No. 675,930. Patented June 11, 1901.

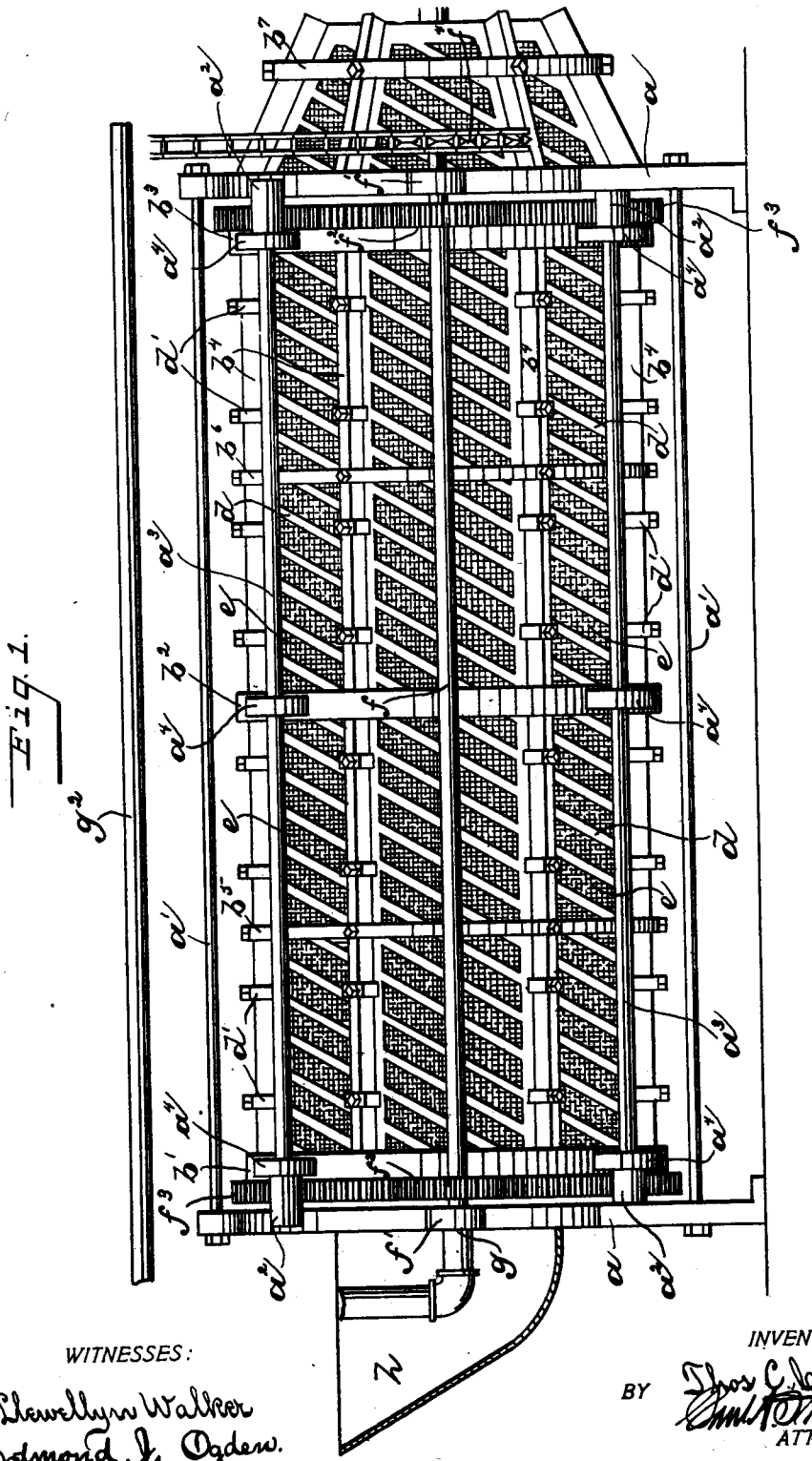
T. C. CADWGAN.

MACHINE FOR WASHING PAPER STOCK.

(Application filed Sept. 4, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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Fig. 2

