

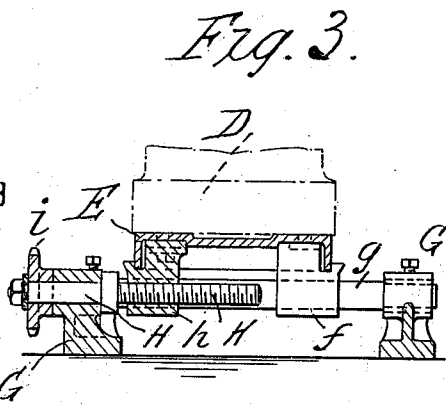
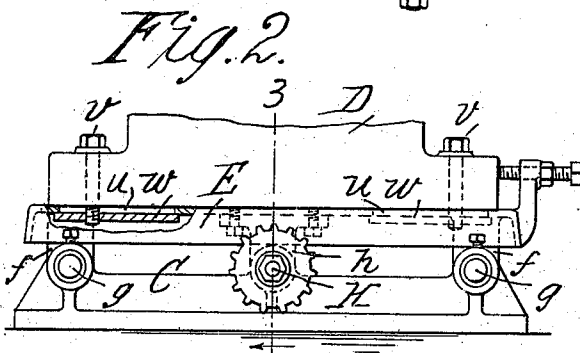
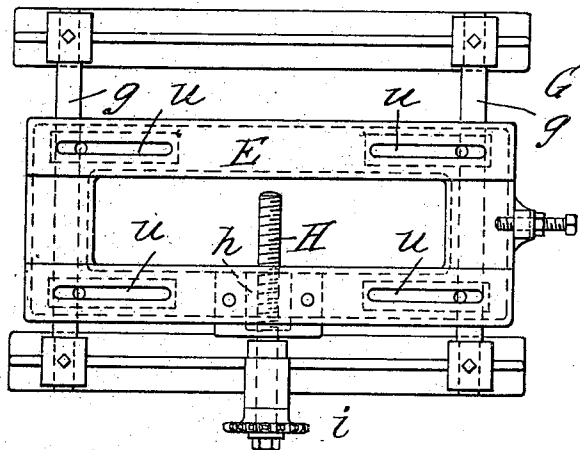
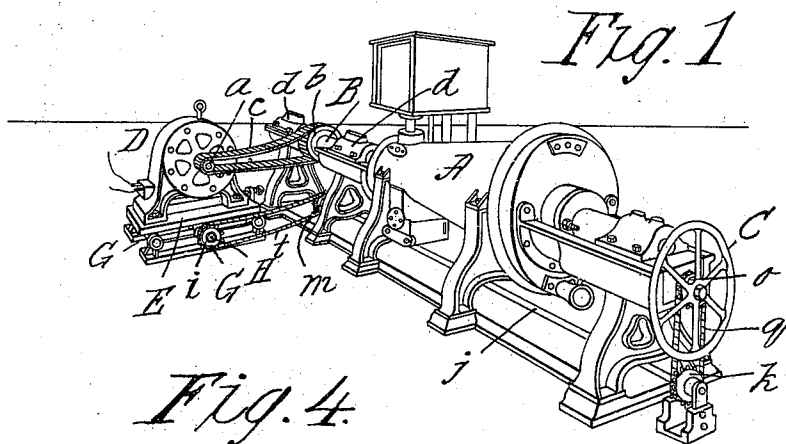
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PAPER PULP REFINING APPARATUS.

APPLICATION FILED MAR. 13, 1909.

979,885.

Patented Dec. 27, 1910.



WITNESSES: 3

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UNITED STATES PATENT OFFICE.

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PAPER-PULP-REFINING APPARATUS.

979,885.

Specification of Letters Patent. Patented Dec. 27, 1910.

Application filed March 13, 1909. Serial No. 483,174.

To all whom it may concern:

Be it known that we, JOHN L. PERKINS, JOHN O. STANLEY, CLESSON W. PUTNAM, and JOHN MONTGOMERY, citizens of the United States of America, and residents of Holyoke, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Paper-Pulp-Refining Apparatuses, of which the following is a full, clear, and exact description.

