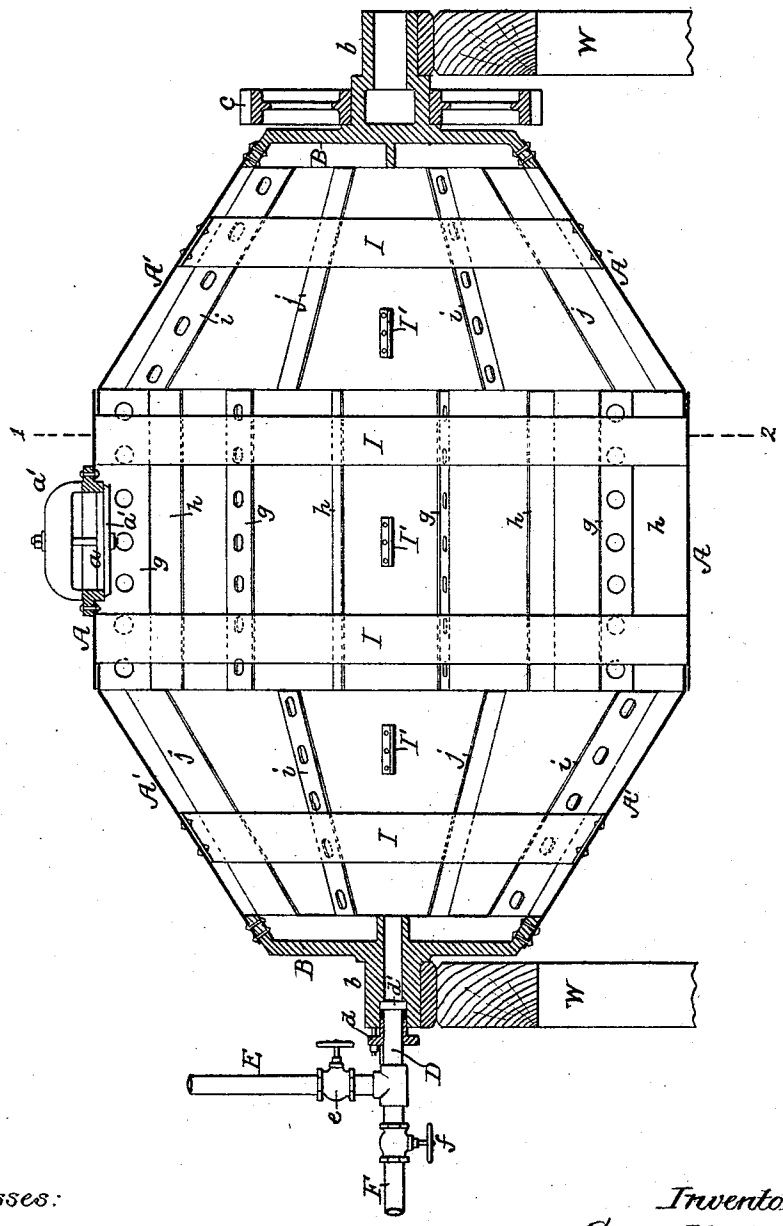
(No Model.) 2 Sheets—Sheet 1.

G. M. NEWHALL & C. L. HAMILTON.

BLACK ASH DISSOLVER.

No. 478,630. Patented July 12, 1892.

FIG. 1.



Witnesses:
A. W. Groupe
Alex. Barkoff

Inventors:
George M. Newhall &
Charles L. Hamilton
by their Attorneys
Howson & Howson

(No Model.) 2 Sheets—Sheet 2.

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BLACK ASH DISSOLVER.

No. 478,630. Patented July 12, 1892.

FIG. 2.