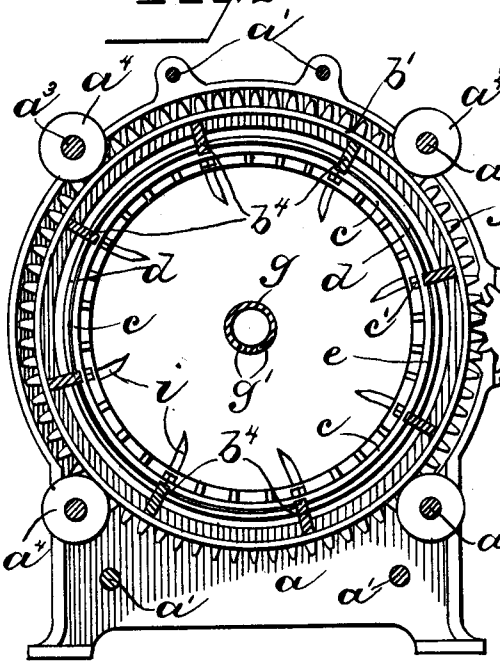


Fig 5

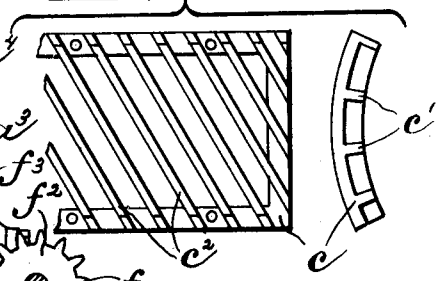


Fig 6

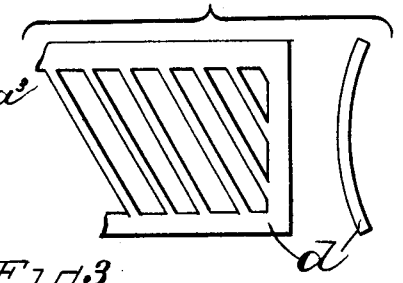


Fig 3

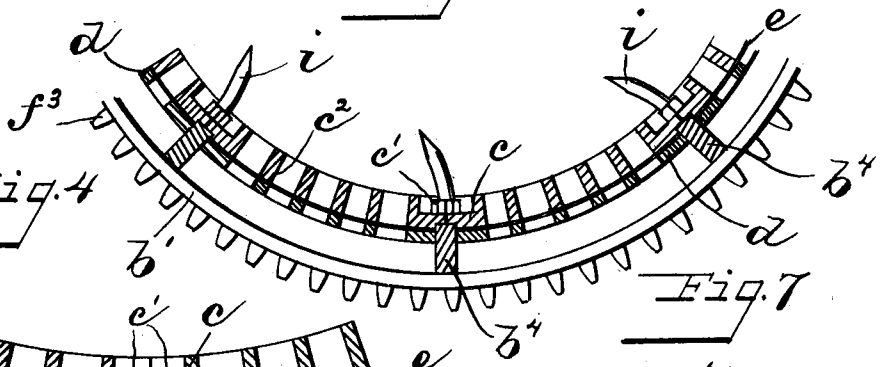


Fig. 4

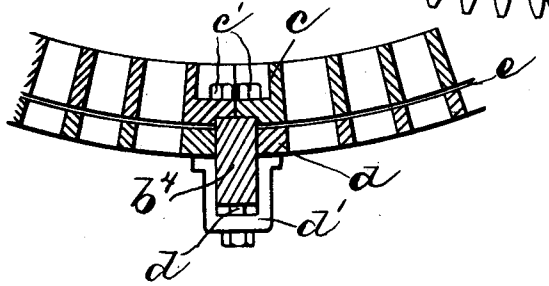
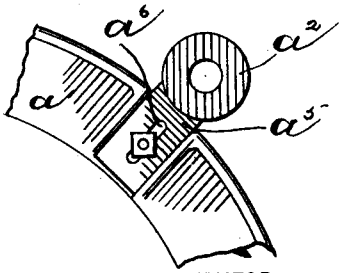


Fig. 7



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UNITED STATES PATENT OFFICE.

THOMAS C. CADWGAN, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF TO THE O. S. KELLY COMPANY, OF SAME PLACE.

MACHINE FOR WASHING PAPER-STOCK.

SPECIFICATION forming part of Letters Patent No. 675,930, dated June 11, 1901.

Application filed September 4, 1900. Serial No. 28,937. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. CADWGAN, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Machines for Washing Paper-Stock, of which the following is a specification.

My invention relates to improvements in machines for washing paper-stock; and the object of my invention is to provide a machine which will be simple in construction and one in which the parts subject to wear may be easily removed and replaced with new parts when worn or broken.

My invention consists in the constructions and combinations of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of the machine embodying my invention. Fig. 2 is a sectional view of the same. Fig. 3 is an enlarged detail view of a portion of the cylinder. Fig. 4 is a detail view showing the manner of securing the grates. Figs. 5 and 6 are detail views of the grates. Fig. 7 is a detail view of one of the bearings for the supporting-rolls of the cylinder.

Like parts are represented by similar letters of reference in the several views.

In the said drawings, a a represent upright end pieces of the supporting-frame of the device, which are fastened together by rods a', four of which are preferably employed, as shown in Fig. 2. Each of the end supports a' is provided with bearings a^2, four of which are preferably employed—two at the top and two at the bottom. In these bearings are journaled shafts a^3, each shaft having secured at its center and respective ends the rolls a^4, which rolls are adapted to form a support for a revolving cylinder into which the paper-stock is adapted to be fed. The bearings a^2 are secured to the said end supports in such manner as to make them adjustable to take up any wear upon the rolls a^4. They are provided with extensions a^5, as shown in Fig. 7, which are secured in recesses in the said supports, preferably by bolts which pass through slotted openings a^6 in said extensions to allow the said bearings to be adjusted in said recesses.

