Oct. 4, 1932. E. P. CORCORAN ET AL 1,881,398

DEFIBERIZING MACHINE

Filed Jan. 20, 1931 2 Sheets-Sheet 1

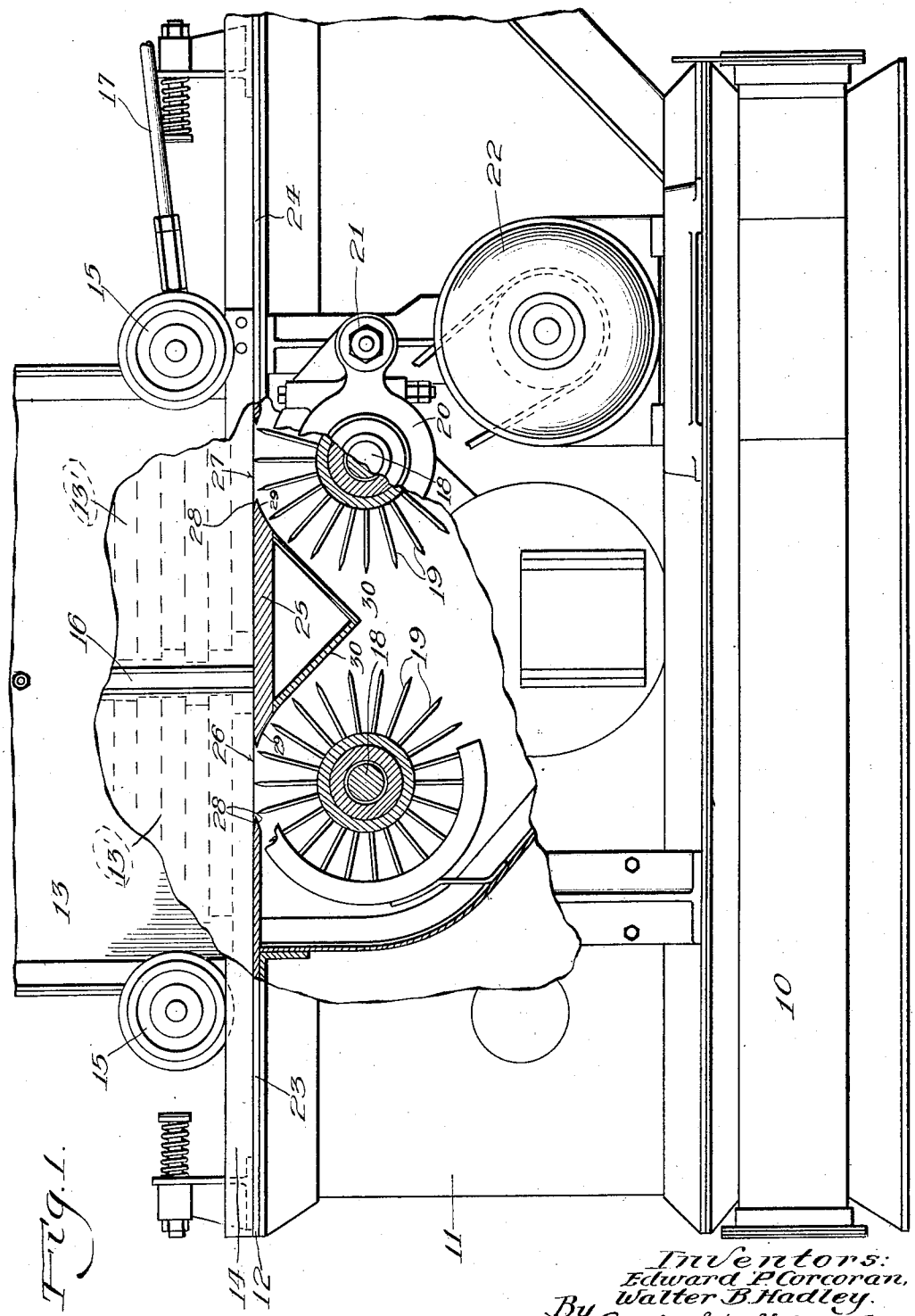


Fig. 1.

