2 Sheets—Sheet 1.

J. MILLS.
Grinding-Mill.

No. 203,930. Patented May 21, 1878

Fig. 2.

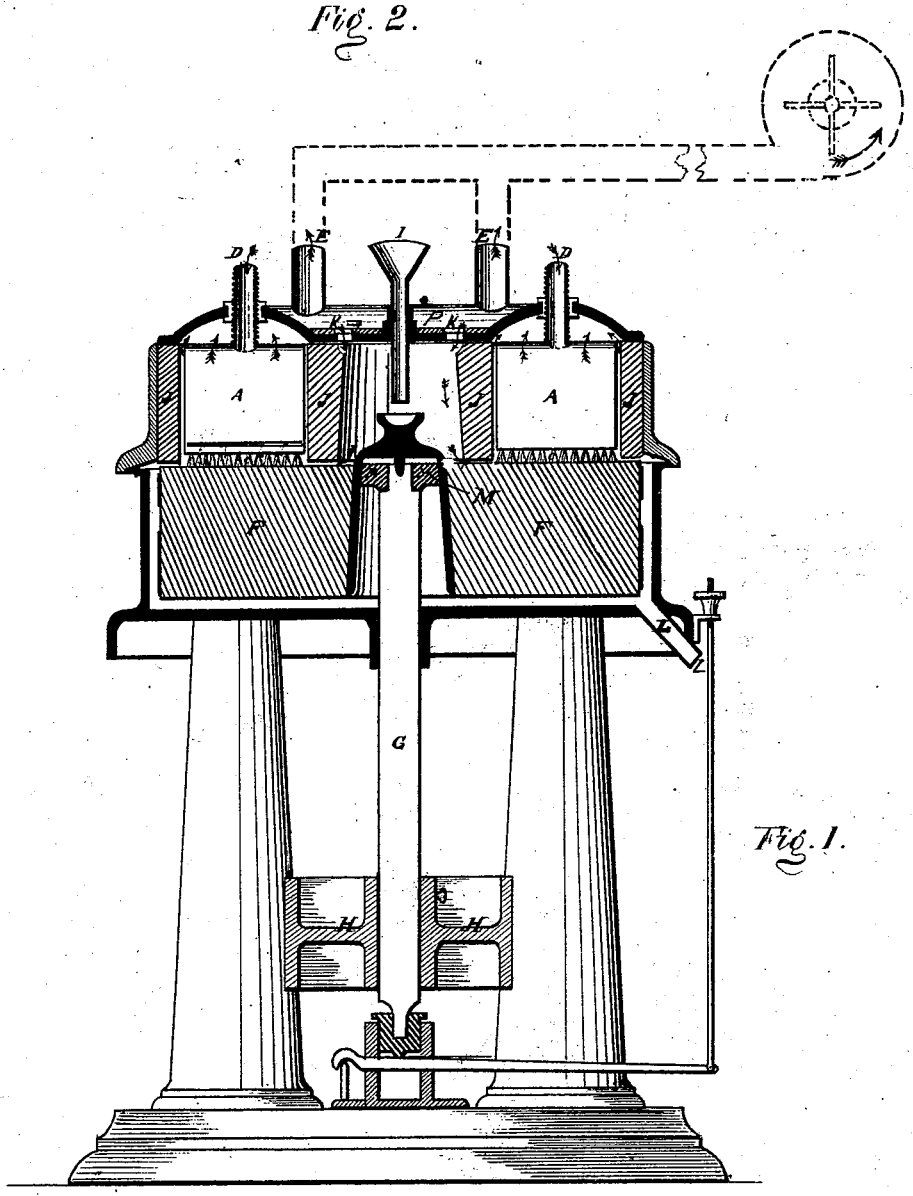

Fig. 1.

Witnesses.
G. A. McArthur
Chas. A. von Bonke.

