

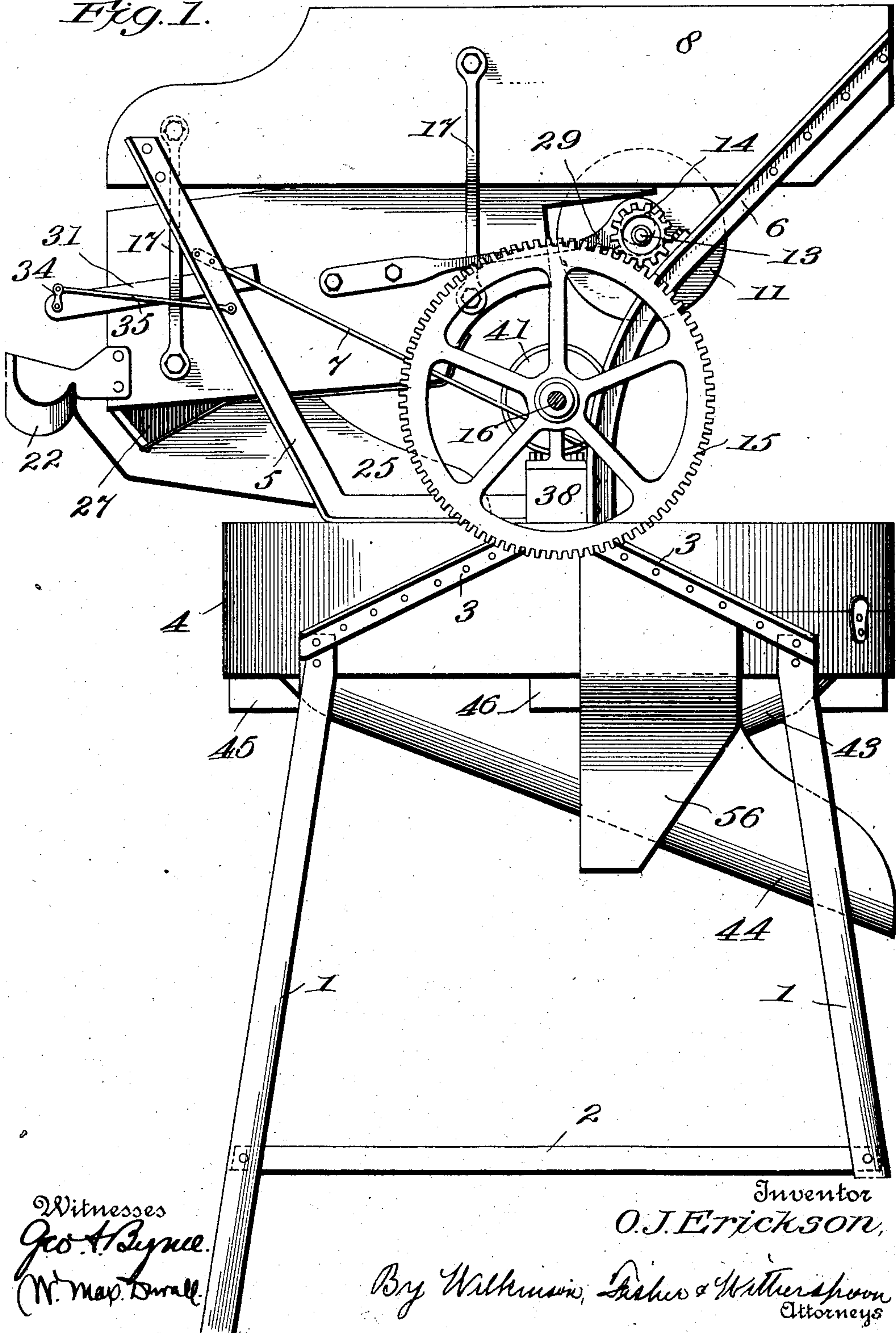
O. J. ERICKSON.
GRAIN CLEANING MACHINE.
APPLICATION FILED JULY 13, 1910.

994,580.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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UNITED STATES PATENT OFFICE.

OSCAR J. ERICKSON, OF BENSON, MINNESOTA.

GRAIN-CLEANING MACHINE.

994,580.

Specification of Letters Patent.

