WILLIAM F. LADD.

Improvement in Boilers or Digesters for Making Paper-Pulp.

No. 115,327. Patented May 30, 1871.

Fig. 1.

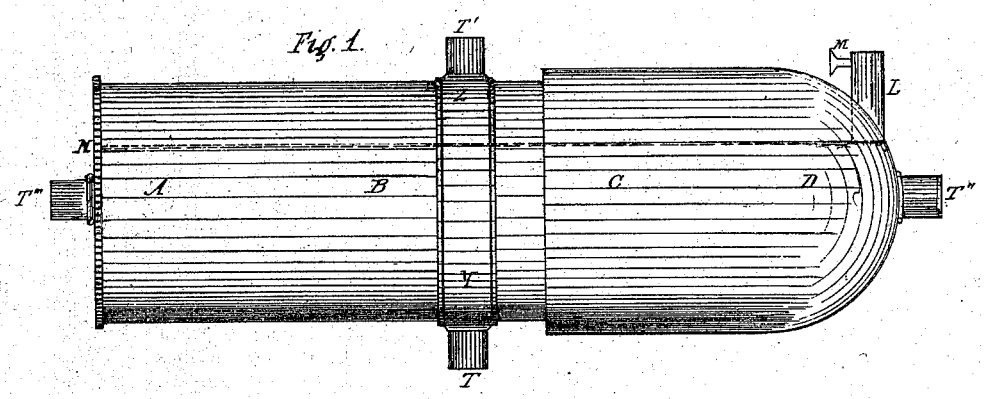


Fig. 2.

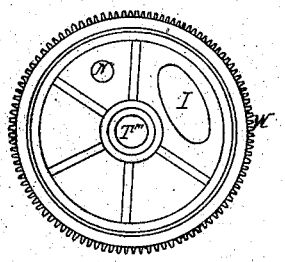
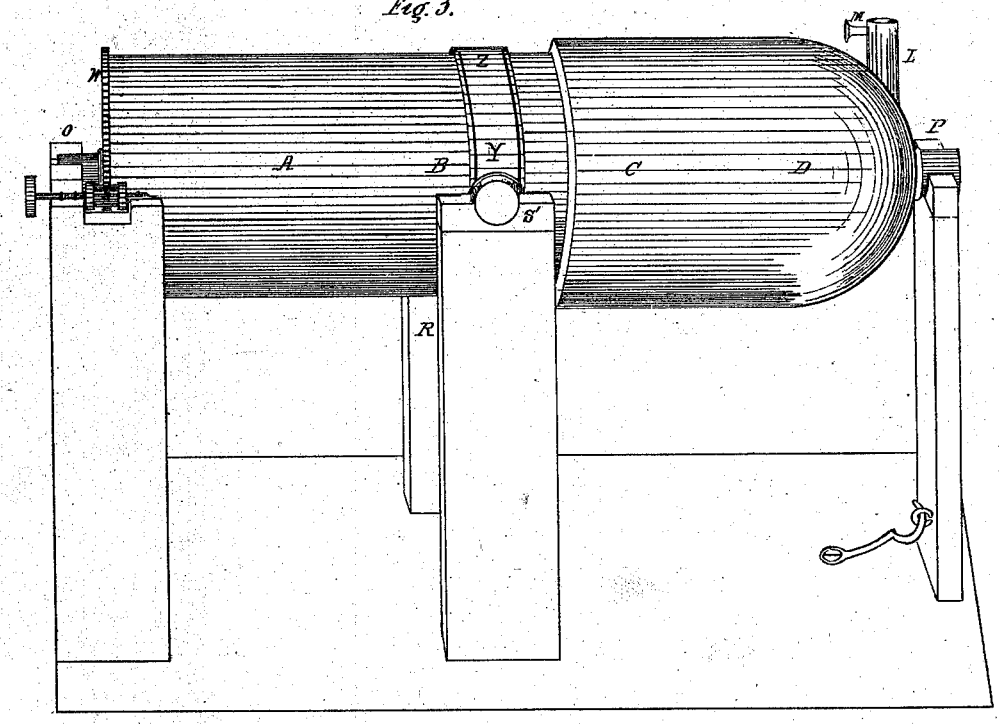


Fig. 3.



