

(No Model.)

2 Sheets—Sheet 1.

E. W. GOODRICK.
PAPER PULP SCREEN.

No. 475,041.

Patented May 17, 1892.

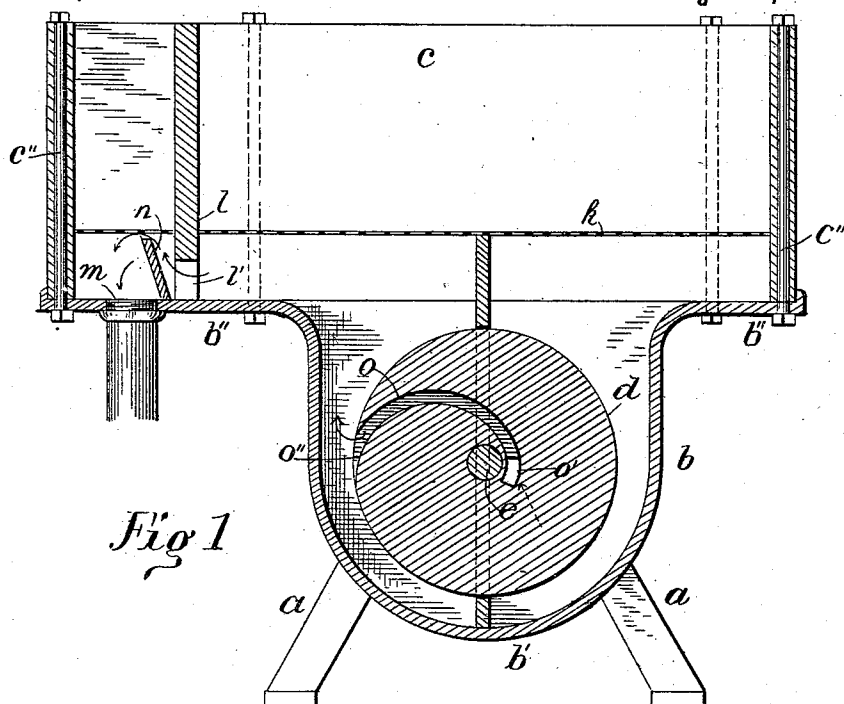


Fig 1

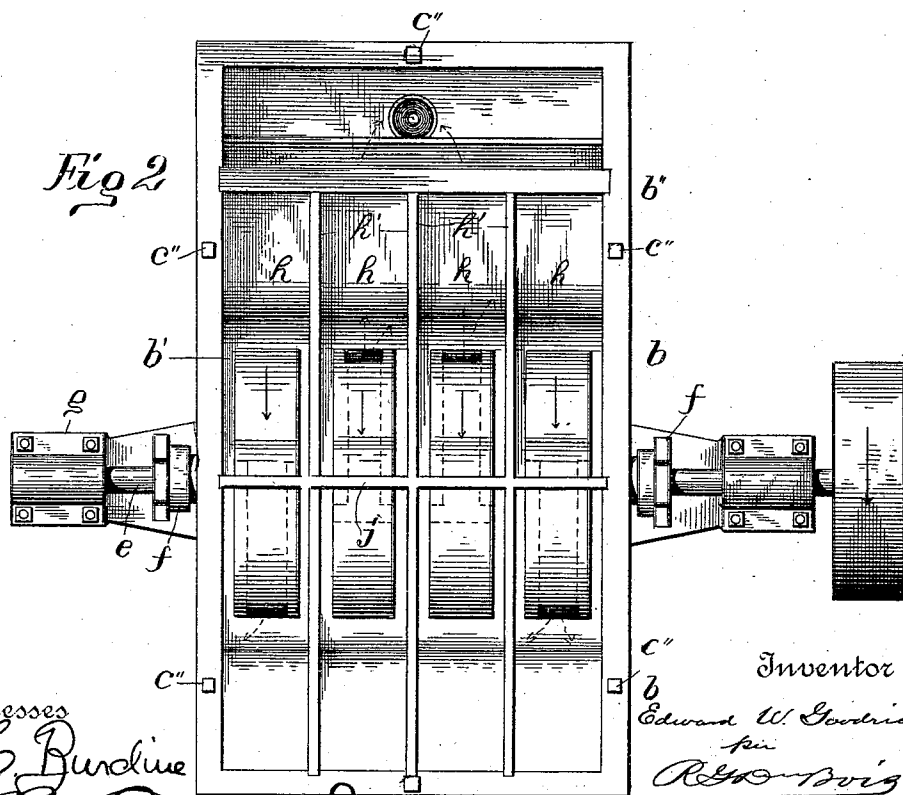


Fig 2

Witnesses
C. C. Purdine
D. B. Owens

Inventor
Edward W. Goodrich
per
R. G. Davis
his Attorney

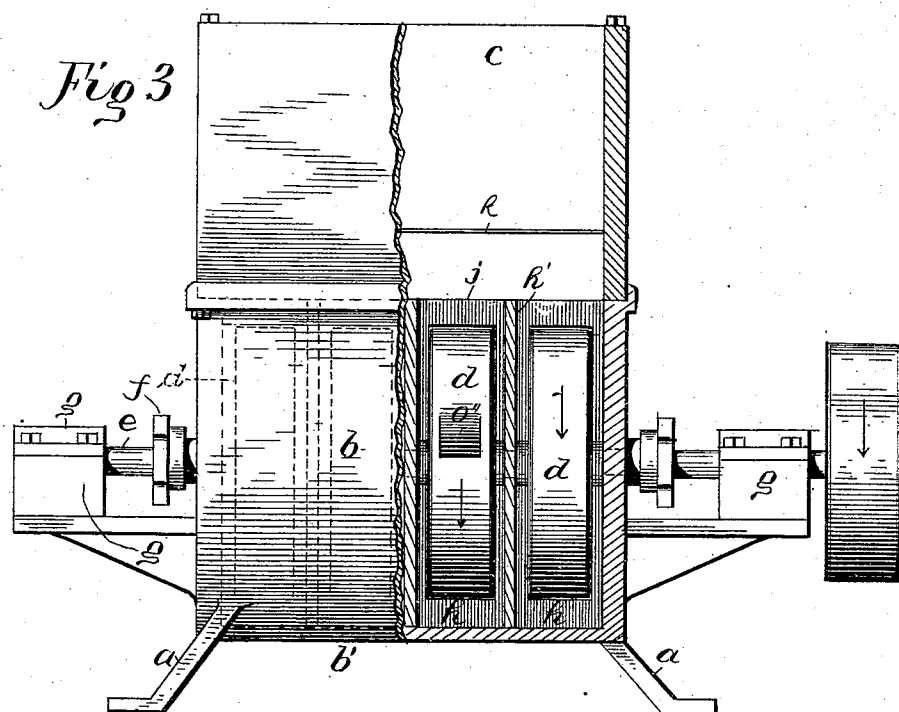
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Witnesses
C. C. Burdine,
J. B. Owens.

Inventor
Edward W. Goodrick
per *R. J. Davis*
his Attorney

UNITED STATES PATENT OFFICE.

EDWARD W. GOODRICK, OF APPLETON, WISCONSIN, ASSIGNOR TO THE
APPLETON MACHINE COMPANY AND S. R. WAGG, OF SAME PLACE.

PAPER-PULP SCREEN.

SPECIFICATION forming part of Letters Patent No. 475,041, dated May 17, 1892.

Application filed November 9, 1891. Serial No. 411,304. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. GOODRICK, a citizen of the United States, residing at Appleton, in the county of Outagamie and State of Wisconsin, have invented certain new and useful Improvements in Paper-Pulp Screens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of paper-pulp screens in which means are employed to agitate or liberate the pulp from clogging the meshes of the screen.

The object of my device is to provide superior mechanism for accomplishing the screening operation in a more thorough and efficacious manner than heretofore; and to this end my invention consists in the peculiarities more fully described hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation in section; Fig. 2, a top view, in which the screen is removed to better show the mechanism below; and Fig. 3, a sectional end elevation.

The entire machine is supported upon suitable legs *a*, rigidly bolted down to the floor. A vat *b*, having a curved bottom *b'* and lateral wings *b''*, is mounted upon the legs *a*, and a stock-hopper *c* is secured to the wings *b''* and edges of the vat by any suitable fastenings, such as bolts *c'*. A series of rotary disks *d* are located within and are fixed to a horizontal drive-shaft *e*, which passes through packing-boxes *f* in the sides of the vat and rotates in bearings *g*. The vat is divided into several compartments *h* of equal size, formed by the longitudinal partitions *h'*, which extend transversely to the axis of the disks *d*, and also by a transverse vertical partition *j*, extending parallel with the drive-shaft, and hence the axis of the disks. This vertical partition *j* is provided with openings in which the disks revolve, as little space as possible being left between the edges of the partition and the disks in order to insure tightness and cut off as much communication as possible between the compartments. In the present instance four disks and eight compartments are

shown, the disks being so arranged relative to the compartment that each compartment will contain half a disk for the purpose which will be presently described.

