

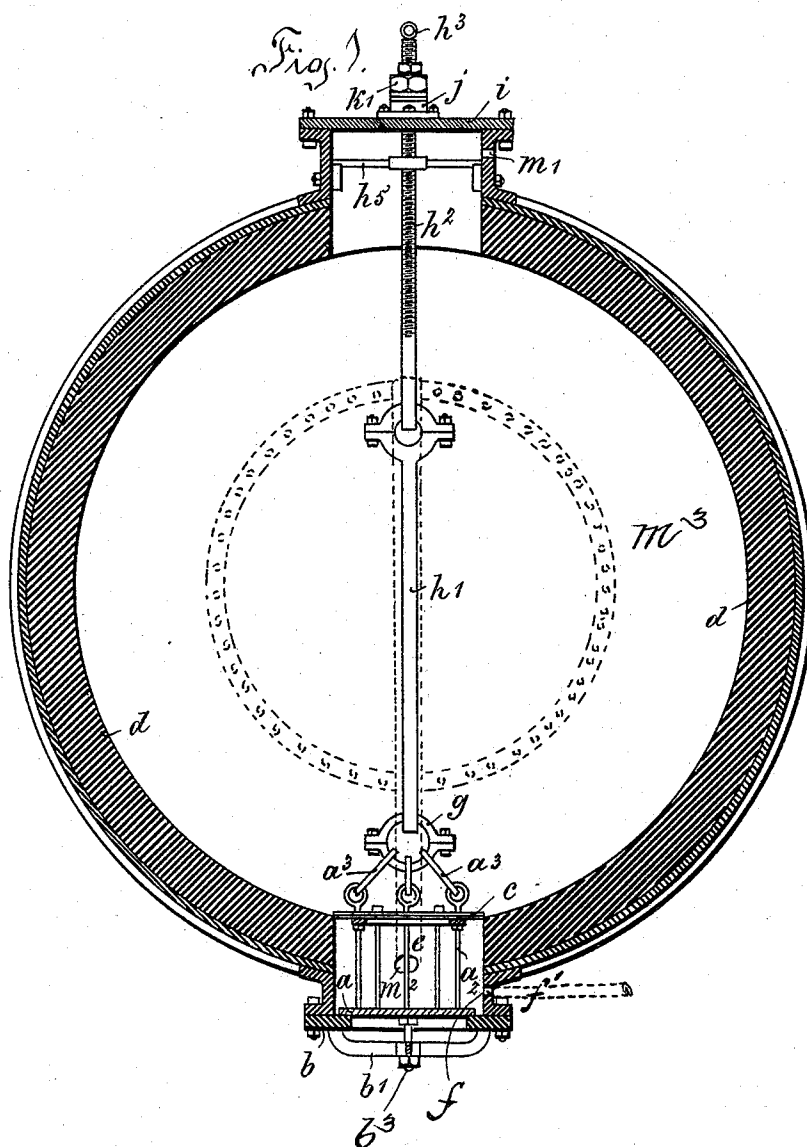
(No Model.)

3 Sheets—Sheet 1.

N. P. WEDEGE.
WOOD PULP BOILER.

No. 537,951.

Patented Apr. 23, 1895.



Witnesses
Edward H. Sturtevant
Emily A. Scott

Inventor,
N. P. Wedege
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Attorneys.

