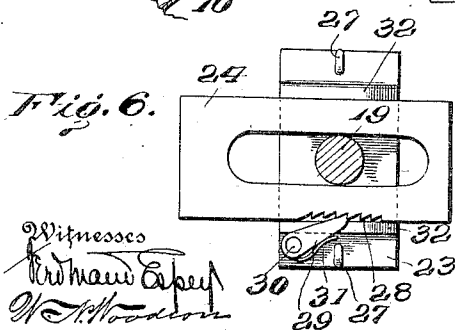
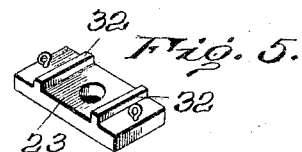
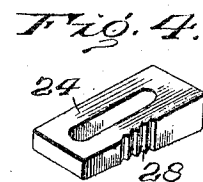
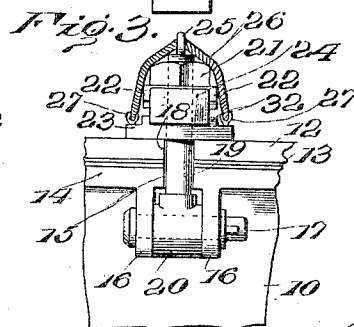
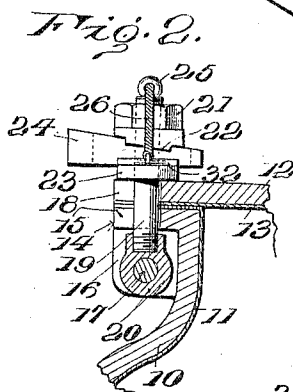
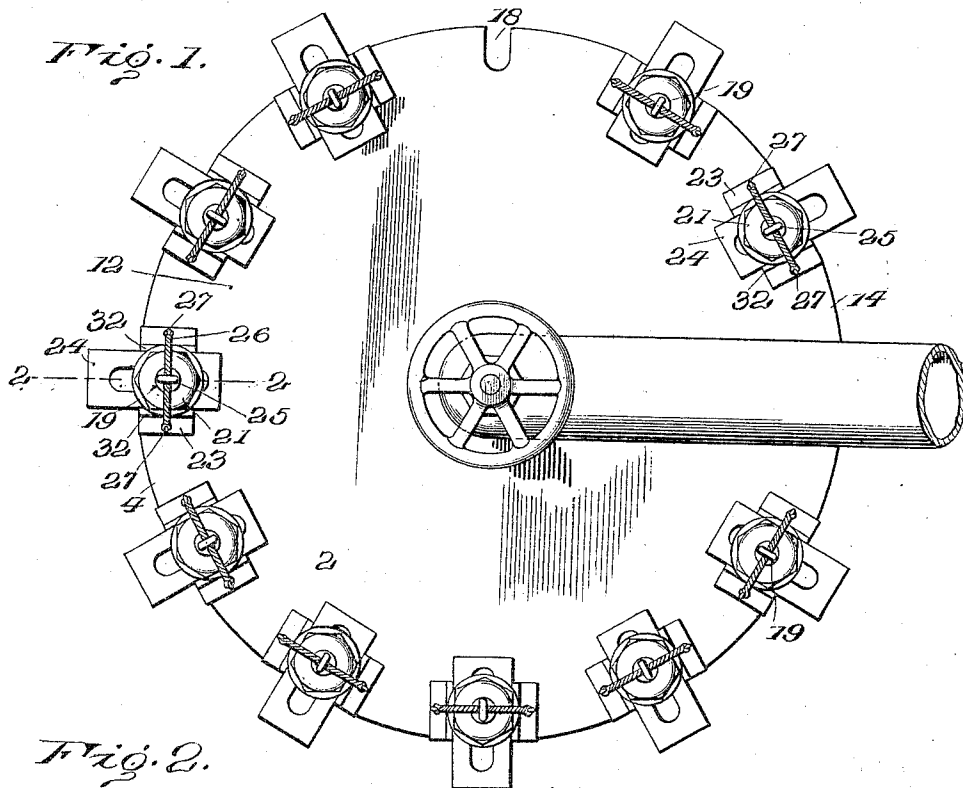


D. M. WHALEN.
DIGESTER.
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1,051,530.

Patented Jan. 28, 1913.



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UNITED STATES PATENT OFFICE.

DANIEL M. WHALEN, OF LINCOLN, MAINE.

DIGESTER.

1,051,530.

Specification of Letters Patent.

Patented Jan. 28, 1913.

Application filed May 23, 1912. Serial No. 699,263.

To all whom it may concern:

Be it known that I, DANIEL M. WHALEN, a citizen of the United States, residing at Lincoln, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Digesters, of which the following is a specification.

This invention relates to improvements in digesters and similar apparatus employed in the manufacture of paper pulp, and has for one of its objects to improve the construction and increase the efficiency and utility of the fastening devices whereby the cover is secured to the digester.

Another object of the invention is to provide a simply constructed device which may be quickly connected and disconnected to expedite the operation of removing and restoring the cover to the digester.

