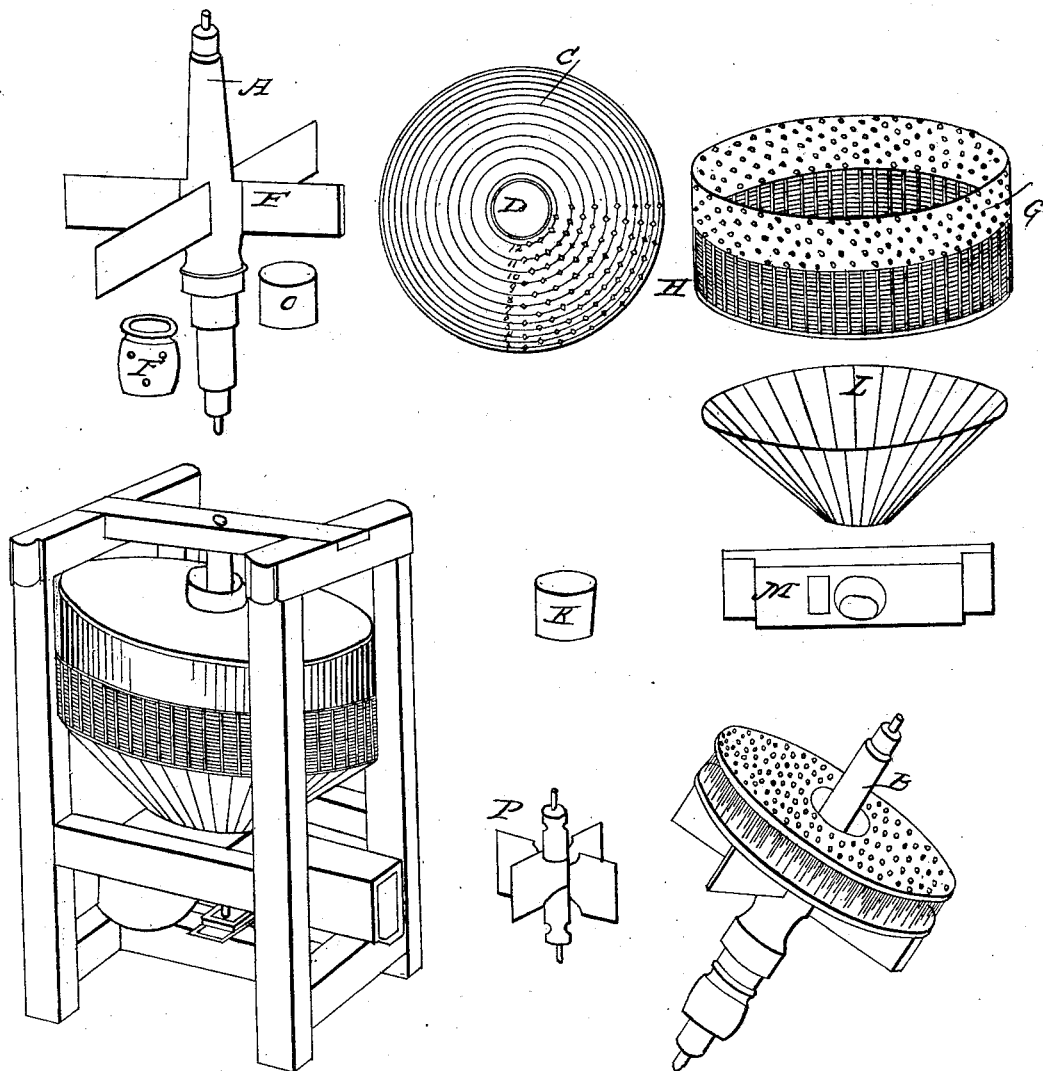


W. B. & E. W. YOUNG.

Smut Machine.

No. 1,216.

Patented July 2, 1839.



UNITED STATES PATENT OFFICE.

ELISHA W. YOUNG AND WM. B. YOUNG, OF PARKMAN TOWNSHIP, GEauga COUNTY, OHIO.

MACHINE FOR CLEANING WHEAT, &c.

Specification of Letters Patent No. 1,216, dated July 2, 1839.

To all whom it may concern:

Be it known that we, ELISHA W. YOUNG and WILLIAM B. YOUNG, of Parkman township, in the county of Geauga and State of Ohio, have invented a new and useful Improvement on Smut-Mills for Cleansing Wheat from Smut and other Impurities; and we do hereby declare that the following is a full and exact description.