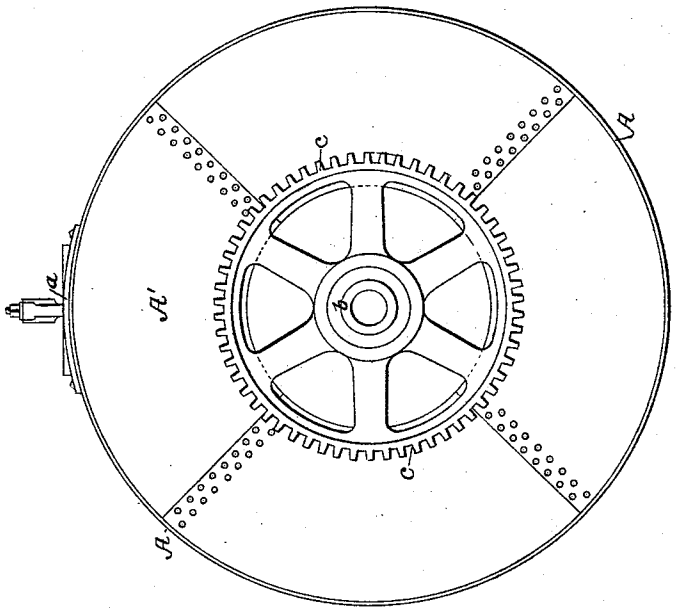
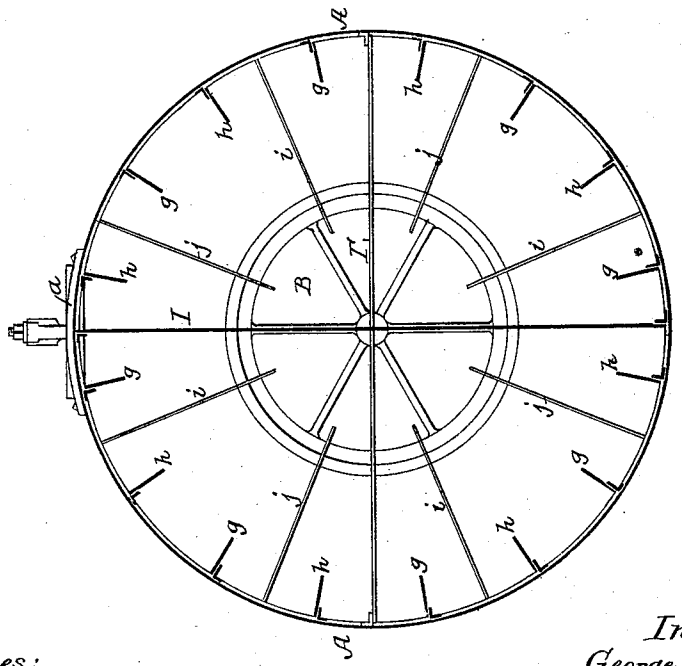


FIG. 3.



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UNITED STATES PATENT OFFICE.

GEORGE M. NEWHALL AND CHARLES L. HAMILTON, OF PHILADELPHIA, PENNSYLVANIA.

BLACK-ASH DISSOLVER.

SPECIFICATION forming part of Letters Patent No. 478,630, dated July 12, 1892.

Application filed January 21, 1890. Serial No. 337,641. (No model.)

To all whom it may concern:

Be it known that we, GEORGE M. NEWHALL and CHARLES L. HAMILTON, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Black-Ash Dissolvers, of which the following is a specification.

Our invention relates to an apparatus for dissolving the ash of a soda-pulp plant.

The object of our invention is a revolving dissolver in which the caustic soda will be better, more cheaply, and more quickly dissolved than in the old process.

Referring to the drawings, Figure 1 is a longitudinal section of our black-ash dissolver. Fig. 2 is an end view showing the gearing. Fig. 3 is a transverse section on the line 1 2, Fig. 1.

The cylinder A is preferably made of sheet metal. Each end portion of the cylinder A′ is tapered to a head B. On the heads B are the trunnions *b*, adapted to suitable boxes on the supporting-frame W. On one of the heads B is a gear-wheel *c*, which meshes with a suitable driving gear-wheel by which the cylinder is revolved. The material is fed into the dissolver through a manhole *a*. This manhole is supplied with a suitable cover *a′*, as shown. An inlet-pipe D enters one of the heads B, said head being provided with a suitable stuffing-box *d*, the pipe having a flange *d′*, the packing resting between the stuffing-box and the head preventing leakage. This pipe D is connected to a water-pipe E and a steam-pipe F. The water-pipe is provided with a valve *e* and the steam-pipe F with a valve *f*, so that the flow of water or steam into the dissolver is regulated at will.

On the inner periphery of the portion A of the cylinder are blades *g* and *h*. The blades *g* are perforated, as shown, while the blades *h* are plain, and on the conical portions A′ of the cylinders are blades *i* and *j*. The blades *i* are perforated, while the blades *j* are plain. These blades preferably extend from the portion A to the heads B.

I is a series of blades extending from side to side of the cylinder, and I′ are blades at right angles to the blades I and extending from side to side of the cylinder. The blades I and I′ thoroughly mix and agitate the material under treatment, while the blades *g* and *i* merely carry the material up to a certain distance and allow it to percolate through their openings, while the blades *h* and *j* raise the undissolved material up into the more dilute solution at the surface, causing the thorough mixture and dissolving of the entire mass under treatment. By this peculiar construction the soda, lime, and water, all of which are of different specific gravities, are thoroughly mixed, and when it is required the cylinder can be so turned that the manhole will be at the bottom and the contents discharged. Steam or air is used under pressure for facilitating the reduction of the ash and the production of the caustic liquor. This treatment and the form of the apparatus call for a comparatively small plant.

We claim as our invention—

The combination, in a black-ash dissolver, of the cylinder, comprising the central cylindrical portion A, the tapered end portions A′, heads B B, secured thereto, supporting-trunnions on said heads, a pipe D, adapted to one of said trunnions, a manhole in the central cylindrical portion through which the material is fed into the dissolver, cutting and mixing blades extending transversely across the cylinder and having their opposite ends secured thereto, and alternate plain and perforated lifting-blades secured longitudinally to the inner periphery of the cylindrical and tapered portions of the cylinder, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE M. NEWHALL.
CHARLES L. HAMILTON.

Witnesses:
H. S. REARDON,
JOS. H. KLEIN.