Witnesses: Wm. F. Wright, L. A. Burdett.

Inventor: Wm. F. Ladd by his atty. George Harding.

UNITED STATES PATENT OFFICE.

WILLIAM F. LADD, OF NEW YORK, N. Y.

IMPROVEMENT IN BOILERS OR DIGESTERS FOR MAKING PAPER-PULP.

Specification forming part of Letters Patent No. 115,327, dated May 30, 1871.

To all whom it may concern:

Be it known that I, WILLIAM F. LADD, of the city and State of New York, have invented a new and useful Improvement in Boilers or Digesters for Making Paper-Pulp from Wood or Straw; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part hereof.

Figure 1 represents the boiler; Fig. 2, a view of the end of the same; and Fig. 3 is a perspective view of the boiler mounted on its trunnions.

The same letters refer to the same parts in all the figures.

A, B, C, and D represent a long cylindrical boiler, hanging on a pair of trunnions, T T′ and T″ T‴, on both axis, with corresponding elevated bearings on boxes for each set of trunnions, so that the boiler may be made to turn on either axis and revolve continuously upon its longitudinal axis. There is an opening at I for the insertion of the stock used, closed by a man-hole, cover, or head, and a discharge-pipe at L, closed by a sliding valve, M, and there is inside a sliding perforated diaphragm operated by a stem extending through the boiler to the point N. O and P are two boxes, mounted on permanent uprights, which boxes may be made to slide backward and forward. There are also boxes R and S′, one or both of which may be made to move or slide.

The operation is as follows: The digester is supported upon the trunnions T T′ and the boxes R and S′, with the extremity having the man-hole opening M uppermost. It is charged or filled with straw or wood, &c., while in this position. After being filled with the material the man-hole is closed, and the boiler is turned so as to bring its longest axis horizontal, and the boxes O and P being moved into such position as to receive the trunnions T″ T‴. There is a cog-wheel at W, which meshes into a cog-wheel, S, in the boiler, and which continually revolves the boiler on its longest axis in a horizontal position. This boiler may be revolved on its shortest axis so as to discharge at the same point at which it is charged, or so that it may be revolved continuously on that axis. In that case the discharge-pipe may be dispensed with.

My boiler may be used in one of these ways: It may be permanently revolved on its shortest axis, in which case it is filled and discharged at the same man-hole, M; or, secondly, it may be filled by turning it on its shortest axis into such a position as to bring the man-hole M uppermost, and then afterward turning it so as to continuously revolve on its longest axis by means of the trunnions T″ T‴ and the boxes O and P, and when it is to be discharged it may be discharged by the discharge-pipe L, that is at the lowest extremity, or the man-hole, and may be turned down and discharged at M. A man-hole may be put in the side, if desired. Steam may be applied at either trunnion by union joints. There is a band, Z Y, surrounding the digester about the middle of its length, to which the transverse trunnion T T′ may be attached, in which case the boiler will turn in the band Z Y. This plan may be resorted to instead of making the boxes movable and attaching the trunnions directly to the boiler, as stated above.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. A long cylindrical boiler or digester having two sets of trunnions, one set on its longest and one on its shortest axis, and having corresponding boxes, as described.

2. A cylindrical boiler or digester having two sets of trunnions, the trunnions on the short axis being attached to a band in which the boiler can turn when supported on the trunnions of the longitudinal axis.

3. Placing trunnions on the short axis of a cylindrical boiler so that the boiler may be charged and discharged through the same man-hole.

4. A cylindrical boiler having trunnions on its shortest axis and a discharge-valve at one extremity of its longest axis.

WM. F. LADD.

Witnesses:

WM. F. LADD, Jr.,

GEO. W. LADD.