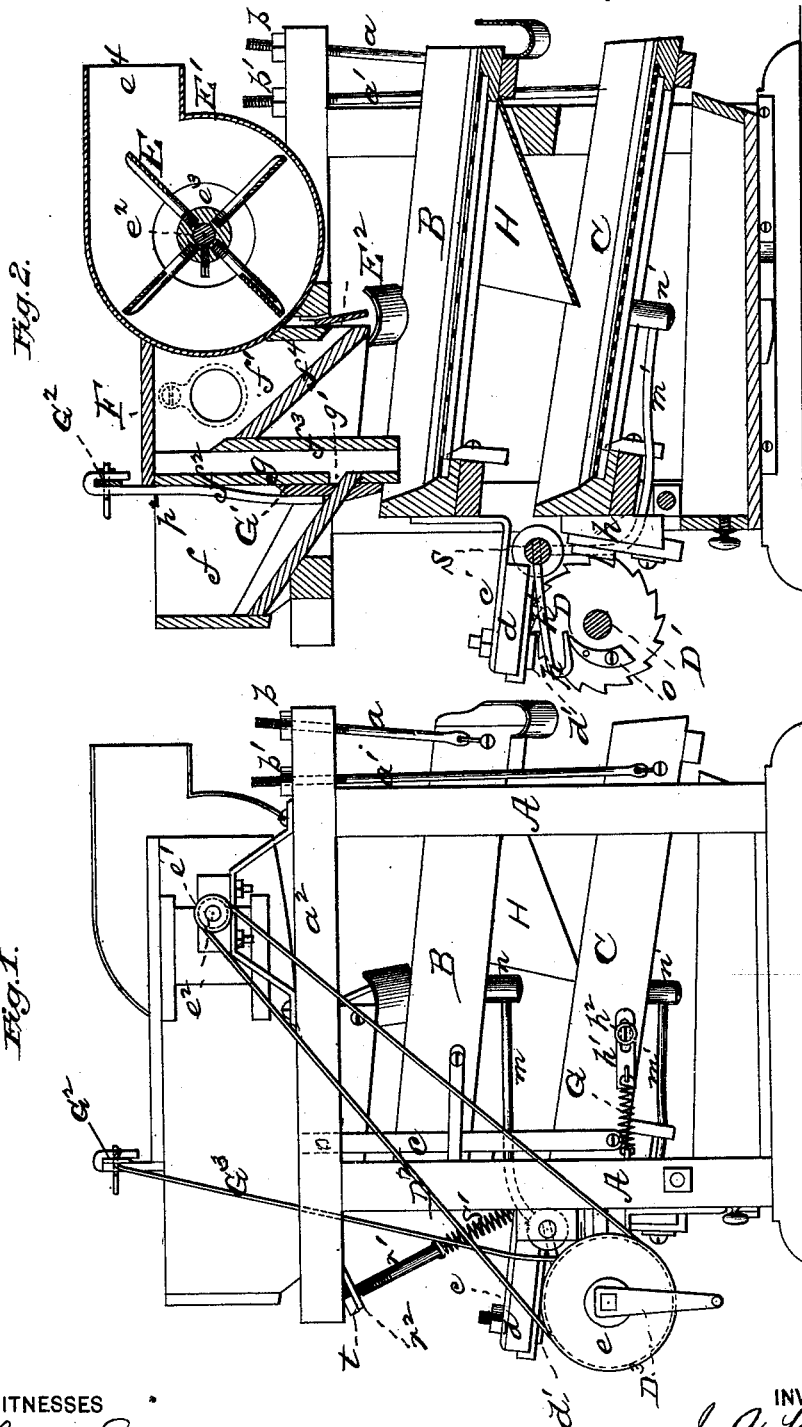


J. A. WADE.  
Flax-Seed Separator.

No. 220,211.

Patented Sept. 30, 1879.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JEREMIAH A. WADE, OF CHEROKEE, IOWA.

