No. 795,883. PATENTED AUG. 1, 1905.

R. BABBITT & J. J. STEELE.

AUTOMATIC SCREEN PLATE WASHER.

APPLICATION FILED DEC. 16, 1904.

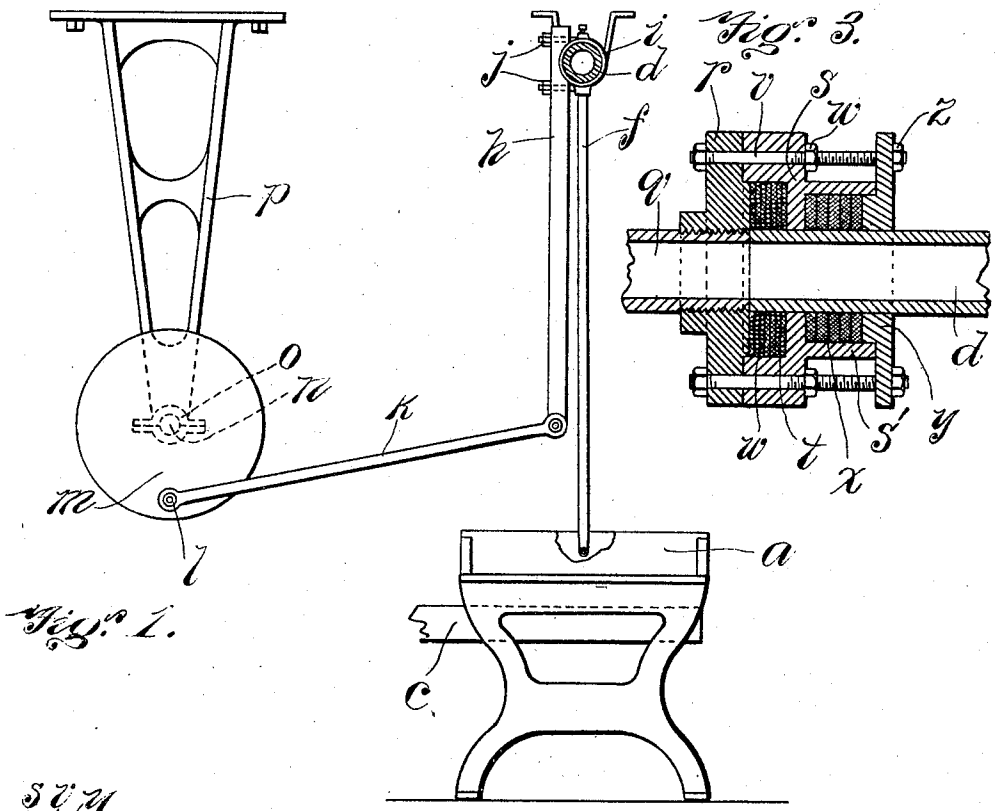


Fig. 1.

Fig. 3.