This invention relates to improvements in paper pulp refining apparatuses of a character of which the "Jordan engine" is probably the best known and most representative type. In this class of engines is comprised a hollow body or casing, having the form of a frustum of a cone, through which the pulp is passed, and provided with a shaft extending axially therethrough carrying a plug or enlargement of a general conical form, but somewhat smaller than the chamber in the casing, said plug having a plurality of blades or ribs which, according to the endwise adjustment of the shaft and of the plug carried thereby, have their revoluble movements comparatively near to, or somewhat widely separated from fixed blades or ribs convergently arranged within, and supported by the wall of, the casing. And in the class of apparatus to which this invention pertains, a motor, preferably an electric motor, is provided which has a constant driving connection with the plug carrying shaft of the refining engine, and which, when the plug shaft is longitudinally moved in either direction is concurrently bodily moved.

The particular object of this invention is to improve the manner of mounting the motor which drives the refining engine with capability for its movements longitudinally relatively to the length of the refining engine shaft and with reference to the means for driving the refining engine shaft from such motor, and still further in respect of capabilities for the bodily adjustment of the motor in a direction transversely of the line of the refining engine shaft without interfering with, or being affected by, the means for varying the position of the motor along the line of the engine shaft. And the invention consists in the combination and arrangement of parts and the constructions of certain of the parts all substantially as hereinafter described in conjunction with the ac-

companying drawings and set forth in the claims.

In the drawings:—Figure 1 is a perspective view of the entire apparatus comprising the Jordan engine, the motor and the means for adjusting the motor in consonance with the adjusting movements of the engine shaft. Fig. 2 is a side elevation of the base for the motor and the support on which the base is adjustably movable, the same being seen as having its disposition at right angles to the length of the Jordan engine. Fig. 3 is substantially a vertical section on line 3—3, Fig. 2. Fig. 4 is a plan view of the base for the motor and of the support on which such base is adjustably movable.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the approximately conical body of a Jordan engine or other pulp refining engine, the same understood as having, as usual, a shaft B which extends axially through the body or casing A,—which is hollow and has a plurality of longitudinally arranged and convergent ribs at proper intervals around and inwardly extending from its wall, while the said shaft of the refining engine is provided with an enlargement or plug provided with outwardly extending longitudinally and convergently arranged rib forming blades or bars; and it will be sufficient for the purposes of this description to state that the comparatively large hand wheel C constitutes a rotatable element, the turning of which is effective through the usual mechanism intervening between it and the shaft B of the pulp refining engine to move such shaft in either direction for the adjustment of the blade carrying plug whereby, according to the character of work being performed in the engine and the quality of the result desired, the revoluble plug carried blades may have their movements around within the body casing with comparatively wide separation from the fixed surrounding blade in the casing or in proximate relations to the latter.

D represents an electric motor having on the driving shaft thereof a sprocket wheel *a* opposite a sprocket wheel *b* on the extremity of the pulp refining engine shaft B which is extended endwise beyond the smaller end of the hollow engine body,—said engine

shaft having suitable journal bearings *d d*, as shown, and the chain *c* driven by the motor drives the shaft B of the pulp refining engine.

5 E represents a base on which the motor D is mounted; and G represents a support below the motor base on which the latter is movable in a direction parallel with the length of the pulp refining engine shaft. As specifically shown, the motor base E is provided with depending apertured lug-like members *f f*, and the support G, which rests on the floor and is made in the form of a rectangular frame, comprises opposite horizontal guide bars *g g* parallel with the length of the engine shaft B,—the said apertured, depending members of the motor base embracing and having sliding engagements on the said parallel guide bars *g*.

10 H represents a screw shaft which, as clearly shown in Figs. 3 and 4, is horizontally arranged and rotatably engaged with, but restrained against endwise movement relatively to, the aforementioned support G; and its screw threaded portion which extends within the openwork or frame-like support G has a screw thread engagement with a depending member or lug *h* formed on or affixed to the motor base E. The said screw shaft has at its outer end a sprocket wheel *i*.

