

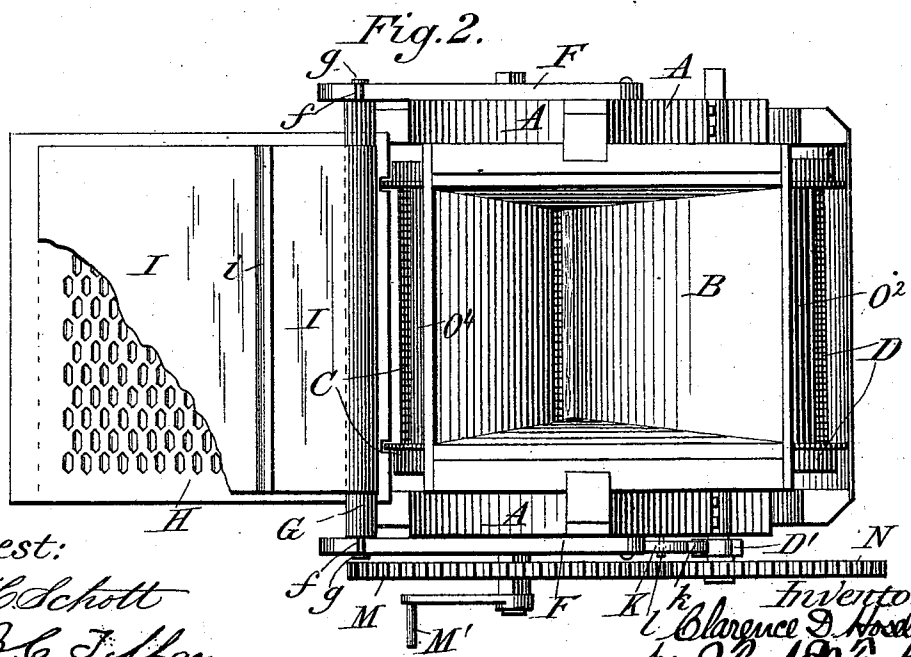
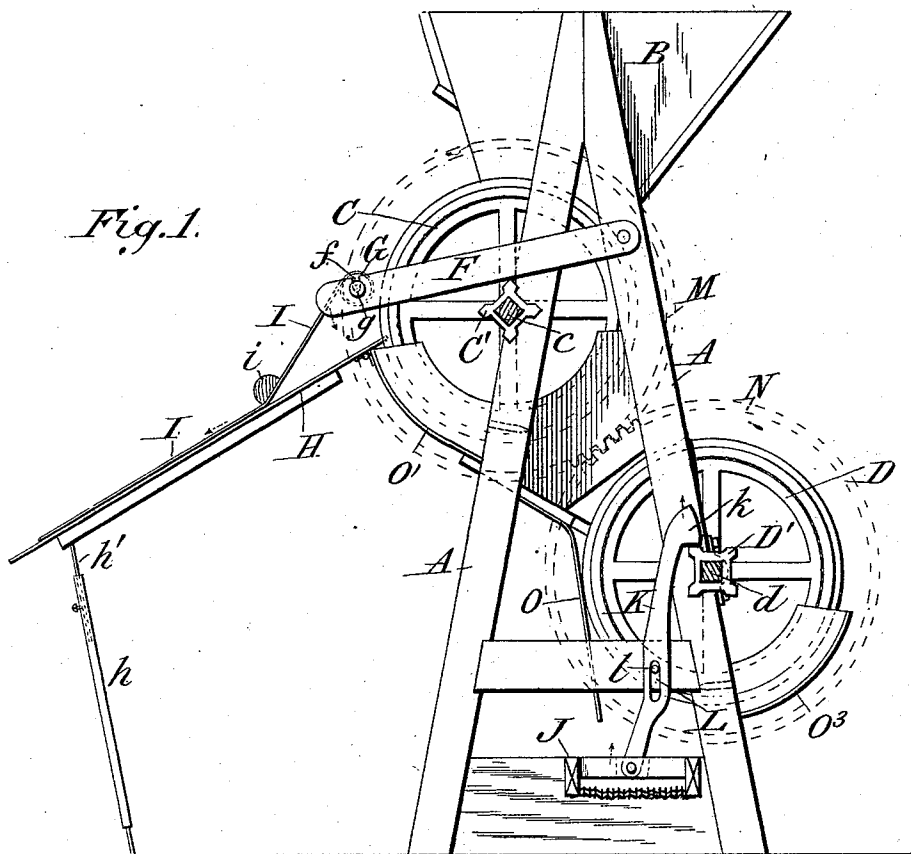
(No Model.)