10 The machine of which our invention forms a part consists in an upright shaft five inches in diameter and three feet long with a pivot and gudgeon to turn on as shown at A, on the accompanying drawing.
15 To this shaft two feet above the pivot a horizontal wheel B, is constructed with two heads of hard wood one inch thick, two feet six inches in diameter. These heads are banded with hoop iron and faced with sheet iron on the insides of each. These heads
20 are placed three inches apart and are studded with two hundred and seventy six wrought iron teeth or rods one fourth of an inch square and five inches long which are set through the heads and facings in the
25 twelve circles described on the heads C, in the following manner, viz: The first or outer circle is half an inch from the verge of the wheel. The second circle is seven
30 eighths of an inch from the verge. The third circle is one and three eighths of an inch. The fourth circle is one and seven eighths of an inch. The fifth also is two and a half inches. The sixth three and one
35 eighth. The seventh is four. The eighth five and the ninth six and a fourth inches. The tenth seven and a half, the eleventh nine and the twelfth or inner circle ten and a half inches from the verge of the wheel.
40 These circles have twenty four teeth equally spaced in each except the inner circle, which has twelve. The teeth on the second circle are interserted with those of the first circle and the teeth of the third with those of the
45 second and in like manner with all the other circles. The upper head has an opening at the center D, six inches in diameter to admit the grain into the wheel. There are four wings or fans of wood E, one and a
50 quarter inches thick, four inches wide and sixteen inches long faced with sheet iron on each side and locked through the shaft below the wheel. On these fans the wheel rests and is fastened by four small square
55 bolts which go through the wheel and fans with nut and screw at the lower end. A

pulley F, five or six inches in diameter and five inches long is fastened with screws at the lower end of the shaft by which the wheel is turned. There is a sheet iron screen or curb G, the upper part of which is indented from the outside with a conical pointed stamp in order to give it a rough surface for scouring the grain. These punctures should be three fourths of an inch distant from each other. This screen or curb is twelve inches high, one sixth of an inch thick, two feet ten inches in diameter, within this the wheel turns, the lower part of which is pierced with about eight hundred apertures in fifteen courses around the screen H. These apertures are two inches long and one sixteenth of an inch wide and one fourth of an inch apart every way. A hoop or belt of wood about six inches wide should be bent
75 around the curb to give it support. A cover of wood is fitted to the top of the curb through the center of which a circular hopper of sheet iron K, five inches at the lower end and six inches long is inserted through
80 to the upper head of the wheel.

There is a hopper nine inches deep, L, constructed of twenty four staves of hard wood closely fitted within the lower part of the screen and nailed to it. The point of
85 this hopper rests upon a plank floor M, two inches thick by ten inches wide. The shaft of the wheel passes through this floor and rests upon a bridgetree below it. This hopper may be made of sheet iron in two or
90 more parts and attached to the screen with rivets. Within this hopper the grain falls from the wheel and is gathered at the bottom near the shaft, where it is discharged through an opening for that purpose two by
95 three inches. At the bottom of this hopper are two sheet iron collars one of which is four inches in diameter inserted in the floor N, two inches high. The other collar O, is five inches in diameter and is fastened
100 around the shaft and incloses the lesser collar within it. At this point the shaft is diminished to three and a fourth inches to receive the pulley and collars. These collars prevent the grain from escape through the
105 opening made for the shaft through the plank floor. Between this floor and lower girths of the frame a set of fans P, four inches long by eight inches wide with a shaft two inches square and ten inches long
110 each end fitted to receive a band from the pulley of the wheel. This is inclosed in a

curb with openings for ventilation at each end for blowing off chaff through a pipe four by nine inches two feet eight inches long. This ventilator or wind mill is so constructed that the grain passes through the body of the pipe and by reversing its position the wheel is allowed to turn either way when required.

The whole is supported by a frame, viz:
10 There are four posts four by four inches three feet nine inches high connected by two opposite girths two feet between shoulders of the tenons and framed into the posts two inches above the floor. Into these a bridge-
15 tree is formed with a steel base for the wheel to turn on. Two other girths are framed at right angles with these one foot one inch from the floor and these are connected by the plank floor which supports
20 the hopper of stave work. Two other girths are framed on the heads of the posts parallel with the first and of the same dimensions. Into these a cross timber is keyed which supports the upper gudgeon of the
25 shaft. The velocity of this mill should be from five to six hundred revolutions per

minute. At the center of this wheel the grain is conducted through the upper hopper. Its action is by centrifugal forces through the wheel, from thence it is thrown 30 against the curb where it is checked and carried around the curb in spiral lines by a current of air until it is gathered at the point of the hopper and passes through the ventilator and is discharged from the mill. 35 The force or power applied to this mill at its highest velocities may be estimated equivalent to four hundred pounds, and is found capable of cleansing from smut five hundred bushels of wheat per day. 40

What we claim as our invention and desire to secure by Letters Patent is—

The wheel constructed as herein described in combination with the fans or wings and these thus combined, in combination with 45 the perforated screen as herein described.

ELISHA W. YOUNG.
W. B. YOUNG.

Witnesses:

SAMUEL W. DURAND,
LEONARD MERITT.