

(No Model.)

A. J. SHIPTON.

Pulp Engine.

No. 239,350.

Patented March 29, 1881.

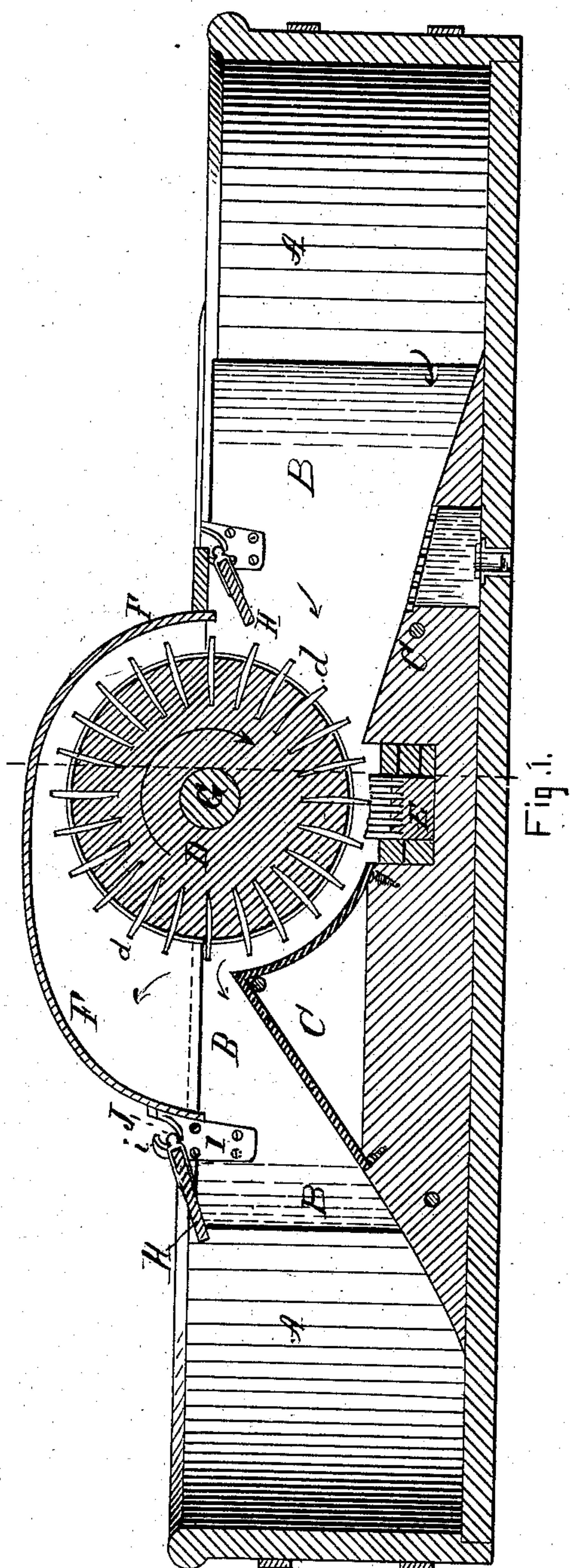


Fig. 1.

