

H. E. SPRING & W. H. LOCKWOOD.

PAPER PULP SCREEN.

APPLICATION FILED MAR. 3, 1909. RENEWED JAN. 27, 1910.

951,032.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.

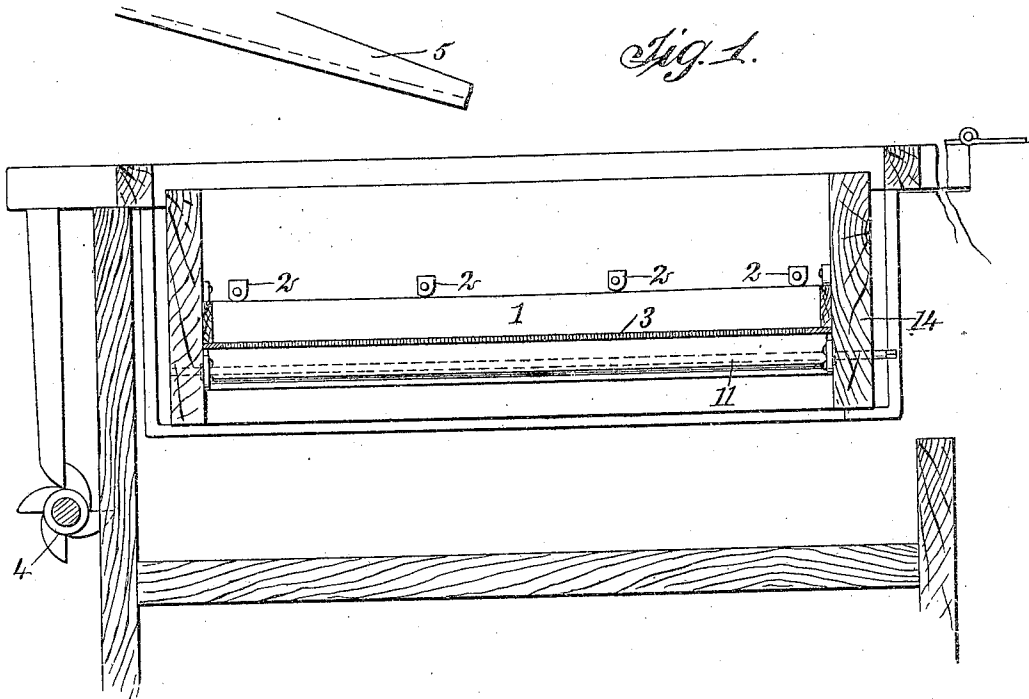
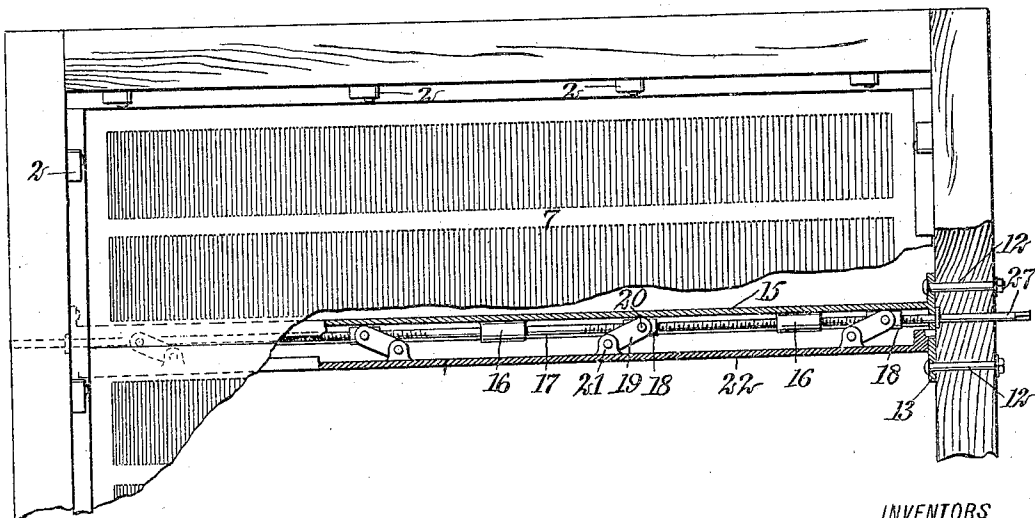


Fig. 2.