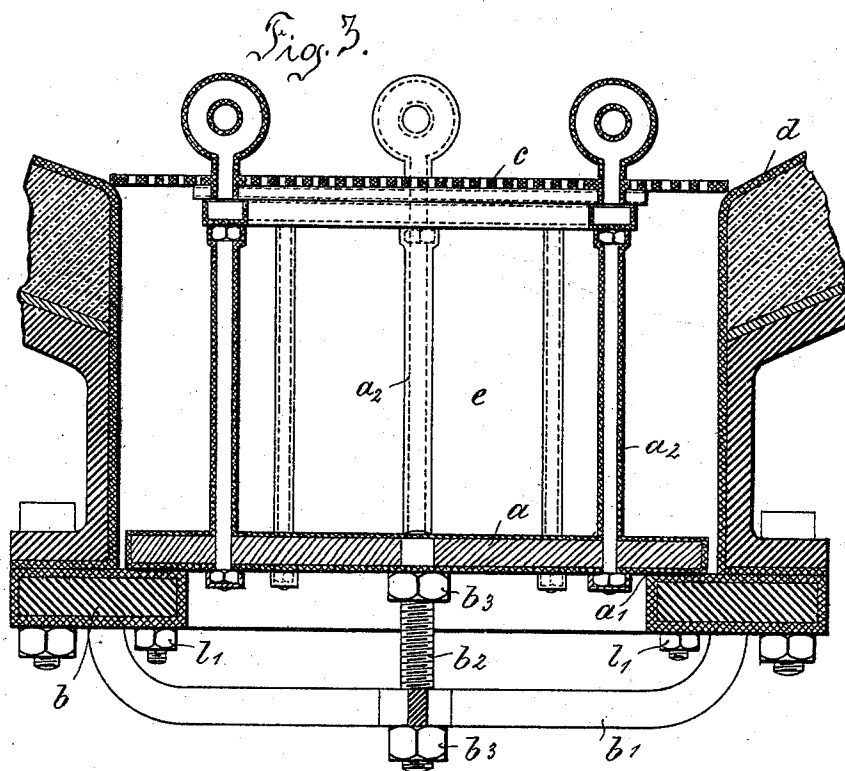
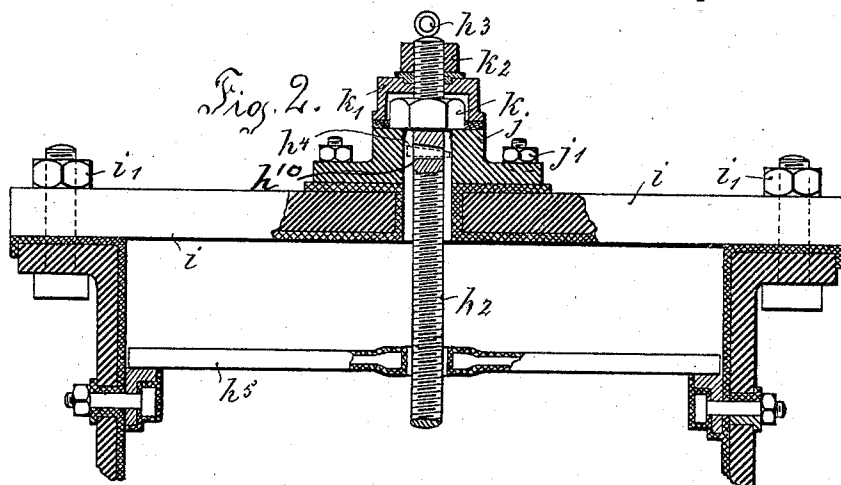
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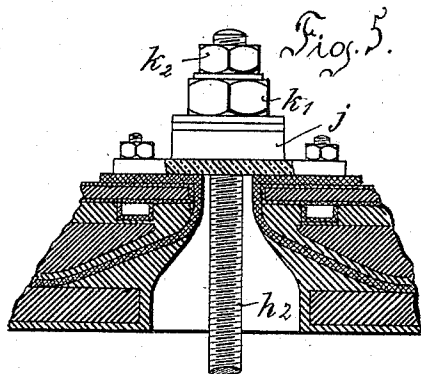
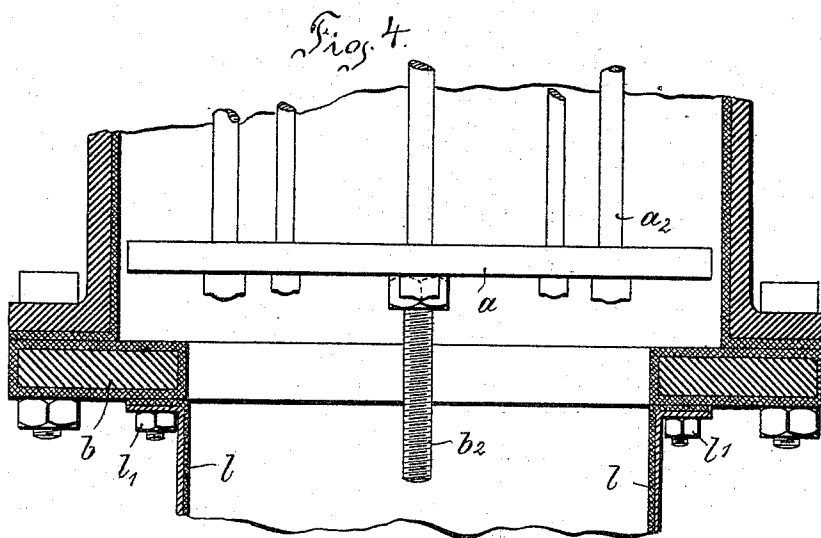
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UNITED STATES PATENT OFFICE.

