H. JACKSON.

APPARATUS FOR HYDRATING, PULPING, OR REDUCING MATERIAL IN A WET OR SEMILIQUID STATE.

APPLICATION FILED MAY 14, 1912.

1,133,968.

Patented Mar. 30, 1915.

2 SHEETS—SHEET 1.

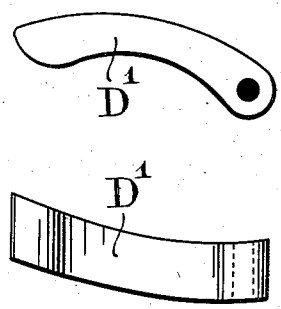


Fig. 5.

Fig. 1.

Fig. 4.

WITNESSES

INVENTOR

Harold Jackson

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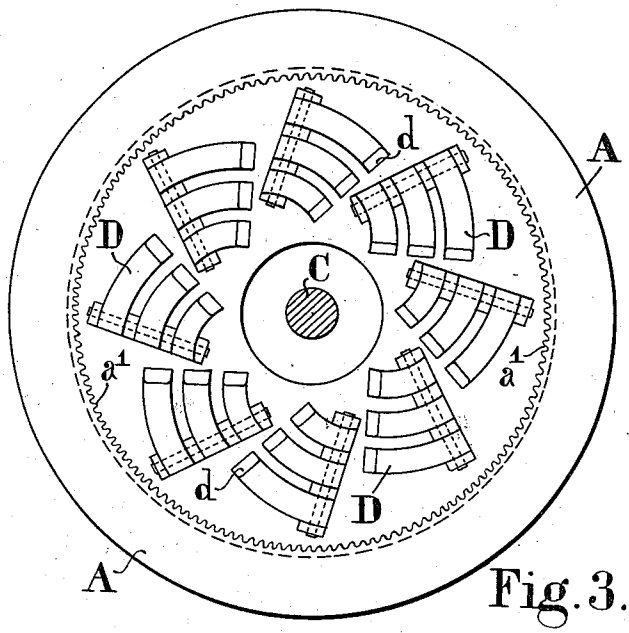


Fig. 3.

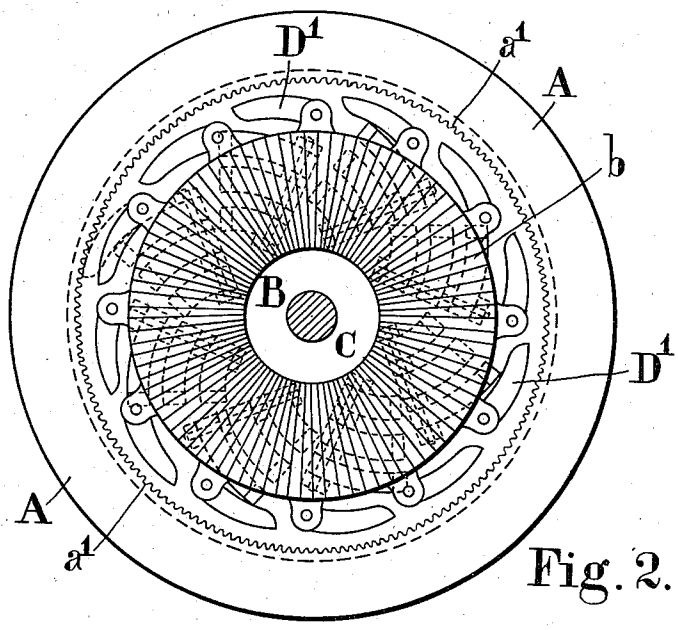


Fig. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

HAROLD JACKSON, OF GARSTANG, ENGLAND.

APPARATUS FOR HYDRATING, PULPING, OR REDUCING MATERIAL IN A WET OR SEMILIQUID STATE.

1,133,968. Specification of Letters Patent. Patented Mar. 30, 1915.

Application filed May 14, 1912. Serial No. 697,199.

To all whom it may concern:

Be it known that I, HAROLD JACKSON, a British subject, residing at Garstang, county of Lancaster, England, have invented certain new and useful Improvements in Apparatus for Hydrating, Pulping, or Reducing Material in a Wet or Semiliquid State, of which the following is a specification.

