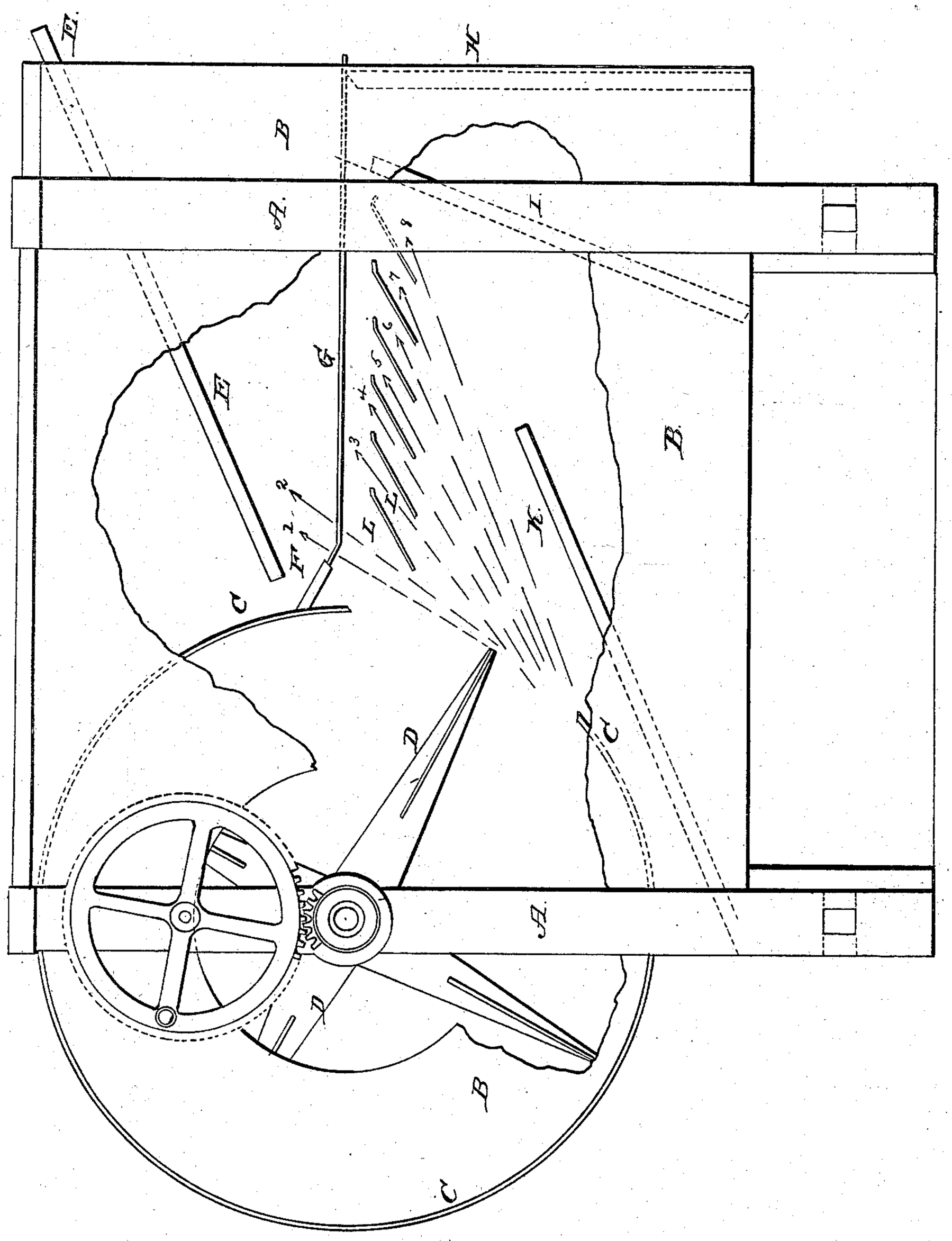
H. H. BEACH.

Grain Winnower.

No. 11,543. Patented Aug. 15, 1854.



UNITED STATES PATENT OFFICE.

HENRY H. BEACH, OF CHICAGO, ILLINOIS.

WINNOWER.

Specification of Letters Patent No. 11,543, dated August 15, 1854.