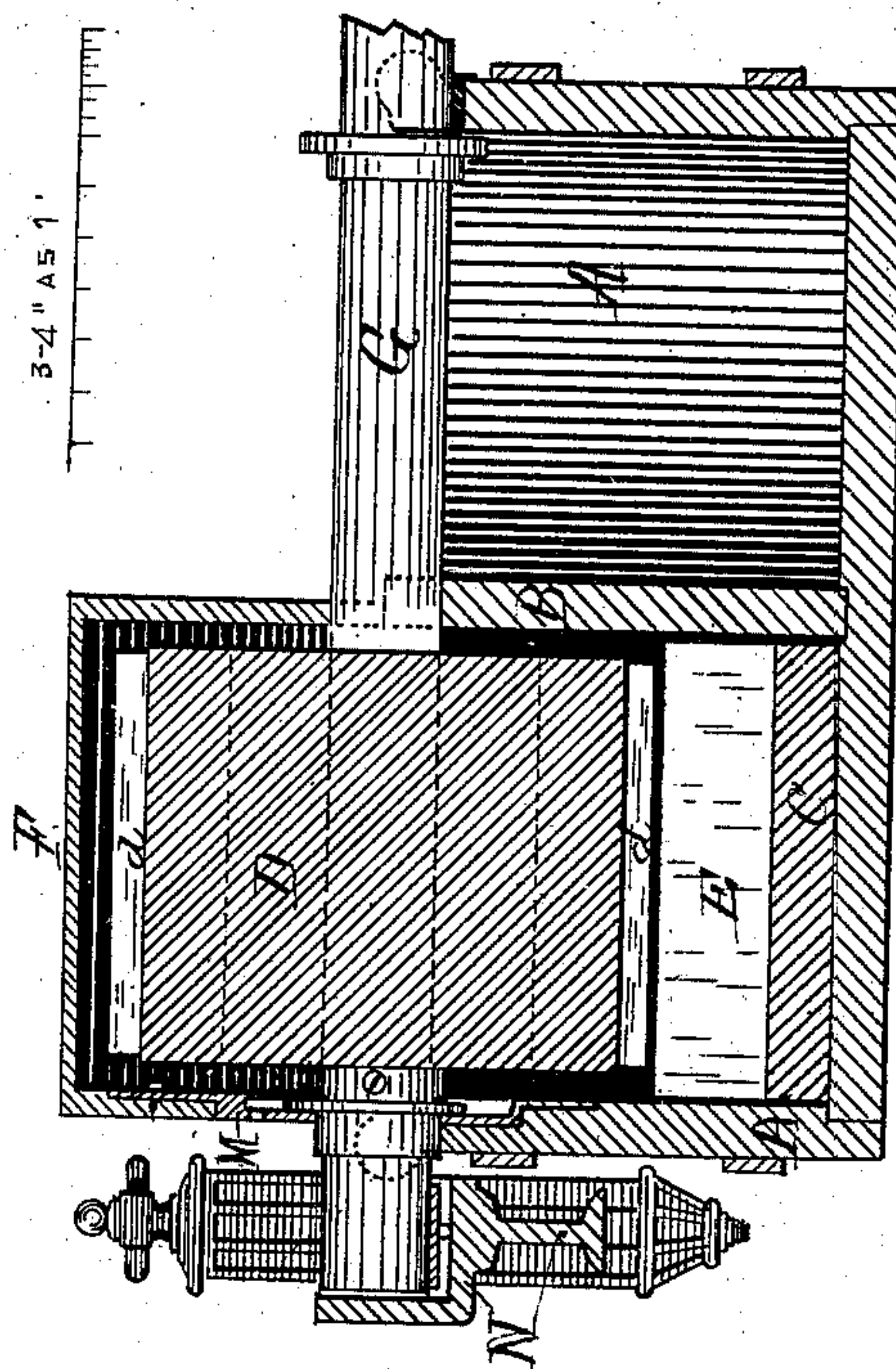
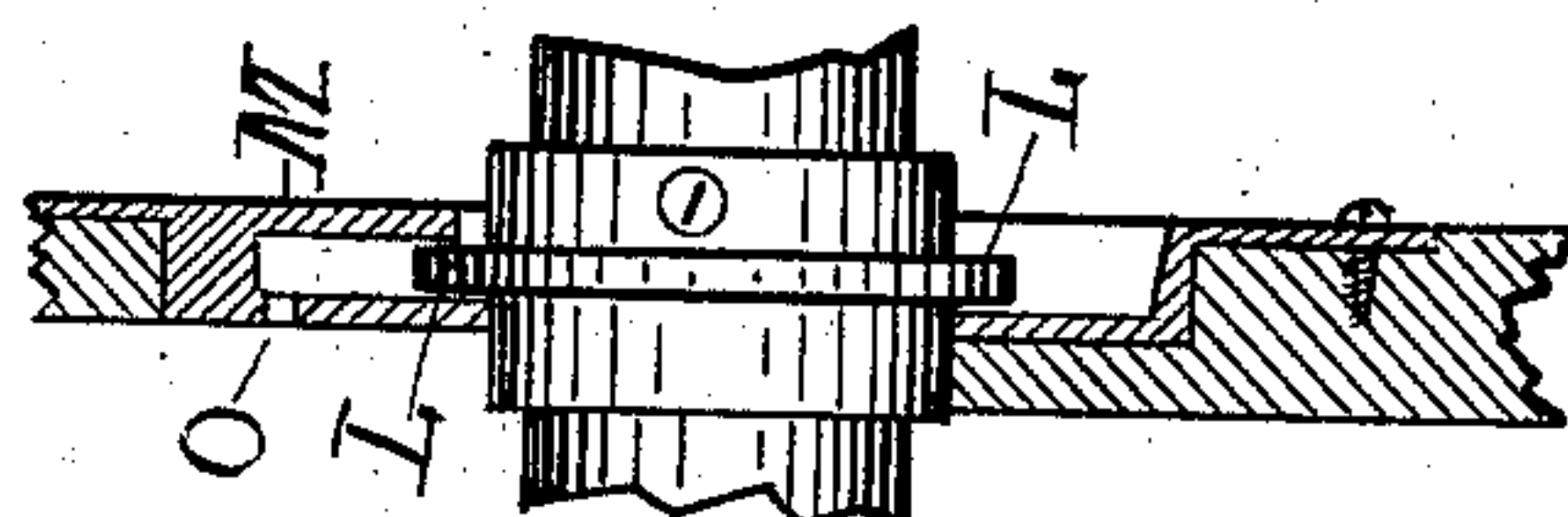


Fig. 2.