The hopper is provided with the usual horizontal screen *k*. A vertical partition *l* is placed within the hopper at a point between the outlet-pipe *m* and vat *b*, and the lower part of this partition is provided with a recess *l'*. Interposed between this partition *l* and the outlet *m* is a low inclined partition *n*, against which the outflowing material strikes before descending into the pipe *m*.

All of the disks *d* are constructed alike and each are provided with a curved or arc-shaped internal passage *o*, one end *o'* of which commences at the vertical side of the disk between the axis of the disk and its periphery and at a point nearer to the axis than the periphery, while the opposite end *o''* of the passage terminates at the periphery and diametrically opposite the axis of the disk. This outlet end *o''* slopes gradually into the periphery of the disk, and it will be seen that the receiving end *o'* of the passage will be within one compartment, while the discharge-opening *o''* is within another compartment, for the purpose of drawing the fluid from one compartment and discharging it in the other when the disks are rotating. The disks are so arranged on the drive-shaft that one-half the number will be discharging upon one side of the vertical partition *e*, while the other half of the number are discharging upon the opposite side. The purpose of these rotary disks and their curved passages is to set up active currents in the fluid in the vat, thereby agitating the stock or material as it lands upon the screen and keeping the latter clear and free from clogging.

When in operation, the disks revolve rapidly and the fluid mass of material in the vat is made to enter the receiving end *o'* of the passage *o* and by centrifugal force is discharged with great force at the periphery of the wheel through the openings *o''*, as shown by arrows in Fig. 3. In this operation it will be seen that each disk acts independently of the other and, as previously stated, the fluid enters the disk from one compartment and is discharged into the opposite compartment, this action taking place alternately as the re-

ceiving end of the passage moves from one side of the vertical partition to the other side. When the disks are revolving at the rate of five hundred and fifty revolutions a minute, the fluid discharges from their peripheries with great force, thereby causing such a pulsation of internal currents that the paper stock is violently agitated and drawn through the screen and discharged at one end of the hopper, through the recess *l'*, over the sloping partition *n*, and out of the pipe *m*, as indicated by arrows. By this arrangement all knots, dirt, and extraneous matter are caught on top of the screen, from which it can be readily removed from time to time by an attendant.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pulp-screen, a vat provided with one or more rotary disks, each disk being provided with an internal passage receiving at the vertical sides of the disk and discharging at its periphery, in the manner and for the purpose specified.

2. In a pulp-screen, a vat provided with a rotary disk having an internal arc-shaped passage eccentric to receive at the side and discharge at the periphery of the disk, in the manner and for the purpose set forth.

3. In a pulp-screen, a disk provided with an open internal eccentric passage discharging at the periphery, as and for the purpose set forth.

4. In a pulp-screen, a rotary disk located in a vat and provided with an internal passage,

in combination with a vertical partition fitting around the disk and forming separate compartments upon opposite sides thereof, said passage being adapted to extend from one compartment to the other, as and for the purpose specified.

5. The combination, with a screen and vat containing compartments, of a rotary disk having its opposite sides revolving in the compartments and provided with a fluid-passage extending through the disk from one compartment to the other, in the manner and for the purpose substantially as described.

6. In a pulp-screen, the combination of a vat, hopper, and screen, a horizontal rotary shaft carrying disks provided with arc-shaped eccentric passages receiving at the sides of the disk and discharging at the periphery, and one or more vertical partitions dividing the vat into compartments, in the manner and for the purpose substantially as set forth.

7. In a pulp-screen, the combination of a vat, a screen and hopper above the vat, a horizontal shaft extending through the vat, a vertical partition, and a series of disks diametrically embraced by the partition, said disks being provided with arc-shaped open passages extending from one compartment to the other, as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD W. GOODRICK.

Witnesses:

N. M. EDWARDS,
ORLANDO E. CLARK.