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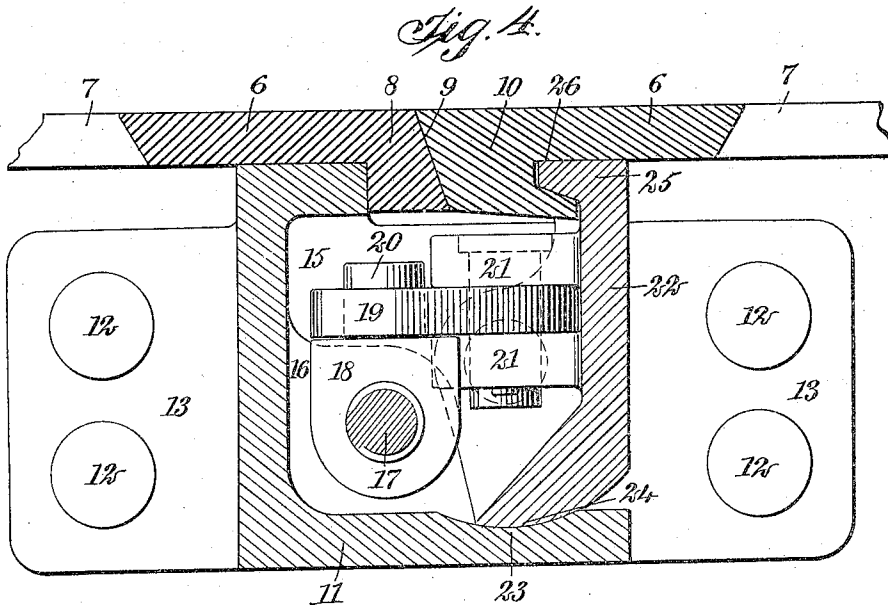
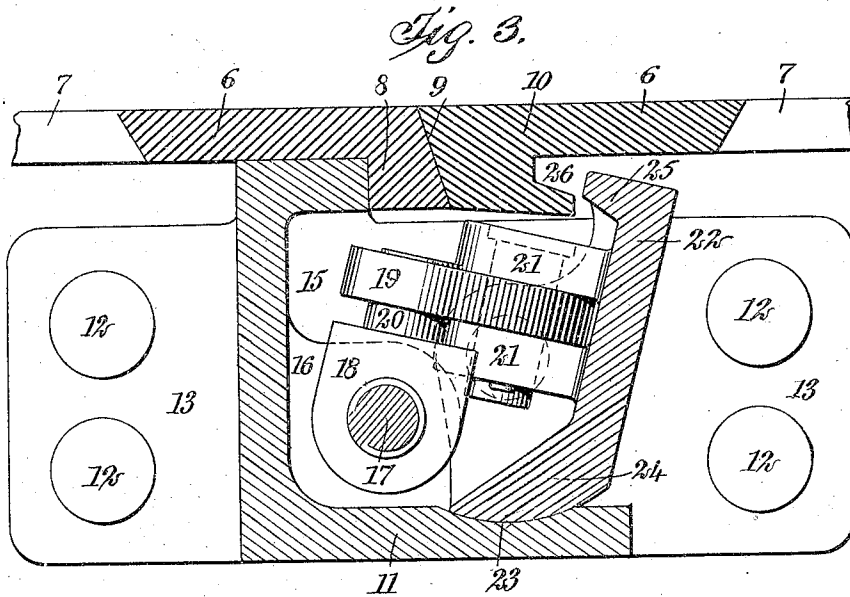
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UNITED STATES PATENT OFFICE.

HERBERT E. SPRING AND WALTER H. LOCKWOOD, OF FITCHBURG, MASSACHUSETTS.

PAPER-PULP SCREEN.

951,032.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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To all whom it may concern:

Be it known that we, HERBERT E. SPRING and WALTER H. LOCKWOOD, citizens of the United States, and residents of Fitchburg, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Paper-Pulp Screens, of which the following is a full, clear, and exact description.

Our invention relates to paper pulp screens, and it has for its object to provide a screen the plates of which are reinforced and are held together, without the usual additional member disposed therebetween, by the cradle bars, which serve as supports, the cradle bars also serving to catch any matter which may pass between the plates.

Still other objects of the invention will appear in the following complete description.

In this specification we will describe the form of our invention shown in the accompanying drawings, forming a part of this application, the scope of the invention being defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, in which—

Figure 1 is a sectional side elevation of the invention; Fig. 2 is an enlarged plan view thereof with part of the screen broken away to show the operating mechanism; Fig. 3 is an enlarged transverse sectional view showing the abutting terminals of two of the plates and the cradle bar by which they are supported and held together, this view showing the cradle bar in an unlocked position; and Fig. 4 is a view similar to that shown in Fig. 3 except that the cradle bar is shown in the locked position.

By referring to the drawings, it will be seen that the vat 14 is of the usual type with clamp bars 1, which are held down by the cams 2 to form a seal and prevent the leakage of any of the paper pulp below, except through the screen 3. The agitator 4 and the spout 5, together with the other general features of the screen are well known in the art and it is, therefore, unnecessary for us to describe them in full. We shall, therefore, proceed to describe our invention which is used in connection with many of the old features to be found in paper in paper pulp screens.