NILS PETER WEDEGE, OF THRONDHJEM, NORWAY.

WOOD-PULP BOILER.

SPECIFICATION forming part of Letters Patent No. 537,951, dated April 23, 1895.

Application filed June 25, 1894. Serial No. 515,569. (No model.)

To all whom it may concern:

Be it known that I, NILS PETER WEDEGE, engineer, a subject of the King of Sweden and Norway, and a resident of Thronthjem, Norway, have invented a new and useful Improvement in Wood-Pulp Boilers, of which the following is a specification.

My invention includes a boiler having upper and lower manholes with covers therefor and clamping means arranged outside of the boiler to hold the lower cover in place and a hoisting rod extending from the lower plate, which is movable inwardly, up through the boiler and through the upper plate.

In the drawings, Figure 1 is a sectional view of the boiler with means for controlling the upper and lower covers. Fig. 2 is a detail view of the upper manhole and its cover in section. Fig. 3 is a detail view of the lower manhole in section; Fig. 4, a detail of the same with the outlet pipe fixed thereto; and Fig. 5 a sectional detail view of a modified form of manhole cover.

The lower manhole plate *a* is controlled to open and close the said manhole by connections therefrom leading through the upper manhole plate.

a is the lower manhole plate or cover which with packing *a'* rests against the flange *b* about the lower manhole. This plate is kept close to the flange *b* by the pressure in the boiler and also by the screw rod and nuts *b²* *b³* *b³* said rod being connected with the plate and passing through a removable spider *b'*. Bars *a²* connect the cover plate *a* with the strainer *c* which lies close against the inner masonry *d* of the boiler. An open steam space *e* is thus formed between the plate *a* and strainer, the steam entering port *f* from pipe *f'*, dotted lines Fig. 1 and passing through the strainer into the boiler chamber for heating the contents. The bars *a²* above the strainer *c* have eyes connected with a ring *g* on the lower end of a rod *h'* by links *a³*. The bar *h'* is loosely connected with a threaded rod *h²* extending up through the upper manhole cover *i*. A casing *j* on the cover *i* surrounds the bar *h²* and forms a support for the nut *k* screwed on the rod for holding and adjusting the same. The nut *k* is covered by the hood *k'* held in turn by the smaller nut *k²* suitable

packing being interposed between the casing and the cover *i*.

All the interior parts of the boiler are covered with lead or other suitable acid resisting material for protection against the influence of lye.

The position of the parts in Fig. 1 is that assumed by them when the boiler is in operation and the steam is being admitted to boil the contents.

