

K. SCHWAB.
Grain-Separators.

No. 152,767.

Patented July 7, 1874.

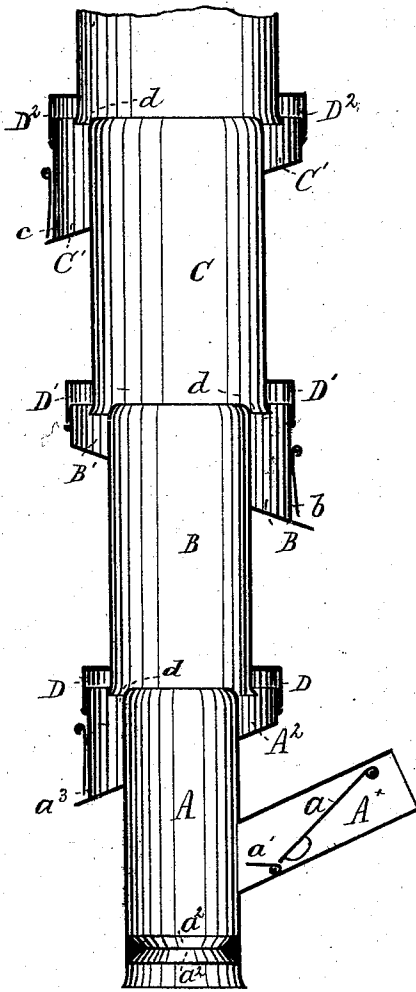


Fig. 1.

Witnesses:

Chas. F. Meisner.
J. W. Herthel.

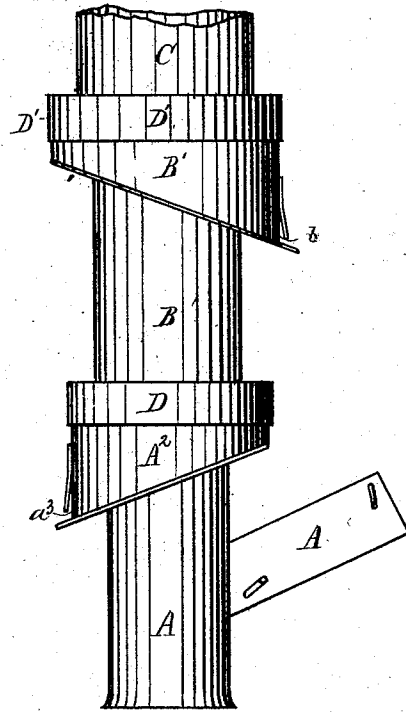


Fig. 2.

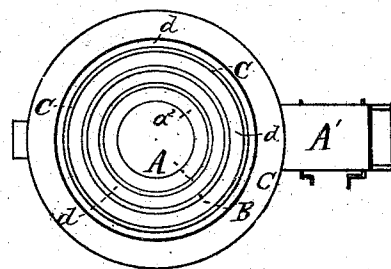


Fig. 3.

Inventor:

Kilian Schwab

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UNITED STATES PATENT OFFICE.

KILIAN SCHWAB, OF LEBANON, ILLINOIS.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **152,767**, dated July 7, 1874; application filed May 5, 1874.

To all whom it may concern:

Be it known that I, KILIAN SCHWAB, of Lebanon, in the county of St. Clair and State of Illinois, have invented an Improved Grain-Separator, of which the following is a specification:

This invention consists in a vertical cylinder of one or more sections, each successive section upward being of a larger diameter, and surrounding the top of each section is a settling-chamber, each of which has a valve-discharge. To unite the cylinders, the lower edge of each successive upper section is provided with a flanged cap, fitted to cap and unite with the settling-chamber of the section beneath. The grain is fed through a hopper into the lowest section, and is at once subjected to a separating action by a suctional current of air produced by a fan attachment at top of the machine. The heaviest and best grain gravitates below, while the lighter and inferior grain is forced and carried up by and with the suction. As the suction or air current becomes weaker from the enlarged diameters of each upper section, the separation of the grain is consequently effected at different stages, and deposited through the annular space left open (by the enlarged diameter aforesaid) into the different settling-chambers presented. There are also certain detail improvements, all of which will now more fully appear.

