever and weight or their equivalents in order to admit air into the trunk and reduce the strength of the blast therein in case it becomes too strong to act in the most efficient way on the grain.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a trunk which is slightly inclined from a horizontal position and is connected at one end and communicates with a fan box B, which is provided with a rotary blast fan C, which may be of usual construction.

To the bottom of the trunk A, there are three spouts attached D, E, F. The spouts D, E, are of equal length or project down from the trunk A, an equal distance, but the spout E, is very much larger than F. The spout E, is of V-form, the lower ends of the sides being connected and provided with a slide G, at its lower end to regulate the discharge from said spout. The spout F, is directly at one side of E, and its upper part is a little larger or wider than the lower end. The spout F, is very considerably shorter than E, and is inclined in a reverse direction to E, the inclination of the latter corresponding to that of one of the sides of D, against which it is placed.

H, is a hopper attached to the elevated end of the trunk A, by an opening *a*, the area of which may be regulated by a slide *b*. To the lower end of the spout F, a trough I, is attached, and this trough communicates with the spout E, at about its center.

In the lower part of the spout F, and to the side opposite to that where the opening is made there are attached a series of deflectors *c*. These deflectors are of semi-cylindrical form and extend entirely across the spout. Three are shown in the drawing but more or less may be used as desired. In the lower part of the spout E, similar deflectors *d*, are placed at the side opposite to that where the trough I, enters or communicates with the spout. In the upper part of the trunk A, a valve J, is placed, said valve opening downward and having a lever K, attached on which a weight L, is placed.

The operation is as follows:—Motion is communicated to the fan C, in any proper way, and the grain to be cleaned is placed in the hopper H. The grain falls through the opening *a*, into spout F, and strikes against the deflectors *c*, which spread or scatter it directly over the discharge end of said spout so that the blast generated by fan C, will pass through the grain and act upon it in the most efficient manner. The light impurities are carried up by the blast into the fan box B, and ejected therefrom by the fan, while the heavier impurities light grain etc., that are able to a certain extent to resist the action of the blast fall into D. The sound grain after being acted upon in spout F, by the blast and separated from a portion of impurities, falls into trough I, and thence into spout E, where it is spread by the deflectors *d*, and again acted upon by a blast generated by the same fan C, and all the remaining impurities are separated from the grain. The weight L, on the lever K, is so adjusted that in case the blast in A, becomes too strong it will open. This is important for if the valve were not used, the blast might carry the sound grain into spout D.

By this invention a very compact machine is obtained, one that may be used either with or without other machinery, as smut machine, winnower, etc.

I am aware that suction blast spouts have been arranged in various ways and I there-

fore do not claim broadly the separating of dust, chaff and other light impurities from grain by subjecting the same to the action of a blast in passing through a spout or spouts; but,

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

1. The spouts E, F, provided with the deflectors *c*, *d*, connected by the trough I, and arranged relatively in respect to each other and to the spout D, and trunk A, substantially as and for the purpose set forth.

2. I further claim in combination with the above the loaded valve J, applied to the trunk A, and used in connection with the spouts D, E, F, for the purpose specified.

WILLIAM R. COX.

Witnesses:
G. WATTSON,
ABNER SYLVESTER.