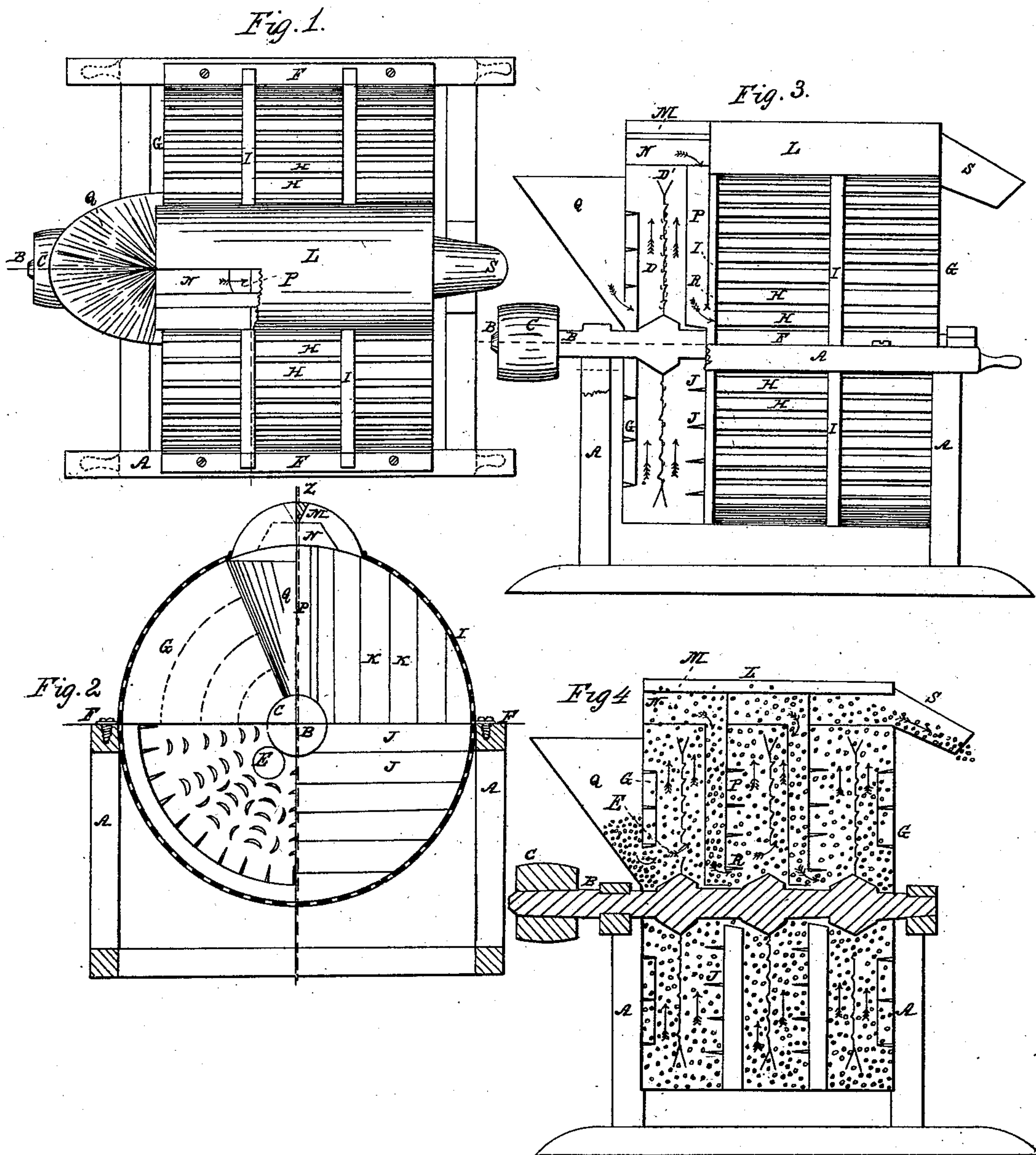


W. ZIMMERMAN.

Rice Cleaner.

No. 24,423.

Patented June 14, 1859.





# UNITED STATES PATENT OFFICE.

WILLIAM ZIMMERMAN, OF QUINCY, ILLINOIS.

## GRAIN-HULLING MACHINE.

Specification of Letters Patent No. 24,423, dated June 14, 1859.

*To all whom it may concern:*

Be it known that I, WILLIAM ZIMMERMAN, of Quincy, in the county of Adams and State of Illinois, have invented a new and  
5 useful Machine for Conveying, Scouring, and Hulling Wheat, Rice, Barley, and other Grain; and I do hereby declare that the same is described and represented in the following specifications and drawings.

10 To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

15 Figure 1, is a plan or top view. Fig. 2, is an end elevation showing same parts in section. Fig. 3, is an elevation of one side showing the left hand end in section on the line *h, h*, of Fig. 1. Fig. 4 is a sectional  
20 elevation through the line *z, z*, of Fig. 2.

The nature of my invention consists in a machine, having two, or a series of revolving plates or arms, arranged upon a horizontal or inclined shaft, in a case having  
25 a separate apartment for each plate or set of arms, provided with conduits to conduct the grain after it is scoured or operated upon by the first plate or set of arms, down through the partition to the center of the second or  
30 next plate or set of arms when the plates or arms are operated upon a horizontal shaft so as to scour the grain by each revolving plate or set of arms in the machine in succession and convey it from one end of the machine  
35 to the other.