With these and other objects in view, the invention consists in certain novel features of construction as hereafter shown and described, and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention: Figure 1 is a plan view of a conventional digester with the improvement applied; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a front view of the parts as shown in Fig. 2; Fig. 4 is a detached perspective view of one of the wedge blocks; Fig. 5 is a detached perspective view of one of the clamp plates; Fig. 6 is an enlarged detail of the wedge block and clamp plate.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved device may be applied without material structural change to digesters of various forms and construction, and it is not desired therefore to limit the improved device to any specific form of digester or like apparatus, but for the purpose of illustration a conventional digester is shown including the body portion 10 having the usual non-corrosive lining 11 and the cover 12 likewise provided with a non-corrosive lining represented at 13. The body 10 is provided with a lateral flange 14 having a plurality of radial recesses 15 and perforated ears 16 in which the clamp bolts are pivoted at 17. The cover 12 is likewise provided with radial notches 18 which register with the notches 15. In the

improved device the clamp bolts are indicated at 19 and threaded at their lower ends in a foot member 20 through which the pivots 17 pass. By this means the bolts are connected to respectively swing into vertical position within the notches 15—18 and to thus project above the cover 12 when in operative position. Each bolt is provided with a nut 21 preferably cylindrical in form with flattened faces and with its lower face extending obliquely to the axis of the nut, the nut having guide ribs 22 at its edges. Bearing around the bolt 19 is a plate 23 which rests upon the upper face of the cover 12. The plate 23 is provided with guide ribs 32.

Fitting around the bolt 19 between the nut 21 and the plate 23, is a wedge block 24 having an open longitudinal slot through which the bolt 19 extends. The wedge is formed to bear by its upper face against the oblique lower face of the nut 21 and against the upper face of the plate 23 and between the guide ribs 22 and 32. By this means the wedge is movable between the nut and the plate and is prevented from lateral movement by the guide ribs. By this simple means it will be obvious that the bolt can be instantly released by simply driving the wedge outwardly or toward its thick end, to enable the bolt to be turned outwardly upon its pivot 17 free from the nuts 15—18 and thus release the cover as quickly as the series of wedges can be actuated. By this simple means it is not necessary to move each of the nuts 21 into its outward position to release the bolt as in the ordinary fastening. The nuts 21 are employed to hold the wedges from upward movement and to adjust the parts so that the wedges operate effectually, and to take up any wear which may occur between the wedge and the other parts.

Projecting from the upper end of the bolt 15, is an apertured pin or loop through which a yieldable member such as a section of flexible belt 26 is passed and connected at its ends as shown at 27, to the plate 23. By this means the plate 23 and wedge 24 are yieldably retained in position relative to the nut when the bolt is in its detached or released position, to prevent the displacement of the otherwise loosely connected parts. By this means the parts 23 and 24 are retained in position relative to

the nut so that it will not be necessary to manipulate the parts when the bolt is to be returned to its operative position. This is an important feature of applicant's device and adds materially to its efficiency and utility.

The wedge 24 is provided at one side with a plurality of vertical notches or teeth 28 with which a pawl 29 is adapted to engage, the pawl being pivoted at 30 to the plate 23 and held in position by a spring 31. By this means the wedge is locked in position and its rearward movement prevented so that when the improved device is applied to devices that are subjected to jars or concussions, the wedge will not be accidentally loosened, while at the same time can be readily released when necessary, by disconnecting the ratchet. This is an important feature of applicant's device and materially increases its efficiency and utility.

The improved device is simple in construction, can be inexpensively manufactured and applied to various structures where a quick acting releasing and holding device is required, but as before stated is designed more particularly for use in connection with digesters employed in paper manufacture.

Having thus described the invention, what is claimed as new is:

1. The combination with a digester including a body and cover of a plurality of bolts swingingly connected to said body, a nut connected by each bolt, a plate slidable upon the bolt and adapted to bear upon the cover of the digester, and a wedge between the nut and the plate.

2. The combination with a digester including a body and cover, of a plurality of bolts swinging upon the body, a nut engaging each bolt and having guide ribs in its lower face, a plate surrounding each bolt and having guide ribs on its upper face, and a wedge longitudinally slotted and en-

gaging around the bolt and between the guide ribs of the nut and the plate.

3. A bolt mounted to swing at one end, a plate slidable upon said bolt, a nut engaging said bolt, and a wedge block between the nut and the plate.

4. A bolt supported at one end, a nut engaging the bolt, a plate slidable on the bolt, a wedge having a longitudinal slot engaging around the bolt and between the nut and plate, and a flexible member connecting the bolt and plate.

5. A threaded bolt supported at one end, and with an eye at the threaded end, a nut engaging the bolt, a plate slidable on the bolt, a wedge having a longitudinal slot engaging around the bolt and between the nut and plate, and a flexible member connected at its ends to the plate and passing through said eye.

6. A bolt supported at one end, a nut engaging the bolt, a plate slidable on the bolt, a wedge having a longitudinal slot engaging around the bolt and between the nut and plate, and means for locking the wedge from retrograde movement relative to the plate.

7. A bolt supported at one end, a nut engaging the bolt, a plate slidable on the bolt, a wedge having a longitudinal slot engaging around the bolt and between the nut and plate and provided with ratchet teeth, and a pawl carried by the plate and engaging the ratchet teeth.

8. A bolt mounted to swing at one end, a plate slidable upon said bolt, a nut engaging said bolt, a wedge block between the nut and the plate and a flexible member connecting the bolt and plate.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL M. WHALEN. [L. S.]

Witnesses:

JAMES F. CRAFT,

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