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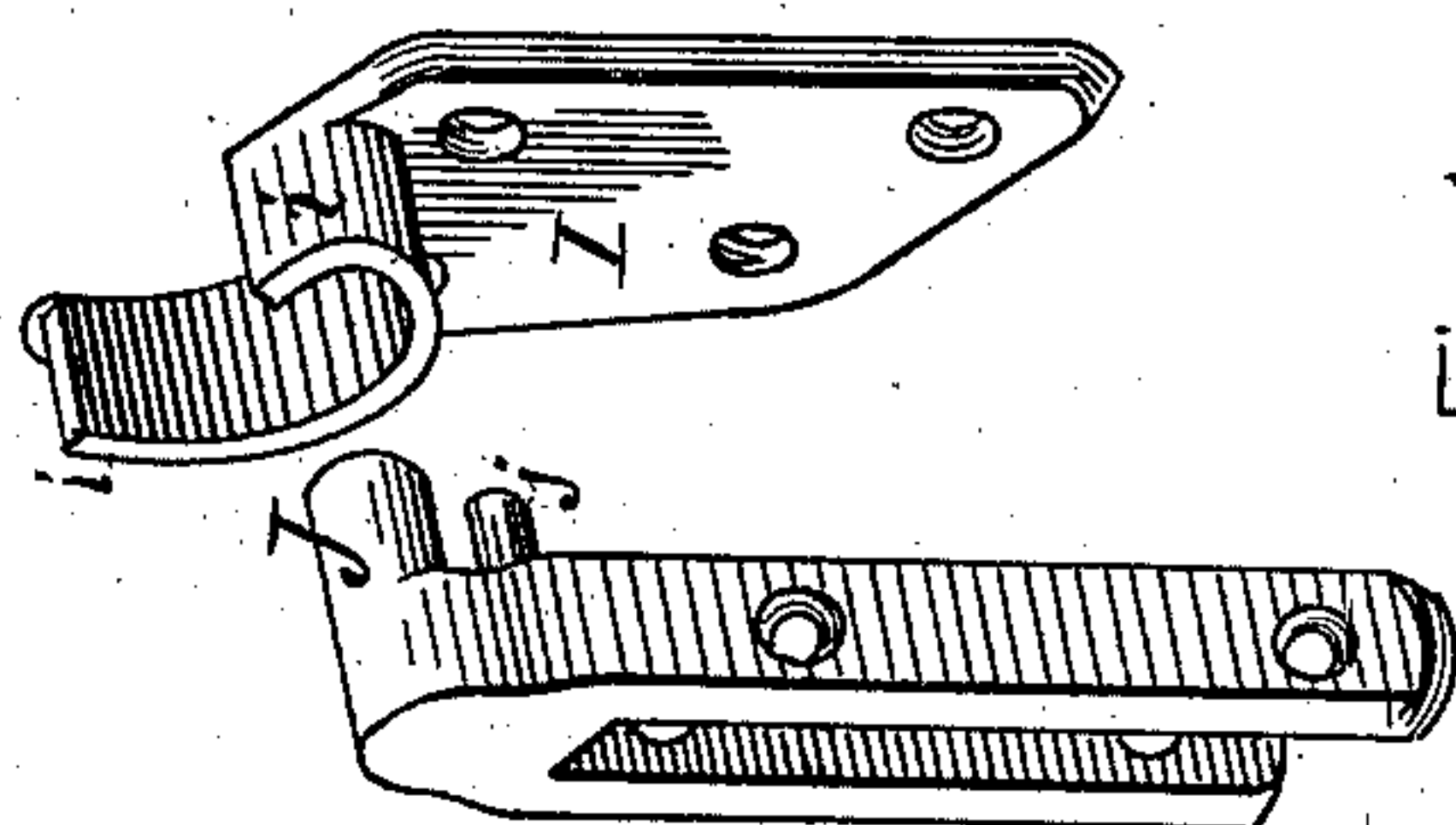


Fig. 4:

Witnesses.

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UNITED STATES PATENT OFFICE.

AMBROSE J. SHIPTON, OF WATERTOWN, MASSACHUSETTS.

PULP-ENGINE.

SPECIFICATION forming part of Letters Patent No. 239,350, dated March 29, 1881.

Application filed February 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, AMBROSE J. SHIPTON, a citizen of the United States, residing at Watertown, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Pulp-Engines, and that the same are fully described in the following specification and illustrated in the accompanying drawings.

My improvements relate to that class of mechanism employed to reduce to a fine pulp fibrous matter of any character, preparatory to converting it into paper or board. They are designed especially to prevent the pulp from being spattered over in front and rear or forced out at the end of the grinding-roller, by reason of its rapid rotation.