15 *j*, Fig. 1, represents a comparatively long shaft for which suitable bearings are provided, such shaft ranging longitudinally outside of and under the pulp refining engine body and having sprocket wheels *k* and *m* and a sprocket wheel *o* is provided as an appurtenance to the rotatable adjusting device for the shaft of the refining engine and which rotatable adjusting device, as before stated, comprises the large hand wheel C,—this provision being to the end that whenever the hand wheel C is turned in either direction to endwise move in either direction, the engine shaft B, the sprocket wheel O will be correspondingly rotatively moved. A sprocket chain *g* runs around the one end sprocket wheel of the said externally located longitudinally ranging shaft *j* and around the sprocket wheel *o* which is appurtenant to the rotatable shaft adjustment member C; and another sprocket chain *t* runs around the sprocket wheel *m* at the other end of the shaft *j* and also has an encircling engagement around the sprocket wheel *i* on the screw shaft H. Therefore, whenever the bladed plug carrying shaft B of the Jordan engine is endwise moved in either direction as required in changes in the character of the pulp being operated on or to be produced in the engine, the motor will be bodily self adjusting, so to speak, for no thought or care is required on the part of any operator as regards the motor which in consequence of the turning of the rotatable shaft adjust-

ed element C will be moved in the line of its own shaft exactly corresponding to the movement of the pulp refining engine shaft B, so that the driving connections between the motor and the engine shaft will never be distorted, strained, cramped or in any way deranged. 70

In order to properly position the motor in the initial installation of the apparatus and from time to time thereafter as may be required, the motor base E is made with slots *u u*, the lengths of which are at right angles to the guide bars *g g*; and the foot pieces of the motor are penetrated by vertical bolts *v v*, the screw threaded extremities of which are passed loosely through the slots *u* and engage with clamp plates *w w* under the slotted motor base. By loosening or removing the bolts *v v*, the motor may have a sliding movement on its base and bodily toward or away from the line of the shaft B of the Jordan engine,—a capability of manifest advantage and permitting, among other considerations, the taking up of any undue slack in the sprocket chain *c* which is driven by the motor and in turn drives the pulp refining engine shaft, the re-tightening of the bolts being, of course, attended to after the proper adjustment has been accomplished. 75 80 85 90 95

We claim:—

1. In an apparatus of the character described, the combination with the usual longitudinally adjustable plug carrying shaft of a pulp refining engine of a sprocket wheel thereon, a motor having a driving shaft offset from and in a line parallel with the plug carrying shaft, provided with a sprocket wheel thereon, and a chain arranged transversely of said shaft and running around said sprocket wheels, a base on which the motor is mounted, a support having guideways on which the motor base is movable in a direction parallel with the length of the engine shaft, a screw rotatably engaged with but restrained against endwise movement relatively to said support and having a screw thread engagement with said motor base, and means for operating said screw. 100 105 110 115

2. In an apparatus of the character described, the combination with the longitudinally adjustable plug carrying shaft of a pulp refining engine, of a motor having a chain and sprocket wheel connection with said plug carrying shaft, a base on which the motor is mounted, a support having guideways on which the motor base is movable in a direction parallel of the length of the engine shaft, a screw rotatably engaged with, but restrained against endwise movement relatively to, said support and having a screw thread engagement with said motor base and provided with a sprocket wheel, a rotatable member for longitudinally adjust- 120 125 130

ing the plug carrying shaft having appur-
tenant thereto a sprocket wheel, a shaft
ranging longitudinally of the refining en-
gine externally thereof and having sprocket
5 wheels at opposite end portions thereof, and
sprocket chains running respectively around
the one end sprocket wheel of said longi-
tudinally ranging shaft and around the
sprocket wheel on said rotatable plug shaft
10 adjusting member, and another chain run-
ning around the other sprocket wheel of
the last named shaft and also around the

sprocket wheel on the screw shaft which en-
gages the motor base.

Signed by us at Holyoke in the presence 15
of two subscribing witnesses.

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CLESSON W. PUTNAM.
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Witnesses:

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