F. W. YOUNG.

Grain-Separators.

No. 207,583. Patented Aug. 27, 1878.

Fig: 1.

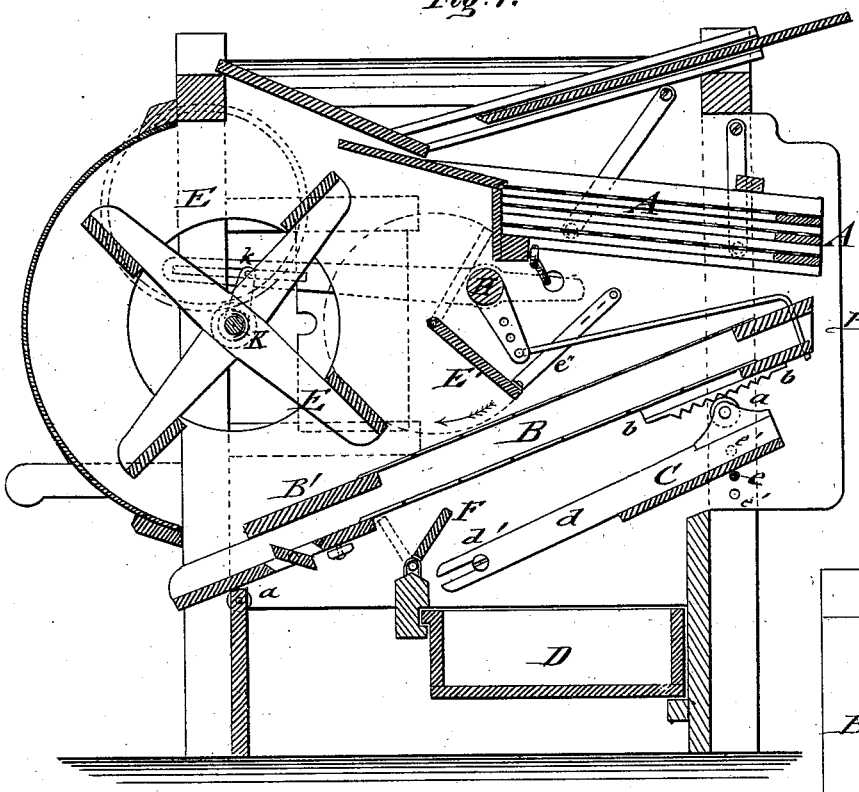


Fig: 3

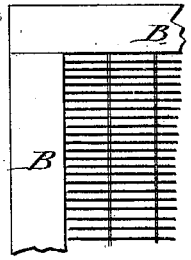
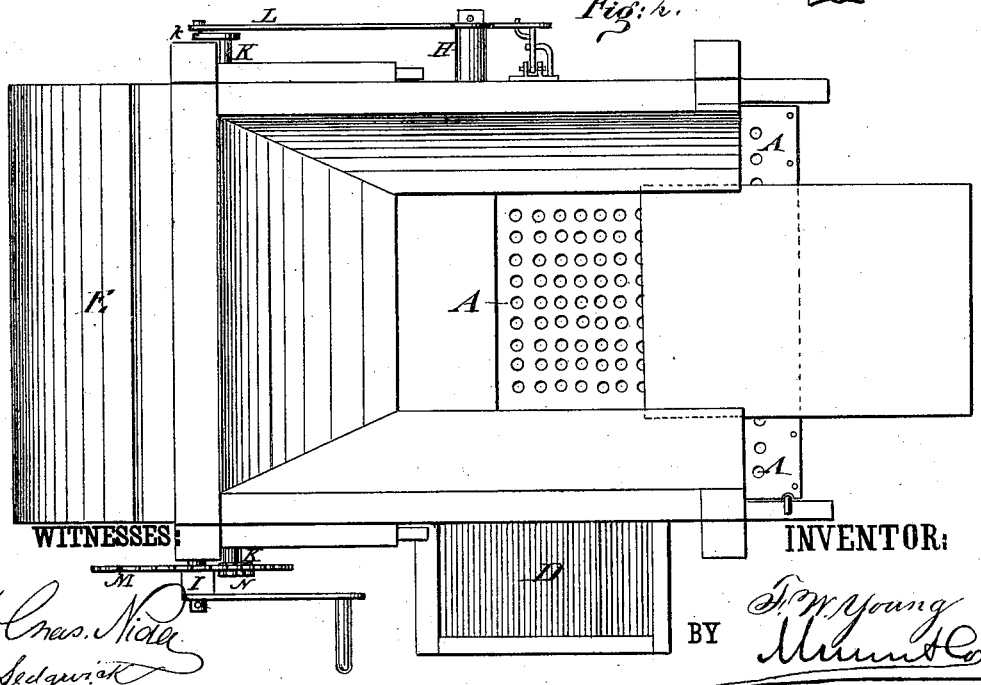


Fig: 2.