2 Sheets—Sheet 1.

C. D. HOSELTON.
GRAIN SEPARATOR.

No. 529,911.

Patented Nov. 27, 1894.



Attest:

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B. C. Tiffany

Inventor:
Clarence D. Hoselton
per Fred W. Asker
Att'y.

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Fig. 4.

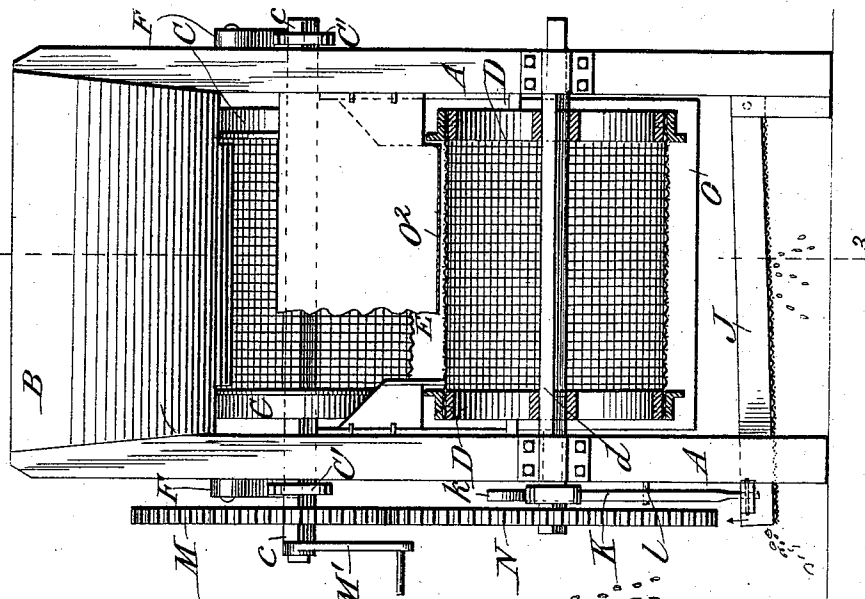
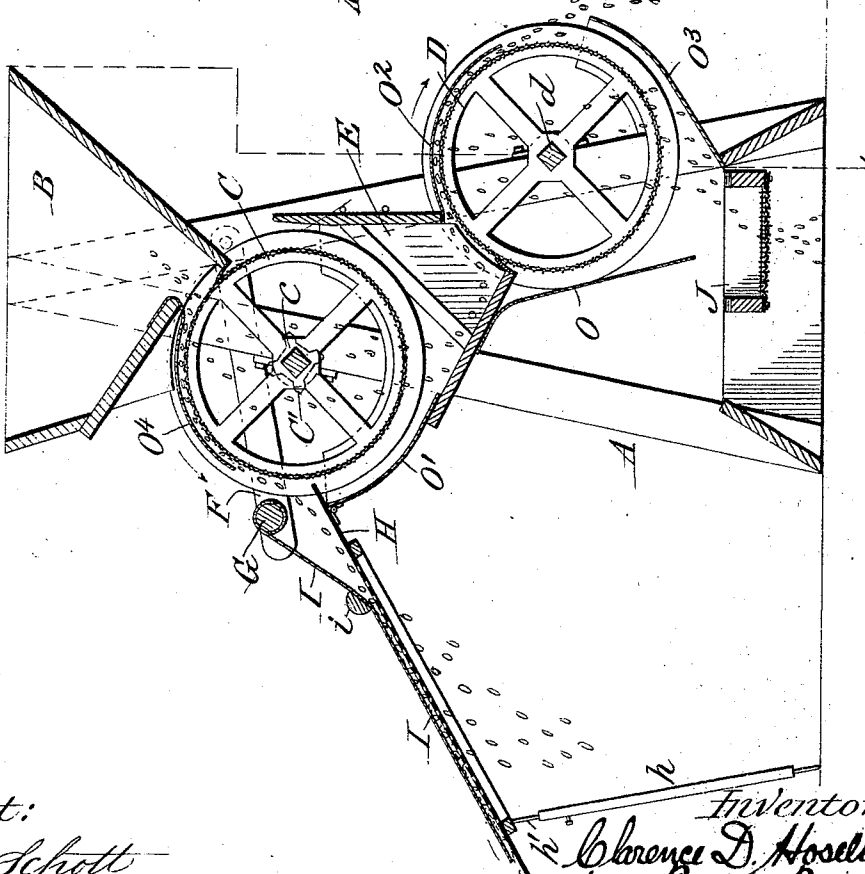