In our invention the plates 6 forming the paper pulp screen are constructed in the usual way, with slots 7 therein, but in addition, we have provided the plates 6 with the new reinforcing ribs or shoulders 8 and 10, which are disposed on the abutting terminals of the plates 6, the terminals being preferably beveled, as shown at 9. The ribs or shoulders 8 and 10 furnish additional strength and they also permit cradle bars 11 to secure them together, the cradle bars 11 also serving as traps to catch any matter which may leak between the joint formed by the abutting terminals of the plates 6. The cradle bars 11 are secured to the vat 14 by means of bolts 12, which pass through plates 13, secured at either end to the cradle bars 11. The principal member 15 of each of the cradle bars has lugs 16 in which are disposed a rod 17, the rod 17 being threaded in opposite directions at either end respectively and having meshing in the screw threads, nuts 18, to which links 19 are pivoted by pivots 20, the links 19 also being pivoted to lugs 21 on the other member 22 of each of the cradle bars 11. The principal member 15 of each of the cradle bars has a surface 23 which is concentric with a surface 24 on the other arm 22 of each of the cradle bars, this construction being provided to make sure that there is a tight joint between the member 22 and the principal member 15, of each of the cradle bars, to prevent any possible leakage. The member 22 of the cradle bars has a tongue 25 which is adapted to be disposed in a groove 26 in the rib or shoulder 10, which is preferably integral with the plate 6 of the paper pulp screen. As has been stated, the sides of the vat are held tight by means of the cams 2 which prevent any leakage around the sides of the plate forming the sides of the paper pulp screen, and the abutting ends of the plates 6 are held firmly together by being clamped between the members of the cradle bars, which makes any possible leakage between the abutting ends of the plates unlikely. Should any matter pass through between the abutting ends of the plates 6, it will be caught in the cradle bars which also serve as traps, as has been stated.

In using our invention, the plates 6 are disposed in position, when the rod 17, which is journaled in the frame, is rotated by means of a crank, not shown, mounted on a protruding end 27, which causes the nuts 18

to travel relatively to the rod 17, and as the nuts 18 are connected by links 19 with the lugs 21 on the member 22 of the cradle bar, the member 22 is moved so that its tongue 25 will be disposed in the groove 26 of the plate, thereby forcing the two plates together and holding them down and in position, at the same time forming a trap in which any matter which may flow between the abutting terminals of the plates 6 will be caught and prevented from streaking the paper to be formed. When it is desired to move the plates, the operator by rotating the rod 17 is able to move the member 22 of the cradle bar so that its tongue 25 is removed from the groove 26, thereby freeing the plates 6, which may be removed.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. In a paper pulp screen, plates having shoulders and a cradle bar adapted to engage the shoulders for pressing them together.
2. In a paper pulp screen, plates, and a cradle bar adapted for locking the plates together, the cradle bar being inclosed to serve as a trap to collect any matter leaking between the abutting terminals of the plates.
3. In a paper pulp screen, two plates having shoulders thereon, a cradle member which engages the shoulder on one of the plates, and a second cradle member movable relatively to the first cradle member which engages the shoulder on the other plate.
4. In a paper pulp screen, two plates having shoulders thereon respectively, a cradle member which engages the shoulder on one of the plates, and a second cradle member which engages the shoulder on the other plate, the second cradle member having a surface concentric with a surface on the first cradle member with which it engages.
5. In a paper pulp screen, two plates having shoulders respectively, there being a groove in one of the shoulders, a cradle member which engages one of the shoulders, and a second cradle member which has a tongue disposed in the groove in the other cradle

member, the second cradle member having a surface concentric with a surface on the first cradle member with which it engages.

6. In a paper pulp screen, two plates having shoulders thereon, a cradle member which engages the shoulder on one of the plates, a second cradle member movable relatively to the first cradle member which engages the shoulder on the other plate, links pivoted to the second cradle member, a rod, and means in connection therewith which are adapted for actuating the links.

7. In a paper pulp screen, two plates having shoulders thereon, a cradle member which engages the shoulder on one of the plates, a second cradle member movable relatively to the first cradle member which engages the shoulder on the other plate, links pivoted to the second cradle member, a rod with a screw thread thereon, and nuts disposed on the screw thread, the links being pivoted to the nuts.

8. In a paper pulp screen, two plates having shoulders respectively, there being a groove in one of the shoulders, a cradle member which engages one of the shoulders, a second cradle member which has a tongue disposed in the groove in the other cradle member, the second cradle member having a surface concentric with a surface on the first cradle member with which it engages, links pivoted to the second cradle member, a rod with a screw thread thereon, and nuts disposed on the screw thread, the links being pivoted to the nuts.

9. In a paper pulp screen, two plates having shoulders respectively, and members adapted to engage the shoulders to hold them together, the said members forming a means for catching any fluid leaking between the plates.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HERBERT E. SPRING.
WALTER H. LOCKWOOD.

Witnesses:

IVERS P. LAWRENCE,
ROY F. UPTON.