

UNITED STATES PATENT OFFICE.

HENRY H. BEACH, OF PHILADELPHIA, PENNSYLVANIA.

GRAIN-WINNOWER.

Specification of Letters Patent No. 26,742, dated January 10, 1860.

To all whom it may concern:

Be it known that I, HENRY H. BEACH, of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Grain-Winnower; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists of forming the upper portion of the shoe, with a series of steps or sections passing down through the direct current of the air from the fan, as herein after described.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In Figure 1, A is the hopper; B, the drum; C, the pan; D, the lower section of the shoe containing the screen *a* and removable board *b*, (the dotted lines indicate the connecting rod which gives the shoe an endwise motion;) *a'*, the rock shaft; *b'*, shown in the dotted lines, a pin attached to the rock shaft on which the shoe rests, the object of which is to support the shoe and to give motion to it; E, the upper portion of the shoe. *c* is the upper part of the shoe on which the grain falls directly from the hopper on which the grain is carried down to a line beyond the perpendicular of the fan; *d, d, d*, a series of steps which are made of either boards or riddles to facilitate the separation of the chaff and straw from the grain as it falls from one step to the other.

It will be seen that the grain when falling from step to step falls in different sheets at each descent and thus exposing a larger surface of the grain to the action of the blast which passes between the steps carrying with it the chaff and straw. As it falls onto and off the upper step it is exposed to the strongest currents of the air by which the chaff and straw are separated from the grain, leaving

the riddles below free from chaff to separate the coarser and heavier particles from the grain, *i. e.*, sticks, heads, &c.

Fig. 3 represents the upper portion of the shoe, with the steps *d, d, d*, removed, for the purpose of allowing the grain to fall unobstructed, past the blast, onto the lower portion of the shoe D, by which it is exposed to the full and direct action of the air as it comes from the fan, C, by means of which the qualities of the grain are separated according to their specific gravity, and by removing board *b*, from the lower shoe, the chess, and lighter substances are removed with great facility, the heavier falling onto the screen and are carried in front of the fan.

Fig. 2 shows the steps *d, d, d* so arranged as to allow the heavier grain to fall down in front of the step, successively as it falls from one step to the other, the blast of air passing between them carrying the lighter grain onto and over the step, thus making three divisions of the grain, the heaviest falling in front of the first step, which is of great advantage in preparing seed grain.

The shoe E, has an endwise motion imparted to it from the lower shoe D, by means of pin *e*, on which it rests.

I do not claim a shoe with its upper portion constructed in steps, as shown in the patent of John Thurston, of January 6th 1878, but

I claim—

The arrangement of such a shoe when the steps thereof are made movable in such relation to the fan, that the grain passes from the first step at a point from which its gravity would cause it to fall in advance of the fan, and where it is exposed to the greatest strength of the blast in the manner and for the purpose specified.

HENRY H. BEACH.

Witnesses:

JOHN GORE,
JOS. C. CLAYTON.