

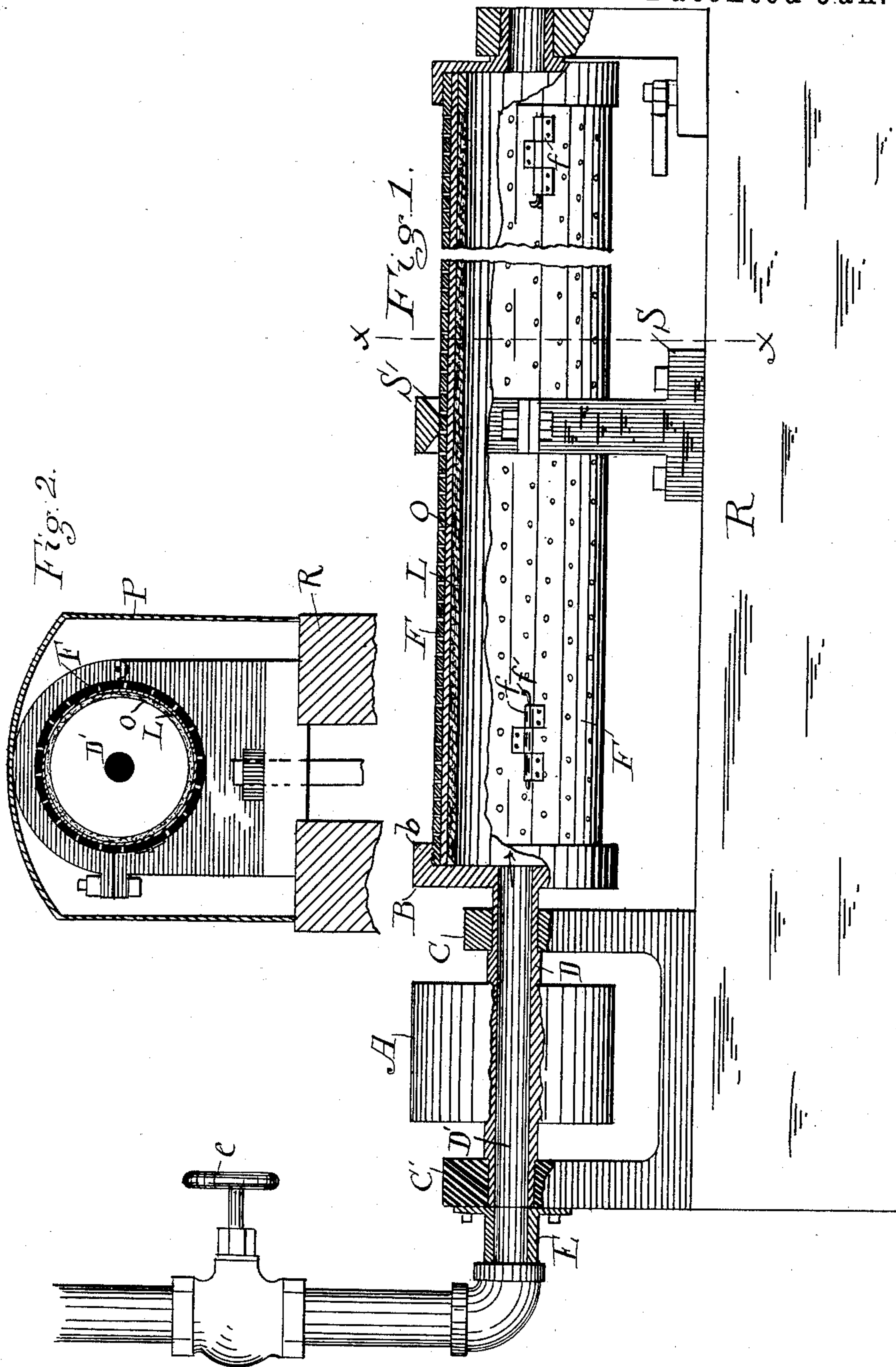
(No Model.)

W. P. STEVENS.

MACHINE FOR FORMING PULP CYLINDERS.

No. 375,839.

Patented Jan. 3, 1888.



Witnesses:
Wilbur F. Lunt
Charles S. Crook

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UNITED STATES PATENT OFFICE.

WILLIAM P. STEVENS, OF DEERING, MAINE.

MACHINE FOR FORMING PULP CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 375,839, dated January 3, 1888.

