

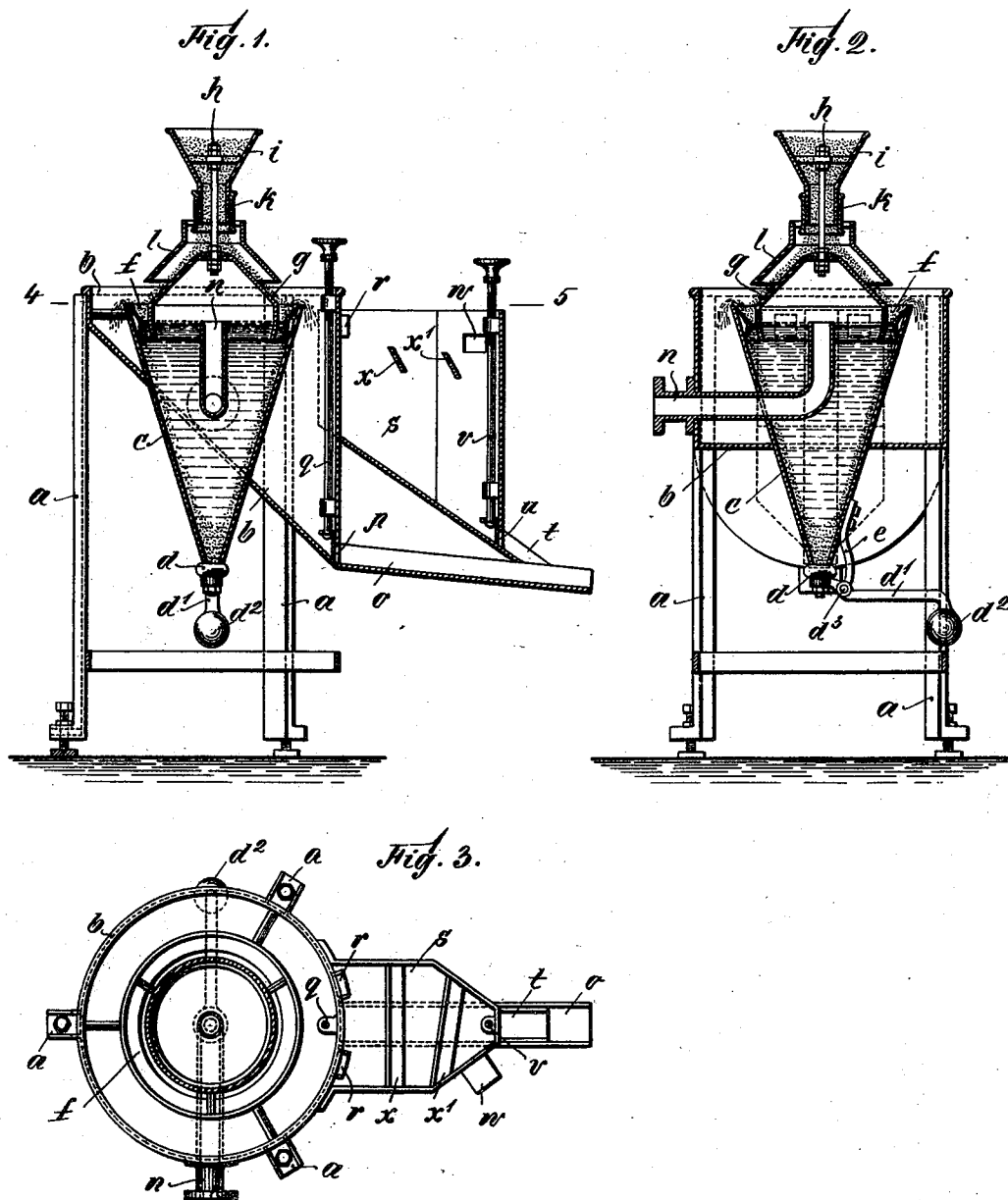
(No Model.)

E. A. WEINHOLD.

APPARATUS FOR WASHING AND CLEANSING GRAIN.

No. 562,053.

Patented June 16, 1896.



Witnesses
 Johannes Formisch
 Emil Kayser.

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 by
 Robert Seifler
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UNITED STATES PATENT OFFICE.

ERNST AUGUST WEINHOLD, OF LOUVAIN, BELGIUM.

APPARATUS FOR WASHING AND CLEANSING GRAIN.

SPECIFICATION forming part of Letters Patent No. 562,053, dated June 16, 1896.

Application filed May 4, 1895. Serial No. 548,155. (No model.) Patented in Belgium October 20, 1894, No. 112,324; in France October 23, 1894, No. 242,317; in Italy November 7, 1894, No. 37,546, and in England November 19, 1894, No. 22,329.

To all whom it may concern:

Be it known that I, ERNST AUGUST WEINHOLD, a subject of the King of Prussia, German Emperor, and a resident of Louvain, in the Kingdom of Belgium, have invented an Improved Apparatus for Washing and Cleansing Grain and the Like, (for which I have obtained patents in Great Britain, No. 22,329, dated November 19, 1894; in Belgium, No. 112,324, dated October 20, 1894; in France, No. 242,317, dated October 23, 1894, and in Italy, No. 37,546, dated November 7, 1894,) of which the following is an exact specification.