Fig. 3.



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UNITED STATES PATENT OFFICE.

CLARENCE D. HOSELTON, OF DRAYTON, NORTH DAKOTA.

GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 529,911, dated November 27, 1894.

Application filed June 21, 1894. Serial No. 515,276. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE D. HOSELTON, a citizen of the United States, residing at Drayton, in the county of Pembina and State of North Dakota, have invented certain new and useful Improvements in Grain-Separators; 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.

This invention relates to an improvement in grain separators and cleaners having for its object the grading and cleaning of grain and other material and being especially adapted for separating oats from wheat, wheat from oats, wheat from barley and barley from wheat. It is constructed so as to divide any desired kind of grain into such grades as may be needed according to the size of the kernel, besides casting out seeds and straw and other coarse matter separately.

My improved machine is cheap in its construction, light running and noiseless and is also dustless as the dust settles down through the machine along with the seeds.

The invention consists essentially in the construction, arrangement and combination of parts and in numerous details and peculiarities thereof, substantially as will be hereinafter described and claimed.

In the accompanying drawings illustrating my invention: Figure 1 is an end elevation of my improved grain separator. Fig. 2 is a top plan view of the same with a portion broken away to expose the underneath part to view. Fig. 3 is a transverse cross sectional elevation on the line 3 3 of Fig. 4. Fig. 4 is a side elevation in partial section on the line 4 4 of Fig. 3.

Like letters of reference designate corresponding parts in the several figures.

A designates the main frame of my improved grain separator and cleaner. This frame may be of any desired construction it being only necessary that it should be of such size and should have its constituent beams and other parts so arranged as to permit the easy and proper location therein and therewith of the necessary mechanical features which make up the operative mechanism of the invention.

At the top of the frame A is a suitably-shaped hopper B of convenient size and adapted to receive the wheat, oats or other grain or such other material as may be placed therein for the purpose of being graded or cleaned. This hopper B has an open bottom through which the grain passes out to the cleaning mechanism.

C and D designate two sieve-like cylinders, made of finely meshed wire, as shown. There may be more than two of these cylinders, if desired. I am restricted to no precise number thereof. The wire portions of these cylindrical sieves C and D are supported at their ends by wheel frames to which they are firmly fastened as shown in Fig. 4. The character of the mesh and the size of the openings between the wires, or the style of perforation which may be substituted in lieu of the wire mesh if preferred, will vary greatly in different machines and of course will depend in a large measure upon the character of the work to be performed and the kind of grain or other material which is to be operated upon.

The cylinder C, has a shaft *c* running centrally through it which serves as its axis, by means of which it is supported and on which it rotates, said shaft *c* being held in suitable bearings in the frame A. The cylinder D has a shaft *d* which is likewise the axis of the cylinder and is mounted in suitable bearings in the frame A so as to permit the cylinder to freely rotate. The cylinder D is situated a short distance below and to the right of the cylinder C. The relative location of these cylinders may however be changed, it being only necessary that they should be so situated with respect to each other that the grain may pass from one to the other. The shaft *c* is provided at each end with a cam *C'*. This cam preferably is four-sided, or has four corners which corners are in the shape of lugs or projections. This is only one of many forms of cam that may be employed. The shaft *d* of the cylinder D is also provided at one or both ends with similar cams *D'*.

