I. WHISSEN.

Millstone Dress.

No. 19,273. Patented Feb. 2, 1858.

Fig: 2.

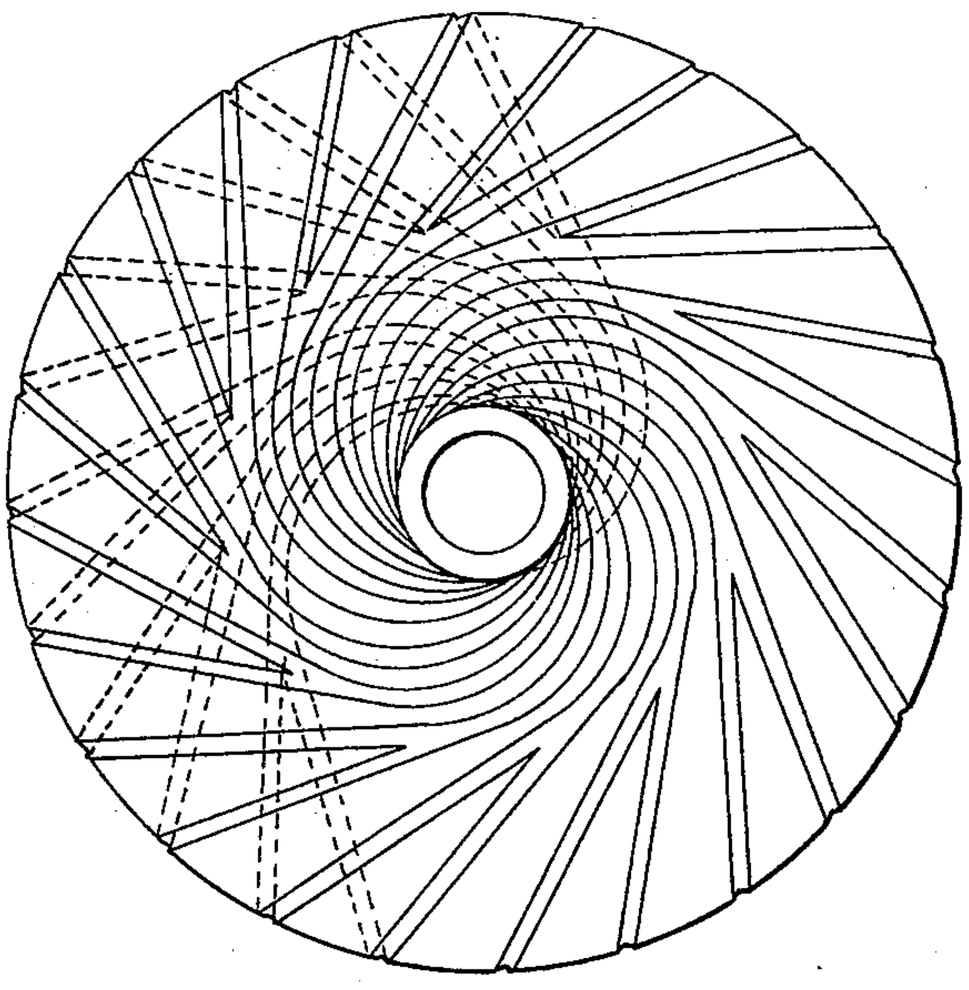


Fig: 3.