Of the drawing, Figure 1 is a sectional elevation, Fig. 2 a side elevation, and Fig. 3 a plan view, of the sections.

As stated in the nature of my invention, I form the same to consist of one or more cylinder-sections, A B C being here shown. The cylinder can be of sheet metal, or of glass, or metal with glass windows. The diameter of each successive cylinder-section in the order of ascent is greater; thus B is larger in diameter than the lower section A, and C larger than B, &c., as shown in the figures. The lower section, A, I form to have an inclined feed-hopper, A¹. This has a self-acting valve, *a*, (see Fig. 1,) which closes and prevents the outside air from entering at the time the grain is fed through said hopper. Also, I provide the hopper A¹ to have a further valve, *a*¹, operated by its handle from without, and by

means whereof the operator can regulate the passage and guide the grain into the tube to be acted upon by the suction current. I provide the interior of the section A, near its lower edge, with an annular projection, *a*², V-shaped, as shown in Fig. 1. The grain, gravitating downward, strikes and passes over the upper face of said projection, and rebounds from it into the suction-blast, where it is again caught before its final exit, and thus whatever light grain is still unseparated, is subjected to a further action of being carried upward with the suction force. The under face of the projection *a*² directs to the center the suction force at bottom of the section A. Each section A B C, at top, I provide with a surrounding settling-chamber, A² B' C', as shown in the figures. The settling-chambers D D¹ D², preferably of metal, have inclined annular bottoms formed as flange on the outside, near the upper ends of the cylindrical sections, as indicated in the figures. The light grain flying upward with the blast is caught in these annular chambers, the inclined bottoms of which allow it to slide out by the valve-openings *a*³ b c, Figs. 1 and 2. To unite the cylinder-sections A B C, I further form each top section, B C, &c., at its lower end, to have a flange-cap, D D¹ D², fitted to cap and close the top of each settling-chamber A² B' C', as shown in Figs. 1 and 2.

Thus united, it will be noticed that the larger and larger diameters of the successive sections B C leave or create an open space, as shown at *d*, Figs. 1 and 3, through which the grain passes, and is deposited into the settling-chambers.

A proper fan attachment will be over the top section of the separator, so as to produce, by its operation, a suction-blast through the interior and out of the machine.

Thus constructed, the operation of the parts described is as follows: As the grain is fed through the hopper A¹, it is caught by the suction force produced by the fan at top. The lighter grain is thus separated by said suction force and with it carried upward, the heavier grain gravitating out below. The grain passing the first settling-chamber, if it be of such weight and quality as not to be further acted upon by the suction-blast, by its tendency is

carried sidewise or out of current and made to pass and drop through the annular opening *d* into said first settling-chamber.

The grain in this first chamber is, therefore, of the second grade compared with that grain deposited from below, and so on, each higher settling-chamber determining the grade and quality of its contained grain.

The enlargement of the diameters of the upper cylinder-sections proportionately decreases or weakens the suction force, and the better adaptation is thus produced to suit the suction to the nature of the grain.

What I claim is—

1. A grain-separator consisting of one or more cylindrical sections, the diameter of each upper section being larger than the lower, and having annular settling-chambers for the reception of the different grades of grain, substantially as herein shown and described.

2. One or more tubular sections, A B C,

having settling-chambers A² B' C' and flanged caps D D¹ D², arranged and constructed to operate as set forth.

3. The annular chambers A² B' C', &c., in combination with cylinder-sections A B C, as herein shown and described, and for the purpose set forth.

4. The cylinder A, having settling-chambers A², feed A¹, provided with valves *a a*¹, and the annular projection *a*², in combination with an upper cylinder-section, B or C, &c., having settling-chambers B' or C' at top, and flanged cap D¹ D² at bottom, substantially as herein set forth.

In testimony of said invention I have hereunto set my hand in presence of witnesses.

KILIAN SCHWAB.

Witnesses:

CHRISTIAN MUELLER,
SEVERIN E. MOLL.