## IMPROVEMENT IN FLAXSEED-SEPARATORS.

Specification forming part of Letters Patent No. **220,211**, dated September 30, 1879; application filed June 7, 1879.

*To all whom it may concern:*

Be it known that I, JEREMIAH A. WADE, of Cherokee, in the county of Cherokee and State of Iowa, have invented a new and valuable Improvement in Flaxseed-Separators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my improved flaxseed-separator. Fig. 2 is a longitudinal vertical section of the same, and Fig. 3 is a horizontal section thereof.

This invention has relation to improvements in machines for separating flaxseed from chaff and other foreign substances; and the invention consists in the construction and novel arrangement of parts, as hereinafter shown and described.

In the annexed drawings, the letter A designates the frame of the machine, having suspended therein, the one above the other, the sieve B and the screen C, arranged in an inclined position.

The hangers *a a'*, that support the lower ends of the sieve and screen, extend through the top bar, *a''*, of the frame, and their upper ends are threaded and supplied with the nuts *b b'*, by means of which the inclination of the screen and sieve may be increased or lessened at pleasure.

The screen and sieve are composed of a wooden frame, to which is secured the sifter, usually made of perforated metal, and the front end of the former is supported by the hangers *c* from the top bar, *a''*, of the frame.

Extending out horizontally, or nearly so, from the sieve is an arm, *c'*, having a shoe, *d*, on the under side, provided with a leather sole, *d'*, that rests upon a serrated wheel, D, rigidly secured upon a shaft, D<sup>1</sup>, having its bearings on the main frame. This shaft is driven by an endless belt, D<sup>2</sup>, passing around a pulley, *e*, thereon, and a smaller pulley, *e'*, upon the end of a fan-shaft, *e''*, upon which is secured an exhaust-fan, E. This fan is inclosed within a casing, E<sup>1</sup>, having a discharge-spout, *e'*, and openings *e''* in its sides. This

casing, in its turn, is inclosed in a box, F, divided by a transverse partition, *f''*, into two divisions, *f f'*, the first of which is the hopper, and the second the chaff-box.

*g* indicates a vertical passage in the chaff-box, extending past the throat *g'* of the hopper, and formed with partitions *f''* by a diaphragm, *f''*. This passage opens at top into the upper part of the chaff-box, which latter has an inclined bottom, *f''*, and a valved discharge-opening, *g'*, emptying into an inclined spout, E<sup>2</sup>.

The shaft D<sup>1</sup> is actuated directly by the motor; but in hand-machines a crank, D<sup>3</sup>, is applied upon the end of the shaft D<sup>1</sup>.

The screen C has on its front end a leather-faced block, *h*, in line with the serrated wheel D, and is held in contact therewith by means of springs G, secured at one end to the main frame, and at the other to the said screen. The power of this spring is regulated, according to necessity, by securing one end thereof to a longitudinally-slotted block, *h'*, that is adjustably secured to the screen by means of a set-screw, *h''*, extending through said slot into the frame.

The throat of the hopper is closed by a sash-slide, G<sup>1</sup>, having a projecting arm, *p''*, pivoted in any suitable manner to the weight end of a vertically-vibrating lever, G<sup>2</sup>, having its fulcrum in an upright erected on the end of the hopper. This lever may have a number of spaced holes, which allow the power-arm of the same to be lengthened or shortened at pleasure, thus shortening or lengthening the arc of vibration of the weight-arm thereof, and regulating the height to which the gate will rise and the breadth of the discharge-opening of the hopper.

G<sup>3</sup> designates a metallic rod, adjustably secured to the extremity of the power end of lever G<sup>2</sup>, and extending through a guide-plate, H, on the bearing-arms of the shaft D<sup>1</sup>. This rod terminates in an angular extremity, *j*, that at each complete rotation of shaft D is engaged by a tappet, *j'*, on the shaft D<sup>1</sup>, and drawn down, causing the gate G<sup>1</sup> to be raised, thus allowing grain to be passed through the discharge-opening of the hopper upon the sieve. The tappet becoming disengaged from the said rod, the weight of the gate causes it

to fall, thus cutting off the seed-supply until it is again raised.

