W. A. PATTERSON.

DISINTEGRATING MACHINE.

APPLICATION FILED FEB. 4, 1918.

1,286,757. Patented Dec. 3, 1918.

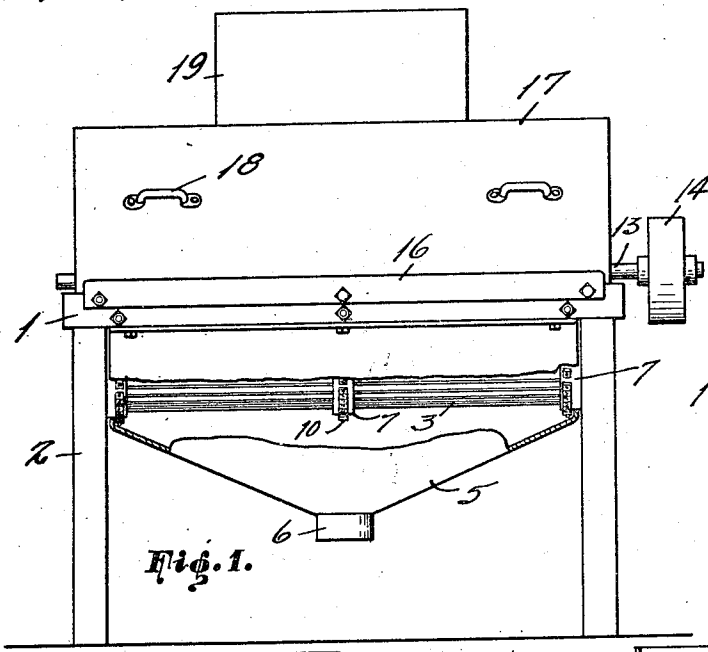


Fig. 1.

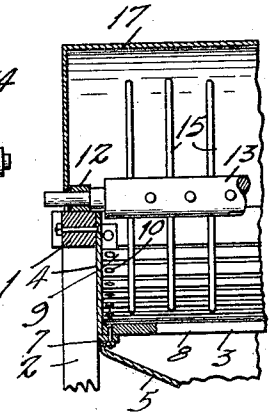


Fig. 4.

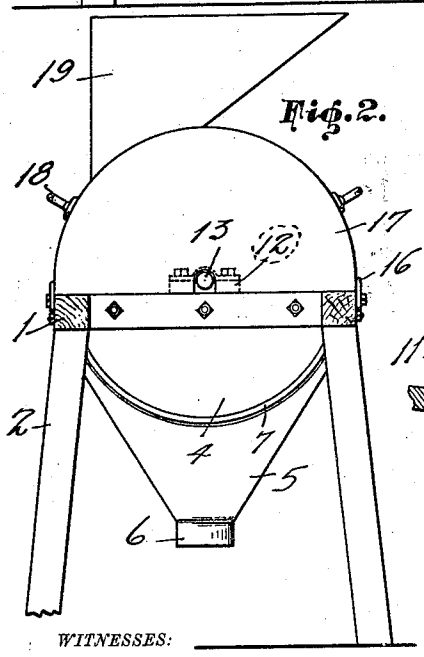


Fig. 2.

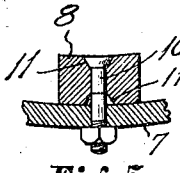


Fig. 5.

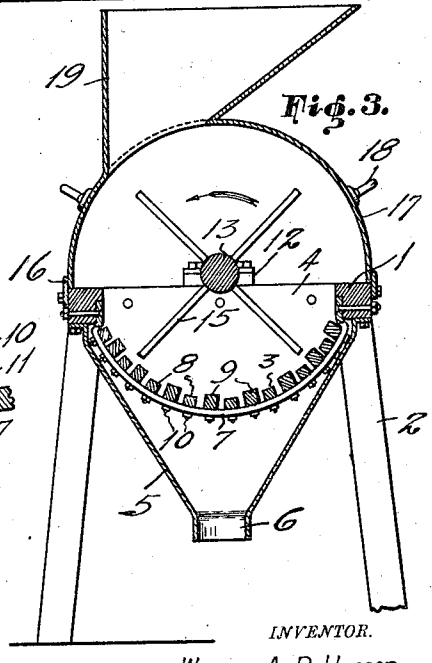


Fig. 3.

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DISINTEGRATING-MACHINE.

1,286,757. Specification of Letters Patent. Patented Dec. 3, 1918.

Application filed February 4, 1918. Serial No. 215,237.

To all whom it may concern:

Be it known that I, WARREN A. PATTERSON, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Disintegrating-Machines, of which the following is a specification.

This invention relates more particularly to disintegrating machines for fibrous material.

The particular feature of the invention is to provide means for bodily revolving a mass of fibrous material over a disintegrating member whereby a shearing action is had and the material disintegrated. In carrying out the invention it is proposed to provide a receptacle having shearing or disintegrating members and means for bodily moving the mass of fibrous material across said members whereby the material is disintegrated together with means for collecting disintegrated matter and means for feeding the same to the receptacle.

