

No. 721,875.

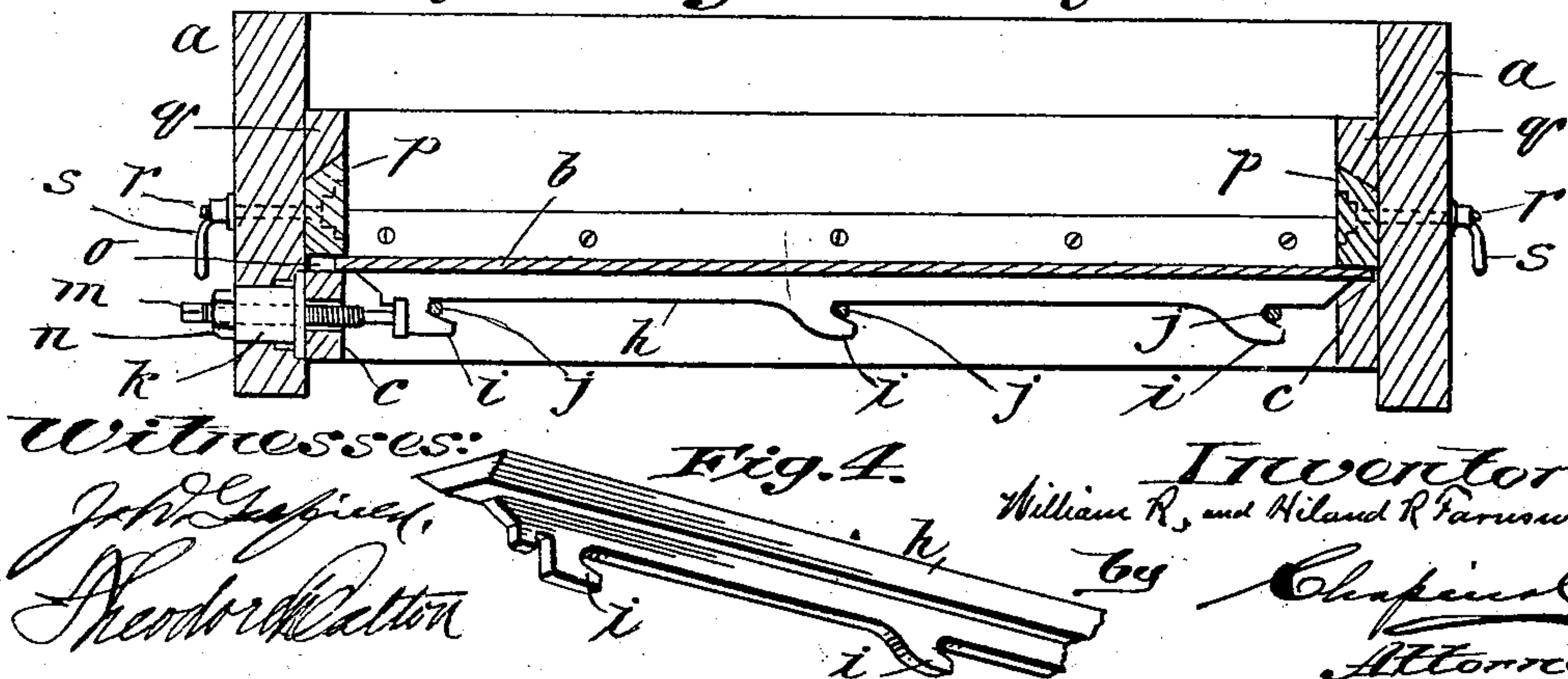
