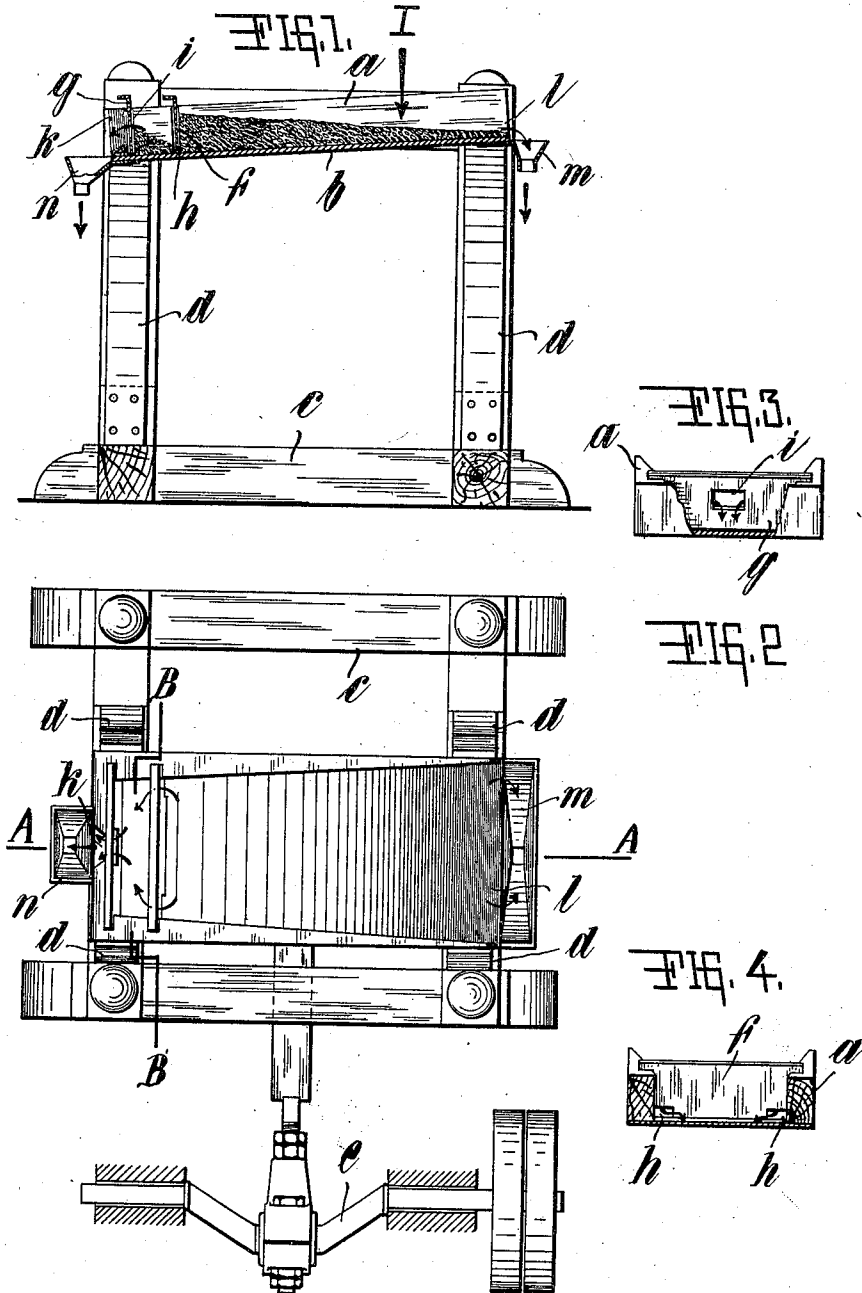


H. SECK.
 APPARATUS FOR SORTING AND CLEANING GRAIN.
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Patented Aug. 20, 1912.



Witnesses:-

L. H. Staaden.
 A. Hoyer.

Inventor:

Heinrich Seck
 by Alfred Müller
 att'y

UNITED STATES PATENT OFFICE.

HEINRICH SECK, OF DRESDEN, GERMANY.

APPARATUS FOR SORTING AND CLEANING GRAIN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HEINRICH SECK, a subject of the King of Saxony, residing at Dresden, in the Kingdom of Saxony and German Empire, have invented new and useful Apparatus for Sorting and Cleaning Grain, of which the following is a specification.

The present invention relates to apparatus for cleaning and sorting grains of all kinds.

According to my invention the grain arranged on the inclined bottom surface of a yielding mounted channel is dammed up and by means of a shaking movement the specifically lighter grains are separated from the heavier grains. The shaking movement, causes the grains to become classified in accordance with their specific weight, in such a manner that the heavier grains are forced to the sides and pass downward, while the lighter grains collect in the middle of the passage and rest or float on the top. Consequently, in the case of mixtures of grains of various specific weight the specially heavier kinds of grain slide to the lowest part of the yielding mounted channel owing to the shaking movement and simultaneously the specifically lighter kinds of grain are forced upward so that the lighter grains collect separately from the heavier grains and can be delivered separately.

Heretofore, the classifying and separation of grains has been effected by giving jerks or blows to the surfaces carrying the material to be sorted or separated, these jerks causing all the grains to move in a given direction, the lighter grains being projected farthest by a blow of given strength. This known method of sorting grains is defective, however, because the separation of the different kinds of grain is very incomplete, as it is impossible to prevent specifically heavier grains from being driven forward and carried away with the lighter grains. In accordance with the present invention it is possible to sort and separate the specifically lighter kinds of grain from the specifically heavier kinds very speedily, cleanly and certainly.

