R. M. DEMPSEY.

Mill Bolt.

No. 6,952.

Patented Dec. 18, 1849.

Fig. 1.

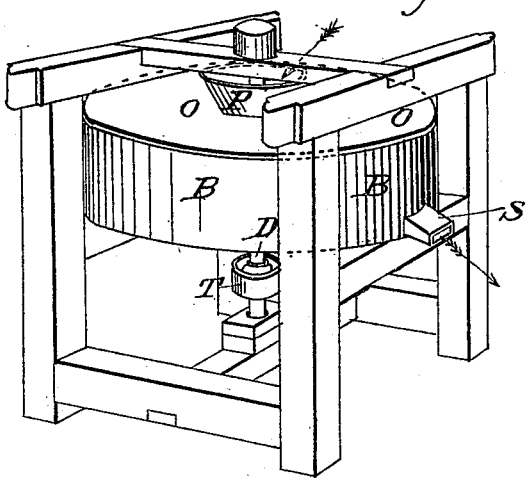


Fig 2

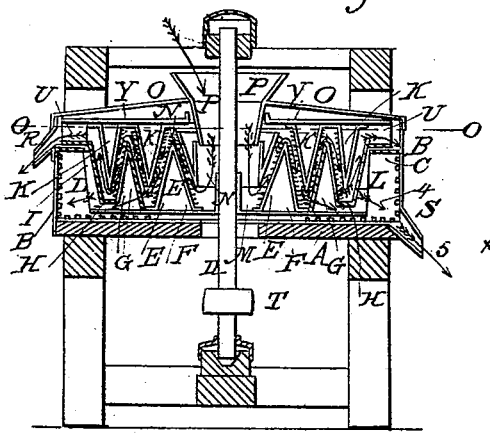


Fig. 3

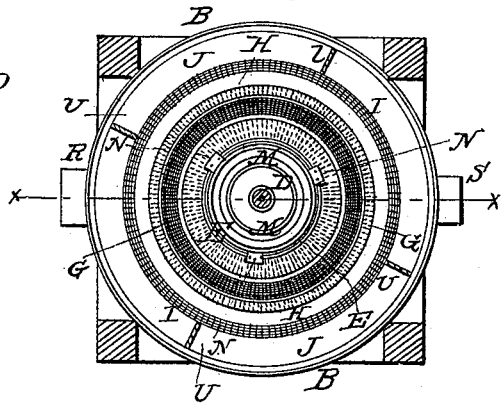


Fig. 5

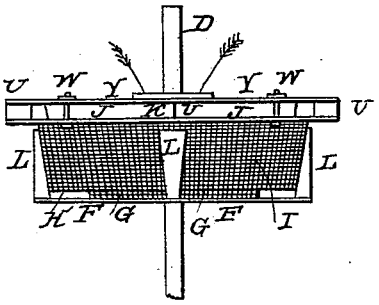
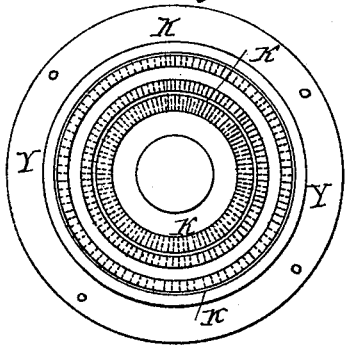


Fig. 4



UNITED STATES PATENT OFFICE.

R. M. DEMPSEY, OF INDIANAPOLIS, INDIANA.

BRAN-DUSTER.

Specification of Letters Patent No. 6,952, dated December 18, 1849.

To all whom it may concern:

Be it known that I, ROBERT M. DEMPSEY, of Indianapolis, in the county of Marion and State of Indiana, have invented a new and improved machine for separating flour from bran and for cleaning wheat and other grain and for other purposes, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a perspective view of the machine showing the spout through which the flour is discharged, after being separated from the bran and the hopper at which the bran and flour are introduced. Fig. 2, is a vertical section on the dotted line *x x* of Fig. 3. Fig. 3, is a horizontal section on the dotted line *o*, *o*, of Fig. 2, representing the lower part of the separator with its circular prismatic rings and radial wings. Fig. 4 is a plan of the upper portion of the circular rubbers or hanging circular prismatic rings inverted. Fig. 5, is an elevation of the revolving rubbers and bolts detached from the case; showing the double inclined plane wings or beaters—lower horizontal plate, radial wings and part of the shaft.

The arrows show the course of the bran and flour while under operation of the separator.

Similar letters on the several figures refer to corresponding parts.