At each side of the frame A, at points adjacent to the hopper B and above the cams *C'* are pivoted horizontal oscillating arms *F* which rest upon the cams *C'* and are oscillated up and down by these cams as the cylinder C rotates. These arms *F* are pro-

vided at their outer or free ends with slots *f f*. A roller *G* extends between the ends of these arms said roller having pins *g g* therein, which enter the slots *f f*. In this way the roller *G* rests loosely in the outer ends of the arms *F*. To this roller *G* is attached a press-cloth *I*, which rests on the top of the perforated sieve-plate *H*, one end of which is supported by a portion *O'* of the main frame to which the sieve-plate *H* is hinged as shown in Figs. 1 and 3, while the opposite end of the sieve-plate is upheld by means of a removable prop *h*. Thus it will be seen that the sieve-plate *H* can be removed from its inclined position and folded down against the main frame when it is not in use.

The press cloth *I* is provided with a transverse weighting strip *i* fastened on the top thereof so as to hold the cloth down upon the sieve plate. In the operation of the machine this press cloth *I* has a rubbing or oscillating movement upon the sieve plate *H*, said movement being imparted thereto by the movement of the arms *F* which carry the roller *G*. The prop *h* is provided at each end with a sharp point one of which enters the ground while the other enters the sieve-plate *H*. One of these points as *h'* is held within the end of the prop *h* by means of a set screw *h²* and is adjustable within said end.

In the bottom of the hopper *B* is a leather strip or apron *O⁴* which extends out from the hopper over the top of the cylinder *C* toward the roller *G*, and this apron is pressed down by the weight of the grain and prevents leaking from the hopper.

On the end of the shaft *c* is fixedly attached a gear *M* and on the shaft *d* is fixedly secured a similar gear *N* which meshes with the gear *M*. Furthermore the shaft *c*, or the shaft *d*, as the case may be, is provided with a crank handle *M'*, by means of which the cylinders *C* and *D* are rotated.

Between the cylinders *C* and *D* is a chute *E* which is substantially in the form of a hopper having inclined walls so located and adapted as to divert the grain which falls from the cylinder *C* downward on to the surface of the cylinder *D*. This chute or hopper *E* may vary considerably in its shape and size, but it must serve the function of a communicating channel between the two horizontal cylinders.

Attached to one side of the chute *E* is an apron or flap *O* which extends downward along one side of the cylinder *D*, preferably beneath the same, while to the other side of the chute *E* is attached another apron or flap *O²* which extends over the top of the cylinder *D* and serves to more surely guide and direct the grain from the chute *E* on to the surface of the cylinder *D*.

At the bottom of the frame *A*, below the cylinder *D*, is a horizontal sieve *J*, one end of which is hinged while the other end has a vertical arm *K* pivoted thereto. The upper end of this arm *K* has a notch *k* which is en-

gaged by the cam *D'* on the end of the shaft *d*. The arm *K* is provided with a slot *L* which is entered by a pin *l* fixed in the frame *A*. As the cam *D'* rotates it will oscillate the arm *K* vertically, said arm being guided in its oscillations by means of the pin *l* and such movement of the arm will cause an up and down movement of the sieve *J* by the shaking of which the grain therein may be graded and cleaned. Below the cylinder *D* is a shield *O³* which partially surrounds the cylinder and serves to guide the grain which falls therefrom downward into the horizontal sieve *J*.

