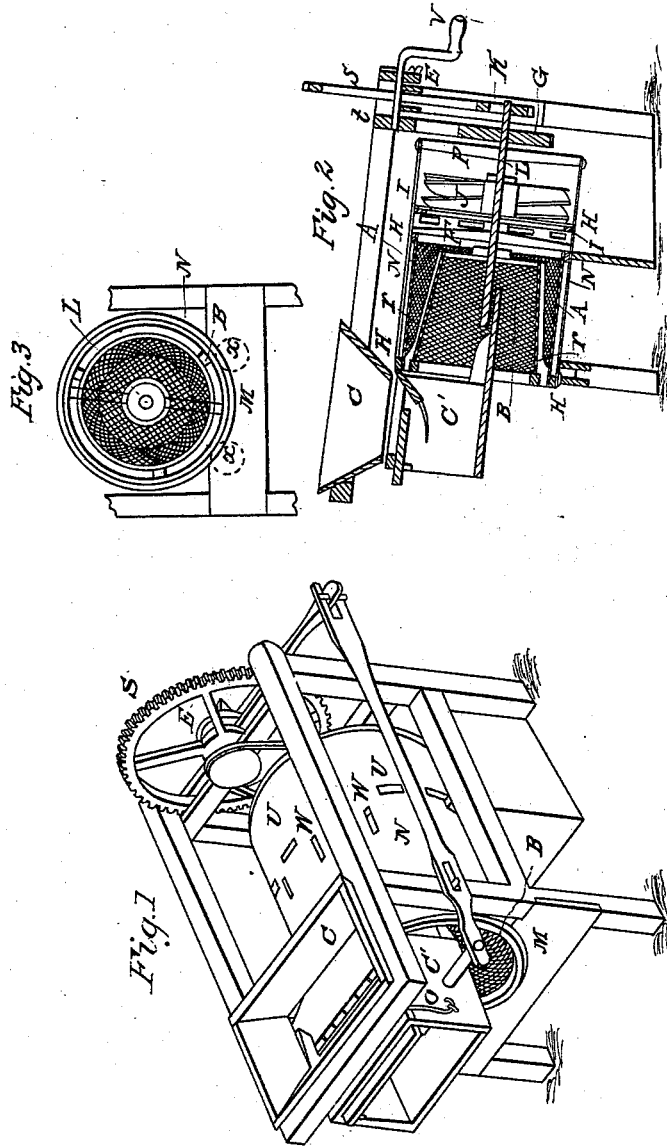


A. COOLEY.
Rotary Winnower.

No. 4,169.

Patented Sept. 2, 1845.



UNITED STATES PATENT OFFICE.

ANTHONY COOLEY, OF KALAMAZOO, MICHIGAN.

WINNOWING-MACHINE.

Specification of Letters Patent No. 4,169, dated September 2, 1845.

To all whom it may concern:

Be it known that I, ANTHONY COOLEY, of the village of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented new and useful Improvements in Machines for Winnowing or Cleaning Grain, and that the following is a full, clear, and exact description of the principle or character thereof and of the manner of constructing and using the same, reference being had to the accompanying drawings, which make part of this specification, in which—

Figure 1, is a perspective representation of the machine; Fig. 2, a longitudinal and vertical section, and Fig. 3 an end view of the cylinder with the inclosed screen, sieve and fan.

The same letters are used to indicate like parts in all the sections of the drawings in which they are represented.

The nature of my invention consists in providing an inclined revolving cylinder with an inclosed cylindrical screen, a conical sieve and a spiral fan blower, the revolving cylinder being pierced with two sets of apertures near the middle of its length, one set opening into a space between the screen and cylinder for the discharge of the chaff, cockle and other impurities from the grain after they have passed through the sieve and screen, and the other for the discharge of the grain from the space between the fan blower and the screen and sieve—the cylindrical screen and conical sieve being attached to and revolving with the cylinder in one direction, and the fan blower with a great velocity in the reverse direction. The grain is fed into the conical sieve from a shoe, and as it is carried down by the inclination of the cylinder is acted upon by the current of air from the fan.