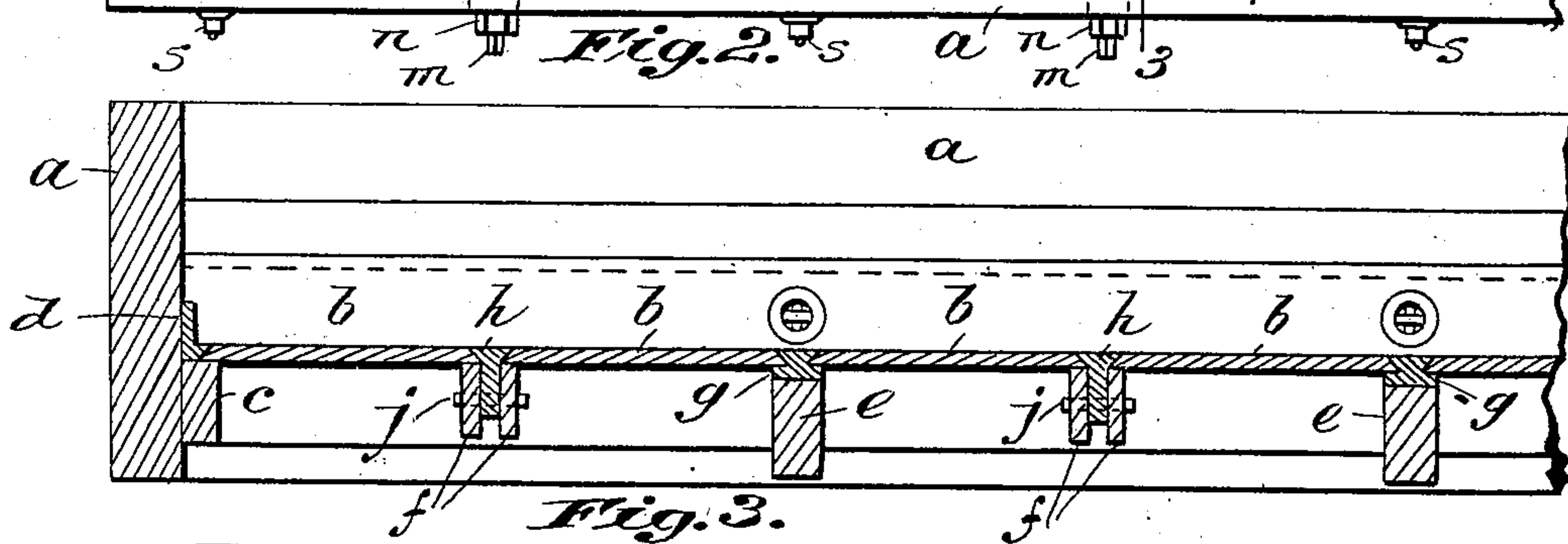
