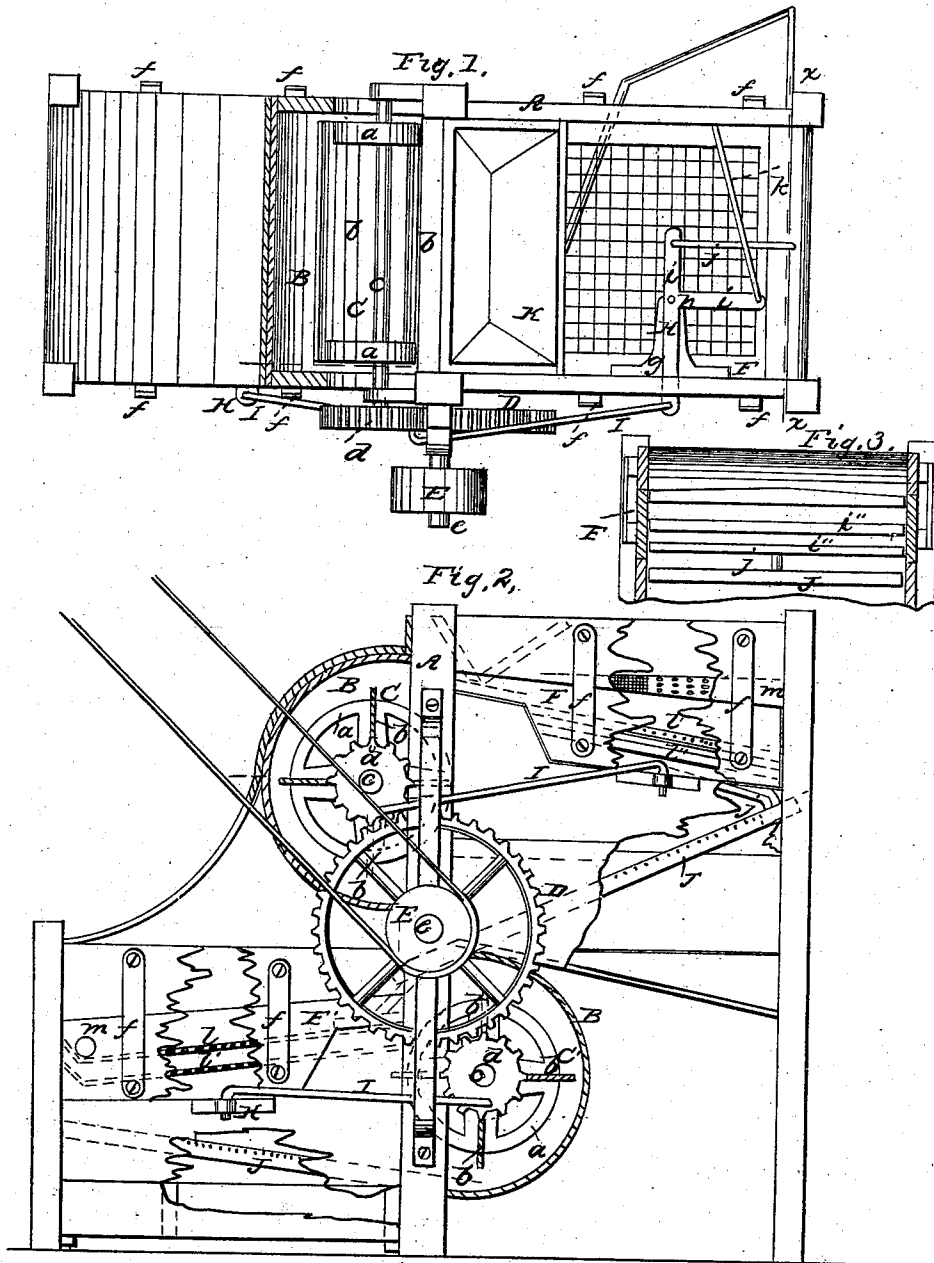


J. GREEN.
Grain Separator.

No. 55,952.

Patented June 26, 1866.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN GREEN, OF NORWALK, OHIO, ASSIGNOR TO HIMSELF AND JAMES W. BARKER, OF THE SAME PLACE.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 55,952, dated June 26, 1866.

To all whom it may concern:

Be it known that I, JOHN GREEN, of Norwalk, Huron county, State of Ohio, have invented a new and Improved Grain-Separator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or top view of my invention; Fig. 2, a side view of the same, partly in section; Fig. 3, a transverse vertical section of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved device for cleaning and separating foreign substances from grain, and also separating one kind of grain from another, as oats from wheat, and also separating grass-seeds from grain.

