H. B. Meech.
Pulp Digester.
No. 45845.
Patented Jan. 10, 1865.

Fig: 1.

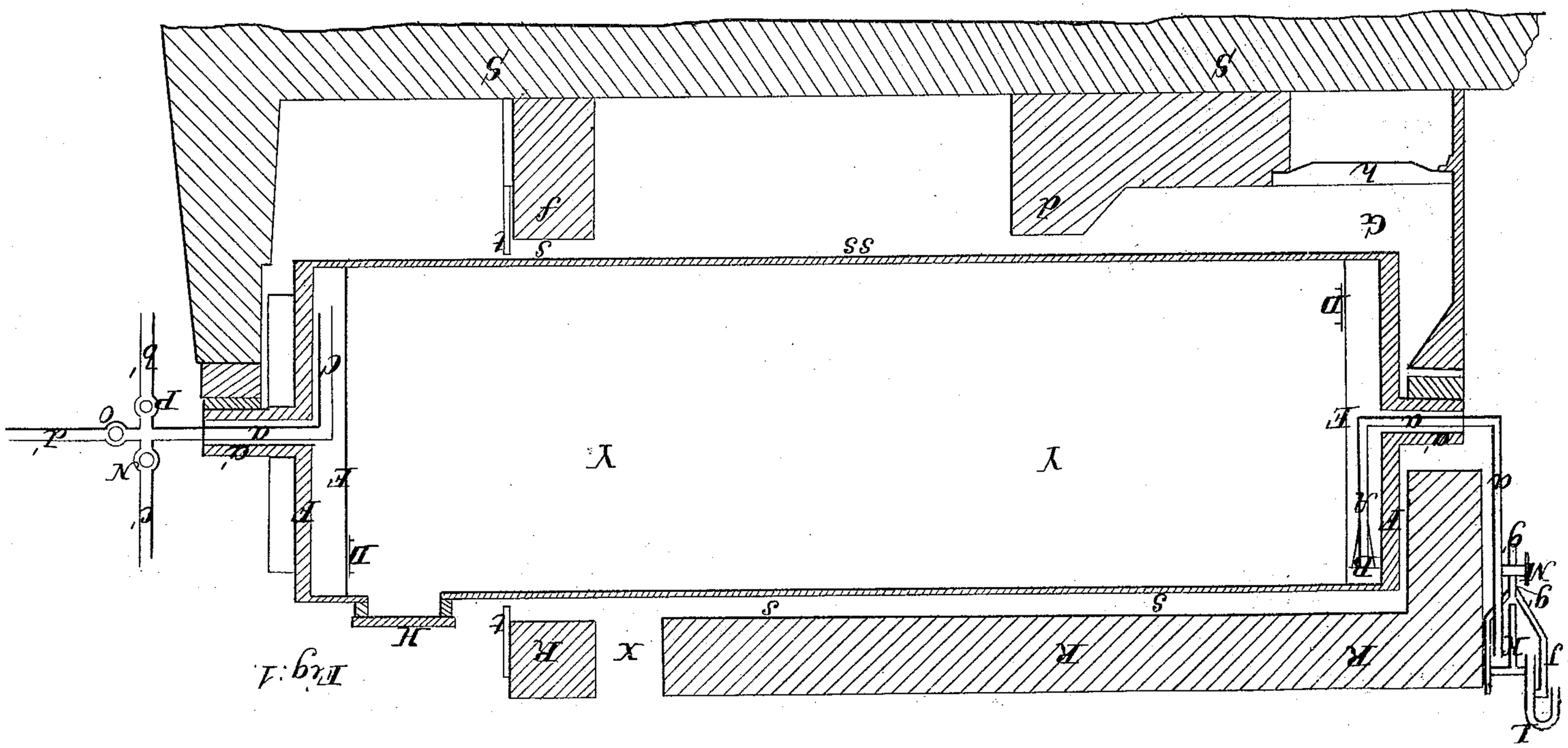


Fig: 2.

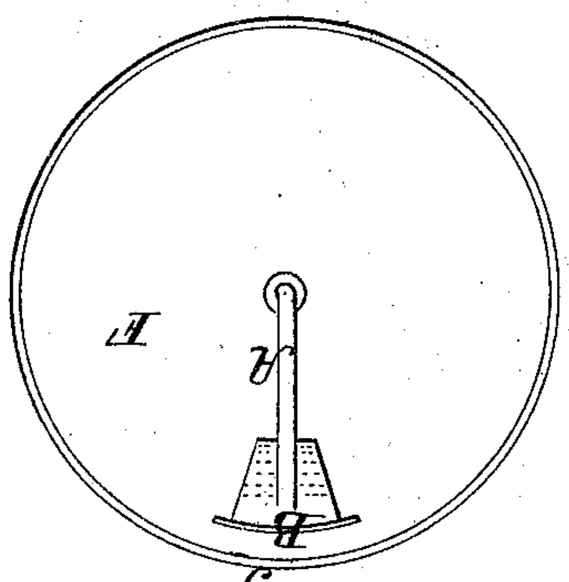


Fig: 3.