My invention consists in a swinging splash-guard provided with a loose-joint locking-hinge of peculiar construction, whereby the guard is free to swing in all directions required in its use without unlocking; but when swung upwardly to a nearly vertical position it may be readily removed.

My invention also consists in an end guard for the grinding-roller, consisting of a flange or collar formed on or attached to the spindle, and a recess or chamber in the curb adjoining the bearing for such collar to work in.

The drawings represent these features of my invention and the parts of the mechanism with which they are combined and used, Figure 1 being a longitudinal vertical section, and Fig. 2 a transverse section, of the machine. Fig. 3 is an enlarged view of the end guard of the roller, and Fig. 4 a detail view of the locking-hinges.

In the drawings, A is the tub—an oblong vat with vertical walls and rounded ends; and B, a central partition running about two-thirds of the length of the tub, and constituting a barrier around which the pulp is carried in a continuous current and over the incline C by the rotation of the roller D. This roller, as indicated in Fig. 1, is a heavy casting, furnished with a series of radial steel blades, *d*, termed "fly-bars," which, in their very rapid motion through the pulp, beat it up, grind it in its passage over the bed-plate E, filled with steel knives, and drive it forward, as denoted by the arrows. A curb, F, covers the roller,

and largely prevents the pulp from being thrown out. These parts are all constructed in the usual way and arranged in the ordinary manner, the roller D being firmly secured upon the spindle G, and having proper bearings at each side of the tub. The rapid motion of the blades *d* causes a disagreeable and wasteful spattering of the pulp below the curb at each end, since the height of the pulp varies at different stages of its manipulation, and it frequently becomes necessary to free the pulp by a paddle from the front or rear of the roller, where portions of it may be clogged and not uniformly ground, because not circulating freely. To prevent spattering at such times it is common to tack to the ends of the curb wide strips of coarse sail-cloth. This cloth, being constantly soaked in the pulp and worn by its movement, is liable to tear away in pieces or to shred off at a time when the pulp is nearly ground, and thus the coarse pieces or shreds of the canvas go with the pulp into the paper and render it defective and of low grade.

The first part of my invention, therefore, consists in a rigid splash-guard, H, provided with locking-hinges I *i* J *j*, constructed as shown, and applied at both its ends, connecting said guard to the curb. The hinges I are flat plates of cast metal secured to the curb and having curved flanges *i* projecting inwardly and at each end turned upwardly so as to nearly meet, as shown. The part J *j* is the complement of the part I *i*, being secured to each end of the guard H, and having a projecting pivot, J, to occupy the center of the curved flange *i*, and a shoulder, *j*, far enough removed from the pivot so that such curved flange may occupy the space between them, with the shoulder close to its outer curve when the parts of the hinge are put together.

From this description, and from the drawings, it will be plain that when the guard is in position for use it will be free to swing through more than one hundred and eighty degrees without the possibility of removal, and that it can only be detached by swinging it up, as shown in dotted lines in Fig. 1. This gives a free movement in all directions required in use, and prevents accidental displacement and possible drawing under the grinding-roller. The hinge-castings are adapted for use in the

same manner both in front of and behind the roller D.

The end guard for the roller D consists of a collar and flange, L, secured on the roller spindle at the outer end of the roller, and a chamber, M, formed in or attached to the side of the curb, and having two vertical walls adjoining the collar, one on each side of the flange L, so as to leave but a narrow space on either side. The bearing of the roller at this end is supported on a lever, N, operated by a powerful screw, (not shown,) and the roller is gradually lowered as the grinding of the pulp progresses, so that ultimately the blades *d* in the periphery of the roller come almost or quite into contact with the knives in the bed-plate E. (See Fig. 1.) Such movement without a corresponding depression of the opposite bearing of the spindle changes the plane of rotation of the flange L, and, hence, some space must be left between such flange and the walls of the chamber.

The chamber M is preferably of cast metal, secured by bolts or screws to the inside of the curb, about as shown. With the flange L extending into it, but very little of the pulp can ooze out around the spindle. I, however, pro-

vide port-holes or small openings O, through which, with a wire or hook, I remove, from time to time, such particles as work in. The chamber shields the fibers from liability to work past the flange, and permits such as enter it to drop down and again enter the tub. Below the spindle the chamber is a mere recess having a single vertical plate adjoining the flange L, and open to the tub, as shown.

I claim as of my invention—

1. The combination, with a swinging splash-guard for pulp-engines, of a loose-joint locking-hinge constructed with the curved flange and the pivot and shoulder, as shown, for the purposes set forth.

2. The adjustable grinding-roller D, having on its spindle the collar and flange L, in combination with the double-walled chamber M, arranged on the curb to receive the flange in its varying positions, for the purpose set forth.

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

AMBROSE J. SHIPTON.

Witnesses:

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E. A. PHELPS.