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Littlepage's Patent Circular Milldress.

An improvement in a mill dress may appear to a casual observer as a thing of little importance to the community. It may therefore not be amiss to glance at the gain realized by an improved dress, which grinds say 10 per cent more than those usually employed, in quantity, of equal quality, with the same power. This country consumes annually over one hundred and ten million bushels of grain, which keep employed some 30,000 horse-powers of machinery to reduce it into meal and flour. If 1-10th is gained by a superior dress, the amount saved is 3,000 horse-powers, which, at the original cost of $100 per horse-power for the machinery, gives a gain of $300,000. If, in addition, a dress is capable of delivering the flour and meal in a cool state and with a perfect evenness of particles, then the additional gain in the quality of the product, as well as in the quantity produced per bushel, is immense, without counting the power saved in machinery to cool the products before they can be perfectly bolted. If the superiority of the flour and meal thus produced, without heating, amounts to but 10 cents per barrel, the gain annually would be two millions of dollars. Again, it is also well known that when flour is not delivered into the bolting cloth in a cool state, the flour will not readily separate from the bran, and will thereby give out a smaller per centage.

Mill dresses are either straight or circular, and their distinctive actions consist principally in this: The furrows of the straight dress cross each other near the eye, at a large angle, which decreases toward the periphery to a small angle. The effect is that, nearest the eye, the grain travels too much along the furrows, instead of passing across the lands. And near the periphery, the direction of the furrows is too far removed from such a line or curve as would represent the path which a particle, impelled by centrifugal force, would describe over the stones. The meal and flour is therefore too much retarded; and, in consequence, the products are unnecessarily heated, and much power is wasted; the proper circulation of air is also impeded hy these straight furrows

With the circular dress, the angle at which the furrows cross each other is smallest near the eye, and increases towards the periphery; the grain therefore commences to travel across the lands near the eye; and thus the crushing of the grain requiring the most force, is performed where the stones have the most power. Near the periphery, where the productsshould pass out rapidly, its quick passage is facilitated by an approximation of the direction and curve of the furrows to the line, which a particle, impelled by centrifugal force, would describe over the stones.

The following are the peculiar features of the dress we are about to describe:—

1st, The furrows are double the width of the lands.

2d, The furrows consist of a notch, Fig. 2, each side consisting of a perfect slope. The steep part goes in advance and forms the convex side of the furrows; and while it is the proper shape to receive the particles from the lands and corresponding furrows, it is well adapted to preserve the edges of the stone and furrow. As the furrows cross each other, the grain is forced across the long slopes; and these, while they best preserve the stone and the dress, particularly facilitate the traveling of the grain out of the furrows on to the lands, which otherwise would have a tendency to travel along the furrows, impede the proper circulation of air and expel unground particles. Thus it is evident that the long slopes of the furrows do nearly all the work, the lands merely completing it to an even smooth fineness. For that reason the lands are only half the width of the furrows.

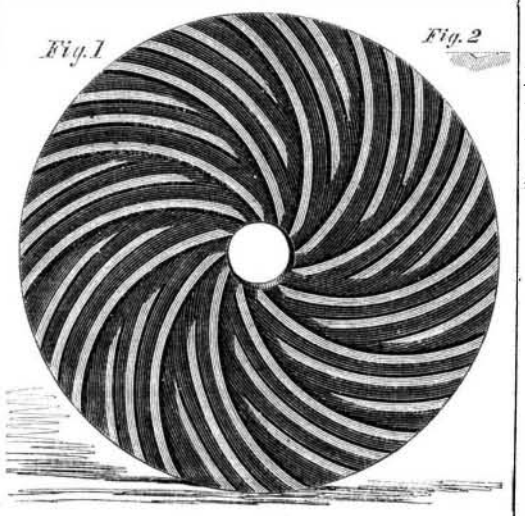
3d, The manner of laying off the dress—with as few secondary furrows as possible—renders these furrows nearer parallel to the leaders than is possible to accomplish by any other plan, while at the same time no part of the stone is unoccupied by furrows. If the leaders and secondary furrows do not approach parallelism, either the former or the latter, or both, must be the more removed from the most favorable curve. Another advantage claimed is that shortturns, at the places of meeting of the leaders and secondary furrows, are avoided.

As regards proper ventilation, it will be readily understood that, if a furrow is turned too far forward, the air will enter it at the periphery, and leave the stones at the eye. This would obstruct the passage of the grain, which, even without such obstruction, would have to be crowded through such a furrow.

It is also evident that there is a curve in which, at a defined velocity, there would be no draft—neither one way nor the other.

And again, it is evident that there is a curve in which (at a defined speed), with empty stones, the draft would be the greatest. And this shape of furrow, when grain is admitted, would allow the grain to travel out by the furrows unground; and because the grain would thus fill the furrows, there would be little circulation of air.

This leads to the conclusion that there is a furrow of the right curve which cannot be materially changed without detracting from the efficiency of the stones. This proper shape of the furrows is claimed to be arrived at in this dress. And it must be observed that the remarkably cool state of the products of this dress, the evenness and fineness of such products, together



with the rapid grinding obtained are principally ascribed to that proper curve of the furrows, in combination with the long slopes forming the concave sides of the furrows, the convex side traveling foremost. This slope gives such facility to the grain to travel out of the furrows on to the land, that the furrows can so much the more approximate the path described upon the stones by the course of a particle—impelled by centrifugal force—without causing unground particles to pass out by the furrows, and without obstructing—but on the contrary facilitating—the circulation of air through the furrows. Again, while these furrows—if made with a steep side in place of the long slopes—would obstruct the passage of the grain out of the same on to the lands, they would discharge it imperfectly ground and obstruct the passage of air. Whereas, if made with a long slope, they will cause the grain to travel across the slopes on to the lands into the next furrows where it receives air, and across the next slopes, and so on, while at the same time the grain is rapidly carried towards the periphery by the curve of the furrows.

This dress has been thoroughly tested for producing both meal and flour, and has far surpassed even the expectations of the inventor—a thing not of tenaccomplished. It is well adapted to be cut by machinery of the simplest construction.

The patent for this invention was issued, through the Scientific American Patent Agency, on the 20th day of Mach, 1860, to Caleb V. Littlepage, who, for further information, can be addressed at Austin City, Texas.

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We take the following from the *Lake Superior Miner:*

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FROM THE STEAM PRESS OF JOHN A. GRAY.