

UNITED STATES PATENT OFFICE.

KILIAN SCHWAB, OF LEBANON, ILLINOIS.

IMPROVEMENT IN GRAIN AND MIDDINGS SEPARATORS.

Specification forming part of Letters Patent No. **147,797**, dated February 24, 1874; application filed December 16, 1873.

To all whom it may concern:

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

My invention achieves a most simple, direct, and practical separation of all kinds of grain, middlings, and the like.

My invention is composed of a series of peculiarly arranged and constructed separators. Each in itself, however, forms a distinct separator, having a separate chamber to receive the results of its own separation, and passing its offal to the next, and so on through the series of separators, at same time utilizing the same current of air. The grain, middlings, or substance is acted upon according to the peculiar nature of its requirement, and separated into different sorts, qualities, and grades, all of which will now more fully appear.

Of the drawing, Figure 1 is a sectional elevation. Fig. 2 is a front elevation; Fig. 3, a side or end elevation; Fig. 4, a detail perspective, showing slide and cut-off parts; and Fig. 5, a top plan.

My machine, as here shown, is upright.

A is a suitable frame. A current of air is introduced, forced, or drawn through my machine; hence same will be provided with a suitable fan, blast, or suction attachment. The arrangement and connection of the wind attachment, however, should be such as to pass its current from bottom through the machine, and out at top, by way of a continuous action or circulation. At top of frame A is the feed-hopper *a*. This connects and forms part with a slanting chute, B. (See Fig. 1.) Through the hopper *a* the grain is fed to pass through the chute B. Inside the chute B, I provide a self-acting valve, *b*, so arranged as to open passage for the grain, (the weight of the grain opening said valve,) and closing its passage when no grain is fed; the object of the valve *b* (see Fig. 1) being to prevent the air from outside entering where the grain is fed in, as otherwise no separation of the grain could take place. From the chute B the grain drops upon the top separator C, which consists as follows: An angular frame, *c c'*, with opening left at top, through which the separated or

lighter grain is deposited in the chamber D thus formed. (See Fig. 1.) The inclined top face of the frame *c* has a sheet-metal lining, with flanged side edges, in which operates a hand-slide, *d*. (See Figs. 1, 4.) The slide *d* has its upper edge *d*¹ bent vertical, and is flanged at bottom edge *d*². The handle *d*³ of said slide passes outside of the frame A, within reach of the operator. (All shown in Fig. 1.)

The slide *d* performs the following functions: First, enabling the operator to suit the act of separation to the peculiar nature of the grain, and to control the opening to chamber D, by allowing more or less of the light or separated grain to fall back into said chamber. Secondly, the introduced grain and the like striking the slide *d*, its upper flange *d*¹ acts to arrest the heavy grain from passing into the separating-chamber D. At same time, especially, said edge *d*¹ of the slide acts to divide the grain, so that the air-current more easily separates the lighter from the heavier grain, and causes the lighter to be passed into said separating-chamber D. Thirdly, the slide *d* controls the passage of the grain over its face, to be passed to the next grade of separation, its bottom edge *d*² specially being to arrest, or cause a slower passage of the grain over its slide. In case of middlings, this bottom edge can be dispensed with.

Further, the separator C proper consists of a cut-off, E, which I provide near the lower edge of the frame *c*. (See Figs. 1, 4.) The cut-off E is hinged, and is operated from without the machine by its handle *e*. The object of said cut-off is to enable the operator to regulate and control still more the passage of the grain from one separator, C, to another, and at same time separate the coarser from the finer grain. By raising the cut-off E, a slower passage over same for the grain is had; by lowering cut-off, a faster passage. At same time that the grain is acted upon by the position of the cut-off E, the air-current can, by its force, more adequately separate the lighter from the coarser grain.

These said aforementioned parts complete what I term one separator, and gives as a result one grade of separation.

Further separation is readily had by passing the heavier grain from the separator C to

the other side of the machine—to the next and similar separator E, positioned to the left of the machine.

The separator F consists of the same parts, and their arrangement is the same as those of C aforesaid, inclusive of a chamber, F'.

Again, each part composing a separator, C, as first described, can be duplicated to the right, forming the separator G and its chamber G', and again to the left of the machine, forming the separator H and its chamber H', and so on, to complete as many or a series of distinct separators, as indicated in Fig. 1.

The action of the respective separators F G H, &c., being the same, the result of the series enables me to pass the grain or middlings and the like through the machine in such a manner as to produce different grades of separation; hence, from the commonest quality of grain, a separation is here had to the finest possible condition. Each of the separating-chambers discharges its contents independently; hence I provide each chamber with a proper outlet to communicate with a discharge-spout. I are the discharge-spouts, and these I pivot to the frame A, so as to be capable of discharging either to the right or left. The opening at bottom of each discharge-chamber I provide

with a suitable self-acting valve, *i*, Figs. 1 and 3, so arranged as to open by force of the grain, to effect its exit, and to be self-closing, so that no outside air can get in and prevent the full discharge of said grain. The dust, dirt, and impurities are carried along with the air-current out of top of machine. The sides of the frame A I provide with glass, as at *i'*, to enable the operator to see the interior workings of the machine.

What I claim is—

1. A separator, C, consisting of the parts, viz., an angular frame, *c c'*, hand-slide *d*, cut-off E, and discharge-chamber D, as and for the purpose set forth.

2. One or more separators, C F G H, consisting of chambers D F' G' H', hand-slide *d*, and cut-off E, arranged to the right and left with relation to each other, in combination with a frame, A, having a passage for a continuous current of air, as and for the purpose set forth.

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

KILIAN SCHWAB.

Witnesses:

SEVERIN E. MOTT,
CHRISTIAN MÜLLER.