J. WHITE & F. W. GRAY.

PULP STRAINING MACHINE.

APPLICATION FILED JAN. 6, 1912.

1,044,716.

Patented Nov. 19, 1912.

2 SHEETS—SHEET 1.

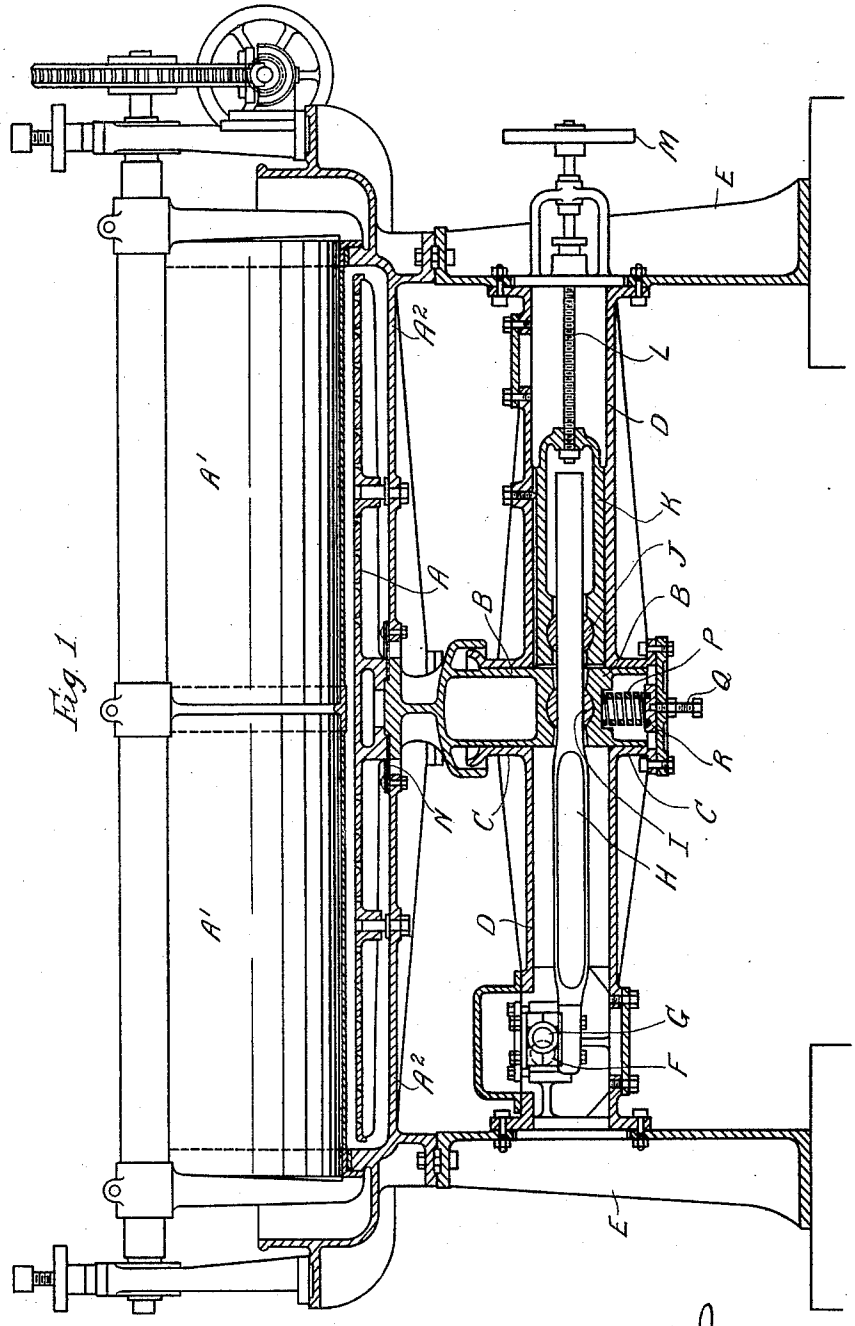

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

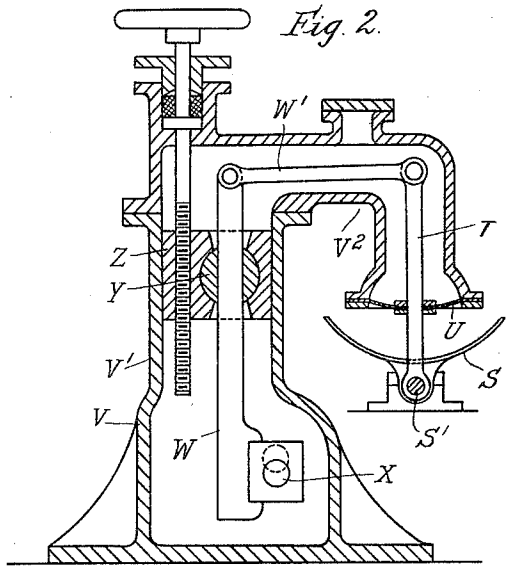
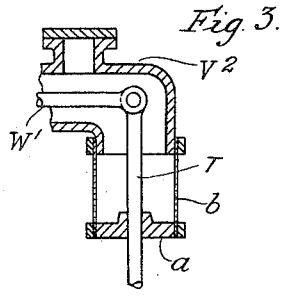


Fig. 3.



