W. BLIZZARD & E. MATHER.

PAPER PULP SCREEN.

No. 192,107. Patented June 19, 1877.

Fig. 1.

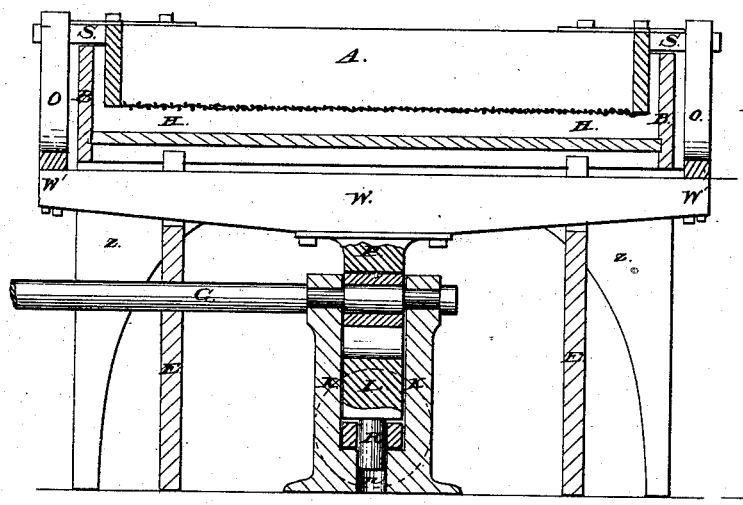


Fig. 2.

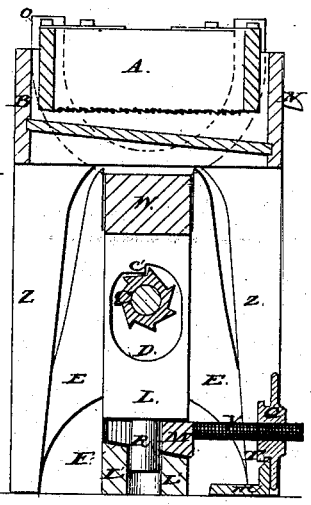
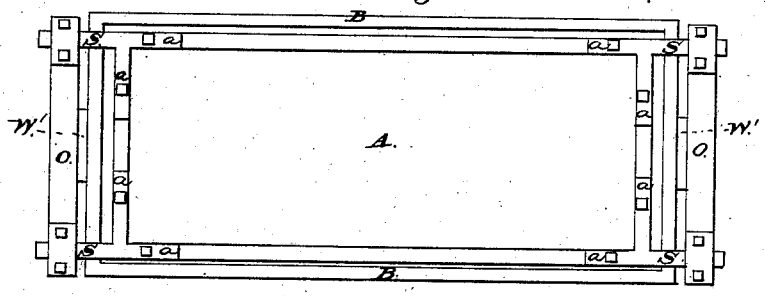


Fig. 3.



Attest:

Theophilus Weaver
Peter Stricker.

Inventors:

William Blizzard
Edmund Mather.

UNITED STATES PATENT OFFICE.

WILLIAM BLIZZARD AND EDMUND MATHER, OF HARRISBURG, PA.

IMPROVEMENT IN PAPER-PULP SCREENS.

Specification forming part of Letters Patent No. **192,107**, dated June 19, 1877; application filed January 20, 1877.

To all whom it may concern:

Be it known that we, WILLIAM BLIZZARD and EDMUND MATHER, both of the city of Harrisburg, county of Dauphin and State of Pennsylvania, have invented certain Improvements in Paper-Pulp Dressers, Screens, or Strainers, of which the following is a full, clear, and accurate description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a longitudinal sectional view of our improved apparatus, showing the screen-vat, the screen or pulp-dresser proper, vertically bisected, and showing the standards on the bridge-tree in vertical section at points where they make connection with the screen-attaching arms. Fig. 2 represents a transverse section made by a vertical plane through the middle of stand, screen-stem and its actuating-gear and the regulator. Fig. 3 represents a top view of the apparatus, showing the bridge-tree arranged longitudinally.

The novel and useful features of our improved paper-pulp dresser or strainer consist, mainly, as follows: First, in so mounting the screen or dresser proper, by means of a central stem arranged vertically under it, that the operating mechanism acts to give it an equally-distributed vertical motion over its whole area, and independently of the screen-vat; second, in providing the stem of the pulp-dresser proper with a regulator or variable stop, to regulate its motion, by means of a movable wedge operated by screw or other equivalent device; third, in providing the body of the pulp-dresser stem with a downward extension or pin, to act in a suitable guideway at or near the foot of the gear-stand, to assist in steadying the vertical motion of the said stem; fourth, in combination with said guided stem, a set of guides acting to steady the bridge-tree on which the screen is mounted, to secure the equable vertical motion thereof, already described; fifth, the device of said bridge-tree, in combination with the screen and the aforesaid stem, arranged under the screen-vat, and actuated from a centrally-located actuating mechanism in the gear-stand.