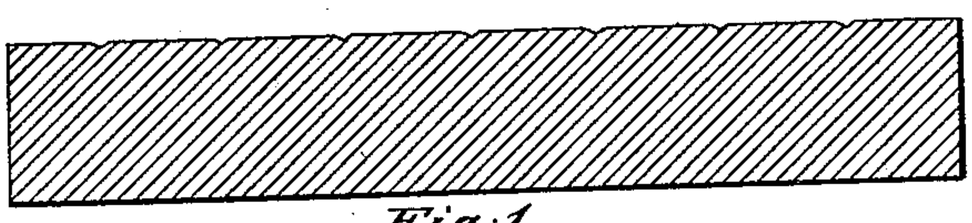
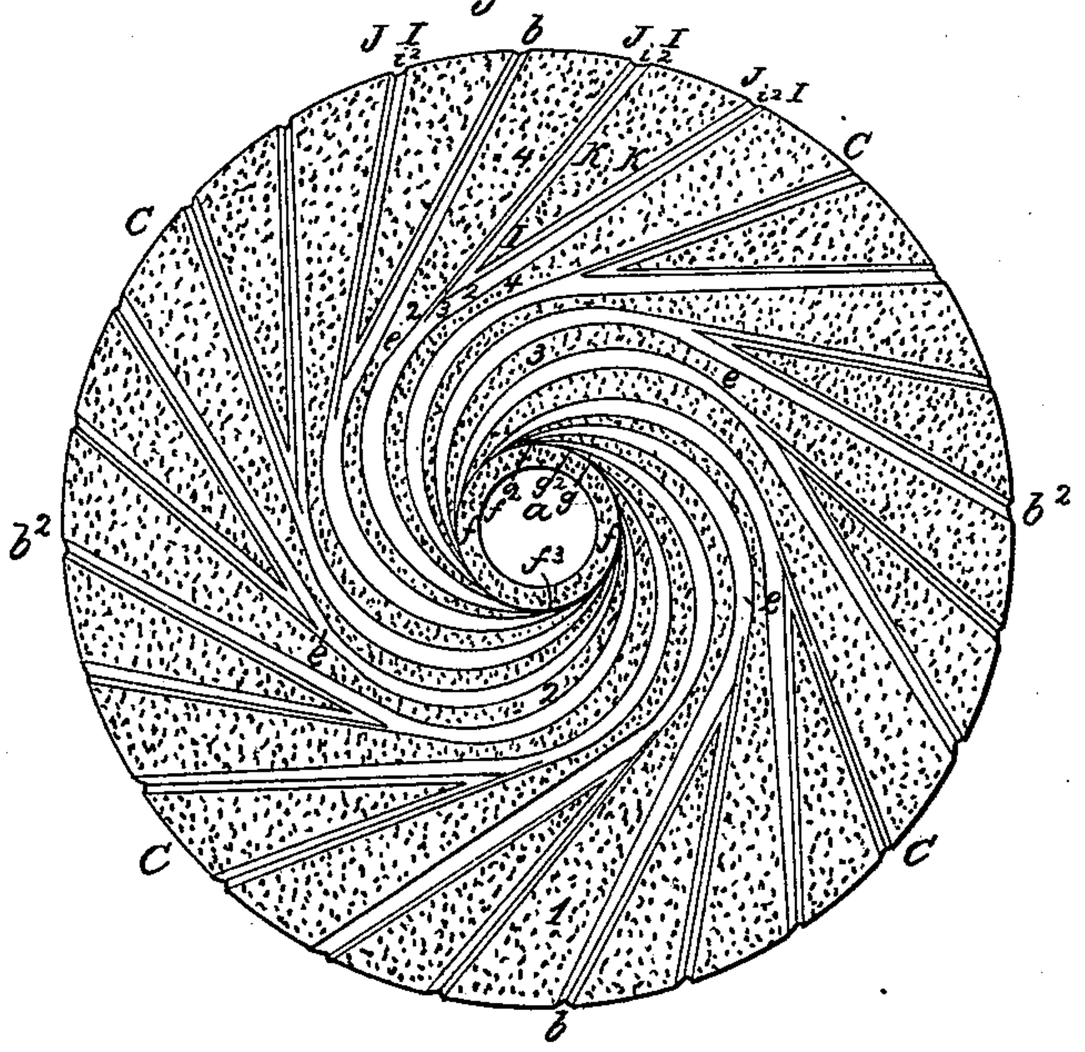


Fig: 1.



UNITED STATES PATENT OFFICE.

ISAAC WHISSEN, OF MOUNT JACKSON, VIRGINIA.

DRESSING MILLSTONES.

Specification of Letters Patent No. 19,273, dated February 2, 1858.

To all whom it may concern:

Be it known that I, ISAAC WHISSEN, of Mount Jackson, in the county of Shenandoah and State of Virginia, have invented and made certain Improvements in Mill-Dresses, which improvements I term the "Centrifugal Mill-Dress;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, Figure 1 being a top view of the face of bed-stone or lower bur. Fig. 2 is a top view of the face of the bed-stone or lower bur, showing the lines of indication and measurement for the leads or furrows. Fig. 3 is a cross-sectional view showing the slopes or bevel inclinations of the leads or grooves.