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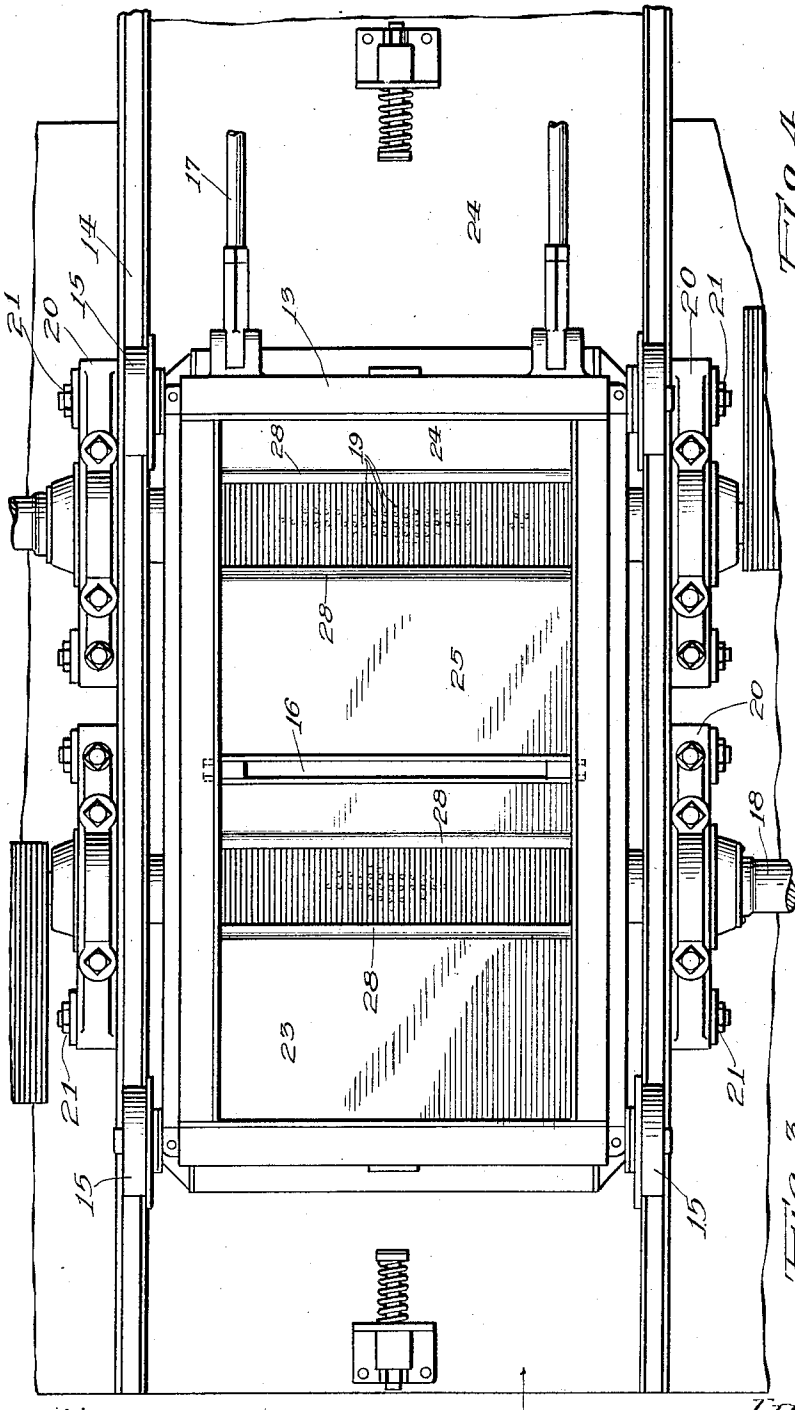


Fig. 2.

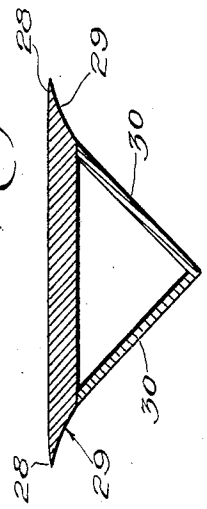


Fig. 4.