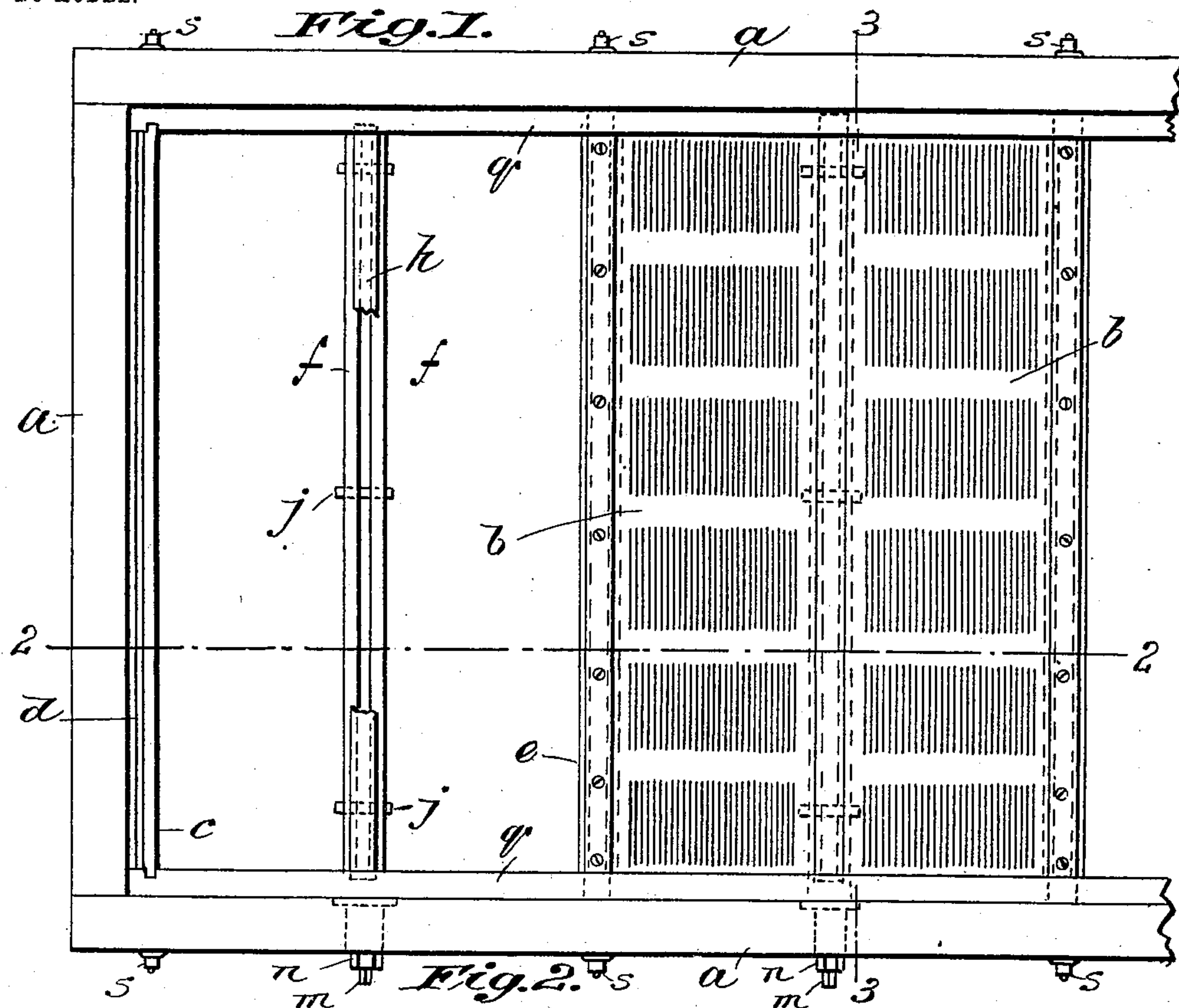
PATENTED MAR. 3, 1903.