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Application filed July 13, 1910. Serial No. 571,823.

To all whom it may concern:

Be it known that I, OSCAR J. ERICKSON, a citizen of the United States, residing at Benson, in the county of Swift and State of Minnesota, have invented certain new and useful Improvements in Grain-Cleaning Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in grain cleaning machines, and the object of the invention is to provide a simple and easily operated machine which may be driven either by hand or by power for cleaning grain, especially wheat, after the same has been separated from the coarse trash and from the cockles, garlic, wild oats, and cultivated oats with which said grain is often mixed.

With this object in view, my invention consists in the construction and combinations of parts as hereinafter described and claimed.

In the accompanying drawings—Figure 1 is a side elevation of my improved machine, one of the legs being broken off. Fig. 2 is a longitudinal sectional view of the machine, and Fig. 3 is a cross-section taken on the line 3—3 of Fig. 2, the disk or wheel being partly broken away.

The machine is supported on an ordinary framework, preferably made of angle bars, consisting of legs 1, a cross brace 2, braces 3 connected to the central cylindrical casing 4, and angle braces 5 and 6, supported on said central piece 4 and in turn supporting the hopper, operating devices, and screens, a cross brace 7 being preferably provided.

The invention is shown in connection with a grain separating apparatus in which 8 represents the hopper, of ordinary shape, having an opening in its lower part which may be adjusted in size by means of the valve 9, carried on a screw-threaded rod 10, in the usual manner.

11 represents a pulley by means of which the screens may be shaken by power, said pulley being mounted on a shaft 13, supported in bearings on the braces 6 and provided at one end with a gear wheel 14,

which meshes with a gear wheel 15 on the shaft 16, which shaft is preferably provided with a handle.

17 represents hangers, pivotally mounted on the hopper and also pivotally mounted at their lower ends on the screen box 18, there being four of these hangers. The screen box 18 is provided with three screens 19, 20, and 21, all inclined but the screen 20 being inclined rearwardly, while the screens 19 and 21 are inclined forwardly. The screens are preferably of different sizes, the top one being the coarsest in mesh. The trash that passes over the screen 19 falls down into a trough 22, running transversely in the front of the screen box. Beneath the rear portion of the screen 19 is a guard 23, which causes the different kinds of grain which pass through the screen 19 to fall onto the screen 20. Beneath the screen 20 is also an inclined guard board 24, which causes the material which passes through the screen 20, such as fine seeds, to be delivered into the trough 22. The screen 21 tails off into a delivery through 25 for the grain, and beneath the screen 21 is a board 26, acting as a trough, which delivers trash and waste products to the discharge spout 27.

The screen box is reciprocated as the shaft 13 rotates by means of eccentrics 28 thereon, which engage with connecting rods 29, which rods are pivotally connected at the other end to the screen box. This box has an enlarged portion 30 inclined outwardly and downwardly to insure that the material delivered into the hopper shall all be delivered to the topmost screen 19.

Means are provided for jarring the screen box as it is reciprocated by the shaft 13 and the connections described. These means include braces 31, fastened to the screen box on either side, and in perforations in the outer end of these braces is mounted a shaft 32, to which is firmly fixed an arm 33, having a hammer head 33'. On one or both sides of the screen box, as preferred, the shaft 32 has attached to it an upwardly projecting arm 34, and a link such as 35 connects the arm 34 with the brace 5, being pivotally mounted on said brace and on the part 34. From the construction described, it is clear that the reciprocation of the screen

box will cause the hammer head to strike the bar 34' supporting the outer end of the screen 20 and jar the whole box.