The object of this invention is to obtain a device for the purpose specified which may be operated with facility and perform its work in the most efficient manner and with but a moderate expenditure of power.

To this end the invention consists in the employment or use of two fans provided with balance-wheels, and arranged in relation with shoes provided with screws, all constructed and operating in the manner as hereinafter set forth.

A represents a framing, in which two rotary fan-boxes, B B, are placed, one above the other, as shown in Fig. 2. C C' are the fans, which are constructed with balance-wheels *a*, said wheels being of cast-iron, and cast either with grooves or notches to receive the ends of the wings *b* of the fans, or cast with flanges, to which the wings may be bolted. The balance-wheels are firmly keyed on the fan-shafts *c c*, and it will be seen that said wheels serve both as balance or fly wheels, and also as a means for securing the wings in position.

On one end of both fan-shafts *c c* there are keyed pinions *d d*, into which a wheel, D, gears, the latter being on a shaft, *e*, provided with a driving-pulley, E.

F F' represent the shoe, provided with

screens, the shoe F being in the upper part of the framing A, and the shoe F' in the lower part. The upper fan, C, directs its blast through the upper shoe, F, and the lower fan, C', directs its blast through the lower shoe, F'. These two shoes F F' are suspended at each side by means of two springs, *f f*, which admit of the shoes having a lateral shake motion communicated to them, which is effected as follows: To the inner surface of one side of each shoe-box G there is secured a bracket, *g*, and these brackets have a vertical pin, *h*, at their outer ends, on which T-shaped levers H are fitted and worked, the pivots passing through the levers at the junction of the two arms *i i'* thereof. These levers are operated by rods I, one end of which is connected with the outer ends of the levers H, and the opposite ends connected with the pinions *d* near their edges, so that said pinions will operate like crank-pulleys. The inner ends of the arms *i* of the levers H are connected, by rods *j*, with the upper ends of inclined screens J J', and the outer ends of the arms *i'* are connected, by rods *k*, with one side of the shoes F F'.

By this arrangement it will be seen that the shoes F F' and screens J J' are vibrated from the pinions *d d* on the fan-shafts *c c*, the shoes F F' having a lateral vibratory movement communicated to them, and the screens J J' having a longitudinal vibratory movement communicated to them. Each shoe F F' is provided with a series of screens, *i i' i''*, placed one above the other, and the uppermost screen, *l*, of each shoe at its outer part is inclined downward from its center toward each side (see Fig. 3) to admit of the coarse foreign substances passing off through openings *m* in the sides of the shoe-boxes, said substances being conveyed or carried off by spouts if desired.

The grain is admitted into the upper shoe, F, from a hopper, K, placed on the framing A, and the shaft E is rotated by any convenient power, the shoes F F' being vibrated laterally, and the screens J J' vibrated longitudinally, seed and other foreign substances passing off from the sides of the upper screen, *v*, of the shoe F, while the sound grain passes through screen *e* upon the screen *v'* underneath, and the screens *e' e''*, below *v*, are de-

signed to be so constructed as to separate one kind of grain from another, such as oats from wheat, &c. The grain passes off from the lower screen, *l'*, upon the inclined screen *J*, through which the sound grain passes (wheat, for instance) into a spout, *L*.

The grain is subjected to a blast from the fan *C* while passing through the shoe *F*, and all light foreign substances expelled from it, and the substances which pass down the screen *J* pass through the shoe *J'*, and are there subjected to another blast from the fan *C'*, the fine seeds, cockle, &c., passing through openings *m* in the sides of the shoe-box, and the grain passing through the screen *J* into a box, *M*.

I do not confine myself to any precise construction of the screens *i i' i''* in the shoes *F F'*, for they may be modified or varied as circumstances may require.

The great advantage consists in the double-blast arrangement, the balance-wheels on the fan-shafts, which insure a uniform and even speed of the fans and a smooth movement of

the shoes, and the manner of operating or communicating power to said parts from the driving-shaft, whereby a very compact device is obtained, and one which may be operated with a moderate expenditure of power. The inclined upper parts of the upper screens, *i*, is also an important feature.

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

1. The two fans *C C'*, in combination with the two shoes *F F'*, operated by means of the gearing, connecting-rods, and levers from the driving-shaft of the machine, substantially as and for the purpose herein set forth.

2. The double-inclined ends of the upper screens, *i*, of the shoes *F F'*, in combination with the side openings, *m*, in the shoe-boxes, substantially as and for the purpose set forth.

JOHN GREEN.

Witnesses:

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