I will now explain the operation of my machine. The grain or other product which is to be cleaned or graded is first fed into the hopper *B* through the bottom of which it falls upon the external surface of the revolving cylinder sieve *C*. The largest and best size of the grain does not pass through this cylinder into the interior thereof as its kernels are too large, but it is carried in a circular sweep underneath the shield *O⁴* on to the flat sieve *H* and beneath the vibratory press cloth *I*. This first quality of grain will pass through the sieve *H* and fall below the same where it can be gathered into some suitable receptacle. The chaff and straw swept along with it from the hopper *B* by means of the cylinder *C*, will, by means of the press cloth *I*, be fed forward to the end of the upper surface of the plate *H* and be delivered at the end into some suitable receptacle or upon the ground. The next similar size of grain will instead of being carried over on to the perforated plate *H*, be permitted to pass through the interstices in the wire of cylinder *C* into the interior of said cylinder and downward through the bottom thereof as is clearly shown in Fig. 3, until it enters the second hopper or chute *E* through the bottom of which it is delivered upon the external surface of the cylindrical sieve *D*, which in its rapid rotary motion sweeps this second grade of grain outward underneath the flap *O²* and allows it to fall upon the ground or into a receptacle at the right of the cylinder *C*, so that in this way the second grade of the grain is separated and gathered. The interstices in the cylinder *D* will be smaller than those in the cylinder *C* and consequently those kernels of grain which pass through the cylinder *C*, will be too large to pass through the cylinder *D*. A third smaller size of grain however whose kernels are smaller than the interstices or perforations in the cylinder *D*, may pass through the same as shown in Fig. 3 and by falling downward through the bottom of said cylinder and being guided in their movement by the shield *O³* be finally deposited upon the horizontal sieve *J*. This sieve as we have seen has a vertical oscillatory motion. The third quality of grain will, as this sieve oscillates be fed therefrom at the end thereof as shown in Fig. 4. The remaining minute kernels of grain or mere seeds will pass through the sieve *J* and be collected in a heap beneath

the latter. Thus it will be seen that my improved separator effectually grades the grain, separates the chaff, the straw, the seeds and other refuse and it performs its operation quickly, easily and in a thorough manner.

It is important to note that the grain is not introduced into the cylindrical sieves through the ends thereof as is common in most cylindrical sieves now known but it is introduced through the cylindrical surface which acts as a separator preventing the entry into the cylinder of the larger grain and permitting a smaller size to pass through the perforations and downward vertically through the cylinder. It is believed that this is a novel idea in the construction and operation of grain separators.

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

1. In a separator and cleaner for grain and other substances, the combination of a hopper, a revolving sieve beneath it, cams on each end of the shaft of said revolving sieve, pivoted arms which are oscillated by the said cams, a sieve which receives the grain from the external surface of the revolving sieve, and a press-cloth upon the latter sieve which is oscillated by the aforesaid arms, substantially as described.

2. In a separator and cleaner for grain and other substances, the combination of a hopper, a revolving sieve beneath it, a cam on each end of the shaft of said sieve, pivoted arms which are oscillated by said cams, a roller supported in said arms, a press-cloth attached to the roller, a flat sieve beneath said press-cloth, and another revolving sieve geared with the first mentioned sieve, substantially as described.

3. In a separator and cleaner for grain and

other substances, the combination of a revolving cylindrical sieve, a cam on the end of its shaft, a horizontal sieve hinged at one end below the revolving sieve, a vertical arm pivoted to the other end of the horizontal sieve, said arm having a notch that engages the said cam, and having a slot which is entered by a pin on the main frame, substantially as described.

4. In a grain separator and cleaner, the combination with the hopper, of a revolving cylindrical sieve located below it and receiving the grain upon its external surface, a cam on each end of the shaft of said revolving sieve, pivoted horizontal arms which are oscillated by the said cams, a horizontal sieve receiving the grain from the external surface of the revolving sieve and a press cloth upon the said horizontal sieve which is connected to and oscillated by the aforesaid arms, substantially as described.

5. In a grain separator, the combination of the hopper, a revolving sieve beneath it receiving the grain upon its external surface from the hopper, a cam on each end of the shaft of the revolving sieve, pivoted horizontal arms engaged and oscillated by the said cams, an adjustable horizontal sieve which is adjacent to the revolving sieve, an adjustable support for said horizontal sieve, a press cloth resting upon the top of the sieve and attached to a roller which is loosely supported in the outer ends of the pivoted arms, substantially as described.

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

CLARENCE D. HOSELTON.

Witnesses:

H. A. LUDLUM,
H. D. CRANDALL.