A frame, as represented in the figures, is constructed of timber two feet and four inches wide, and three feet long. At one end the posts are three feet high and at the other three feet four inches high. At the lowest or front end are two cross timbers, one near the top, the other thirteen and a half inches below it, the upper one is made of two pieces with a space between them sufficiently large to admit of a wheel twenty four inches in diameter and one inch thick. The lower timber is to receive a box in the center to support the shaft or gudgeon (L); on each side is a timber extending from the

front to the back posts, two feet from the top. There are two timbers or plates on the top of the posts running lengthwise from the front posts and extending back of the hinder posts fourteen inches, making the plates four feet and two inches long, on the back end of which the hopper (C) rests. Across the back end, and between the two back posts (as seen in Fig. 3 letter M) is a plank cross piece with a concave circle cut in it where the back end of the cylinder (N, Fig. 1) rests on two friction rollers (X X Fig. 3) about four inches in diameter. The cylinder (N) which contains the fan screen and sieve, is made of sheet iron, and in length is three feet. When the cylinder is suspended in the frame it lies on an angle of about twelve degrees, and is supported at the lower or forward end by a turned iron shaft (L) three fourths of an inch in diameter, extending from the box at the front end of the frame about two thirds the length of the cylinder, while the other end of the cylinder rests on the two friction rollers as before described. There are two sets of cast iron arms (see F and P) extending from the shaft to the inner surface of the cylinder, through the center of which the shaft (L) revolves, one set (P) at the lower end, the other set (F) near the middle of the cylinder; within the cylinder, and between these two sets of arms, are six sheet iron wings, attached to the shaft and placed diagonally across, on an angle of about forty five degrees which constitutes the fan (J) somewhat in the form of the propellers in steam boats, this throws the wind from the lower end, through the upper end of the cylinder, while the fan is driven at the rate of about four hundred revolutions a minute, the cylinder is moving in a contrary direction, only at the rate of twenty or twenty five: In the upper or back portion of the cylinder extending down to the middle set of arms is a wire screen (A A Fig. 2) surrounding the inner surface and supported by a hoop at each end (H H) (Fig. 2) three fourths of an inch in thickness, which keeps the screen far enough from the cylinder, to allow room for the chaff, cockle and other foul stuff to pass through the screen on to the inner surface of the cylinder, and by its revolutions is carried down to the hoop at the lower end of the screen and discharged through the small holes (W W Fig. 1) which surrounds the whole cylinder.

Within and extending nearly the same length of the screen is a sieve (B) made of wire cloth stretched on frame work, in the form of a cone, twelve inches in diameter at the inner end, and twenty at the other, and when placed within the screen, leaving about one inch space between it and the screen at the outer end to allow the chaff that falls through the sieve, to pass off by the wind. The sieve is constructed in this form in order that the bottom portion where the grain and chaff may fall from the shoe (C') shall incline a little backward, so as to allow the wheat head, and other heavy substances to pass off with the chaff; both the screen and sieve revolve with the cylinder as the grain passes through the sieve (B) on to the screen, the revolving motion of the cylinder carries it down past the bottom of the screen where it falls onto the inner surface of the cylinder, above the wings, where it is prevented from passing under the wings by a hoop (I Fig. 2) and is discharged through the large holes (U U) cut in the cylinder for that purpose.

The hopper (C) sets on the back end of the frame and is stationary, the shoe (C') under the hopper which conducts the grain in the chaff to the sieve, is hung at the back end by two hooks (O O) and a slight motion lengthwise is given to it by means of an eccentric (E Fig. 2) which is attached to the shaft, or by any other means. The fan (J) is propelled by a cogwheel (S) (see Fig. 1)

twenty four inches in diameter, which meshes into a pinion (K Fig. 2) three inches in diameter on the lower end of the shaft and is placed directly over it. A pulley or flange (G) twelve inches in diameter is attached to the lower set of arms (P) which projects far enough to receive a leather strap or band, and is directly under a small pulley (t) four inches in diameter, on the back end of the crank shaft, which gives a revolving motion to the cylinder. The sieve is secured to its place by means of springs (r r r) in order that one quality of sieve may be easily taken out, to give place for one, suited to any other kind of grain. The machine is turned by hand, by crank setter (Y) and the grain fed into the hopper (C) in the usual manner.

What I claim as my invention is—

The combination of the cylinder, inclined conical sieve and fan, substantially as herein described and for the purpose of cleaning grain. And I also claim the combination of the cylinder, included cylindrical screen and fan blower, substantially as described. And also the combination of the cylindrical screen, conical seive, fan blower and cylinder for the purpose and in the manner described above.

ANTHONY COOLEY.

In presence of—

GEO. THOS. CLARK,
C. A. SEMON.