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UNITED STATES PATENT OFFICE.

FREDERICK W. YOUNG, OF UNION, OREGON, ASSIGNOR TO HIMSELF, JOSEPH H. SHINN, ROBERT S. CATES, AND BEVERLY POWERS, OF SAME PLACE.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **207,583**, dated August 27, 1878; application filed December 17, 1877.

To all whom it may concern:

Be it known that I, FREDERICK W. YOUNG, of Union, in the county of Union and State of Oregon, have invented a new and Improved Grain-Separator, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved grain-separator; Fig. 2, a top view of the same, and Fig. 3 a detail top view of the lower wire-mesh screens.

Similar letters of reference indicate corresponding parts.

This invention has reference to an improved grain-separator by which all the light small grain, cracked grain, weed-seeds, and oats are separated in effective manner from the heavy grain, so as to grade it thereby at the same time.

The separator is of simple construction, easily handled, durable, and not liable to get out of order.

The invention will first be described in connection with the drawing, and then pointed out in the claims.

Referring to the drawing, A represents a number of perforated screens, that are supported in an upper laterally-reciprocating shoe, A′, receiving the grain from a top hopper, with adjustable slide-gate, in the customary manner in grain-separators. The perforated screens A separate the coarser impurities and pass the grain to a lower set of screens, B, made of long mesh wires, as shown in detail in Fig. 3, which screens are reciprocated, by the usual rock-shaft and crank-rod, from the driving-shaft, and, in addition thereto, exposed to a vibratory or shaking motion, for the purpose of preventing the clogging of the lower screen. This vibratory motion is imparted to the lower screens, B, by placing the screen-shoe B′ on supporting-rollers *a a* at the upper and lower parts, and attaching so-called "shake jar-plates" *b* to the under side of the screen-shoe at the upper or rear end of the same. The plates *b* are made with a ribbed or rough surface, and pass over the upper rollers, *a*, so as to create a continual jar of the screens while in motion, and prevent thereby any possibility of clogging. The upper rollers, *a*, turn in side bearings of an inclined board, C, that serves to conduct the screenings into a laterally-sliding box, D, at the bottom of the separator. The conducting-board C is supported by slotted arms *d* on pivots *d′*, on which it may swing, so as to be adjusted into higher or lower position by means of supporting-pins *e* and holes *e′*, and impart thereby a greater or less degree of inclination to the lower wire screens, B, as required by the quality of grain to be separated. The fan E is arranged at the front end of the separator, and a deflecting-board, E′, placed intermediately between the same and the lower screens, B, the deflecting-board E′ being pivoted to the sides of the separator-frame, and adjusted to any point on the lower screens, or to the upper, if desired, by suitable means.

The deflecting-board serves to concentrate the draft from the fan-blades on the lower screens, so as to hold the light small grain, cracked grain, weed-seed, and oats on the screens until they are sieved or forced through into the screen-box, while the heavy grain passes down in front of the separator, being thus graded off from the lighter and cracked grain.

The deflecting-board E′ may be thrown around the rocker-shaft, to throw the draft on the upper screens, thus making a good chaffer.

A grain-gage board, F, is hinged to the front of the screen-box frame, and may be adjusted at the end of the lowermost wire screen, B, as shown in dotted lines in Fig. 1, so as to conduct all the screened seeds and grain into the seed-box; or it may be swung into backwardly-inclined position, so as to regulate the flow of seeds and grain out of the screen-box and separate them to some extent from the lighter seeds, such as oats, &c.

The separator acts thus in the nature of a grader, and cleans the grain in superior manner by the upper screens and the lower vibrating screens, in connection with the draft-deflecting plate.

When it is desired to "chaff" grain, the deflector E′ may be released from the adjustment shown and turned back against the rocking bar H, which thus performs the additional function of a rest, as shown in dotted lines on Fig. 1 of the drawing. The upper portion of

the air-outlet is thus closed and the blast compelled to pass upward along the lower screen.

The shaft K has a pinion, N, which is operated by a spur-wheel, M, on the hand crank-shaft I, and an arm, *k*, with a pin, connected by slotted bar L, which both vibrates the shaft H to reciprocate screens B, and actuates the shoe A′ to move the screens A″.

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

1. The combination of shoes A′ B′, rocking bar H, and deflector E′, relatively arranged as and for the purpose described.

2. The combination of the fan E, shoes A′ B′, deflector E′, rocking bar H, connecting with shoes A′ B′, the bottom screen, B, provided with the corrugated plates *b*, and the adjustable end-slotted frame C, provided with rollers, substantially as and for the purpose specified.

FREDERICK W. YOUNG.

Witnesses:
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