Application filed February 2, 1887. Serial No. 226,297. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. STEVENS, a citizen of the United States, residing at Deering, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Machines for Forming Pulp Cylinders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for forming hollow cylindrical articles from pulp by the employment of centrifugal force; and it consists, substantially, in the use of a pervious cylindrical former running horizontally and having two or more bearings, whereby dangerous oscillations are prevented and the cylinder placed in a position to be easily manipulated. Heretofore in this class of machines, where rapidly-revolving cylindrical formers have been employed in forming pulp articles, the former has been placed in a vertical position upon a revolving base, its upper end being free and the base being its only support. It has been found in these machines to be a very difficult matter to prevent the cylinders from oscillating badly under the high rate of speed at which they are required to be run. This is particularly true where cylinders of considerable length and of small diameter are employed, and, in fact, as they have hitherto been constructed, it has been impossible to successfully manufacture cylinders of any considerable length on these machines. Another difficulty which has been experienced is this: The great pressure which the liquid pulp exerts on the under side of the cover or upper flange of the machine when running at a high rate of speed has rendered it necessary to provide stay-rods running from end to end of the cylinder in order to keep this cover in place. There has also been experienced difficulty in forming the pulp article of the required thickness at the top and bottom of the machine, since the contents of the cylinder has a constant tendency to settle, thus forming pulp at a greater thickness at the bottom than at the top. This difficulty is of course more marked in cylinders of comparatively great lengths than in the shorter kinds.

I remedy the defects above stated by placing

my cylindrical former in a horizontal position and providing two or more bearings, which insure the even running of the cylinder, prevent oscillations, and effect the uniform distribution of the pulp over the whole length of the cylinder. I am thus enabled to extend the length of my cylinder to any requirement, and by safely increasing the rate of speed I am enabled to form much smaller diameters than by the use of the old process or machine. For the same reason I am able to form cylinders of greater thickness than was possible in the old machines, where less speed could be safely attained.

I illustrate my invention by the use of the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a cross-section through xx of Fig. 1.

R is the body of the machine.

C C are stationary bearings supporting the head of the lathe.

A is a driving-pulley, and D is a hollow spindle having a pulp-induct, D'.

B is the face-plate, permanently connected with the spindle D. The induct D' opens in the face of the face-plate B.

E is a pipe through which the supply of pulp is drawn. e is a valve in same. This pipe is attached or bolted to the bearing C and connects with the pulp-induct D'.

F is a perforated cylinder, made in two or more sections hinged together by hinges f , which are attached together by movable pins f' . This cylinder F fits tightly within the flange b of the face-plate B and is secured therein by a screw or other suitable means. The cylinder F, which may be of any desired length or diameter, has at its opposite ends the back cover or head, J, with a hollow journal, I, opening into the cylinder. A movable bearing, G, supports the journal I of the head or cover J.

S is a movable bearing having a semicircular strap, S', which passes over the top of the cylinder, the whole forming a circular bearing of the exact diameter of the cylinder F, within which said cylinder lies. The cylinder F has a lining, L, composed of felt or other pervious material.

O represents the pulp cylinder after it has been formed.

P is a hood or cover extending the entire

length of the machine, and is designed to confine the water thrown off by the revolutions of the cylinder and discharge it through the bed of the machine.

5 The operation of my machine is as follows:

The cylinder is rapidly revolved by belt running on pulley A. Pulp is forced in through the induct D', air being admitted through the hollow journal I at the opposite end of cylinder. The pulp will distribute itself evenly along the entire length of the cylinder, the water being thrown out through the perforations by the cylinder F, and the pulp deposited against the inner surface of the pervious lining

15 L. When the pulp has been formed and the water thrown off, the cylinder F is removed from the bearings S and the heads B and J, and it is then unhinged in the usual way and the pulp cylinder removed from the interior.

20 As many intermediate bearings as may be required may be placed between the two ends of the machine, according to the length of the cylinder. The necessary number may be determined by experience.

25 Where comparatively short cylinders are formed no intermediate bearing will be necessary.

It is evident that the details of the machine as herein illustrated can be very considerably varied and still retain the essential features of my invention—namely, the horizontal former having central pulp inlet and suitable bearings.

I claim—

1. In a machine for forming articles of pulp, a pervious cylindrical former rotating horizontally, or nearly so, in suitable bearings, and a pulp-inlet opening centrally into one end of the same, whereby oscillations are prevented and the pulp evenly distributed over the entire length of the cylinder, substantially as described. 35 40

2. In a machine for forming cylindrical articles of pulp, a pervious cylindrical former having in one end a recessed head connected with a hollow spindle through which the pulp flows to the interior of the cylinder, bearings in which said spindle runs, a back head having a hollow journal, a bearing to support same, and a driving pulley, all combined substantially as described. 45 50

3. A machine for forming cylindrical articles of pulp, a pervious cylindrical former having at one end a head or cover connected with a hollow spindle through which the pulp flows to the interior of the cylinder, bearings in which said spindle runs, a back head at the opposite end of said cylinder having a hollow journal, and means for supporting said cylinder at intermediate points between the two ends, all combined substantially as shown. 55 60

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

WILLIAM P. STEVENS.

Witnesses:

S. W. BATES,

WILBUR F. LUNT.