The revolving cylinder b is preferably constructed of a series of rings b' b^2 b^3, two of which are located at the respective ends of the cylinder and one at the center thereof. These rings are secured together by a series of longitudinal bars b^4, any number of which may be employed, located at suitable intervals about the periphery of the cylinder, these longitudinal bars being secured to the rings in any suitable manner, as by bolting or otherwise. To further strengthen the construction of the cylinder, rings b^5 b^6 b^7 may also be employed, which rings are bolted to the longitudinal bars b^4. The end rings b' b^2 b^3 are adapted to rest upon the rolls a^4 and form a track for the revolution of said cylinder upon said rolls. Secured to the inside of these longitudinal bars b^4 there are a series of grates c, which grates may be fastened to said bars by means of bolts c', as shown in Fig. 3. These grates are constructed of a width equal to the distance between the respective bars b^4 and of a length preferably equal to the distance between the supporting-rings, and the bars c^2 of said grates are extended inwardly and adapted to register with each other when the bars are in position, so as to form a series of internal screw-threads or helical gutters throughout the cylinder. Also secured to the longitudinal supporting-bars b^4 are another series of grates d, which are also formed of a width equal to the distance between said bars, so as to lie between the same, and they are secured to said bars by a U-shaped clamp d', as shown in Fig. 4, said clamp being adapted to receive a bolt d^2, secured to the said bar b^4, and the ends of the said U-shaped clamp being adapted to bear on adjacent grates and firmly clamp the same against the grates c, as shown in Fig. 4. Between the respective sections of grates are placed screens e, which screens are adapted to be firmly clamped between the grates c and d, as shown, and are preferably of a size to correspond with the size of the grates.

The cylinder is adapted to be revolved through the agency of the shaft f, which is located in suitable bearings f' on the end sup-

ports of the frame, and is provided with pinions f^2, adapted to mesh with gears f^3, which are preferably formed integral with the end rings b' and b^3, said shaft being adapted to receive power from any suitable source, preferably through the medium of a sprocket f^4, located at one end thereof.

For the purpose of furnishing a supply of water to the paper-stock which is fed into the cylinder I provide a pipe g, which extends through the center of the cylinder and is provided with a series of holes g' on its under side, said pipe being preferably provided with a stop in the middle, the water being forced in from both ends. I also provide a second pipe g^2, which extends horizontally over the center of the machine, which is likewise provided with holes on its under side and adapted to discharge a supply of water down onto the cylinder.

In the operation of the device the paper-stock is fed into a hopper h, from which it passes into the cylinder b, in which cylinder it is thoroughly mixed with the water from the supply-pipes g and g^2 and washed, the stock being carried through the cylinder by reason of the action of the spiral bars c^2 thereon, the water, together with the dirt and other foreign matter, escaping through the screen e.

In order to prevent any considerable portion of water being carried with the stock when it is discharged from the end of the cylinder, I preferably construct the grates and bars forming that end of the cylinder of such shape as to form a contracted opening, as shown.

When any of the screens e have become worn, they can be readily removed by releasing the clamps d' and removing the grate d, which holds the said screen in place, after which a new screen may be inserted and the grate d replaced and again secured in position by means of the clamp, thus furnishing an easy and convenient means for making repairs.

To assist in disintegrating and separating the stock as it passes through the cylinder, I have employed spikes i. These spikes may be secured in any suitable manner to the longitudinal bars b^4 and at suitable intervals in the length thereof.

Having thus described my invention, I claim—

1. In a machine for washing paper-stock, a revolving cylinder, said cylinder consisting of a series of rings connected by longitudinal bars, an inner series of grates secured to said bars, and an outer series of grates to correspond with the inner grates also secured to said bars, a series of screens located between the respective grates and held in position thereby, means for removing the outer grates independently of each other, substantially as specified.

2. In a machine for washing paper-stock, a revolving cylinder, said cylinder consisting of a series of rings and longitudinal bars connecting said rings, a series of sectional grates located in said cylinder secured to said longitudinal bars, said grates being provided with inwardly-extending diagonal bars, the bars of each grate being adapted to register with the adjacent grates so as to form internal spiral ribs, substantially as specified.

3. In a machine for washing paper-stock, a revolving cylinder, longitudinal bars in said cylinder, a series of screens between said bars, a series of grates to secure said screens in position and a series of U-shaped clamps to removably attach said grates to said longitudinal bars, substantially as specified.

4. In a machine for washing paper-stock, a revolving cylinder, upright supporting-pieces connected by a series of rods, bearings having slotted projections to adjustably attach said bearings to said supporting-pieces, shafts in said bearings, rolls in said shaft to carry said cylinder, substantially as specified.

In testimony whereof I have hereunto set my hand this 28th day of August, A. D. 1900.

THOMAS C. CADWGAN.

Witnesses:

CHAS. I. WELCH,

EDMOND J. OGDEN.