This invention relates to improvements in apparatus for hydrating, pulping or reducing material in a wet or semiliquid state such as described in the specifications of my former applications for patents Serial Nos. 614,165 and 614,166, filed March 13, 1911, in which a gentle hammering or tapping action is obtained by the centrifugal action of beaters against a corrugated or serrated surface. I find that this action can be obtained by a revolving disk carrying beaters operating against a corrugated casing or by beaters pivoted to the casing operating against a corrugated disk or by a combination arrangement of such beaters.

The invention will be fully described with reference to the accompanying drawings, in which—

Figure 1 is a side elevation partly in section. Fig. 2 is a sectional plan on line *x*—*x*, looking downward. Fig. 3 is a sectional plan on line *x*—*x*, looking upward, showing the articulated beaters pivoted to the casing. Fig. 4 shows details of the beaters pivoted to the disk and casing. Fig. 5 shows details of the beaters pivoted to the periphery of the rotary disk.

The apparatus is constructed with a casing A through which the material to be pulped flows, and a horizontal disk B mounted therein on a shaft C to which a rotary motion is given. The upper surface *b* of the disk is formed with a series of shallow ribs or projections set either radially or tangential to a circle at some distance from the center, and the horizontal portion *a* of the casing A below the disk and also the vertical portion *a'* beyond the periphery of the disk are similarly ribbed.

To the horizontal portion a^2 of the casing A above the disk B a number of beaters D are pivoted so that their faces rest upon the ribbed upper surface of the disk. The beaters D may be made with two faces, one *d* to rest upon and strike the projections on the disk and the other to strike the casing should they rebound. To the under surface of the disk similar beaters D are pivoted which rest upon the ribbed horizontal portion *a* of the casing. Similar beaters D' are pivoted to the periphery of the disk B to come into contact with the vertical ribbed portion *a'* of the casing. These peripheral beaters may be placed to act as screw propellers to force the material through the casing. All the beaters may be pivoted to the casing, the disk being ribbed on both sides and the lower set of beaters held against it by springs, or all the beaters may be pivoted to the disk, those on the upper surface being held up against the casing by springs.

If desired, the machine may be placed horizontally with a horizontal shaft and vertical rotary disk. In such case the beaters will be pivoted to both sides of the rotary disk and the casing will be ribbed at both sides. Or the beaters may be pivoted to the casing at both sides of the disk and forced against it by springs, the rotary disk being ribbed on both sides.

As the disk rotates, the beaters pivoted to the casing are caused to patter thereon and are thrown to and fro, giving a gentle hammering or tapping action to the particles of fiber or material flowing through. Similarly the beaters pivoted to the underside and to the periphery of the disk are carried around with the disk, over the lower surface and against the vertical sides of the casing, and a similar movement is imparted to them.

When the upper and lower sets of beaters are both pivoted to the casing, the upper set rests as above described on the upper corrugated surface of the disk and the lower set is held up by springs or other suitable means against the under corrugated surface of the disk.

Where the upper and lower set of beaters are both carried by the disk, the upper set is held up against the upper part of the casing by springs or the like, and the lower set is pivoted to the under side of the disk and rest upon the lower corrugated surface of the casing.

The pivots of the beaters may be set tangentially to a circle concentric with the periphery of the disk or radially or they may be otherwise arranged, and the weight of the beaters may be varied as they are placed nearer to the periphery of the disk.

Two sets of rotating disks may be ar-

ranged, with the beaters of one striking against the ribs of the other, or two or more sets of disks with their casings may be superimposed, the material flowing from one to the other.

The action of the rotary beaters against the stationary ribs or of the stationary beaters against the rotating ribs is a gentle hammering or tapping action on the material such as described in my prior applications, Serial Nos. 614,165 and 614,166, filed March 13, 1911.

What I claim as my invention and desire to protect by Letters Patent is:—

1. In apparatus for hydrating, pulping or reducing material in a wet or semi-liquid state, the combination with a casing, of beaters pivotally connected thereto, and a rotary disk having a ribbed surface against which the beaters contact, beaters pivotally connected to the under side of the said disk, and ribs on the surface of the casing, substantially as described.

2. In apparatus for hydrating, pulping or reducing material in a wet or semi-liquid state, the combination with a casing, of beaters pivotally connected thereto, a rotary disk having a ribbed surface against which the beaters contact, beaters pivotally connected to the disk both on the periphery and on the under surface, and ribs on the casing against which the second-named beaters contact with a gentle hammering action, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HAROLD JACKSON.

Witnesses:
WILLIAM HENRY WILKINSONS,
WILFRED DIXON.