W. R. & H. R. FARNSWORTH.

PAPER PULP SCREEN.

APPLICATION FILED MAR. 10, 1902.

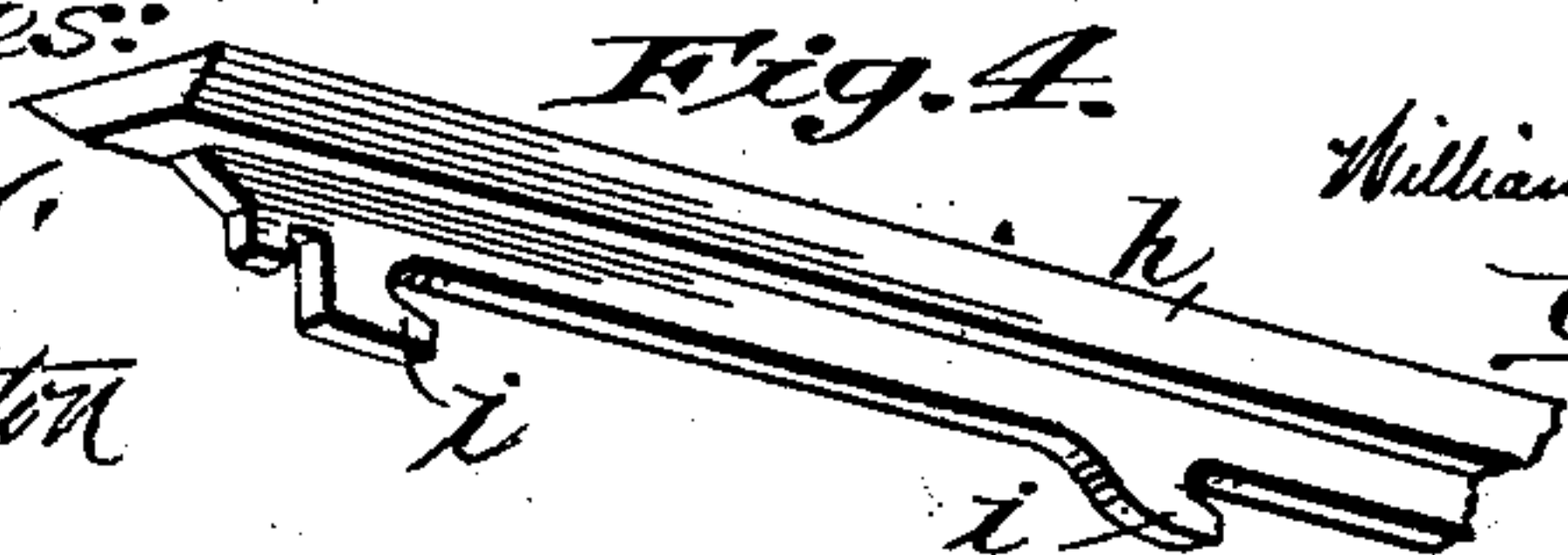
NO MODEL.



Witnesses:

*John G. Gifford,*  
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*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## PAPER-PULP SCREEN.

SPECIFICATION forming part of Letters Patent No. 721,875, dated March 3, 1903.

Application filed March 10, 1902. Serial No. 97,501. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM R. FARNSWORTH and HILAND R. FARNSWORTH, citizens of the United States of America, residing at Turners Falls, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Paper-Pulp Screens, of which the following is a specification.

10 This invention relates to the construction of screen-boxes for paper-pulp; and the invention has for its object the provision of means for removably securing screen-plates in the screen-boxes, to the end that they may  
15 be easily removed for cleaning purposes and at the same time so secured in operative position that no pulp can be washed through the screen under the edges of said plates; and the invention consists in the construction  
20 hereinafter set forth in the following specification and clearly pointed out in the claims.

In the drawings forming part of this application, Figure 1 is a plan view of a portion of a screen, partly broken away, and showing two screen-plates secured thereto, two of the plates being removed. Fig. 2 is a longitudinal sectional elevation of Fig. 1 on line 2 2, and Fig. 3 is a transverse sectional view on line 3 3, Fig. 1. Fig. 4 is a perspective  
30 view of a part of one of the locking devices for the longitudinal edges of the plates.

The drawings forming part of this application show a screen-box, such as is usually employed on a Fourdrinier paper-machine, and though this is its principal use it may  
35 be otherwise applied, if desired.

In carrying our invention into practice in its application to paper-making machines the usual rectangular box-like frame *a* is provided, open at the top and bottom, of course, the screen-plates *b*, suitably supported therein, constituting a horizontal partition for said frame. Near the bottom of the latter and extending entirely around its interior is an inwardly-projecting ledge formed by the strip  
45 *c*, on which each end of the screen-plates *b* is supported and likewise one edge of one plate at each end of the frame. These screen-plates are made of relatively narrow widths  
50 and are of brass, as usual, and the longitudinal edges thereof are beveled, said bevel be-