The grain cleaning apparatus consists of the cylinder 4 provided with a cover 36, that has an opening 37 into which the trough 25 delivers. This cover is preferably cut away at the center and on its under side, as shown in Fig. 2. Adjacent to the opening 37, is a block 38, through which passes a shaft 39, having on its upper end a beveled gear wheel 40, which meshes with a similar wheel 41 on the shaft 16. In the lower part of the cylinder 4 is mounted an annular block 42, of peculiar shape, having its outer wall 42' vertical and its inner wall 43' inclined downwardly, as clearly shown in Fig. 2. Secured to the inner wall 43 is a downwardly tapering cone 43, terminating in a discharge spout 44 for the cleaned grain. Bolted to the part 42 is a cross frame composed of two bars 45 and 46 at right angles to each other, and at the point where these braces or bars are united, in the center, is a bearing for the lower end of the shaft 39, and on these cross beams is supported a cylindrical block 47. On the part 42 and block 47 and fixed thereto, is a flat circular screen 48, which completely fills the interior of the part 4. Splined or otherwise secured to the shaft 39 is a spreader 49, provided with a plurality of spring arms 49'. Above the screen 48 and fastened to the shaft 39 is a flat wheel 50, of less diameter than the interior of the part 4 and carrying at intervals on its circumference tangential spring sweepers 51. The center of the wheel 50 is cut away, and fastened to the top of said wheel is a casting composed of two arms 52 and 53, united by a cross piece 54, carrying a hollow cylinder 55, the edge of which is in line with or extends a little distance outside of the opening 37. The central casing 4 is provided with an offset portion terminating in a delivery trough 56.

The operation is as follows:—The wheat or other grain mixed with impurities such as bits of straw, fine seed, garlic, wild oats, etc., is fed into the hopper 8, from whence it is delivered in a regular stream into the screen box, which is continually shaken and jarred, as already described. The straw and coarse material tail off the end of the screen 19 into the trough 22. The grain passes through said screen and by means of the guard 23 is delivered onto the screen 20. The trash separated by the screen 20 also passes out through the spout 22, this trash including the fine seeds, etc. The grain then passes onto the screen 21, and the refuse material which passes through said screen is delivered through the spout 27. From the screen 21, the grain, which by this time has been practically cleaned and separated from everything but the oats, passes into the de-

livery spout 25, from whence it passes through the opening 37 through the cylinder 55 onto the central portion of the screen 48. The wheat passes through said screen 48 and is delivered through the spout 44 in a perfectly clean condition and separated from all other grains and impurities. The oats and some of the larger seeds are swept outwardly by centrifugal force over the surface of the screen 48, this action being aided by the revolution of the wheel 50, and after they pass outside of the circumference of the said wheel are carried around by the spring sweeps 51 and discharged through the spout 56.

Having thus described my invention, I claim:—

1. In a grain cleaning machine, separating means consisting of a supporting frame, a cylindrical casing mounted on said frame and having a perforated top, a screen mounted on the supporting frame and extending across the cylindrical casing, a rotatable shaft mounted centrally of the cylindrical casing, a flat wheel and a plurality of arms located immediately over said screen and mounted to rotate with said shaft, and discharge spouts for the cleaned and waste material, substantially as described.

2. In a grain cleaning machine, separating means consisting of a supporting frame, a cylindrical casing mounted on said frame and having a perforated top, a screen mounted on said frame and extending entirely across said cylindrical casing, a rotatable shaft mounted on the supporting frame, a flat wheel having a central opening, said wheel located immediately over said screen and mounted to rotate with said shaft, a plurality of arms mounted on the shaft beneath said central opening and immediately over the screen, and discharging spouts for the cleaned and waste material, substantially as described.

3. In a grain cleaning machine, separating means consisting of an annular frame having an inclined inner surface and a vertical outer surface, a cylindrical casing secured to said vertical surface and having a perforated top, a screen mounted on the annular member and extending across the cylindrical casing, a rotatable shaft mounted centrally of the cylindrical casing, a flat wheel provided with a central opening and mounted to rotate with said shaft, tangential arms secured to the periphery of said flat wheel, a spider having spring arms mounted on the shaft beneath said central opening, and discharge spouts for the cleaned and waste material, substantially as described.

4. In a grain cleaning machine, separating means consisting of a supporting frame, a cylindrical casing carried thereby and having a perforated top, cross braces passing across the lower end of said cylindrical cas-

ing, a block supported on said cross braces,
a flat circular screen extending from said
block to the interior of said casing, a shaft
passing through said block, a spider having
5 spring arms keyed to said shaft, a wheel also
keyed to said shaft and provided with a hol-
low cylinder in its center and with spring
arms on its periphery, said casing being pro-
vided with discharge spouts for the cleaned

grain and waste material, substantially as 10
described.

In testimony whereof, I affix my signature
in presence of two witnesses.

O. J. ERICKSON.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
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