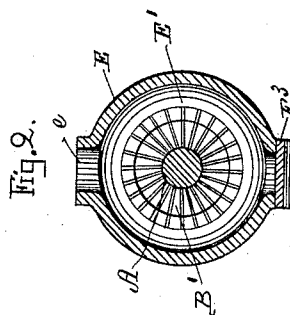
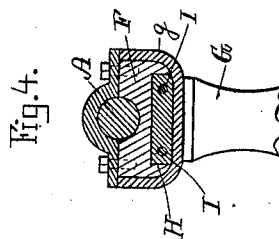
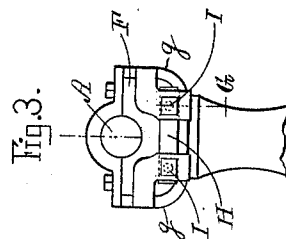
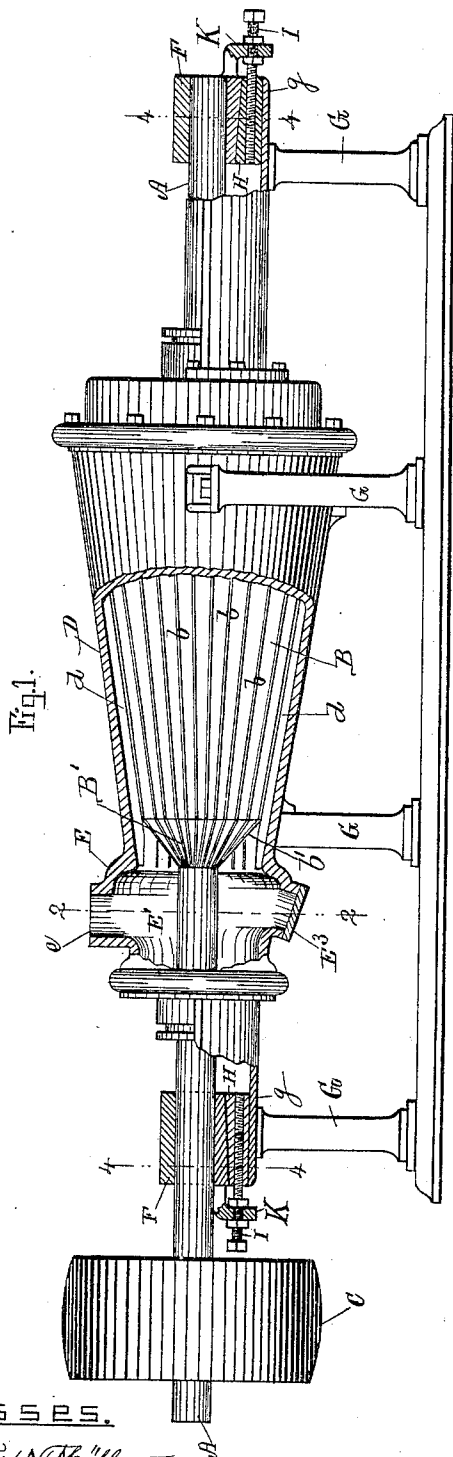


(No Model.)

M. A. MILLS.
JORDAN ENGINE.

No. 581,605.

Patented Apr. 27, 1897.



Witnesses.

Lauritz N. Möller.
Charles A. Harris.

Inventor.

Melvin A. Mills.
by Alvan Audien his atty.

UNITED STATES PATENT OFFICE.

MELVIN A. MILLS, OF LAWRENCE, MASSACHUSETTS.

JORDAN ENGINE.

SPECIFICATION forming part of Letters Patent No. 581,605, dated April 27, 1897.

Application filed May 8, 1896. Serial No. 590,760. (No model.)

To all whom it may concern:

Be it known that I, MELVIN A. MILLS, a citizen of the United States, and a resident of Lawrence, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Jordan Engines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in Jordan engines for grinding paper-pulp, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a partial side elevation and longitudinal section of my improved Jordan engine. Fig. 2 represents a cross-section on the line 2 2 shown in Fig. 1. Fig. 3 represents an end view of one of the bearings for the shaft of the Jordan roll, and Fig. 4 represents a cross-section on the line 4 4 shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

A represents the shaft, to which the tapering Jordan roll B is secured, as usual.

C is a pulley attached to one end of the shaft A, to which a rotary motion is applied by means of belt-power, as usual.

D is the tapering inclosing shell for the Jordan roll, which is provided with knives *d* on its interior, as is common in devices of this kind.

b b are the knives on the exterior of the Jordan roll B, as usual.

For the purpose of more effectually feeding the pulp to the action of the main portion of the roll B and its knives I make on the receiving end of the roll B an increased or quick-tapering portion B', provided with circumferential knives *b' b'*, as shown in Fig. 1.

E represents the head or supply end of the Jordan engine, provided with an orifice *e*, connected to the source of supply, as is common in Jordan engines. In devices of this kind there is usually arranged on the under side of the shell D a pocket or receptacle for receiving hard substances, such as nails, pieces of metal, &c., that may flow with the pulp through the orifice *e*, and these are objectionable, as they are liable to injure the knives on the roll or its inclosing shell; and to obviate this difficulty I make on the inte-

rior of the head E, directly below the supply-opening *e*, an annular chamber E', communicating with the interior of the shell of the engine, as shown in Figs. 1 and 2. The lower portion of the annular chamber E' is provided with a detachable cover E³, as shown in Figs. 1 and 2.

From the above it will be seen that such hard substances as may accidentally enter through the opening *e* will be arrested within the annular chamber E' before reaching the knives of the roll and may be discharged from time to time by the removal of the cover E³. It will readily be seen that any heavy substances that may be fed with the pulp into the head of the engine will be repelled by centrifugal force into the annular chamber E' and caused to settle by gravity in the lower portion of said annular chamber, from which they may be removed by detaching the cover E³, thus preventing injury to the knives by such substances entering between the knives of the Jordan roll and those of the inclosing shell. The quick taper B' effects a more rapid feed, as by suction it creates a partial vacuum, and this draws the pulp from the enlarged mouth *e*.

In devices of this kind the weight of the roll, its shaft, and connections causes wear on the lower parts of the bearings in which the shaft A is journaled, thereby causing the roll to sag and become untrue relative to the center line of the inclosing shell, and I therefore make use of a take-up device for the purpose of adjusting the axis of the shaft and its roll in a true linear position relative to the inclosing shell. For this purpose I make the bearings F F vertically adjustable in the guides *g g* of their standards G G, as shown in Figs. 1, 3, and 4, and this is accomplished by means of a longitudinally-adjustable wedge H, located between the under side of the bearing F and the bearing-guide *g*, as shown. Said wedge is longitudinally adjustable by means of a screw or screws I, working in screw-threaded perforations in said wedge and held from longitudinal movement in a stationary bracket K, as shown in Figs. 1 and 3. It will thus be seen that by turning the screw or screws I toward the right the wedges H H are drawn outward, causing the bearings F F to be raised sufficiently, more or

less, to cause the axis of the shaft A and the roll B to be in central alinement with the inclosing shell D.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

In a Jordan engine, an inclosing shell having at its feed end an annular enlargement forming a chamber E' adapted to serve as a trap for articles liable to injure the grinder-knives, and means for removing such accu-

mulations from said chamber, substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 7th day of March, A. D. 1896.

MELVIN A. MILLS.

Witnesses:

ALBAN ANDRÉN,
LAURITZ N. MÖLLER.