The guide-plate H is longitudinally slotted, as shown at s, Fig. 3, and is secured to one of the projections in which the shaft D<sup>1</sup> has its bearings by means of adjusting-screws s' passing through said slot into the projection k aforesaid. The guide-plate is at right angles to the shaft upon which the tappet is secured, and is adjustable to or from said shaft by means of the screw and slot aforesaid, by means of which the action of the tappet upon the rod G<sup>3</sup> may be prolonged or shortened, as may be required, thus regulating the working of the gate so as to pass a greater or less quantity of seed at a time upon the sieve, as may be deemed necessary.

Above shaft D, upon which is the serrated wheel, is a rock-shaft, S, having secured thereto the sleeves l l', arranged usually one at each side of the said wheel. Projecting from sleeve l is a metallic rod, m, extending under the sieve and terminating in a hammer, n, and projecting from sleeve l' is an angular rod, m', extending under the screen, and terminating also in a hammer, n', as shown in Fig. 2. The serrated wheel is provided with a cam, o, or I may substitute an eccentric that, at each revolution of the serrated wheel aforesaid, comes in contact with a rigid metallic rod, k', projecting from shaft S. This rod terminates at its end in a bend or boss, p, and, as the cam comes in contact with it, the shaft is rocked, and the hammers or knockers n n' lowered. The moment the said rod is disengaged from the cam or eccentric, the knockers are brought sharply in contact with the under sides of the sieve and screen, by the reaction of a spring, S', secured at one end to an arm of the said shaft, and at the other to the frame of the machine. The power of this spring is regulated as follows: Its upper end is secured to a metallic rod, r<sup>1</sup>, extending through a guide, r<sup>2</sup>, and provided on its threaded end with an adjusting-nut, t. By manipulating this nut the spring is distended or allowed to contract, and of course its power correspondingly increased or lessened.

The operation is as follows: The mixed seed and foreign matter are put into the hopper as usual, and the machine operated from the fan-shaft or shaft D<sup>1</sup>, as may be preferred. The serrated wheel D imparts a rapid vertical motion to the sieve and horizontal motion to the

screen. At the same time the tappet j engages the end of rod G<sup>3</sup>, and opens the slide, so as to allow the seed to drop upon the sieve, on its way to which it passes into the conduit g, and is rid of light impurities by the exhaust-fan. These are received by the chaff-box f, and, falling down its inclined bottom, pass out through its valved opening into the spout E<sup>2</sup>, whence they are conducted outside of the machine. Falling upon the sieve, the seed is sifted, the smaller passing through its meshes upon the screen, and the larger falling off the end of said sieve into an inwardly-inclined chute, H, whence they are delivered to the screen. Here the seeds fall through the meshes into a receptacle, J, and such foreign matters as have not been removed by the fan pass off of the lower end of the screen out of the machine. During these operations the serrated wheel imparts a rapid forcible vibration to the sieve, and a similarly rapid reciprocation to the screen, the return movement of which is produced by the springs G. At the same time the cam o on wheel D imparts a rocking movement, in connection with spring, to the rock-shaft, causing the knockers to come in sharp contact with the under sides of the sieve and screen. At each revolution of the shaft D<sup>1</sup> the tappet j' comes in contact with the bent end of the rod G<sup>3</sup>, opening the opening g' of the hopper f more or less, according to the position of the adjusting-plate H.

When the rod is released gate G<sup>1</sup> falls of its own weight, and closes the aperture at the bottom of the hopper. The seed is thus delivered to the sieve and screen at intervals, and there is ample time between the deliveries for a thorough separation of the chaff therefrom.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with the cam-wheel D, shaft D<sup>1</sup>, frame A, having screen C, and sieve B, of the shaft S, having rod k' and sleeves l l', the rods m m' extending, respectively, under the sieve and screen, and provided each with a knocker-head, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JEREMIAH A. WADE.

Witnesses:

J. W. STURDEVANT,  
H. C. KELLOGG.