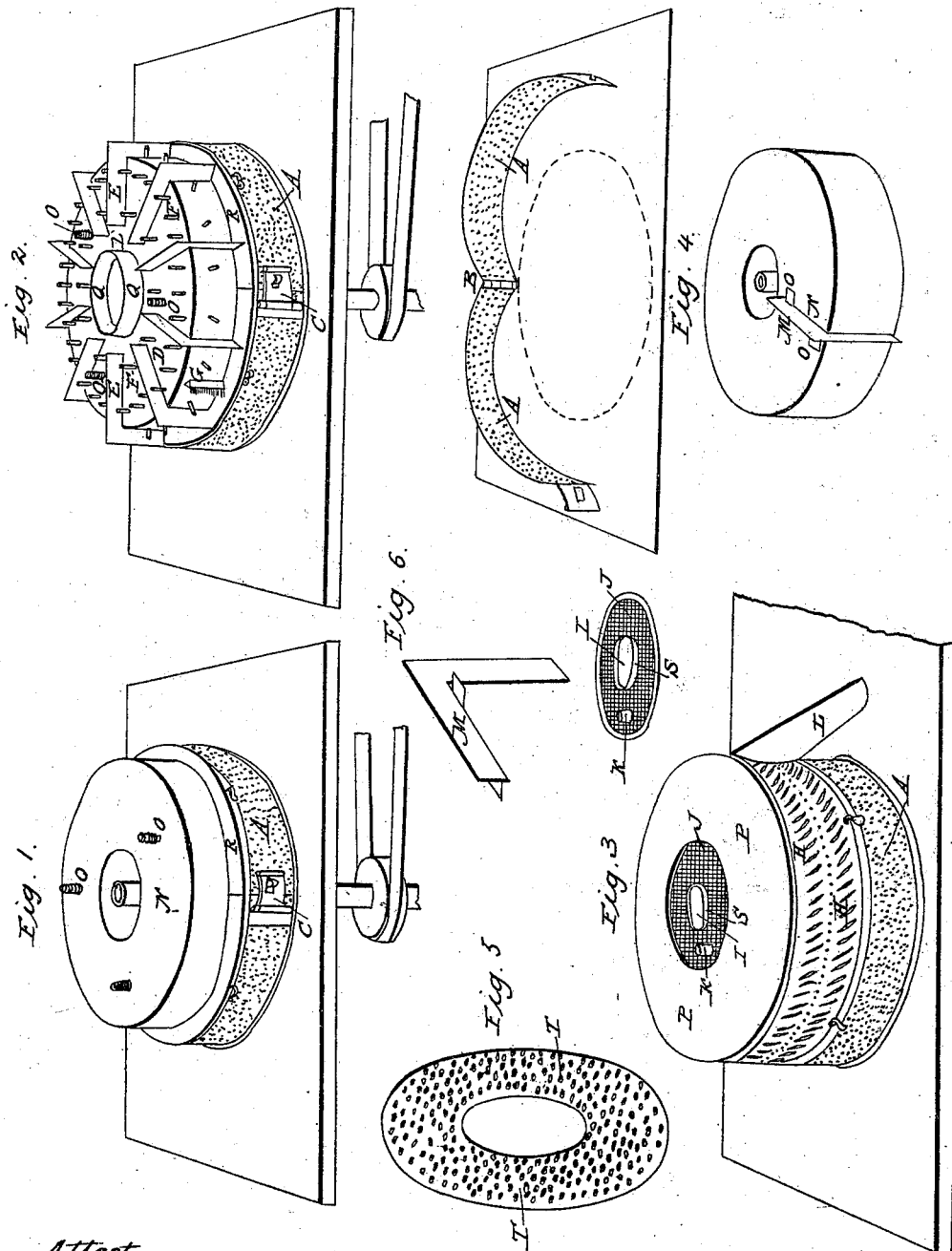


J. DURLING.

Mill Bolt.

No. 2,579.

Patented April 21, 1842.