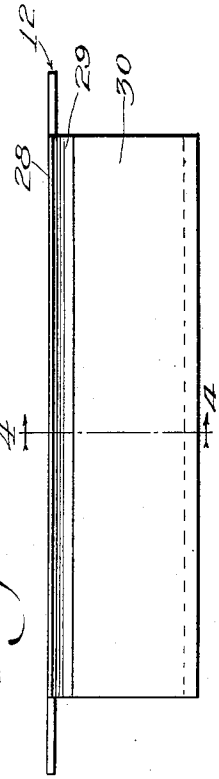


Fig. 3.

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UNITED STATES PATENT OFFICE

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DEFIBERIZING MACHINE

Application filed January 20, 1931. Serial No. 510,050.

This invention relates to improvements in defiberizing machines, particularly in machines for defiberizing wood for use in making paper.

The invention is embodied in a conventional type of defiberizing machine and the main object is to produce means for preventing injury to the defiberizing brushes used in such machines. Machines of the type referred to herein usually comprise a table, a pair of brushes mounted on shafts extending transversely of the machine, under the table, and means for driving the shafts in opposite directions. The table has an opening located above each brush, extending through the table top from approximately one side margin to the other, each of said openings being wide enough to permit the tips of the brush needles to extend into the opening and to engage the material to be defiberized, which is piled on the table and supported thereon so as to extend across the openings. The material is held in an open bottom hopper which is adapted to be moved back and forth and carries the material with it across the table openings.

In using machines of the character described, considerable trouble has been experienced by reason of the fact that the center plate, or table between the openings, was secured only centrally to a channel iron support, leaving the marginal portions of the relatively thin table adjacent the openings unsupported and liable to warp and buckle. This not only interfered with the easy movement of the hopper and contents, but permitted end pieces of the wood being defiberized to be carried downwardly by the brushes or otherwise to travel downwardly through the slots in the table. These end pieces not only injure the brush by which they may be carried through the opening but frequently they are caught by the adjacent, oppositely revolving brush, thereby distorting or breaking the needles, requiring machine repair and entailing loss of time in operation.

The object of the present invention is to obviate the defects in construction responsible for these difficulties and to produce a machine efficient for its intended purpose.

In the drawings—

Fig. 1 is a side elevation, partly in section, of a defiberizing machine embodying our invention.

Fig. 2 is a plan view of the machine.

Fig. 3 is a side elevation of that part of the table known as the center plate, being the portion located between the two brushes. The side of the plate here shown extends transversely of the machine as a whole.

Fig. 4 is a sectional view of the center plate, taken on the line 4—4 of Fig. 3.

In that embodiment of the invention shown in the drawings, 10 indicates the base of the machine, 11 the frame, 12 the table as a whole, 13 the hopper, and 14 the rails or guides on which the hopper wheels 15 travel. The hopper is provided with a transversely disposed center partition 16. The hopper is open bottomed, the lower edges of its walls and of the center partition resting on the table 12. Any suitable means (not fully shown) for reciprocating the hopper, preferably a distance approximately equal to the length of one of the two chambers formed in the hopper, is indicated at 17.

Under the table 12 are mounted a plurality of brush shafts 18 carrying brush needles 19 preferably made of metal. Each brush is mounted in a housing 20 which is pivotally secured to the frame 11 as indicated at 21. In the present embodiment, two brushes and a motor 22 for driving them in opposite directions are shown. Pieces of wood 13′ intended to be defiberized by contact with the brushes are shown in the hopper.

Referring now more particularly to the table 12 in which the present invention is embodied, as shown in the drawings it comprises three sections, namely, end plates 23 and 24 and a center plate 25. Slightly inwardly of each longitudinal side margin the table is provided with rectangularly shaped openings 26, 27, which extend approximately across the table and are wide enough to permit the brush needles 19 to contact with the material on the table. These openings 26, 27 separate the end plates from the center plate 25. Obviously the table may be made

in separate sections instead of being integral along the sides as shown in the drawings.

