

H. B. Meech.
Pulp Digester.

N^o 57,947. Patented Sept. 11, 1866.

Fig. 1.

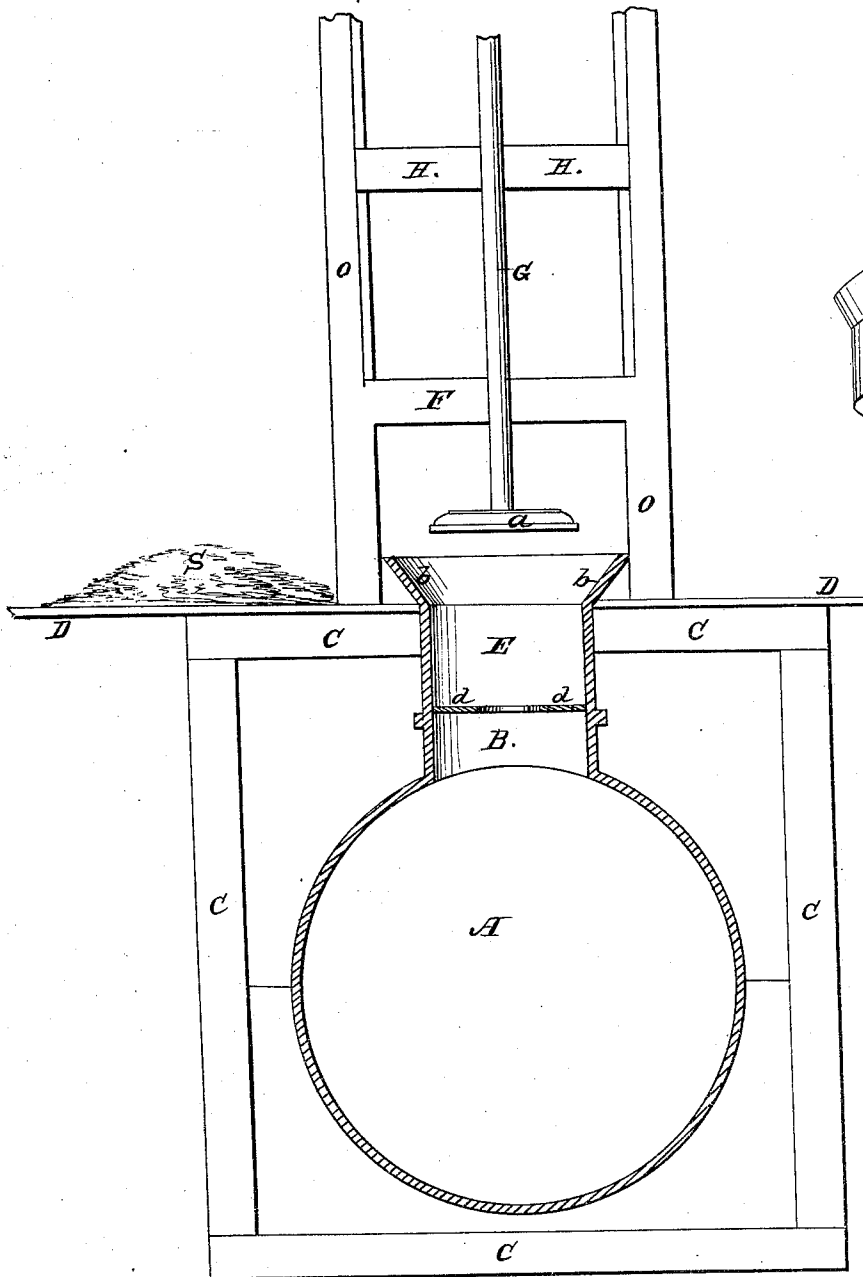
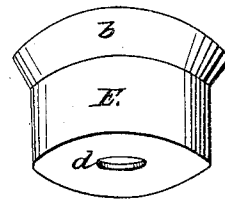


Fig. 2.



Witnesses.