In the accompanying drawing, Figure 1 shows my new apparatus in section on the line A—A in Fig. 2. Fig. 2 showing the apparatus in plan with the operating gear. Fig. 3 shows the box-like receptacle in front

elevation with the front wall partly broken away, and Fig. 4 is a cross section through the receptacle on the line B—B in Fig. 2.

The apparatus for sorting and cleaning the grain consists of a box-like receptacle *a* with the inclined bottom *b* to which the grain to be sorted and cleaned is supplied as far as possible near the front on the upper end of the bottom *b* as indicated by the arrow *I* in Fig. 1. The receptacle *a* is yielding or movably mounted in a frame *c* and may be conveniently supported by springs *d*. The inclined bottom *b* can be roughened or perforated sieve-fashion in any convenient manner. The grain may be conveniently supplied to the bottom of the receptacle by means of a hopper (not shown) the quantity so supplied being adjustable according to requirements by means of rollers or slides in a well-known manner. The receptacle *a* is given a reciprocating lateral shaking movement by means of a crank gear *e*. The receptacle *a* widens out toward the discharge end for the lighter grains (Fig. 2) in order to direct these lighter grains simultaneously forward and outward. The discharge end of the receptacle for the heavier grains, which is constituted at the deepest part of the inclination of the bottom *b* is limited by adjustable slides which effect a damming-up of the heavier grains which slide downward. In the construction illustrated, two slides *f* and *g* spaced apart, are provided; they are guided in the side walls of the receptacle *a* and can be fixed in any desired position. The slides *f* and *g* are provided with apertures for the passage of the sorted heavier grains. In the slide *f* the passages *h* are arranged immediately above the bottom *b* of the receptacle *a* against the two side walls of the receptacle, while in the slide *g* the discharge opening *i* is arranged at a certain distance from the bottom *b* between the two openings *h* in the slide *f*. By adjusting the slides *f* and *g* vertically, the passages *h* can be made wider or narrower as desired, whereby the grains supplied to the bottom *b* of the receptacle *a* are dammed-up to a greater or less extent. The slide *g* with the opening *i* permits of regulating the quantity of the sorted, specifically-heavier material being discharged, while the slide *f* with the lateral apertures *h*, according to the increase or decrease in their size by adjust-

ing the said slide vertically, regulates the damming up or accumulation of the grain supplied.

h is the discharge opening for the sorted specifically-heavier material which is collected at n and thence conducted through pipes, channels, worms or the like to some suitable place. The discharge of the sorted, specifically-lighter grains takes place in the direction indicated by the small arrow freely at l at the highest part of the inclined bottom b and no special adjustment is necessary here.

m is a hopper-shaped receptacle for collecting the sorted lighter material whence it is conducted to another sorting receptacle a for further cleaning or, if this is not necessary, to a suitable collector. As shown in the drawing, either one receptacle a may be provided or several receptacles, the second beside, behind or under the first. When a number of receptacles are provided they are preferably supplied simultaneously with the material to be sorted.

The separation of the specifically lighter grains of barley for instance from the heavier grains of wheat, is caused by the shaking movement imparted to the receptacle or receptacles. Owing to this shaking movement, the grains collect in front of the slide f , according to the adjustment of the latter and the resultant enlargement or reduction of the passages h , and become classified in accordance with their specific weight in such a manner that the heavier grains of wheat are driven toward the side faces of the receptacle or receptacles a and pass downward to the lowest part while the lighter grains of barley are forced toward the middle of the channel of the receptacle where they collect and rise upward. The lighter barley grains thus separated are discharged from the receptacle at its highest part at l in the direction indicated by the small arrow, while the heavier wheat grains first of all pass through the lateral openings h in the slide f (as indicated in Fig. 2 by the arrows) and then leave the receptacle a through the opening i in the slide g in the direction indicated by the curved arrow. In

this manner an exceedingly clean and certain separation of the different kinds of grain in accordance with their specific gravity is effected. If the second slide is omitted and only one slide used, the operation of the apparatus is in no wise prejudicially affected. Owing to the arrangement of the inlet for the grain into the receptacles a in proximity to its upper part or highest end, the lighter grains are from the first prevented from passing rearward and becoming deposited directly in front of the slide f . The inclination of the bottom b in the longitudinal plane of the receptacle a is adjustable so that this inclination of the bottom b can be adjusted to correspond with the quality of the material to be sorted.

What I claim is:—

1. Apparatus for sorting and cleaning grain, comprising a receptacle having an inclined bottom with converging sides reducing the width of the bottom surface toward one end, a vertically adjustable slide guided in the sides of the receptacle near its wider end, said slide having openings near the bottom of said receptacle, adapted to be increased or decreased by the adjusting of said slide, and means for subjecting the receptacle to vibrations.

2. Apparatus for sorting and cleaning grain, comprising a receptacle having an inclined bottom with converging sides reducing the width of the bottom surface toward one end, two slides spaced apart and disposed crosswise near one end of the receptacle, one slide being arranged so as to cause the heavier grains to be dammed up and the other slide being arranged to control the amount of the heavier grains being discharged from said receptacle, each slide being provided with openings, and means for subjecting the receptacle to vibrations.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HEINRICH SECK.

Witnesses:

BERNHARD GRAET,
WOLDEMAR HAUPT.