

No. 723,078.

PATENTED MAR. 17, 1903.

S. H. TIBBETTS.
SCREEN FOR PAPER PULP.
APPLICATION FILED APR. 29, 1902.

NO MODEL.

Fig. 1.

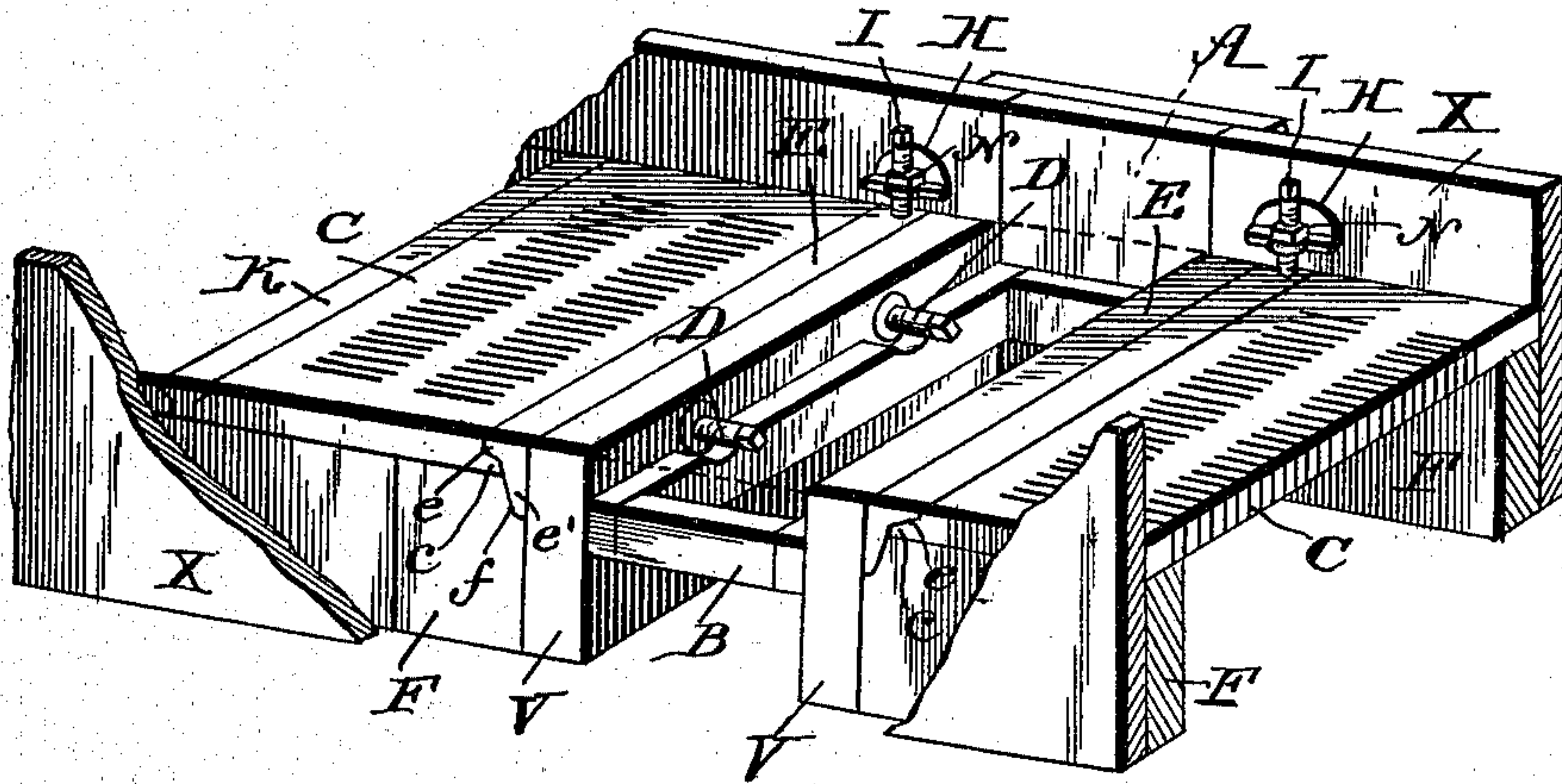


Fig. 2.