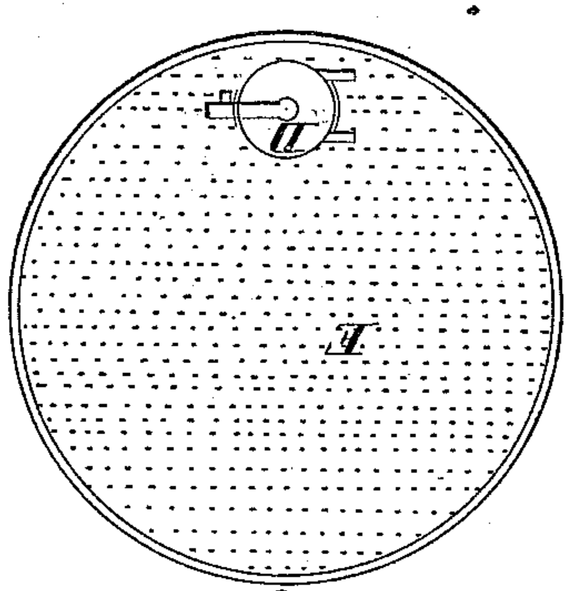


Fig: 4.

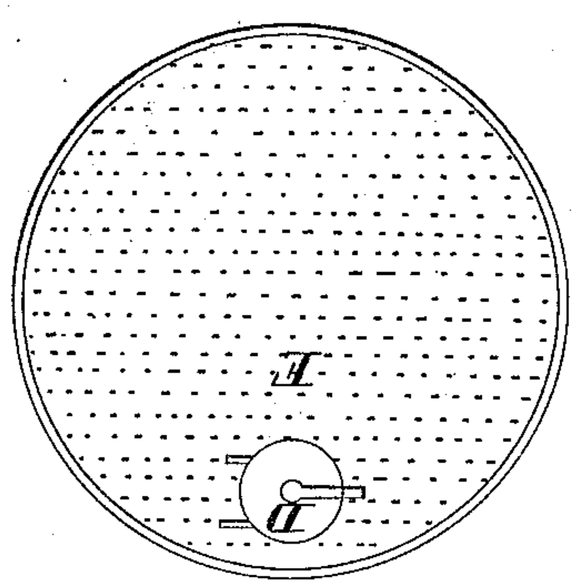
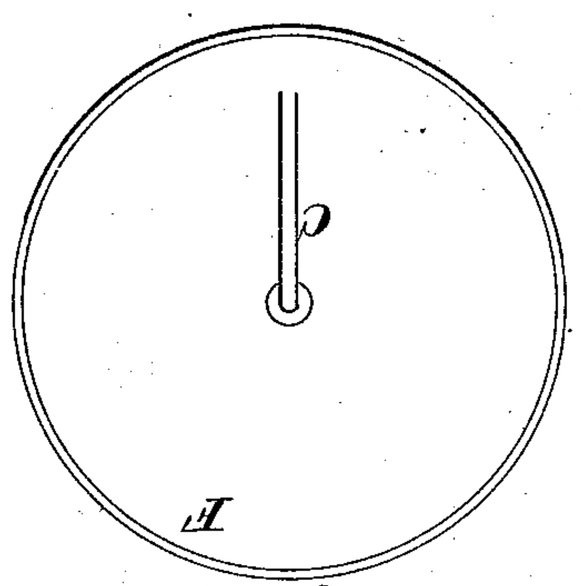


Fig: 5.



UNITED STATES PATENT OFFICE.

HARRISON B. MEECH, OF FORT EDWARD, NEW YORK.

IMPROVEMENT IN ROTARY BOILERS FOR THE MANUFACTURE OF PAPER-PULP.

Specification forming part of Letters Patent No. **45,845**, dated January 10, 1865.