Attest
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UNITED STATES PATENT OFFICE.

JAMES DURLING, OF SPARTA, NEW JERSEY.

FLOURING-MILL COMBINING A SMUT-MACHINE WITH THE SCOURING-STONES.

Specification of Letters Patent No. 2,579, dated April 21, 1842.

To all whom it may concern:

Be it known that I, JAMES DURLING, of the town of Sparta, the county of Sussex and State of New Jersey, have invented a new and useful Combination of the Smut-Machine with the Scouring-Stones for Flouring-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming part of this specification.

N is the top stone of the two scouring stones or runner. The cap D of the runner N is made of cast iron from $\frac{1}{4}$ to $\frac{1}{2}$ an inch in thickness, bolted closely to the runner N by the iron screws O, and covers the whole of the top or back of the runner N and also the sides of the runner N to within two inches of the bottom or face of the runner N, the cap D being thus closely affixed to the runner N and revolving with it. The screws O by which the cap D is affixed to the runner N are three in number and are screwed three or four inches into a nut which is inserted into a hole drilled into the runner N and fastened in with lead. They stand equidistant from each other and from four to six inches from the outer skirts of the runner N. The screws O pass through the cap D and project upward from it about two inches. A nut is run on each of the screws O to keep the cap D in its place. As the face of the runner N wears away, by means of the screws O, the cap D may be raised, and fillers of iron or wood of the required size laid on the back of the runner N, and then the cap D re-screwed on so as to maintain the original distance between the face of the runner N and the lower edge of the skirts of the cap D, thereby keeping the flange R in its proper position. (The construction and use of the flange R are hereinafter described when speaking of the grater hoop A.)

The beaters E, ten in number; more or less, may be either cast together with the cap D, or made of wrought or cast iron and screw-bolted to the cap D. The beaters E are two or more inches in height and $\frac{1}{2}$ or $\frac{3}{8}$ of an inch in thickness, and extend from within one-half inch of the lower edge of the sides of the cap D up the sides and over the top of the cap D to within two or three inches of the flange Q, Fig. 2, which flange Q, likewise made of cast iron is two or more inches in height and $\frac{1}{2}$ or $\frac{3}{8}$ of an inch in

thickness, runs around the eye of the runner N and is a part of the cap D and may be cast with it the cap D.

The iron teeth F, sixty or more or less in number, two or more inches in height and about $\frac{1}{2}$ an inch in diameter may be either cast with the cap D from the top and sides of which they project, or made of wrought iron and riveted into the top and sides of the cap D. The use of the teeth F is to break the smut and clean and polish the grain.

Two or more brushes of hogs' bristles G four inches in height and about two inches in width, the stock of the brush to be screwed between the beaters E into the sides of the cap D of the runner N, to run on the sides or skirts of the cap D for the purpose of brushing off that portion of smut which from dampness or other causes may adhere to the perforated cylinder H. The perforated cylinder H, Fig. 3, running around the interior component parts D, E, G, F, Q, O Fig. 2, is made of sheet iron and in addition to the perforated holes is provided with slashes cut in the sheet iron of from one to two inches in length and about $\frac{1}{8}$ of an inch in breadth for the purpose of permitting the smut to pass through.

The top P of the perforated cylinder H is made of wood or other suitable material. The underside T Fig. 5 of this top P Fig. 3 is covered with sheet iron. Through the sheet iron and into the wood of the top P are driven wrought iron teeth or heavy iron brads so as to leave $\frac{1}{2}$ or $\frac{3}{8}$ of an inch of their length projecting downward from the under side T of the top P. These aforesaid iron teeth or heavy iron brads may be more or less in number and stand sufficiently close together to break the smut and polish the grain as it is thrown against the underside T of the top P by the action of the beater E.