The margins of the end plates which extend longitudinally of the openings 26, 27, are bevelled on their upper and lower surfaces as indicated at 28. The center plate 25 is made to have substantial thickness in order to avoid warping and buckling of the plate. The upper longitudinal marginal surfaces are also bevelled as indicated at 28, and the lower marginal surfaces 29 are formed on the arc of a circle concentric with the brush shaft 18, and the plate 25 is so located relatively to the brushes that the tips of the needles 19 are in close proximity to the surfaces 29 as the brushes revolve toward each other. Extending downwardly toward each other from the surfaces 29 are a pair of baffle plates 30. These baffle plates extend across the machine between side frames. The relationship of the center plate 25 to the brush needles is such that end pieces of material are practically prevented from passing through the openings 26, 27, but in the event that any such end pieces accidentally pass through the openings, the baffle plates 30 prevent the pieces from being drawn toward the opposite brush and from distorting or breaking the needles. The defiberizing material falls by gravity into a container in the base of the machine or suction is applied to draw the material to any desired destination.

It will be noted that the baffle plates 30 are secured to the table 25 as closely to the margins as is possible and yet clear the brushes, whereby the table 25 is strengthened and supported where it is subjected to strain, and warping and buckling is prevented. Also, the angle of the plates 30 relatively to the table 25 is such that if the planes of the plates were extended downwardly they would clear the brush needles. This arrangement efficiently deflects the defiberized material and prevents it from getting into the path of rotation of the brush opposite the one which has carried the material.

Changes may be made in details of construction without departing from the scope of my invention and we do not intend to be limited to the exact form shown and described except as set forth in the appended claims.

We claim—

1. In a defiberizing machine comprising a table having a recessed planate surface, a hopper adapted to be reciprocated thereon, and a plurality of brushes rotatably mounted beneath the surface of the table, a stationary center plate of substantial thickness and extent mounted in the table recess in the plane of the surface and provided with lower bevelled marginal edges in proximity to the tips of the brush needles.

2. A defiberizing machine comprising a table, and a plurality of brushes rotatably mounted adjacent the table, the table being provided with openings opposite the brushes, that part of the table between said openings being thicker than the rest of the table and of substantial extent and having marginal bevelled edges curved concentrically with the axis of the brushes located adjacent said edges.

3. A defiberizing machine comprising a table, a hopper adapted to be reciprocated on the table, and a plurality of brushes rotatably mounted under the table, the table being provided with openings above the brushes, a center plate of substantial thickness and extent between said openings, its upper marginal edges adjacent said openings being beveled, the lower marginal edges being substantially concentric to the arc in which the tips of the brush needles travel and in close contiguity to said brush needles.

4. A defiberizing machine comprising a table, a hopper adapted to be reciprocated on the table, a plurality of brushes rotatably mounted under the table, the table being provided with openings above the brushes, a center plate between said openings, a pair of angularly disposed baffle plates secured to the center plate extending downwardly in intersecting planes between a pair of brushes.

5. A defiberizing machine comprising a table, a hopper adapted to be reciprocated on the table, a plurality of brushes rotatably mounted under the table, the table being provided with openings above the brushes, a center plate of substantial thickness and extent between said openings, a pair of angularly disposed baffle plates secured to the center plate extending downwardly in intersecting planes between a pair of brushes.

6. A defiberizing machine comprising a table, a hopper adapted to be reciprocated on the table, a plurality of brushes rotatably mounted under the table, the table being provided with openings above the brushes, a center plate between said openings, a pair of angularly disposed baffle plates secured to the center plate extending downwardly in intersecting planes between a pair of brushes, the baffle plates being so inclined relatively to the table that material being carried downwardly by one brush will be prevented from passing into the path of rotation of the other brush.

7. A defiberizing machine comprising a table, a hopper adapted to be reciprocated on the table, a plurality of brushes rotatably mounted under the table, the table being provided with openings above the brushes, a center plate between said openings, a pair of angularly disposed baffle plates secured to the center plate at its margin adjacent the table openings and extending downwardly from the table in inclined planes which if

projected would extend beyond the path of rotation of the brush needles.

In testimony, that we claim the foregoing as our invention, we affix our signatures, this 16th day of January, 1931.

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