In order to show the attitude of our improvements in relation to other devices in the same class, it may be remarked that, in the present state of the art to which our invention relates, several objections exist against the present mode of mounting and operating the paper-pulp screens, among which may be noticed the following:

Said screens are usually connected at two or more points, in a dependent manner, to the screen-vats, in consequence of which hinge or other connection the motion applied to operate the screens usually reacts to impart a trembling or vibratory motion to the screen-vats, which constantly causes the vacuum underneath the screen-plates at work to be interfered with, a partial vacuum or suction being requisite to pass the fiber of the paper-pulp through the strainers, this interference being caused indirectly by the spring-action or buckling of the vat-bottoms through said vibration.

Moreover, this vibratory motion soon impairs the vat-structures, and necessitates frequent and expensive repairs.

The present mode of motion is the oscillating movement, which is objectionable for the reason that different parts of the screens are unequally agitated, and the stroke or thud given the same is less positive than desired.

The lost motion caused by the wear of the centers of motion, and the imperfect regulators now used to govern the motion, are also objectionable features.

These and other objections our improvements are designed to overcome, in manner hereinafter fully set forth and described.

In the accompanying drawings, A represents the pulp-dresser proper or screen, constructed in the usual manner, except that it is provided with several-way irons *a a*, each having an arm, S, as shown, for the attachment of the screen to the standards O, made in inverted arch or branch-stay form, and adapted to be bolted on the ends W′ of the bridge-tree W, in position as shown, said bridge-tree being located horizontally under the middle of the screen-vat B. Said bridge-tree W is mounted at its middle on the stem P L, which is a vertical plunger, operating by reciprocatory rectilinear motion between the walls K K of the gear-stand, in which is mounted the horizontal driving-shaft G, on which is rigidly mounted

the tappet-wheel C, by which the step C′ in the eye D in said stem P L is tripped to produce the vertical motion for the screen A. The lower end of said stem P L is provided with the extension R, which is guided in a way, *n*, in the base L′ L′ of the gear-stand K K, to assist in giving a steady vertical motion to the stem P L when at work. Said stem P L is directed at its upper end by the bridge-tree W, to which it is rigidly attached, and said bridge-tree is guided and aligned by the standards E E, in the tops of which it is confined in slots, and thus guarded against lateral motion. Said standards E E are fastened to firm foundations at bases, independent of the vat structure, that the latter may be undisturbed by the screen while in operation.

The screen A being guided as already stated, the motion given to it is communicated to it as near as possible in the vertical line of its center of gravity by the tappet-wheel C engaging with its step-teeth the step-tooth C′ in the stem P L, said tappet-wheel being driven by shaft G in the usual manner, thus causing a reciprocatory vertical movement for the screen A.

Said movement is regulated or suspended at the will of the operator by means of an adjustable wedge, M, manipulated by the nut Q T, said wedge being interposed between a square offset on the stem P L and the base L′ L′ of the gear stand K K in such manner that the return stroke of the stem P L is stopped on said wedge, thus giving blows to the screen A, and said blows are modified by the position of said wedge M. If said wedge is passed fully into the gear-stand the tappet action is entirely suspended, and it is made more active the further the wedge is retracted, its movements and place being determined by the flanged nut Q T acting in the standard *m*, as shown in Fig. 2.

Several very decided advantages are obtained by our improvements, among which may be noticed, first, a firm blow is given and distributed equally over all parts of the screen-plates; second, an efficient regulator for the screen-motion is provided; third, an independent screen-motion, leaving the vat-structure completely intact, thus insuring its life and avoiding the damaging results above referred to; fourth, a much higher degree of effectiveness in the screen-operation by the employment of rectilinear instead of oscillatory motion.

Having thus fully and clearly described our invention, what we regard as new and useful, and what we desire to secure by Letters Patent of the United States, is embraced in the following claims:

1. A paper-pulp screen mounted upon a central stem as its sole support, and guided as described, whereby an equal vertical motion is imparted to all its parts by the operating mechanism, substantially as set forth.

2. The paper-pulp screen A, provided with the screen-supporting stem P L, located centrally thereunder, and guided as described, in combination with the tappet-gear C C′ and wedge M, regulated by screw V and nut Q, all operating jointly, substantially as and for the purpose set forth.

3. The paper-pulp screen A, provided with standards O, bridge-tree W, central stem P L R, in combination with guides E E, stand K, tappet-gear C C′, and wedge M and its adjusting devices V Q *m*, all arranged and operating substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our invention we have hereunto set our hands and seals, in the presence of two witnesses, this 17th day of January, 1877.

WILLIAM BLIZZARD. [L. S.]
EDMUND MATHER. [L. S.]

Witnesses:
THEOPHILUS WEAVER,
PETER STUCKER.