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PULP-STRAINING MACHINE.

1,044,716. Specification of Letters Patent. Patented Nov. 19, 1912.

Application filed January 6, 1912. Serial No. 669,769.

To all whom it may concern:

Be it known that we, JOHN WHITE and FRANCIS WILLIAM GRAY, subjects of the King of the United Kingdom of Great Britain and Ireland, and residing at Edinburgh, Scotland, have invented a certain new and useful Improvement in Pulp-Straining Machines, of which the following is a specification.

This invention, which relates to machines for straining paper pulp, has for its object to provide improved means for controlling the stroke of the diaphragm so that it may be increased or diminished while the machine is in operation.

In the accompanying drawings Figure 1 is a part elevation part longitudinal vertical section showing by way of example the improvements applied to a pulp straining machine of the type in which the straining vessel remains stationary while the pulsating diaphragm is being operated. Figs. 2 and 3 show modifications.

Referring to Fig. 1 of the drawings, a pulsating diaphragm A is interposed between the straining vessel A′ and the vat A^2 and is connected to and operated by a piston or plunger B carried downwardly into a preferably cylindrical guide C formed in a hollow chamber D extending horizontally under the vat A^2 and secured to the supporting standards E at each end of the machine, the chamber D forming an oil bath inclosing all the working parts. To-and-fro motion is imparted to the diaphragm A preferably by a rotating shaft F and crank G located at one end of said chamber D and a connecting rod H which extends from said crank through a rocking member I in the piston or plunger B and through a second rocking member J serving as a movable fulcrum. This member J is fitted in a saddle K guided in the chamber D and adapted to be traversed horizontally within said chamber preferably by means of a screw-threaded shaft L operated by means of an external hand wheel M, so that the position of the member J may be adjusted relatively to the crank G and the rocking member I. By this arrangement the connecting rod H to which is imparted a vibratory movement constituted by a combined reciprocatory and swinging movement on the member J transmits to the plunger B a short vertical reciprocatory movement, the stroke of which varies according to the distance between the member J and the crank G; and as the position of the member J can be altered without stopping the machine, the stroke of the diaphragm A can be increased or diminished while the machine is in motion. The usual flexible water tight connection N is provided between the bottom of the strainer vat A^2 and the pulsating diaphragm A, and in order to support partially the weight of the diaphragm and its actuating plunger B a spring P coacting with an adjusting screw Q and plate R is inserted in the lower part of the chamber D.

To-and-fro motion may be imparted to the diaphragm A directly from below as described, or in other types of strainers having, for example, an oscillating diaphragm S, Fig. 2, fixed on a spindle S′ operated from an overhead rod T, the said rod T is carried through a flexible oil-tight diaphragm U closing one end of a casing V constituting an oil bath and incasing suitable articulated or linked connections from a connecting rod W actuated by means of a rotating crank X and extending through an adjustable fulcrum member Y. As shown, the connecting rod W is arranged vertically and the fulcrum member Y is mounted on a block Z fitted to slide in a vertical part V′ of the casing V, while a link W′ serving to couple the connecting rod W to the said rod T extends along a horizontal or overhanging hollow arm V^2 of the casing V. In a modification shown in Fig. 3, the said rod T is passed through a cover *a* supported by a flexible sleeve *b* adapted to be secured to said arm V^2.

Having now described our invention what we claim and desire to secure by Letters Patent of the United States is:—

1. In a pulp straining machine, in combination, a diaphragm, a covered chamber beneath the diaphragm affording an oil bath, means for imparting a variable to-and-fro movement to said diaphragm, said means including a rotating crank, a vibratory member wholly inclosed within the said covered chamber and directly connected to the said crank, a connection between said plunger and said vibratory member said connection wholly inclosed within said covered chamber, a reciprocatory plunger connected to said diaphragm, a slide block movable in said chamber and affording a variable fulcrum for said vibratory mem-

ber, and means disposed externally of the chamber for varying the position of the slide block.

2. In a pulp straining machine, in combination, a diaphragm, a covered chamber beneath the diaphragm affording an oil bath, means for imparting a variable to-and-fro movement to said diaphragm, said means including a rotating crank, a vibratory member wholly inclosed within the said covered chamber and directly connected to the said crank, a connection between said plunger and said vibratory member said connection wholly inclosed within said covered chamber, a reciprocatory plunger connected to said diaphragm, a member serving as a fulcrum through which said vibratory member passes, and means operable from a point outside the chamber for varying the position of said fulcrum.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN WHITE.
FRANCIS WILLIAM GRAY.

Witnesses:
WALLACE CRANSTON FAIRWEATHER,
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