ing outwardly inclined from the upper edge of said plates. The dimensions of these plates lengthwise adapt them to fit closely between the opposite sides of the box or frame *a*, and the beveled edge of the first plate and of the last plate fit under similarly-beveled edges of a metal strip *d*, secured across each end of the box on the top of the strips *c*. Parallel with the ends of the frame *a*, to which these strips *d* are attached, there are located the supporting-bars *e*, and midway between these bars or between one of said bars and the inner wall of the frame *a* are located the parallel separated bars *f*. On top of the supporting-bars *e* is a plate *g*, having in its opposite edges beveled grooves for receiving the edges of the screen-plates *b*. It is apparent, therefore, that the ends of the frame *a* and the plates *g* on the supporting-bars *e* constitute abutments against which the longitudinal edges of the plates may be forced to make a tight joint, and the means whereby these screen-plates are forced apart in opposite directions to attain this end consists in a beveled locking-plate *h*. (Shown in perspective view in Fig. 4.) This plate, as shown, consists of a vertical web which fits in between the parallel bars *f*, whose upper edge is widened out and suitably beveled to correspond with the beveled edges of the screen-plates *b*, contiguous to it. On the web of this plate *h* there are lugs *i*, (shown clearly in Figs. 3 and 4,) which project in the general direction of said plate beneath pins *j*, which extend transversely through the bars *f*. These plates *h* and their lugs *i* are so located relative to the pins *j* that when said plates are moved in one direction they will by that act have their beveled upper portions drawn down against the beveled edges of the plates between which they are located by the contact of the beveled edge of the lugs *i* with the pins *j*. Any suitable means may be employed for effecting this endwise movement of the locking-plates *h*; but a desirable way of imparting movement thereto is shown in the drawings, and it consists in fixing a bushing *k* in the frame *a*, as shown in Figs. 1 and 3, so located that a screw *m*, working therein, may be screwed inwardly against the end of said plate to move it in one direction or to



draw it in the opposite direction by a reverse movement of said screw. Preferably the screw is provided with a check-nut *n* to lock it.

5 Obviously in order to provide the proper endwise movement to the locking-plates *h* they must be shorter than the screen-plates *b*, and consequently there will be an open space (indicated by *o*, Fig. 3) between the  
10 end of said plate and the side of the frame; but this space is entirely covered by the means provided for stopping off the ends of the screen-plates *b*, so that there may be no leak between said ends and the sides of the  
15 frame contiguous thereto. These means consist in providing a strip, preferably of wood, (indicated by *p*,) extending from one side of the frame *a* to the other, across the ends of all the screen-plates and across the ends of  
20 the locking-plates *h*. This strip *p* has its upper edge beveled, as shown in Fig. 3, which beveled edge is adapted to be drawn under the edge of an oppositely-beveled strip *q*, secured to the sides of the frame *a*. These  
25 strips *p* may be drawn up into position in any suitable manner, preferably by means of a screw-threaded bolt *r*, one end of which is fixed in said strip *p* and the other end of which is engaged by a suitable nut *s* on the  
30 outside of the box. The proportions of the strip *p* are such that when it is screwed up sufficiently to clamp the ends of the screen-plates *b* tightly against the strips *c* it will come to a bearing against the side of the  
35 frame *a*, all as shown in Fig. 3.

From the above description it is clear that the screen-plates to the extent of any desired number may by the herein-described means be secured in a suitable screen-box in such  
40 manner as to provide an absolutely plane surface over the entire extent thereof, the top of the plates *h* and *g* being so proportioned that when the screen-plates *b* are locked in position the upper surface thereof will be  
45 flush with the upper surfaces of said plates *h* and *g*.

To remove any one of the screen-plates *b* for the purpose of cleaning it, the strips *p* are first loosened, one of them preferably being  
50 removed. The screw *m* is then operated to loosen the locking-plate *h* by drawing it out of engagement with the pins *j*, and either of the screen-plates which is held in place by this plate *h* may then be lifted out, cleaned,  
55 and put back without disturbing the others, or, if desired, all the screen-plates may be removed at the same time.