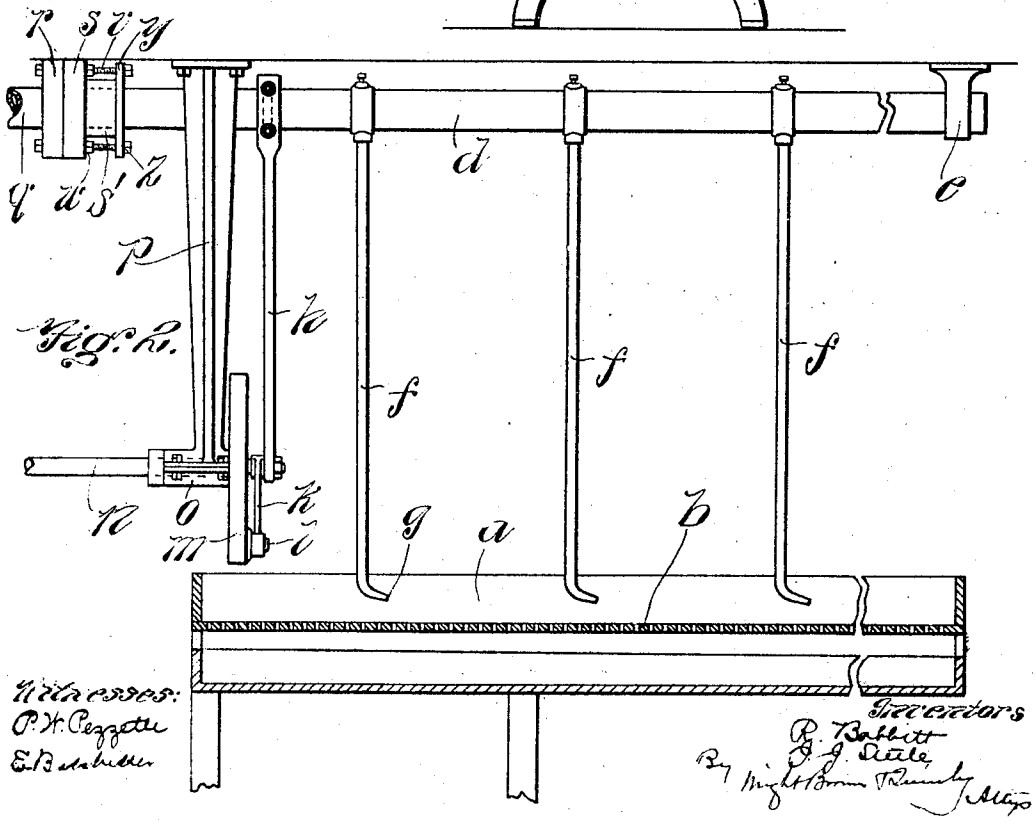


Fig. 2.

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UNITED STATES PATENT OFFICE.

RALPH BABBITT AND JAMES J. STEELE, OF HOWLAND, MAINE.

AUTOMATIC SCREEN-PLATE WASHER.

No. 795,883. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed December 16, 1904. Serial No. 237,068.

To all whom it may concern:

Be it known that we, RALPH BABBITT and JAMES J. STEELE, of Howland, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Automatic Screen-Plate Washers, of which the following is a specification.

The present invention comprises an apparatus for washing screen-plates, being particularly adapted for use in connection with apparatus for making paper-pulp in which the pulp is passed through screens to separate the large pieces of stock, chips, knots, &c., from the pulp, and has for its object to provide an improved device for cleaning the screens and preventing the pulp from becoming matted over and closing the meshes of the screens. Hitherto screens of this nature have been cleaned by means of scrapers which are reciprocated from side to side of the screen-plates to keep the meshes open; but the use of scrapers is objectionable because they injure the screen-plates and also force much dirt through with the pulp. Accordingly we have provided devices by which streams of water may be projected upon the screen-plates, through which the same result is accomplished and the objectionable features of the scrapers avoided.

Of the accompanying drawings, Figure 1 represents an end view of a pulp-screen with our washing and cleaning device applied in connection therewith. Fig. 2 represents a side view of the same. Fig. 3 represents a sectional view of the main water-supply pipe, to which is applied a packed joint permitting one portion of the pipe to move relatively to the other.

The same reference characters indicate the same parts in all the figures.

a represents a screen of the form ordinarily used in the manufacture of pulp, having a perforated plate *b*, through which the pulp is screened and separated from the refuse matter. The crude pulp is supplied to the screen in the ordinary manner, and the strained pulp separated from the large pieces is allowed to pass out through the discharge-pipe *c*.

The apparatus for cleaning the screening-plate and preventing the pulp from becoming matted upon it consists of water-supplying means which are arranged to project streams of water upon the screen-plate and are movable from side to side of the plate to project water upon all parts thereof. The water-supplying means consists of a supply-pipe section *d*, which is movably mounted in bearings *e*, so that it can oscillate about its axis, which is arranged longitudinally of the screen and preferably above the central line of the latter. Water is carried from the supply-pipe section to the screen by means of feed-pipes *f*, which are rigidly connected to the supply-pipe, so as to be moved when the latter is oscillated, and extend toward the screen-plates, with their free outlet-ends in close proximity thereto and having outlet portions or nozzles *g*, formed so as to project streams of water longitudinally of the screen-plate.