Inventor.
Jonathan Mills

2 Sheets—Sheet 2.

J. MILLS.
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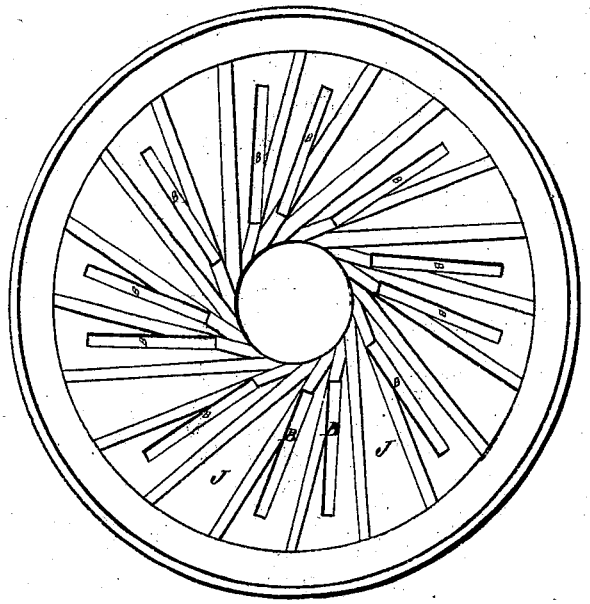

Fig. 4.

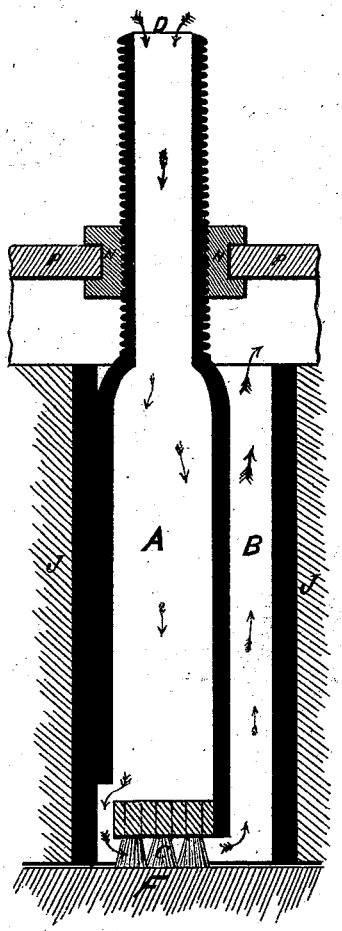

Fig. 5.

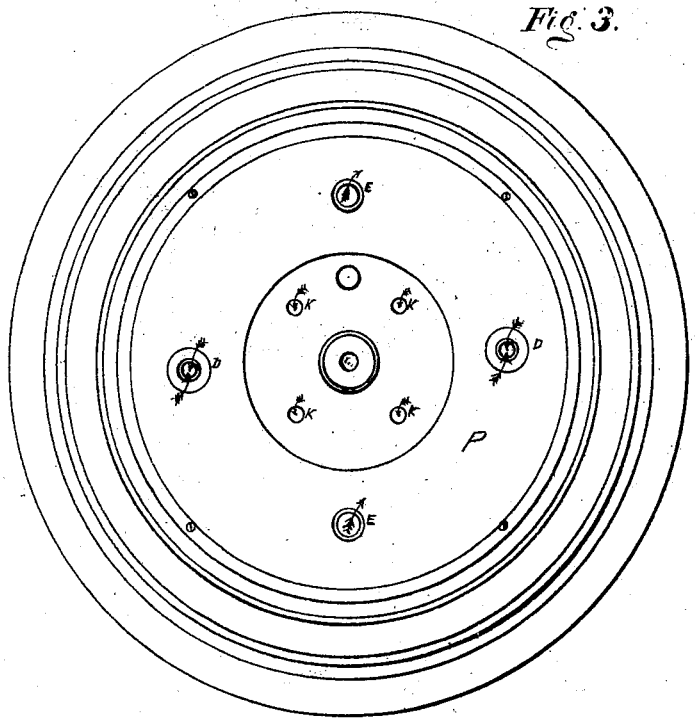

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

JONATHAN MILLS, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **203,930**, dated May 21, 1878; application filed August 8, 1877.

To all whom it may concern:

Be it known that I, JONATHAN MILLS, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Millstones; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to make a better or higher grade of wheat-flour than has heretofore been made by the usual mode of grinding wheat. The mode of grinding heretofore followed produces middlings in part, and the balance is flour, bran, and ship-stuff. The flour produced is called "first" or "wheat" flour.