The nature of my improvements consists in producing a mill dress formed of series of leads or furrows, obtained in the following mathematical manner, viz: Having a bur stone of required dimensions, and diameter, I strike a vertical line *b b* through the extent of said diameter, cutting the center of the eye *a*, of the stone, and next a horizontal line b^2, b^2, which lines give four great divisions *c*, *c*, *c*, *c*, each of said divisions, I next divide by punctures or dots, into sixths, indicating said sixths by following around the edge or outskirt of the stone, as close as possible, on the upper side or face of the stone, thus in all 24 equal divisions of the circumference will be obtained. Next I divide the diameter of the stone into four equal parts 1, 2, 3, 4 and applying a pair of dividers or beam compasses, I strike a circle *e*, *e*, *e*, *e*, over the face of the stone, the diameter of which circle is exactly one-half of the whole diameter, then proceed, and divide this second circle *e*, *e*, *e*, *e*, into 24 equal parts, starting from the vertical or horizontal line and indicate these minor divisions by dots. Next I form the required draft circle *f*, *f*, *f*, *f*, beveling it slightly outwardly toward the circumference of the stone. The width of this draft circle should be one 32d part of the diameter of the stone; and the diameter of the draft circle should be 6-32d of the whole diameter of the stone. Next divide the larger circumference of the draft circle into 12 equal parts as at *g*, *g*, commencing at the vertical dot *h*. Having thus far progressed, take a pair of dividers, and placing one foot at the first dot at *h* on the draft circle, immediately on the vertical line; and extending the other foot of the dividers to the dot 23 of the second circle left hand side of the vertical line, intersecting said dot, and sweeping the dividers around from right to left, describing an arc of a circle which intersects the dot 13 below, on the draft circle, on the vertical line, where stops; then set the foot of the dividers on dot 2 at *g* of the draft circle, and sweep the other foot of the dividers from dot 24, second circle around to the left intersecting the dot 13 again, at *f*, on the draft circle. This will give the width and form of the furrows at the curving parts. Thus proceed in like manner, until you have formed all the 12 curved furrows. Then proceed and mark off the width of the furrows continuing from the second circle, outwardly toward the outskirts of the stone, at the circumference. These furrows should be from $7\frac{1}{8}$ to $7\frac{1}{4}$ inches in width according to size of the stone, but the divisions or spaces indicated by dots on the draft circle will generally regulate the width. The width of the furrows indicated by the sight lines, must be obtained, by marking said width off, from the left of the dots, shown on the outskirt or circumference of the stone as at *i*J—*i*J—*i*J. Then take a straight edge rule, and strike right lines from the dots *i*J—*i*J intersecting the dots or division points on the second circle, as at 23, and 24, which will give the outside lines of the furrows. Next describe the inside lines K, K, bringing them together at L, forming the fork or crotch of the furrows, and thus proceeding all the way around and over the area or face of the stone, the paracentric curves, the main, and branch furrows or leads will be obtained. The main furrow or lead J, K, 23 will be at an angle of about 54 degrees, from the vertical line, and the secondary or branch furrow will be at an inclination of about 60 degrees. Thus there will be 12 paracentric curves, 12, main furrows or leads, and 12 secondary or branch furrows. The main and branch furrows are beveled from right to left, in the direction of I, I^2, and, a shorter or more abrupt slope or bevel, from J, toward I^2, shown and indicated by the finer right line through extent of the furrows. These paracentric curves, and inclined furrows, may vary in number according to the size of the stone; say from 9 to 12 in number. That is, a less number when the

stone is small, and a greater number when the stone is larger.

The upper, or revolving stone is laid off in a similar manner, to the bed or stationary stone, and the curves and furrows, formed in the same manner, and when the faces, of the two stones, are together the curves, and furrows, of the upper stone, and of the under stone, are relative to each other in position as indicated in Fig. 2, by the series of dots. And the intervening spaces, between the furrows, are what are technically termed land surfaces or reducing surfaces.

It will be perceived, that as the grain is fed into the eye of the stone, it passes down into the draft circle, and enters between the surfaces of the two stones, where it is reduced; and entering the furrows or leads, the centrifugal action, and by the sweeps, or scraping motion of the upper furrows, the flour is forced outwardly toward the outskirt of the stones, where it escapes, in very increased quantity and without, gumming, or sweating.

It must be observed, that the action of the paracentric curves, furrows, and branch furrows commence at their roots or base, on the draft circle, and sweeps their whole extent to the circumference of the stone, the crotch or angle L, of the under or bed stone, coinciding with the angle or crotch of the upper stone, thus sweeping the whole extent of the furrows.

This system of mill dress is alike applicable to old stones as to new; and, because of the peculiar paracentric curves, and angles, and the peculiar centrifugal action obtained thereby, it has been found by experience of numerous old experienced and practical millers, who have used and who are still using my mill dress; that not less than as much more in quantity of flour can be produced in a given time, than by any other alleged improvements in mill dress. Besides too, the quality of the manufactured article is of a greatly improved kind, while the yield per bushel is at least from 10 to 15 per cent. more in quantity.

Having described the nature and operation of my improvements, and shown the same by accurate mathematical diagrams, thus enabling others to be skilled in the producing of the said mill dress, what I claim as new, and desire to have secured by Letters Patent of the United States is—

The construction of a mill dress, having a central sloping draft circle *f*, *f*, with paracentric curves proceeding therefrom and terminating in main, and branch furrows *i*, J, 2—K, K, L, formed by the mathematical divisions, subdivisions, and especial angular calculations, substantially as shown and described.

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Witnesses:
B. F. GALLAHER,
JOHN S. GALLAHER, Jr.