The pipes are oscillated so as to swing the outlet ends of the feed-pipes from side to side of the screen by means of an arm *h*, rigidly clamped to the supply-pipe section *d* in any suitable manner, but preferably by a strap *i*, connected to the arm by nuts *j*. Motion is given to the arm by means of a connecting-rod *k*, having a wrist connection with the free end of the arm and a connection at *l* with a crank or crank-disk *m*, mounted on a shaft *n*, supported in the bearing *o*, carried by a bracket *p*. The shaft *n* is rotated continuously by any suitable means, and as it rotates it moves the arm *h* back and forth about the axis of the supply-pipe section *d*, as will be readily apparent, thereby turning the said pipe-section relatively a slight amount in opposite directions and swinging the free ends of the feed-pipes from one side to the other of the screen.

In order to permit the pipe-section *d* to turn and at the same time to permit water to be furnished it from the stationary water-main or supply-pipe section *q*, a packed joint is provided, the preferred form of which is shown in Fig. 3. This joint consists of a collar *r*, which is screwed upon or otherwise tightly connected to the section *q*, and a collar member *s*, mounted upon the movable section *d*. The collar *s* has a chamber *t* on the side adjacent to the collar *r*, in which packing *u* is placed, and the collars are tightly clamped together by means of bolts *v* and nuts *w*.

In order to make further provision against leakage past the joint, a flange *s'* is formed upon the collar *s* on the opposite side from the chamber *t*, in which packing *x* is placed and crowded against the pipe-section *d* by means of a gland *y*, held in position by nuts *z*, threaded upon extensions of the bolts *v*, which pass through the gland. It will be

seen that this structure provides a coupling or joint which will permit one section of the pipe to move relatively to the other and at the same time absolutely prevent any leakage.

By means of the apparatus above described any desired amount of water may be furnished to the screen-plates to keep them clear from matted pulp, and it will be evenly distributed overthe surface of the plate. Obviously the force of the water-supply may be arranged in any suitable amount, so that whatever pulp might obstinately adhere to the plate can be effectively washed clear.

We claim—

1. A device for washing a screen comprising a rotatable supply-pipe, and a feed-pipe rigidly connected thereto and extending into proximity with the screen.

2. A device for washing a screen comprising a rotatable supply-pipe, and a feed-pipe rigidly connected thereto and extending into proximity with the screen, the feed-pipe having an outlet arranged to project a stream of water longitudinally of the screen.

3. A device for washing a screen comprising a rotatable supply-pipe, a feed-pipe rigidly connected thereto and extending into proximity with the screen, and means for oscillating the pipes about the axis of the supply-pipe.

4. In combination, a screen, a supply-pipe rotatably mounted, a feed-pipe connected thereto and extending toward the screen with its free end closely adjacent thereto, an arm rigidly affixed to the supply-pipe, and means for oscillating said arm and thereby the pipes to move the free end of the feed-pipe from one side of the screen to the other.

5. In combination, a screen, a supply-pipe rotatably mounted, a feed-pipe connected thereto and extending toward the screen with its free end closely adjacent thereto, an arm rigidly affixed to the supply-pipe, and means for oscillating said arm and thereby the pipes to move the free end of the supply-pipe from one side of the screen to the other, comprising a rotating crank and a connecting-rod joined to said arm and crank.

6. In combination, a screen, a fixed supply-pipe section, a rotatable supply-pipe section, a packed coupling joining the ends of said pipe-sections arranged to permit rotary motion of the second relatively to the first section, a feed-pipe rigidly connected to the rotatable section extending toward the screen and having an outlet adjacent thereto, and means connected to the rotatable pipe-section for oscillating the same.

7. In combination, a screen, a supply-pipe rotatably mounted, a series of feed-pipes connected to the supply-pipe, their free ends extending into proximity with the screen but out of contact therewith, and means for moving the free ends of said feed-pipes from side to side of the screen.

8. In combination, a screen, and a pipe having an outlet at its end adjacent the screen, the said outlet end of the pipe being movable in a curved path from side to side of the screen and out of contact therewith.

In testimony whereof we have affixed our signatures in presence of two witnesses.

RALPH BABBITT.
JAMES J. STEELE.

Witnesses:
H. W. LORD,
I. D. HASKELL.