When the boiling has been completed and the discharge is to take place, it will be effected as follows: The gas is first blown out through the opening *m'* Fig. 1. The clamping spider *b'* is loosened and withdrawn by screwing off the lower nut *b³* the cover plate *a* still remaining on its seat by the internal pressure. The discharge pipe *l* is next fixed under the lower discharge opening in place of the removed spider, nuts *l'* being provided for this purpose. The discharge pipe leads the boiled material to any suitable receptacle. Steam may now be let into the mass of material through the pipe *m³* provided with jet openings which pipe connects with the port *m²* dotted lines Fig. 1. The upper nut *k* is then turned raising the rod *h²* and through it and the rod *h'* the lower manhole cover *a* thus allowing the material to be discharged through the pipe *l*, the pressure within the boiler insuring a complete discharge. When the pulp has been discharged the steam is shut off, the discharge pipe *l* is removed, the clamping spider *b'* put in place and the lower manhole cover again seated. The boiler must now be refilled with splinters or material to be treated and it is therefore necessary to open the upper manhole cover *i*. In order to do this however, it is necessary to provide means for holding the bar *h²* up and preventing the same from falling down into the boiler. In order to remove the cover *i* the upper nut *k* must be screwed off of the rod *h²* altogether. A chain or cord must then be fixed to the upper ring *h³* of the screw rod and the screw rod may then be let down until the wedge *h⁴* dotted lines Fig. 2 which is now temporarily inserted in a hole *h¹⁰* of the bar *h²* rests upon the cross bar *h⁵* extending across the upper manhole and thus the bars *h'* and *h²* remain suspended. The cover *i* may now

be removed from its seat and lifted therefrom and the fresh material is passed into the boiler through the upper manhole which is now uncovered. When the filling has been effected, the bar h^2 is lifted slightly, the wedge removed and the man cover is again screwed on. The rods $h^2 h'$ are now drawn up, the nut k screwed down on the rod h^2 and the hook k' and nut k^2 replaced as shown in Fig. 2.

The bar h^2 as will be seen in Fig. 2 passes loosely through the bar h^5 and the wedge h^4 rests upon the said bar h^5 when the bar h^2 is down and the said bar h^2 is thus prevented from being displaced during the filling operation.

The upper manhole cover and the casing j and nut k are merely threaded over the cord or chain and the end of the screw rod, when replacing the said cover after the filling has been completed.

Fig. 5 shows a modification to be used where the upper and lower manholes do not lie in the same vertical plane with their axial lines coinciding. The parts j, k, k^2 are substantially the same as those described, except that they are fixed directly to the boiler and not to an upper manhole cover. This arrangement is used independently of the filling opening, that is to say, the filling would take place through any suitable cover which is out of line with the discharge while the discharge cover would be controlled by the rod h^2 held as shown in Fig. 5, the plate j merely covering an opening formed directly in the boiler instead of covering an opening in the filling cover.

I claim—

1. In combination in a cellulose boiler, the upper and lower manholes, the cover plates therefor, the outside clamp for holding the lower cover plate down upon its seat, and the hoisting rod extending from the lower plate up through the boiler and through the upper plate, said lower plate being movable inwardly and being arranged to be lifted into the interior of the boiler by the hoisting rod.

2. In combination in a cellulose boiler, the upper and lower manholes, the cover plates

therefor, the lower one being movable toward the interior of the boiler, the chamber e above the lower man hole and connecting with the interior of the boiler, the screen between the said chamber and the boiler chamber and the hoisting rod extending through the boiler and connected with the said screen and lower man hole cover, substantially as described.

3. In combination with the boiler, the lower man hole, its cover plate and the hoisting means consisting of the bar extending up through the boiler, the upper cover plate through which the upper screw threaded end of the rod extends, the nut on the rod and the casing j on the upper plate to which the casing is attached, substantially as described.

4. In combination with the boiler, the lower man hole, the closing plate therefor, the hoisting rod screw threaded at its upper end and passing through the closing plate of the upper man hole, the adjusting nut on the threaded end, the cover inclosing the said nut and the nut for holding the cover, substantially as described.

5. In combination, the boiler, the lower man hole cover, the upper filling cover, the hoisting rod attached to the lower manhole cover and extending through the upper filling cover, means for holding the upper end of the rod and the cross bar h^5 and wedge h^4 for supporting the hoisting bar when the cover is removed and the filling is taking place, substantially as described.

6. In combination, the boiler having the lower manhole, the cover therefor, the hoisting rod extending from the lower cover through the boiler and out at the top thereof, the casing j through which the upper end of the rod passes, and the nut for holding the rod thereto, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26 h day of April, 1894.

NILS PETER WEDEGE.

Witnesses:

AXEL GOTTFRED GRÖNN LAHN,
RICHARD EMANUEL STOKKE.