

Grain Cleaner.

Patented May 9, 1846.



UNITED STATES PATENT OFFICE.

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SMUT-MACHINE.

Specification of Letters Patent No. 4,512, dated May 9, 1846.

To all whom it may concern:

Be it known that we, J. W. HOWLET and F. M. WALKER, of Greensboro, in the county of Guilford and State of North Carolina, have invented a new and improved machine for cleaning wheat of all impurities and also of strengthening the hull of the same by the application of steam thereto; and we do hereby declare the following to be a full and exact description of the construction and operation thereof, reference being had to the accompanying drawings, making a part of this specification.

Figure 1, is a perspective elevation of our machine. Fig. 2 is a vertical longitudinal section of the same. Fig. 3, is a perspective view of revolving disk and parts attached thereto, detached from the machine. Fig. 4, is a perspective view of the under side of the revolving disk and parts attached thereto. Fig. 5, is a perspective view of the under side of stationary disk, and parts attached to the same. Fig. 6, is a perspective view of steam box.

Our machine for cleaning and steaming wheat, is inclosed in a frame of suitable form and strength, (as represented in the accompanying drawings) constructed in the usual manner, of posts and rails.

A is a drum firmly secured in the frame. D, is a vertical shaft, passing down through the center of the drum.

C, is a revolving disk secured to the shaft D, and inclosed within the drum A.

m is a vertical rim surrounding the revolving disk C, and cast solid with the same.

n, and o, are vertical concentric rings, cast on the face of the revolving disk, and placed at equal distance from each other and the rim m, with which they are concentric. The inner or concave surface of the rim m, and the rings n, and o, are fluted with vertical flutes.

E, E, are hollow arms, opening into, and strongly secured opposite each other, to the rim m. The rings n, and o, are divided into two equal parts by vertical openings on opposite sides of each other, descending from top to base. The openings in the ring n, are placed a short distance to the left of the openings in the rim m, leading into the arms E E; and the openings in the ring o, are placed a short distance to the left of the openings in the ring n.

B, is a stationary disk let into an opening in the top of the drum A, immediately over

the revolving disk C, and passing down within the rim m of the same, to the top of the flutes on its inner surface. The stationary disk B, is secured to the top of the drum A, by screws passing through the projecting arms x, x, x.

h, h, k, k, and l, l, are rubbers projecting from the lower side of the stationary disk B. The two rubbers l, l, pass within the ring o, their outer surfaces are of a convex form, corresponding with the concave fluted surface of the ring o, and are fluted in the same manner as the ring. The fluted surfaces of the rubbers l, l, are placed sufficiently near the concave in the ring o, to break up all smut, cockle, or lumps of earth that may be in the wheat, and also to thoroughly rub and scour the wheat. The rubbers k, k, pass between the rings o, and n, their rubbing surfaces are also convex and fluted, corresponding with the concave fluted surface of the ring n; the rubbers h, h, are placed the same distance from the ring n, that the rubbers l, l, are from the ring o. The rubbers h, h, have convex fluted rubbing surfaces corresponding with the concave fluted surface of the rim m, and are placed the same distance from the rim, that the rubbers l, l, are to the ring o. The rubbers l, l, and k, k, are permanently secured to the disk B. The rubbers h, h, have their largest ends secured to bolts passing through the disk B, on which they vibrate; at their other ends, there are projecting bolts y, y, passing up through slots a', in the disk B, and are secured to the spiral springs z, z, on the top of the disk, which gives a flexible bearing to the rubbers against the concave surface of the rim m.

The wheat to be cleaned is placed in hopper Q, constructed in the usual manner, and passes from the same through the opening t, in the stationary disk B, into the center of the revolving disk C, and is first acted upon by the rubbers l, l, and ring o, it then passes out of the openings in the ring o, and is acted upon by the rubbers k, k, and ring n, it then is forced out of the openings in the ring n, by the rubbers k, k, and is next rubbed between the rubbers h, h, and the rim m; the rubbers h, h, forcing it into the openings in the arms E, E. The wheat is thrown with great force from the arms E, E, against the sides of the drum A. The oblique beaters or rakes F, F, beat the wheat after it falls into the drum A, and also

gathers it to the central opening *u*, surrounding the shaft, through which it falls into the fan *V*, immediately under the same. The blast of the fan forces the wheat and
5 dust into the inclined spout *H*, the dirt and dust is forced up and out at the top of the spout, and the wheat by its greater specific gravity, falls into the steam box *G*, on to the wire grating *b'*. A powerful jet of
10 very hot steam from a generator or steam boiler, is admitted through the opening *c'*, under the rear end of the grating *b'*, which forces any remaining impurity that may be in the wheat out through the trap door *r*,
15 on the top of the steam box, and the wheat passes out at the front end of the steam box, in a fit state for immediate grinding. The effect of the steam upon the hull of the wheat, is to strengthen and toughen it, and
20 causes the bran to peel from the wheat in

large pieces and prevents the bran from pulverizing and bolting in with the flour, which would be the case, did the wheat pass directly from the machine to the mill stones, without its being first acted upon by steam. 25

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

The revolving and stationary disks *C*, and *B*, with the rubbers *l*, *l*, *h*, *h*, and *h*, *h*, and rings *o*, and *n*, and rim *m*, combined and 30 operating with each other, and in combination therewith the arms *E*, *E*, and beaters *F*, *F*, substantially in the manner and for the purpose herein set forth.

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Attest:

JOHN A. GILMER,
VALENTINE GARLAND.