This invention relates to an apparatus by means of which the grain or similar material may be washed as well as freed from all those parts the specific gravity of which is otherwise—*i. e.*, higher or lower—than that of the sound grain or the like. I obtain the desired result by exposing the grain to the action of slowly-flowing water, the velocity of which is such that those particles which are too heavy cannot be moved away by the water. The other particles—*i. e.*, those of the right weight as well as those of too low a weight—are moved away by the water and are transported into a vessel, within which a separation takes place, in that the sound grain sinks down upon an inclined bottom, while the other grain is led over into another compartment for undergoing another separation.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 is a vertical longitudinal section through the apparatus. Fig. 2 is a vertical cross-section through the same, and Fig. 3 is a horizontal section taken on line 4 5 of Fig. 1.

Referring to the accompanying drawings, *a* designates a frame holding a vat *b*, the bottom of which is sloping. Said bottom supports a funnel-like vessel *c*, the lower opening of which is closed by a lever *d d'*, fulcrumed at *d³* to a bracket *e*. The arm *d'* of said lever is furnished with a weight *d²*, by means of which a piece of rubber, leather, or the like attached to arm *d* is pressed upon the opening of funnel *c*. Within the upper opening of said funnel is arranged a circular trough *f*, consisting of an outer inclined wall and an

inner vertical wall. The latter carries a hollow casting *g*, having the shape of a truncated cone. The small top plate of the latter is provided with a vertical rod *h*, carrying by means of its upper end a hopper *i*, the lower cylindrical portion of which is screw-threaded and is encompassed by a short piece of tube *k*. The latter carries an inverted hopper *l*, taking over the cone *g* aforementioned. The intermediate space between the parts *g* and *l*, may be decreased or increased by screwing the piece of tube *k* down or up along the threaded end portion of hopper *i*.

Hopper *i* is the feed-hopper of the apparatus. The grain passing from *i* to *l* is uniformly distributed over and by the cone *g* and glides down into the circular trough *f*. The latter communicates throughout its whole circumference with the funnel *c*.

Funnel *c* is kept filled with water by means of the pipe *n*. The water enters the trough *f* through the annular slot in the bottom of the latter and flows in a uniform stream in an upward direction through said trough. The feed of the water is chosen so that the velocity of the water within the trough is such that those particles of grain having too great a specific gravity cannot be transported by the moving water—*i. e.*, cannot be caused to flow, together with the water, over into the vat *b*. The said particles fall down into the funnel *c*, in the lower portion of which they collect.

From time to time the lever-arm *d'* is raised, so as to free the lower opening of the funnel from arm *d* and allow the particles collected to leave the funnel.

The specific gravity of the sound grain washed into the vat *b* by the water flowing out of the trough *f* is a little higher than that of the water, and said grain will therefore sink down upon the sloping bottom of the vat and will escape out of the same through the gutter *o*, together with as much water as allowed by the position of the adjustable slide-valve *p*. The latter may be operated by the rod *q*, and is in any case adjusted so that the quantity of water flowing out of the funnel through said gutter *o* is somewhat less than that of the water entering the funnel through pipe *n*.

The excess of the water flows through two nozzles *r* into a second vat *s*, the bottom of which is likewise sloping. Said second vat is connected with gutter *o* by a gutter *t*, 5 which also may be opened or closed by a slide-valve *u*, operated by a rod *v*. The water flowing into vat *s* takes with it that grain which has been swimming upon the surface of the water contained within vat *b*. That 10 part of this grain which is tolerably sound will slowly sink down upon the sloping bottom of vat *s* and will flow away through the gutter *t* into the gutter *o*. The remaining part of the grain is unsound and will flow off, 15 together with the excess of water, through the waste-pipe *w*. The slide-valve *u* is adjusted in such a way that the height of the water within vat *s* is kept on a level with the waste-pipe *w*. The sound grain contained in vat *s* 20 is prevented from flowing away through pipe *w* by means of two cross-plates *x x'*.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is—

25 In an apparatus for washing and cleansing grain and the like, the combination with a

basin reduced toward its lower end, and closed at said end by a valve, of an annular trough having a vertical inner wall, and an inclined outer wall, and an annular slit left between 30 the lower edges of said walls, said trough being arranged within said basin at the top thereof, and being kept filled with water from the said basin through said annular slit; a 35 conical body arranged upon said vertical wall, and adapted to distribute the grain uniformly upon the surface of the water within the said trough; a hopper leading the grain onto the top of said conical body; another basin en- 40 circling the first-mentioned basin, and having an inclined bottom, and a valve at the lowest part of said bottom; and a water-supply pipe terminating below the said conical body in said first-mentioned basin, substantially and for the purpose as described. 45

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

ERNST AUGUST WEINHOLD.

Witnesses:

G. BETERD,

T. GROUTARS.