Charles Keenon
Wm. Harvey

Inventor.

Harrison B. Meech

UNITED STATES PATENT OFFICE.

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

IMPROVED APPARATUS FOR PACKING STRAW INTO BOILERS.

Specification forming part of Letters Patent No. 57,947, dated September 11, 1866.

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 machine for packing straw and other fibrous substances into boilers, to prepare them for reduction to a pulp for the manufacture 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 is a sectional view of the machine, showing the proper arrangement of all the parts. Fig. 2 is a perspective view of a cylinder or induction-pipe detached.

Similar letters represent corresponding parts in each figure.

A represents a boiler, which may be either rotary or stationary, and set in an arch, if desired. B represents the man-hole in the top of said boiler. C C represent a frame which supports the floor D D over the boiler.

To the man-hole B is connected the cylinder or induction-pipe E, which extends up through the floor and terminates with a beveled or funnel-shaped rim, *b b*. The entire cylinder may be made funnel-shaped, if it is desired, and it is so constructed that it may be attached to or detached from the boiler over the man-hole at pleasure, and it may be of any length to suit the distance the floor may be above the boiler. Within the said cylinder, near the lower part thereof, is placed the diaphragm *d d*, constructed of india-rubber or other elastic substance. If it is desired, the diaphragm may be placed in the man-hole B.

On the floor D, over the cylinder E, is placed a frame consisting of the uprights O O, connected by the cross-piece F. In the said upright, above the cross-piece F, are grooves, in which are placed the ends of the reciprocating bar H H. To the said bar is firmly secured the shaft G, which passes down through the cross-piece F, and to the lower end of which is firmly secured the cylindrical plunger or piston *a*, which corresponds in size with the inside of the cylinder E. The shaft G may be operated by any suitable power and

machinery that will give a reciprocating motion to it.

The operation of my machine is as follows, namely: The straw or other fibrous substance S, being cut into a suitable length for the manufacture of pulp, is filled into the boiler dry, men being inside to pack it down. When the boiler is packed with the material until there is not room for the men to operate further inside they withdraw therefrom. The shaft G is then put in motion, and the straw or fibrous material is thrown into the cylinder E when the plunger *a* is raised out of it. When the plunger descends the material is forced through the slot or opening in the diaphragm *d d* into the boiler, the diaphragm preventing the fibrous material from being forced out again by its expansion when the pressure of the plunger is removed. After the men withdraw from the boiler an alkaline liquor is introduced into it, and the fibrous material, on becoming wet, is rendered inelastic and susceptible of being compressed into a more compact bulk than when it is dry. The straw may be wet before being placed in the boiler, if desired.

By my machine the boiler may be packed tightly with the material until it is entirely full, whereas by the ordinary method of packing (by men inside the boiler and packing the material when it is dry) there will always be a vacant space left within the boiler.

When the boiler is full of tightly-packed material the man-hole is closed steam-tight, and the material is cooked under pressure, and it will readily be seen that when a boiler is packed tightly with the material it will require less time and a less amount of heat and steam to obtain the required pressure than when the boiler is only partially filled.

The advantages derived from filling the boilers by my process over that in common use are that a greater quantity of material may be treated in the same space, in much less time, and with greater facility, and the material being treated, when tightly packed, produces a superior article of paper.

I do not intend to confine myself to the packing of boilers with fibrous material for

the manufacture of paper with my invention, but may use it for any other purposes to which it may be adapted.

What I claim as new, and desire to secure by Letters Patent, is—

1. The plunger *a* and shaft *G*, in combination with the cylinder *E* and boiler *A*, substantially as described.

2. The cylinder *E* and diaphragm *d d*, substantially as and for the purpose specified.

3. The combination of the frame *O O* and *F*, reciprocating bar *H H*, shaft *G*, cylinder *E*, diaphragm *d d*, with the boiler *A*, substantially as and for the purpose specified.

HARRISON B. MEECH.

Witnesses:

A. C. HODGMAN,
W. M. LANE.