The object to be obtained by my process of grinding or exhausting the first or wheat flour away from between the stones is to get it away before it has been overground, and to exhaust the pulverulent parts of bran and embryo that are light enough to draw out before they are reduced to a finer degree, which would be done if allowed to remain between the stones until they passed out at the periphery. In brief, my object is to make a high granulated wheat or first flour by grinding high, in order to prevent the bran from being ground so fine that it cannot be separated from the flour by bolting or purifying. This I accomplish, in part, by exhausting the flour away as soon as fine enough, and am assisted in grinding high by the use of the brushes C C C C, which can be set hard down onto the under or running stone, which causes the bran to be cleaned without grinding so close as has to be done by the usual mode of grinding wheat. I shall use as many of these brushes as are, in my judgment, best adapted to accomplish the object sought. These brushes are set in radial holes passing down through the upper stone J J, and attached to an air-box, A. This air-box has metal tubes passing up and out through hood P. The box also has a slot or opening at the back of the brush, to allow the air to pass out and under the brush and up through the radial holes B B B B, out through the exhaust-pipes E E. There will be four or more of these tubes. The flour and all material that is fine enough is carried out up through these tubes E E to an exhaust-fan, that will be placed in any convenient place in the mill, and blow or exhaust the flour and stuff into a settling-room provided for the purpose, allowing the air to escape without carrying off the flour.

There is a slide-covering around the center or eye of the upper stone J J, in which there are holes K K, to allow the desired quantity of air to pass down through the eye and out between the stones until it reaches openings B B B B. These air-currents are for the purpose of at once carrying off any impurities that are liberated by the first bursting of the grain, as there are always more or less dirt, smut, and impurities in the crease or crack of the berry that cannot be cleaned out by smut and scouring machines. This I want to exhaust out before the berries are reduced to any finer degree by passing farther between the upper and nether millstone.

Corresponding letters indicate similar parts in the accompanying drawing.

H H is a pulley that drives the spindle. F F is the lower stone. G is the spindle. M M is the driver on the spindle driving the lower millstone. J J J J is the upper stone, provided with the radial slots or holes B B B B, within which are the air-boxes A A, provided with openings and brushes C C. The mill is provided with the usual meal-spout L.

I am aware that it is old to perforate the bed-stone and introduce an inward cooling-blast through the same; that it is old to provide the bed-stones with discharge-openings covered with bolting-cloth or screens, no blast being employed; and I am also aware that it is old to perforate the upper stone and introduce a downward cooling-blast through the same; but I am not aware that any one has hitherto established a blast or suction upward through the upper stone between the eye and the periphery.

Having thus described my invention, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a grinding-mill, the combination of an upper stone, having vertical openings at a point or points between the eye and the pe-

riphery, and a fan arranged to produce an upward current of air through said openings, substantially as and for the purpose described.

2. The combination, in a grinding-mill, of a lower stone, an upper stone having vertical openings through its grinding-face, a fan arranged to produce an upward current of air through said openings, and brushes arranged to act upon the face of the lower stone to assist in the release and discharge of the first flour and pulverulent impurities.

3. A grinding-mill having its upper stone provided with long narrow openings extending through its lower face and intersecting the lands or grooves therein, in combination with a fan arranged to produce an upward current of air through the openings.

4. A millstone provided on its grinding-face with vertical openings, having separate passages therein for the descent and ascent of air, in combination with an exhaust-fan communicating with the outlet-passages.

5. In a grinding-mill, the combination of an upper stone provided with vertical openings at points outside of the eye, a fan arranged to produce a draft of air upward through the openings and downward through the eye, and means, substantially such as shown, for regulating the admission of air at the eye.

6. The air-box A, provided with inlet-passage D, outlet-passage at the bottom, and brush C, substantially as and for the purposes set forth.

7. In combination with the millstone having the openings made therein, as described, the hood, provided with air-inlets D extending down within the openings in the stone, and the air-outlets communicating with the space above the stone and with an exhaust-fan, substantially as shown and described.

8. The air-inlets K K, in combination with inlet-tubes D D, outlet-tubes E E, and an exhaust-fan communicating with E E, substantially as and for the purposes set forth.

9. A grinding-mill having air admitted at the eye or center of the upper stone and exhausted through the same at a point or points between the eye and the periphery, substantially as shown, whereby the first flour and pulverulent impurities are removed before reaching the periphery of the stone.

10. The air-brushes C C, in combination with hood P and radial openings B B B B, and exhaust-tubes E E, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JONATHAN MILLS.

Witnesses:

GALEN B. SEAMAN,

WALTER E. HOWARD.