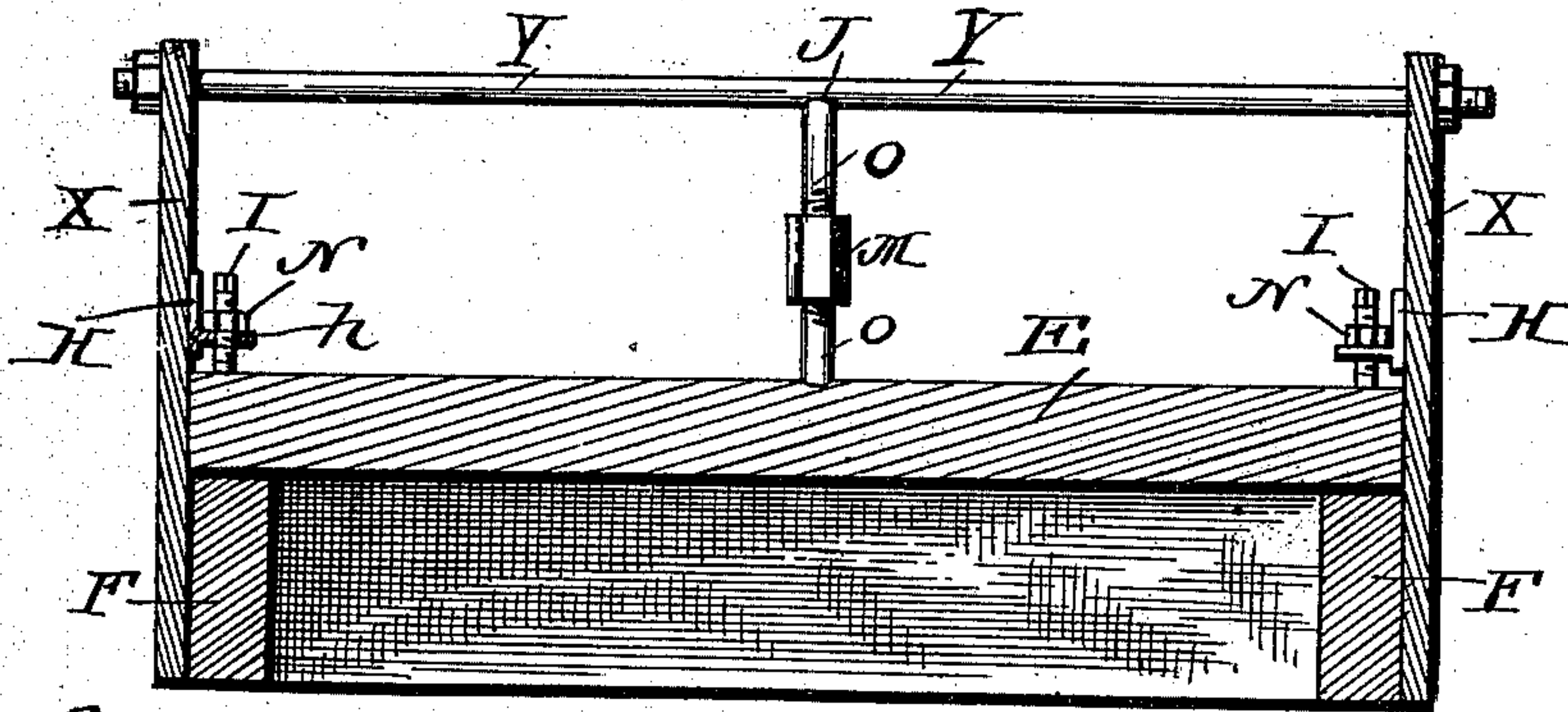
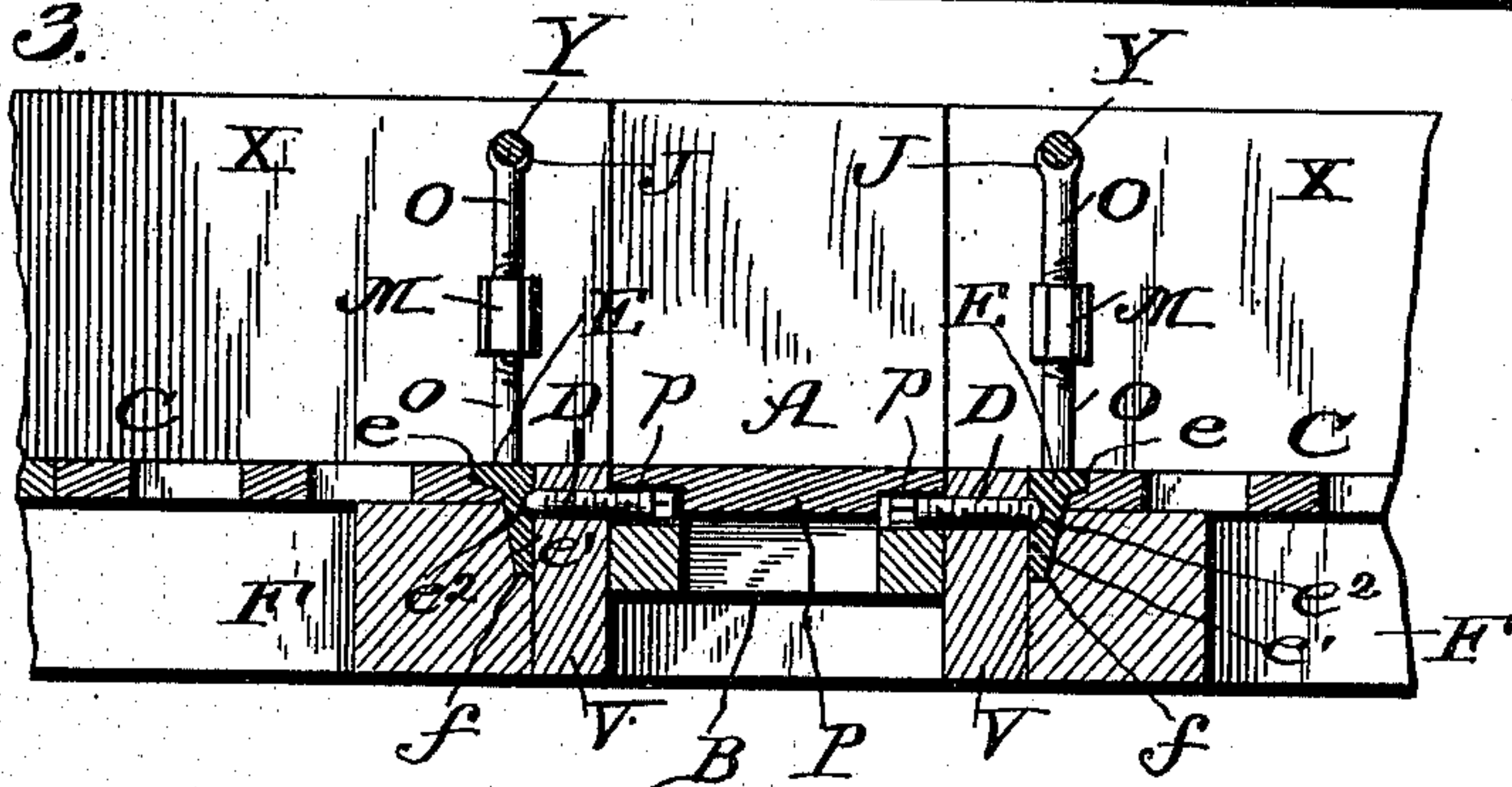