While it is desirable in some cases that the plate *g* and the locking-plate *h* be alternately  
60 applied as above described, it is not essential that this construction should always be followed, for the undercut metal strips *d* at each end of the box may serve as the abutments for the screen-plates *b*, the locking-plates *h*  
65 in such cases being located between the contiguous edges of adjacent plates, and the

tightening up of these locking-plates will quite as effectively lock the plates in position in screens of moderate length as they would if the plates *g* were interposed alternately  
70 with said plates, as above described.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. A paper-pulp screen consisting of a suitable frame, screen-plates constituting a transverse partition in said frame, supports for said plates, the latter being provided with oppositely-beveled edges located over said supports, and a beveled locking-bar between said  
80 edges, combined with means located beneath the plane of the screen-plates, and operable through the side of the frame to force the locking-bars down between the edges of said screen-plates to secure the latter to said sup-  
85 ports.

2. A pulp-screen consisting of a suitable frame, screen-plates constituting a transverse partition therein, means of support for opposite borders of said plates, a beveled clamping-strip, and a beveled abutment for said  
90 strip located above said screen-plate supports, and means for forcing said strip under said abutment to effect the clamping of the borders of said plates to their support.

3. A pulp-screen consisting of a suitable frame, screen-plates constituting a transverse partition therein, means of support for opposite borders of said plates, a beveled clamping-strip, and a beveled abutment for said  
100 strip located above said screen-plate supports, and means operable from the outside of the screen-frame for forcing said strip under said abutment, to effect the clamping of the borders of said plates to their support.

4. A paper-pulp screen comprising a frame, screen-plates constituting a transverse partition in said frame, supports for the screen-plates, the latter being provided with beveled edges located over said supports, a beveled  
110 locking-bar between said edges, means located below the plane of the screen-plates, and operable from a point outside of the frame, for drawing said bar between the edges of said plates, and a strip adapted to be forced down  
115 over the ends of said screen-plates, whereby by means of said strips and said locking-bar the edges of said plates may be sealed.

5. A pulp-screen consisting of a suitable frame, screen-plates constituting a transverse  
120 partition in said frame, supports for said plates, the latter being provided with oppositely-beveled edges located over said supports, an abutment for the plates located on two opposite sides of the frame, and having  
125 an undercut edge for receiving the edge of the plate adjacent thereto, locking-bars located between the contiguous edges of said plates and having beveled portions thereon for engaging the edges of the plates, and  
130 means located beneath the plane of the said plates and operable through the side of the



frame to force the locking-bars down between the edges of the screen-plates to force the latter toward said abutments.

5 6. A paper-pulp screen consisting of a suitable frame, screen-plates constituting a transverse partition in said frame, supports for said plates, the latter being provided with oppositely-beveled edges located over said supports, and a beveled locking-bar between said  
10 edges, combined with means for moving said locking-bars in a downwardly-inclining direction into contact with the contiguous edges of said plates, to secure the latter to said supports.

15 7. A paper-pulp screen consisting of a suitable frame, screen-plates constituting a transverse partition in said frame, supports for said plates, the latter being provided with oppositely-beveled edges located over said supports, and a beveled locking-bar between said  
20 edges, a wedge-formed lug on the locking-bar, an abutment for the lug, and means for mov-

ing the bar endwise whereby the movement of the lug against its abutment may draw said bar against the beveled edges of said plates 25 to secure the latter to their supports.

8. A paper-pulp screen consisting of a suitable frame, screen-plates constituting a transverse partition in said frame, supports for said plates, the latter being provided with oppositely-beveled edges located over said supports, and a beveled locking-bar between said  
30 edges; a screw operable from outside the frame bearing against the end of the locking-bar, a wedge-formed lug on the latter, and an  
35 abutment for the lug on the support; said bar being endwise movable by means of said screw to carry the lug against its abutment.

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Witnesses:

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