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, of Fort Edward, in the county of Washington and State of New York, have invented a new and useful Improvement in the Construction of Rotary Boilers for the use of Manufacturers of Paper; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents a sectional view of such rotary boiler in its position in the arch over the fire and ready for use, and also the internal arrangement of diaphragms, pipes for the introduction of the boiling liquors, to be used in the boiling of the material, also for the introduction of water for washing the material in the boiler after the same has been treated by boiling, and also for discharging the liquor from the said rotary after the boiling process has been completed; also, pipes for the passage of steam by which to communicate with a steam-gage. Fig. 2 is a view of the position and structure of such steam-pipe communicating with the steam gage. Fig. 3 is a view of the diaphragm with its opening at D, situated at the end of the rotary over the furnace G. Fig. 4 represents the diaphragm with its opening D at the opposite end of the rotary; and Fig. 5 represents the situation of the pipe within the rotary and between the diaphragm and the end of the rotary for the purpose of receiving and discharging liquors and water used within the rotary during the process of treating stock boiled therein.

The improvements which the applicant desires to secure by Letters Patent have for their object, first, an improved method of combining the pipes for the purpose of introducing water and other fluid substances into and also for discharging the same from such rotary; and, second, a means by which the connection of the steam-gage with the steam within the boiler may at all times be determined; and, third, the prevention of the steam-pipe from being stopped by the introduction of material being treated within it.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Y Y in Fig. 1 represent the rotary boiler resting upon the bearings or journals *a' a'*, which are hollow, for the purpose of admitting the passage of pipes *a a* through them, communicating with the internal contents of the rotary.

F F represents the ends of said rotary.

E E represent a partition perforated by numerous small openings, as represented in Figs. 3 and 4.

H represents the man-head in position over the man-hole of the rotary, but without its fastenings.

C and *a* represent the pipe entering the rotary through its hollow journal, and bending downward for the purpose of charging with and discharging the rotary of its fluid contents from near the bottom of the rotary.

A *a* represent the steam-pipe covered at its upper end, at B, by means of a perforated cap, B, and, passing out of the rotary through its journal *a'*, communicates with a chamber, K, which also communicates with the bent tube L, connecting with a steam-gage for the purpose of determining the internal pressure within the rotary.

M represents the position of a stop-cock for the purpose of determining the state of communication between the steam in the boiler and the steam-gage.

N O P represent the position of stop-cocks in the pipes, for the purposes hereinafter described.

G represents the fire-chamber underneath one end of the rotary.

s s s s represent the space around the rotary for the circulation of the flame-heated gases and air about the rotary for the purpose of heating the same.

R R represent the upper portion of the arch surrounding the rotary, and S S the bed of the same.

d represents the fire-bridge, and *t t* the back of the fire-chamber through which the rotary passes.

X represents the smoke-flue.

The pipes *b' c' d'*, connecting with the pipe *a*, and through it communicating with the internal portions of the rotary, are each capable of being closed by stop-cocks situated in the respective pipes, stop-cock P in the pipe *b'*, stop-cock O in the pipe *d'*, and stop-cock N in the pipe *c'*.

The operation is as follows: By closing the stop-cocks P and O and opening the stop-cock

N in the pipe c', connecting with the pan containing the boiling liquor, the liquor is run into the rotary in sufficient quantity, when the stop-cock N is closed. After the boiling is completed the stop-cock P in the pipe b' is opened and the liquor is discharged from the rotary. On closing the stop cock P and opening the stop-cock O in the pipe d' water is conducted into the rotary for the purpose of washing the stock therein. The diaphragm E separates the stock within the rotary and prevents it from coming in contact with the pipe c, so that the space between said diaphragm and the end of the rotary contains only the liquid.

The steam-pipe A a, passing through the journal a' and entering the chamber K so far as the same is within the rotary, is situated between the diaphragm E and the end of the rotary F, and is directed upward that it may rise above the liquid contents of the rotary within the same and be separated from the material being treated in the rotary. The upper end of such pipe is covered with a perforated cap, B, to prevent the possible entry of any material into the steam-pipe which might escape through the diaphragm. The steam-chamber K is connected with the steam within the rotary by means of the steam-pipe A a a, and with the steam-gage by means of the steam-pipe L, and with the stop-cock M by means of the pipe g'. The value of this arrangement consists in being able to determine, by turning the stop-cock M, whether there is free communication between the steam within the rotary and the steam-gage connected with the bent pipe L.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the pipes b', c', and d' with their operative stop-cocks P, N, and O, with the pipe a C, entering into the rotary Y Y in the manner and for the purposes above described.

2. The perforated cap B, in combination with the steam-pipe A a a, passing out of the rotary through its journal a' in the manner and for the purpose above described.

3. The combination of the pipe A a a, the steam-chamber K, the pipe g', and the stop-cock M in the manner and for the purpose above described.

HARRISON B. MEECH.

Witnesses:

EDWARD WADE,

JOEL TIFFANY.