A cylindrical box or case consisting of a horizontal disk A, about 26 inches in diameter forming the bottom, and encircled by a cylindrical curb or hoop B, about seven inches in length, or height, supported at an elevation of about two feet by a suitable frame work: and to the inside of the curb about an inch below the top thereof, is attached a horizontal plate, or flanch-ring C, C, which extends an inch or more toward the center. A vertical shaft D, passes through an aperture in the center of the disk, or bottom of the box, and has its bearings in beams, or cross bars, above and below the box; and upon this shaft, and within the stationary box, is mounted a cylindrical revolving separator, of a peculiar construction; and, which, by a rapid rotary motion, effectually separates all the flour from bran; or smut and dust from grain, as will, hereafter, be explained. The bottom of this separator consists of a horizontal disk F, about twenty three inches diameter, which is attached to the central shaft D. Upon this disk, and at the distance of about two inches from the shaft, is an annular prismatic ledge, E, E, about four inches high and two inches thick at the base. This ledge, or prismatic ring, consists of two circular plates joined at their top edges; the outward ring plate being in the form of the frustum of a cone, and the inner funnel shape ring plate having the form of the same figure inverted, and this surface of the ledge is furnished with numerous small projecting points closely arranged for the purpose of agitating the bran, or grain, and putting it in motion rotarily. Another similar circular prism G, G, of greater diameter is arranged concentrically to the first, but the side thereof, next the center, consist of fine wire gauze, instead of plate metal and the outward side thereof does not descend to the bottom of the separator, but terminates in a horizontal plate ring or flanch H, about one inch wide, and an inch above the disk F; and to the outward edge of this ring is attached another ring of wire gauze I, I, similar to that of the reticulated side of the prismatic ring G. To the top of this gauze ring is attached another horizontal plate ring J; to the upper side of which are attached four radial fans U, one inch square and arranged at equal distances from each other. The revolving disk, or plate E, is about half an inch above the bottom of the box; and the ring J which supports the radial fans U, is above the plate ring C; and resting upon the tops of these fans, is another horizontal disk V; to the underside of which are attached two hanging or inverted concentric prismatic rings K, K. The hanging or inverted prismatic ring next the center is of such diameter as to fall between the prismatic rings E and G; the surface of the former approaching within the distance of half an inch of those of the latter; and the other inverted or hanging ring falls in like manner between the prismatic ring G, and the wire gauze I, which latter constitutes the periphery of the separator. The centerward surface of each of the inverted prismatic rings are furnished with small projecting pins or points, like that of the prismatic ring E.

To the outside of the wire gauze periphery, and directly under the four fans U are attached four angular wings L, L, L, L. Each wing on its outer or curved surface is wider at the top than at the bottom and

narrower on the upper edge than at the lower edge (as shown in Fig. 5)—the sides thereof being thus inclined for the purpose of throwing down the flour or grain and the air by its rapid motion.

A small concentric ring M, M, in the form of an inverted ledge, with smooth surfaces, is placed centerward of the ledge E and connected to the ridge thereof by pieces of metallic plates N N N N (Fig. 3).

A disk-lid O, O, slightly convex, is adjusted upon the box, inclosing the separator; and at the center of this lid is an aperture to which is adjusted a hopper P. The periphery of the box has an aperture and spout R near the top thereof and through which the bran escapes from the interior, being forcibly driven out by centrifugal force and by the blast of wind produced by the motion of the separator with the fans; and near the bottom of the box is another aperture and spout S through which the flour is discharged.

The disk Y, to which the hanging or inverted prismatic rings (which may be solid or hollow) are fastened is bolted to the flanch J, of the outer circular screen I, by screw bolts W, or other suitable means.

The several parts of the before described revolving separator and scourer may be made of any required size and material and proportion to suit the views of the construction.

It will be seen that by this arrangement of the concentric prismatic rings of rubbers, sifters and conductors, that the bran, after descending from the hopper P, is impelled by centrifugal force and by wind in the direction of the arrows up the space between E and M, down between E, and K, and up between K, and G, and down between K, and G, and then up between I and K and discharged at R, while the flour that had been mixed with it passes through the wire gauze G and I and is discharged by the aperture S; the bran having been thoroughly scoured, and the flour detached therefrom, by the operation of passing over the rough surface or projecting points, on the surfaces of the prismatic rings E, K, and through the circular spaces or passages between the upright and the hanging prismatic rings E, G, K;—but if the subject of operation is grain, it passes through coarse wire cloth substituted for the screen I, and escapes through the aperture S, while pieces of stone, wood or other articles which are larger than the kernels of grain pass through the aperture R.

When the machine is employed in cleansing grain a ring of open wire work is also substituted in place of the fine gauze I, and the grain is discharged by the aperture S. The vertical shaft is furnished with a pulley T to receive a belt by which it is put in motion—said belt leading to any adequate propelling power.

The bottom of the case or box and the inside of the curb below the horizontal ring plate C should be made rough; or it may be left smooth.

The arrows 1, 2, 3, 4 show the direction of the flour after having been separated from the bran. The other arrows show the direction of the bran.

I do not claim making use of roughened or toothed plates, or wire gauze—or radial wings, or any of the individual parts of the before described machine for dusting bran that have heretofore been used, but

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

Constructing the rotary scourer and separator with concentric roughened and reticulated prismatic rings; and hanging roughened, or toothed, prismatic rings—the latter being placed in the spaces between the former so as to leave concentric spaces between their inclined surfaces for the passage of the bran and flour over and around the ridges and sides of the aforesaid several prismatic rings, in the manner and for the purpose herein fully set forth, by which the flour adhering to the bran, after leaving the ordinary bolts, is completely separated therefrom and saved, to be mixed with the superfine flour, or for any other purpose which the miller may desire—the flour passing through the wire bolting screens G and I and out of the curb or case through the spout S, while the bran is forced to the upper part of the curb and out of the spout R, by the centrifugal action of the separator, aided by the blast of wind created by the rapid rotary motion of the said scourer and separator, as herein fully set forth.

I make no other claim.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

ROBT. M. DEMPSEY.

Witnesses:

WM. P. ELLIOT,

A. E. H. JOHNSON.