In a more specific embodiment of the invention a disintegrating bottom or grate is disposed in a support having lateral extensions above said grate. One of the features is to form a grate of a plurality of longitudinal bars, rectangular in cross section and presenting sharp longitudinal edges. These bars have different dimensions so that some of them project above the others into the path of the revolving mass of fibrous material. It is also intended to make these bars reversible so that when the edges of one side are dull the bars may be inverted and sharp edges presented. The mass of fibrous material is revolved by a beater member and after the edges of the bars presented to the mass of fibrous material become dull the direction of revolution of the beater is reversed whereby the other edges are presented. To facilitate this a reversible hood with a feed hopper at one side is mounted on the support and covers the beater and grate. The material is fed in the direction of the revolution of the beater and by removing the hood and reversing the same the feed of the material may be reversed in accordance with the reverse revolution of the beater. The hood is made to cover the lateral extensions of the support so that any foreign hard substance thrown out by centrifugal action will be caught on said extensions and confined within the hood.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is illustrated, and wherein,

Figure 1 is a side elevation of a machine constructed in accordance with my invention, a portion of the hopper being illustrated in section to show the grate therein,

Fig. 2 is an end elevation of the same,

Fig. 3 is a transverse vertical sectional view,

Fig. 4 is a longitudinal sectional detail of one end of the machine, and

Fig. 5 is a sectional detail of one of the bars.

In the drawings the numeral 1 designates a supporting frame which is mounted on standards 2. An arcuate grate or bottom 3 is suspended within the frame and has its ends closed by sheet metal panels 4. The grate depends into a hopper 5 suspended from the under side of the frame and terminating in a discharge collar 6. The grate is composed of a plurality of transverse arcuate straps or hangers 7, one disposed at each end and another at the center. These hangers have their upper ends secured to the inner faces of the side members of the frame 1. Longitudinal shearing or disintegrating bars 8 and 9 respectively are fastened on the hangers by bolts 10 having their heads countersunk in seats 11 in the bars. These bars are rectangular in cross section, have sharp longitudinal edges and the bars 9 have a greater dimension than the bars 8 so as to project above the latter as is best shown in Fig. 3. It is desirable to arrange the bars 8 and 9 in alternate relation, but the disposition of the latter may be varied. By virtue of some of the bars 9 projecting above the other bars 8, it will be manifest that the bars 9 will be made to do the rougher work, while after being reduced in size by coöperation between the beater and the bars 9 some of the material will lodge between the bars 9 to be acted upon and further reduced by coöperation between the beater and the bars 8. The sharp longitudinal edges of the bars, which of course are spaced apart, act as shearing edges when the mass of fibrous material is

moved transversely of the same and by having some of the bars projecting above the others a more effective shearing or disintegrating action is had. In Fig. 5 I have shown one of the bars with seats 11 in both faces so that when the edges of one face become dull the bolts 10 may be removed and the bar inverted so as to present the sharp edges of the other face.

At the center of the frame bearing boxes 12 are mounted on top of the ends and receive a beater shaft 13 which projects beyond the frame at one end and carries a driving pulley 14. The beater shaft is provided with radial fingers or beater members 15 disposed on quadrants in a staggered relation. The members 15 have such length as to pass over the grate 3 in proximity to the same, said grate being in concentric relation with the shaft 13. Along each side of the frame 1 at the outer edge of the same I provide upstanding flanges 16 which act as guards to prevent lateral displacement and a semicircular hood 17 disposed on the frame 1 and provided with handles 18 by which it may be lifted off. At one side the hood is provided with an upstanding hopper 19. As shown in Fig. 3 the hopper is at the left hand side of the machine and the beater is revolving toward the left, thus fibrous material such as cotton hulls, leaves and stems when deposited in the hopper will be fed into the machine in the direction toward which the beater is revolving.

The fibrous matter fed into the hood 17 is carried around by the beater arms 15 and revolved in a mass over the grate 3. The shearing edges of the bars 8 and 9 cut or disintegrate said material so that it falls between said bars into the hopper 5 and is discharged through the collar 6 from which point it may be suitably handled. The spacing of the bars 8 and 9 may be varied and good results are had by spacing those bars at the center farther apart than those at the side. It will be seen that the hood incloses the upper faces or surfaces of the side members of the frame 1 whereby ledges are provided along each side of the machine. Should hard material such as metal or stone be fed into the machine the same will be thrown out by the centrifugal action of the beater against the curved wall of the hood and thus guided down on to said ledges where such materials will rest until removed. This prevents injury to the machine.

It will be seen that with the beater revolving toward the left as indicated in Fig. 3, only one edge of each bar will be utilized and after a certain period of operation said edges will become dull. In order to utilize the other edges the beater is revolved in the opposite direction, and to facilitate proper feeding the hood 17 is removed and reversed so that the hopper 19 is disposed on the opposite side as will be obvious.

A machine of this character is economical and substantial. In grinding certain fibrous materials a machine of considerable strength is required and I have found the present structure to withstand hard usage and to efficiently disintegrate the material and further to have great capacity.

The foregoing description and illustration clearly express the invention, but it is understood that said illustration is merely an exemplification and the invention may be carried out in various other ways.

What I claim; is,

A grate for use in a disintegrating machine and in conjunction with a beater revoluble at right angles to the length of the grate, comprising alternate longitudinal bars of different heights, spaced throughout their lengths, with each bar of a single piece of material and entirely separated from the adjacent bar, and each bar having exposed shearing edges at its upper corners.

WARREN A. PATTERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."