To all whom it may concern:

Be it known that I, HENRY H. BEACH, of Chicago, county of Cook, State of Illinois, have invented a new and useful Improvement in Blast-Separators for Cleaning Grain, Seeds, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of the specification, in which by a removal of a portion of the side the internal arrangement is shown.

The nature of my improvement in separators consists in presenting the grain to a blast undirected by any fixtures whatever, thereby securing the division of grains into requisite qualities by taking advantage of the specific gravity inherent therein. This being effected by a most simple device of the arrangement of a board conveying the grain from the hopper to the blast from the blower, combined with stationary inclined planes, whereby the blast is received under the grain as it falls from the directing board, and is carried along from plane to plane supported and driven by the force of the blast alone.

To enable others skilled in the art, to make and use my improvement, I will describe it as follows. A, A, represents the upright framing. B, B, one of the sides, (partially removed to show the interior arrangement). C, C, is the drum, which encircles the fan. Excepting a space of 14 inches for the exit of blast, the upper edge of this space is on a line parallel with the center of the fan shaft.

D, D, is the fan.

E, E, is the sliding gate of the hopper. F, the stationary board conveying the grain from the hopper to the blast. It extends from side to side of the machine, and from the bottom of the hopper to the point where it meets the blast coming from the drum, and is placed at such inclination that the grain will pass rapidly over it, by its own specific gravity. When the fan is not in motion, the grain in falling strikes about the middle of the first inclined plane, L. The width of the board depends on its pitch; it should fill the space between the bottom of the hopper and the front of the blast. Having the pitch above mentioned, I have found by experiment, that the width of the delivering board F, should be about four inches.

G is one of a series of wire fingers placed side by side, inserted into the delivering board F, for supporting heavy straws, &c.

H is a board separating the tailing from the chaff.

I is a board by which the wheat is separated from the tailing.

K, is an adjustable sliding board by which the heavier and perfect grains may be separated, from the lighter ones by falling thereon, and being conveyed to the front of the machine, while the lighter grains are dropped back of this board and fall under the machine.

L, L, L, are a series of inclined planes, the pitch of which corresponds with the direction of the blast as thrown from the fan, the upper edge of the planes are ½ an inch below a line corresponding with the center of the shaft of the fan.

The operation of the machine is as follows. The fan D, D, being turned in the direction of the darts, the blast is thrown from the wings in the direction of the darts numbered 1, 2, 3, 4, 5, 6, 7, 8, darts Nos. 1 and 2, represent, the greatest force of the blast, which arises from the position of the opening of the drum. If the space for the exit of blast should extend down to a line perpendicular with the shaft, of the fan, it would destroy the force of the blast at Nos. 1, 2, and 3, and distribute it more uniformly through the inclined planes, L, L, L. The advantage of having the greatest force of the blast at Nos. 1, 2, and 3, is that at this point it meets the grain, descending from the board F, on a line with the center of the first inclined plane, so that the whole of the grain with its impurities is raised by the blast, and carried along toward the tail of the machine, the heavier grains striking the upper edge of the planes 1, 2, 3, the lighter grains are forced along to the 4 5 and 6 while the impurities cheat, &c., are carried over the board I. If some heavy grains of cheat should fall against the planes 4 5 and 6 they would strike with such force as to bound upward, and be forced along by the portion of the blast passing through between them. The force of the blast at the edge of the board F, is such as to separate from the grain all chaff and straws, and drive it entirely beyond the board H. Very few straws will touch the fingers G. The reason of the blast being so efficient in this arrangement is that it strikes against and under the grain, as it leaves the board F,

without having been interrupted by any deflection or fixture whatever. The advantage of this manner of separating impurities from wheat by blast alone, over a screen, is that no small, but perfect grains are lost. These must go through a screen. Also, in this arrangement, by moving the adjustable board K, under the Nos. 1, 2, or 3, of the planes, the large, sound, and perfect grains are separated for seed and the balance of the grain left in good condition for market without wasting a single grain of perfect wheat.

The economy of constructing this machine is very evident, reducing the cost over common machines one half.

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

The position of the board F to deliver the grain to the front edge and strongest part of the blast in combination with the inclined planes L L L, the whole operation being performed without screen or blast director.

HENRY H. BEACH.

Witnesses:

JOHN F. CLARK,

SAML. GRUBB.