Fig. 3.



WITNESSES:
Geo. A. Ryan
Geo. S. Brock

INVENTOR
Seth H. Tibbetts.
BY *Munn & Co.*

ATTORNEYS

UNITED STATES PATENT OFFICE.

SETH HUTCHINS TIBBETTS, OF GROVETON, NEW HAMPSHIRE.

SCREEN FOR PAPER-PULP.

SPECIFICATION forming part of Letters Patent No. 723,078, dated March 17, 1903.

Application filed April 29, 1902. Serial No. 105,179. (No model.)

To all whom it may concern:

Be it known that I, SETH HUTCHINS TIBBETTS, of Groveton, in the county of Coos and State of New Hampshire, have invented a new and useful Improvement in Screens for Paper-Pulp, of which the following is a specification.

My invention relates to an improvement in fastening devices for securing the end plates of each section of a continuous screen used for cleaning pulp, its object being to prevent the possibility of dirt (or other substances not wanted in screened pulp) from working under the sides or edges of the end plates.

My invention consists in the peculiar construction, arrangement, and combination of parts, as will be hereinafter fully described, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective sectional view of a portion of a continuous screen, showing the fastening devices. Fig. 2 is a transverse section. Fig. 3 is a longitudinal section of the same.

Referring to Fig. 1, which shows the ends of two cradles made continuous by my device for fastening the end plates, X represents the sides of the cradles. In practice continuous screens are made up of several single screens with their ends abutting, as shown in Fig. 1. Owing to the space that is required by the couplings which join the shafts together which operate the diaphragms under the screen-plates, the ends of the different cradles do not abut closely; there being usually from twelve to eighteen inches between them. After several screens are in place and their shafts coupled this space is filled in on each side by a piece of plank, as shown at A in Figs. 1 and 3. There is also a sash or framework between the ends of the screens (represented by B) by which a piece of plank P is supported between the ends of two screens. By fitting this bridge-plank in place and cutting out the ends of the cradle even with the plates it presents a smooth surface from one screen to the other or makes a continuous screen. It is the office of my improvement to so secure the ends of the screen-plates C that no dirt can get under them.