In the accompanying drawings A, A, is a rectangular frame provided with boxes for the journals of the shaft B, which is provided with a pulley C, to which a band may  
40 be applied to operate the machine. To the shaft B, I fasten two or more scouring plates D, made of sheet metal with one or more large holes E near the shaft for part of the grain to pass through, so as to supply both  
45 sides of the plate D, which is perforated in each direction, so as to form burs on each side of the plate to act upon the grain to be scoured. The edges of the plates are cut or scored and the parts between the scores  
50 are bent alternately in each direction as shown in the drawing at D' so as to act on the grain more efficiently. Instead of the scouring plates described a series of arms or beaters of some form may be used, or  
55 cast plates with or without holes, having

protuberances on their sides, to act on the grain instead of the plates of sheet metal.

The revolving plates above mentioned are surrounded by a case of sheet metal made in two parts so as to be easily separated horizontally, or parallel with the shaft through  
60 the center, each part being provided with flanges F, F, by which they are fastened to each other and to the frame A. This case is made with two ends G, G, provided with  
65 a series of circular flanges on their inside as shown by dotted lines T, T, in Fig. 2, and the ends are connected together by strips or bars of metal H, H, having narrow openings or spaces between them, through which  
70 the dirt and refuse matter scoured from the grain escapes while the grain is retained. This case is divided into separate apartments, that is one for each scouring plate or set of arms, by partitions fastened to the  
75 bars H, H, right under the strips I, I, on the outside of the bars. The lower half of these partitions have horizontal flanges on the side toward the pulley as shown at J, J, and perpendicular flanges on the opposite  
80 side as shown at K, K, on the upper half on the side toward the pulley C, and on the opposite side of the upper half there are horizontal flanges similar to those shown at J, J, on the lower half.  
85

There is a small semicircular case on the top of the machine as shown at L, with a deflecting cleat M, on the inside for the grain to strike against as it is thrown by the revolving plate up into the case L, through the  
90 opening between the bars H, H, and trough or receptacle N, and bounds or falls back into the trough N, from which it descends through the conduit P, and through the partition between the *z, R* and the bottom or  
95 lower end of the conduit P, and flows against the central part of the second revolving plate and some of it passes through the large holes near the shaft, so as to supply both sides of the plate with grain to scour.  
100

The grain is supplied to the machine by putting it into the hopper Q, from which it passes through the hole in the end G against the central portion of the plate D, and some  
105 of it passes through the holes E, so as to supply both sides of the plate by which it is scoured and thrown against the deflecting cleat M, from which it passes into the conduit P, and then down through the partition, and is scoured again by the next plate,  
110



which throws it up into the second conduit, which conducts it to the third revolving plate, which scours it, and throws it up into the conduit or spout S, which conducts it  
5 out of the machine at, or near the top of the machine.

It will be apparent from the above description that this machine may be made of such length and to contain such a number of  
10 revolving plates and apartments, as may be necessary or desirable to scour the grain, and at the same time convey it from one place to another in the mill. It is also so constructed that the plates may be turned either way, so  
15 that after the plates have been worn a while by being turned in one direction, they may be turned in the opposite direction, so as to wear them alternately and make them scour a much larger quantity of grain, before they  
20 are worn out, than they would do if turned in one direction only.

I contemplate that the top of the case may be made square, that is as wide at the top as it is in the center, and whether so enlarged  
25 or not, that the tops of the conduits may be extended by the sides of the partitions so as to dispense with the semicircular case and trough at the top if preferred in that way. Also that such a kind of covering may be  
30 used instead of the kind described as will adapt the machine to the purpose for which it is intended to be used. And further that openings may be made through the partitions if preferred, for some particular kinds  
35 of work. Also that the ribs on the sides of the partitions, and ends of the machine may be made of such form and arranged in such

directions as may be preferred or will adapt them to the purpose to be accomplished. Also that the revolving plates may be made  
40 of free grit stone, or such other material as may be preferred, and that the sides and edges of the plates may be made rough or uneven, in such a way and manner as will adapt them to the service to be performed. 45 Also that dry free sand may be fed into the machine when pearling barley or when operating upon other kinds of grain; and that it will be preferable to have that portion of the case where the grain is operated upon  
50 first tight when sand is to be used.

I am aware that skilful artisans may modify my invention, to adapt it to the purposes and circumstances under which it is intended to be used, without departing from  
55 the principles or merits of my machine.

I believe I have described and represented my invention so as to enable any person skilled in the art to make and use it. I will now state what I desire to secure by Letters  
60 Patent to wit.

I claim—

The conduits arranged to receive the grain scoured or operated upon by the first, or each revolving scourer, when operated on a horizontal shaft and conduct it to the center or  
65 central part of the second or next revolving scourer, and so on in succession through the whole series of scourers, until it passes out of the machine.

WM. ZIMMERMAN.

Witnesses:

J. DENNIS, Jr.,  
JOHN S. HOLLINGSHEAD.