The screw J in the center of the top P of the perforated cylinder H, Fig. 3, is a circular, fixed, open, wire screen nailed to the top P and extending inward about four inches more or less, terminating in a wire flange S one and $\frac{1}{2}$ inches in height. The wire-flange S is designed to prevent any stone or other foreign substance which may accidentally lodge on the wire screen J from working into the eye of the runner N. The wire screen J admits air to the interior of the smut machine, the beaters E acting as fans as well as beaters.

The open place I in the center of the screen J is the eye of the runner N through which open place I the grain passes between the scouring stones.

5 The leader K in the wire screen J is made of tin, sheet iron, or wood about two inches in diameter in the clear, and is inserted into the wire screen J. The design of the leader K is to convey the smutty wheat into the
10 smut machine, and its length varies according to convenience.

The hollow conductor L may be made of either sheet iron, tin, or wood, and is inserted into the perforated cylinder H. The
15 sole intent of the hollow conductor L is to receive the wheat after it has been cleaned and polished and convey it, if desired, into a fanning mill. The shape and size of the hollow conductor L may vary according to
20 circumstances, so that it serves the aforesaid object.

The grater hoop A made of sheet iron punched with holes, the holes not punched out with a hinge B in the center clasps
25 around that part of the bed stone which is above the floor of the mill and about two inches of the lower part of the runner N, at a uniform distance of about two and one half inches from the bed stone and runner N^a,
30 aforesaid, and is held together by the work or clasp O. The grater hoop A removes all or nearly all the scurf which the scouring stones have failed to remove. From the upper edge of the grater hoop A the flange R
35 Fig. 1 likewise made of heavy sheet iron extends inwardly about two inches and $\frac{1}{8}$ of an inch, and within $\frac{1}{16}$ of an inch of the skirts of the cap D of the runner N, so as to afford room for the runner N with the cap D
40 to revolve without touching the flange R, which flange R acts as a partition keeping the grain in the smut machine separate from that which is passing between the scouring stones. The grater hoop A and the perforated cylinder H, Fig. 3 are united together
45 by hooks or clasps.

Where it is desirable to save the expense of the cap D of the runner N, the runner N may be rigged so as to answer nearly the
50 same purpose by inserting into the top or back and sides of the runner N, sixty, more or less, teeth similar in all respects to those hereinbefore described and referred to on the drawings by the letter F with the excep-
55 tion that in this case the teeth are inserted by drilling holes into the top or back and sides

of the runner N inserting the teeth into the holes and fastening them in with lead. And also by affixing to the runner N ten, more or less beaters M similar in all respects to those
60 above described and referred to on the drawings making a part of this specification by the letter E, Fig. 2, with the exceptions that they are detached (see M, Fig. 6) from any cap and fastened into the runner N by bolts
65 as represented in Fig. 4, and that the beaters M can extend about one inch lower down the skirts of the runner N than the beater E Fig. 2, the flange R being dispensed with as hereinafter mentioned. 70

Where it is not desired to have both operations performed at one and the same time the entire perforated cylinder H and grater hoop A can be made in one piece, dispensing
75 entirely with the flange R. The conductor L in such case is also dispensed with the grain passing out of a hole in the lower part of the grater hoop A.

In seasons when there is no smutty wheat the smut machine is no detriment to the
80 scouring stones requiring when it is not in use merely fractional additional power, and not sustaining any injury from the revolution of the stones.

The advantages to be derived from the use
85 of this combination are:

1, that no new gearing is required for the smut machine; 2, that it is very compact and saves much room (because at present two separate machines are in use to perform the
90 same work which can by my invention as hereinbefore described be done by one and the same machine); 3, that it possesses great durability; 4, that where it is an object to save power as on light streams, both opera-
95 tions can be carried on at the same time with a merely fractional additional increase of power; 5, that it is cheap in its construction; 6, that it is simple and of ready practical application; 7, that it performs the required
100 work in the most superior manner.

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

The combination of the smut machine with the scouring stones for flouring mills,
105 as herein described and for the purposes herein set forth, distinctly and expressly disclaiming all else.

JAMES DURLING.

Witnesses:

DANL. T. WALDEN, Sr.,
PETER MULLENER.