In a former patent granted to me on March 4, 1902, No. 694,900, set-screws at each end of the cradle are used to press the plates and fastenings solidly together. These set-screws, with the aid of the cleat, hold down the edges of the plates substantially in single screens; but the plates cannot be fastened in this manner in the continuous screens for the following reasons: If a cleat could be fastened, it would rise above the level of the plates, and thus prevent the pulp from flowing freely from one end to the other, and, again, if the set-screws D were set so that the end of the screws would come over the lip of the plates, as in the above-mentioned patent, they would interfere with fitting the piece of plank tightly between the two screens. To overcome these difficulties, I have designed a special retaining-bar and fastenings for the same, as represented by E in the several figures of the drawings. On one side of the bar E is a lip or projection *e*, which is beveled or wedge-shaped, which fits and corresponds with a similar lip or projection *c* on the lower edges of screen-plate C, cut at an inverse angle to the lip *e*, so that they match, the opposite side of the bar E presenting a right angle, as shown, and said bar E is deep enough to render it stiff. In the sash or framework F, where the bar E rests, is rabbeted out a groove *f* to admit the part *e'* of the bar E that projects downwardly below the under side of the screen-plates C. After the screen-plates C have been placed in position in the cradle, with their fastening-bars K (described in my former patent No. 694,900) the retaining-bars E are placed in position as shown in Fig. 1. The set-screws D, which are threaded through the transverse beams V, are tightened, the ends thereof fitting into counter-sunk sockets *e''* in the bar E. This aids in holding down the retaining-bar E.

On the inside faces of the sides of the cradle and just above the ends of the bars E are secured the brackets or guides H, each of which is provided with a threaded opening *h*, through which passes a set-screw I. Said set-screws when screwed down upon the ends of the retaining-bars E hold the same firmly in place. The set-screws I are then securely held by a lock-nut N.

If it should be desired for any reason to

have more pressure applied near the center of the retaining-bar E, it can be done by the use of the auxiliary fastening device represented by letters O, M, J, and Y, M being a right and left threaded nut which receives the two rods O O, the inner ends of which are reversely threaded and the upper end of upper rod O being enlarged, as at J, and provided with a groove adapted to fit the transverse rod Y, which is placed in all continuous screens to prevent the sides of the cradle from spreading. Any movement of the nut M will either tighten or loosen the bar E.

As shown in Fig. 1, the set-screws D are above the sash-frame B, so that it is necessary to cut notches *p* in the under side of the bridge-plank P, which rests upon the said sash or frame B, said notches being deep enough to receive the set-screws D and allow the upper face of the said plank P to lie flush with the beam V, the screen-plates C, and the fastening or retaining bars E E, as shown in Fig. 3.

The fastening-bar E, together with the set-screws I, attached to the sides of the cradle at its ends, may be used in single screens, thereby dispensing with the necessity for a cleat.

It will thus be seen that I provide a simple and efficient device for securing the screen-plates of a continuous screen and their fastening means in place and present a level surface for the flow of pulp entirely free from obstructions to such flow.

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

1. A continuous screen comprising abutting cradle-sections, transverse beams located at the lower portion of the same at the abutting ends, end-retaining bars having overhanging upper edges the upper face of said retaining-bars lying flush with the upper surface of the transverse beams, screen-plates having lips along their lower edges adapted to be caught and held by said end-retaining bars, the upper surface of said screen-plates lying flush with the adjacent retaining-bars, said end-retaining bars lying between the said screen-plates and the transverse beams, and means for forcing the end-retaining bars into engagement with the screen-plates and fastening them in the cradles.

2. A continuous screen comprising abutting cradle-sections, transverse beams at the ends of each cradle-section, screen-plates held in the abutting cradle-sections, end-retaining bars fitted between the ends of the screen-plates and the transverse beams, a sash or frame secured between the abutting ends of the cradle-sections, a bridge-section resting on the said sash or frame between the transverse beams of the abutting cradle-sections, and means secured to the transverse beams for forcing the end-retaining bars into engagement with the screen-plates, and securely fastening them in position.

3. A continuous screen, comprising abutting cradle-sections, screen-plates having lips along their lower edges, end-retaining bars having overhanging lips adapted to catch and hold the lips of the screen-plates, and adjustable clamps secured to the inner faces of the cradles over the ends of the end-retaining bars adapted to engage and force the ends of the said retaining-bars into engagement with and securely hold the screen-plates in position.

4. A continuous screen comprising abutting cradle-sections, transverse beams secured at the end of each cradle-section, screen-plates provided with projecting beveled lips along their lower edges, end-retaining bars having overhanging beveled edges on one side adapted to engage the projecting beveled lip of the screen-plate, set-screws mounted in said transverse beams and adapted to engage the said end-retaining bars, and force the same into engagement with the screen-plates, a sash or frame secured between the abutting ends of the cradle-sections, and a bridge-plank resting on said sash or frame and adapted to close the space between the transverse beams of the abutting cradle-sections.

5. A continuous screen comprising abutting cradle-sections, transverse beams secured to the ends thereof, screen-plates having lips along their lower edges, end-retaining bars fitted between the said screen-plates and transverse beams, and having overhanging upper edges resting upon the lips of the screen-plates, set-screws mounted in the transverse beams and adapted to engage the end-retaining bars, and force them into engagement with the screen-plates, clamps secured to the inner faces of the cradle-sections over the ends of the retaining-bars and adapted to force the said retaining-bars downwardly upon the lips of the screen-plates, and means for closing the space between the abutting ends of the cradle-sections.

6. A continuous screen comprising abutting cradle-sections, transverse beams secured at the ends thereof, screen-plates having lips along their lower edges, end-retaining bars between the transverse beams and the screen-plates, and provided with overhanging edges on one side thereof, set-screws mounted in the transverse beams and adapted to bear against the straight edge of the retaining-bars, brackets secured to the inner faces of the cradles over the ends of the retaining-bars, set-screws threaded through the said brackets and adapted to engage the ends of the retaining-bars and force the same downwardly, a bridge-plank provided with grooves in its under surface adapted to fit over the set-screws mounted in the transverse beams and means for closing the space between the abutting ends of the side faces of the cradle-sections.

7. A screen comprising a cradle having cross-bars in its bottom, screen-plates having lips along their lower edges, end-retaining

bars having overhanging upper edges, adapted to catch and hold the lips of the screen-plates, a transverse rod secured to the sides of the cradle near its upper edges, a vertical rod provided at the upper end with a groove adapted to engage the transverse rod and having its lower end threaded, a right and left threaded nut engaging at its upper end the said vertical rod, a second vertical rod threaded at its upper end and adapted to engage the lower threaded end of the said nut, the lower end of said second vertical rod engaging the upper surface of the end-retaining bar at or about its center, whereby the said end-retaining bar may be forced into close engagement with the projecting lip of the screen-plate by the rotation of said right and left threaded nut.

8. A screen-section comprising a frame or cradle provided with side walls and base-timbers, end-retaining bars having on one side an overhanging beveled upper edge and on its other side a vertical face, a screen-plate having a reversely-beveled lip along its lower edge adapted to be caught and held by said end-retaining bar, transverse beams located in the lower portion of the ends of the frame or cradle, set-screws mounted in said transverse beams and adapted to bear against the vertical face of the end-retaining bars, and force the said bars into engagement with and retain the screen-plate in place, the upper faces of the end-retaining bars, screen-plate and transverse beams lying substantially flush with each other.

9. A screen comprising a cradle having cross-bars at its bottom, screen-plates having lips along their lower edges, end-retaining bars having overhanging upper edges adapted to catch and hold the lips of the screen-plates,

a transverse rod secured to the sides of the cradle above said retaining-bars, and an extensible clamp the upper end of which engages the said transverse bar, and the lower end engaging the upper surface of the retaining-bars, whereby the said end-retaining bars may be forced into close engagement with the projecting lip of the screen-plate.

10. A continuous screen comprising abutting cradle-sections, transverse beams located in the lower part of the abutting ends of the cradle-sections, screen-plates held in the abutting cradle-sections, end-retaining bars fitted between the ends of the screen-plates and the transverse beams, and means for forcing the end-retaining bars into engagement with the screen-plates and securely fastening them in position, the upper faces of the screen-plates, end-retaining bars and transverse beams lying substantially flush with each other.

11. A continuous screen comprising abutting cradle-sections, transverse beams located in the lower part of the abutting ends of the cradle-sections, screen-plates held in the abutting cradle-sections, end-retaining bars fitted between the ends of the screen-plates and the transverse beams, a bridge-plank held between the abutting ends of the cradle-sections, the upper surfaces of the said bridge-plank and transverse beams lying substantially flush with each other, and means for forcing the end-retaining bars into engagement with the screen-plates and fastening them securely in position.

SETH HUTCHINS TIBBETTS.

Witnesses:

GEORGE M. MARSHALL,
PHILL S. TINILL.