

(No Model.)

C. RUSSELL & P. H. CRAGIN.
PAPER PULP SCREEN.

No. 359,544.

Patented Mar. 15, 1887.

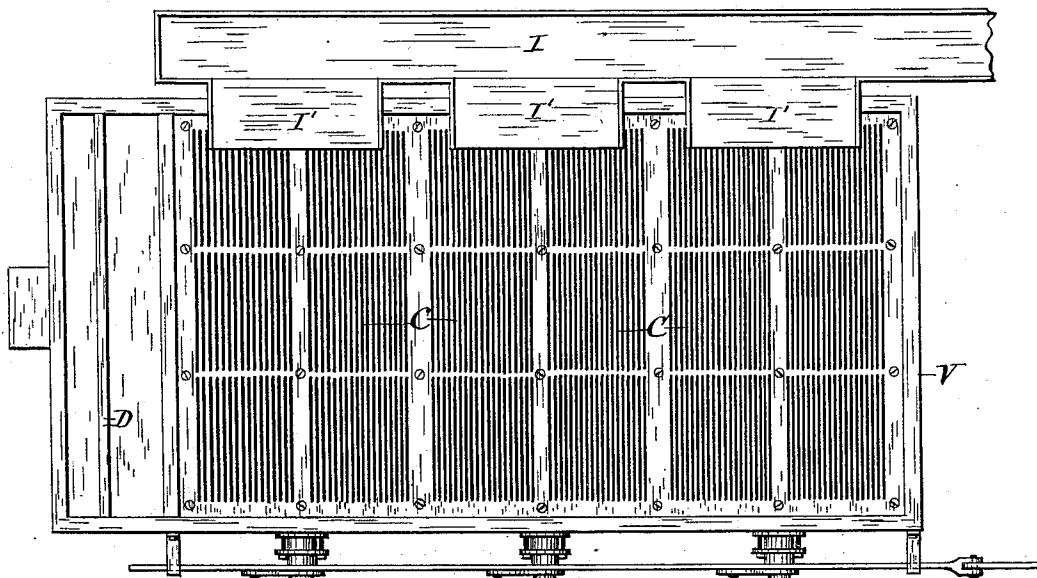


Fig. 1

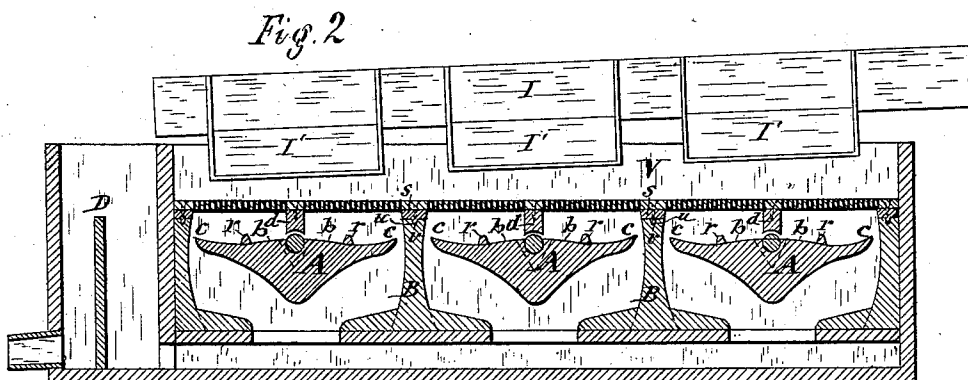


Fig. 2

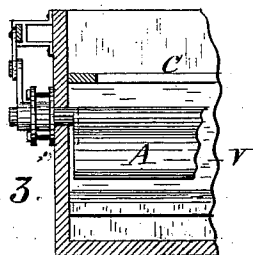


Fig. 3.

WITNESSES:

W. Bendixon
W. M. Seamus

INVENTOR

Calvin Russell & Patrick Cragin

BY

Shull, Lacey & Shull

ATTORNEYS

UNITED STATES PATENT OFFICE.

CALVIN RUSSELL AND PATRICK H. CRAGIN, OF PENN YAN, NEW YORK,
ASSIGNORS TO THE SENECA SCREEN COMPANY, OF SAME PLACE.

PAPER-PULP SCREEN.

SPECIFICATION forming part of Letters Patent No. 359,544, dated March 15, 1887.

Application filed September 15, 1886. Serial No. 213,579. (No model.)

◆ *To all whom it may concern:*

Be it known that we, CALVIN RUSSELL and PATRICK H. CRAGIN, of Penn Yan, in the county of Yates, in the State of New York, have invented new and useful Improvements in Paper-Pulp Screens, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the paper-pulp screen for which we have obtained Letters Patent of the United States No. 347,893, dated August 24, 1886, and also to that for which we have filed an application for United States patent, Serial No. 210,867; and the invention consists in an improved construction and combination of the component parts of the pumping apparatus in the pulp-vat underneath the screen, whereby the efficiency of the screen is increased and operation of the same is facilitated, all as hereinafter fully explained, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a top plan view of a paper-pulp screen embodying our improvements. Fig. 2 is a vertical longitudinal section of the same, and Fig. 3 is a vertical transverse section through the side portion of the vat and screen.

Similar letters of reference indicate corresponding parts.

V represents the pulp-vat, of the usual and well-known construction, and C denotes the screen, which is extended horizontally across the upper part of the vat and fitted air-tight to the sides thereof. A trough, I, extended along the top of the vat and having spouts I' leading to the interior of the vat above the screen, serves to conduct the diluted pulp to the screen. A dam, D', at the discharge end of the vat maintains the diluted pulp at a uniform level and at a proper distance underneath the screen to form an air-space between the top of the pulp and under side of the screen.

A A represent the oscillatory or rocking pumping-bars, which are submerged in the diluted pulp immediately beneath the screen, and by their motion agitate the pulp and the air between the pulp and screen in such a manner as to alternately force air upward through the screen and a suction down through the same, and thereby facilitate the operation of the

screening of the pulp, the pumping-bars being actuated by cranks on the ends of the pumping-bar shafts and a reciprocating rod connected with said cranks.

By practical tests of the aforesaid apparatus we have found that we increase the efficiency of the pumping apparatus, and at the same time facilitate the operation of the same, by forming the pumping-bars wider than heretofore and pivoting them at the center of the top. The top of the pumping-bar is inclined from the pivoted or longitudinal central line toward opposite sides, as shown at *b b*, and the longitudinal side edges, *c c*, of the top of the bar we curve upward, as shown in Fig. 2 of the drawings.

Between the under side of the screen and top of the pumping-bar we interpose a barrier or strip, *d*, extending along the longitudinal central line of the bar, and preferably secured to the under side of the screen, said barrier serving to arrest the flow of pulp across the top of the bar alternately toward opposite sides during the rocking motion of the bar, we having discovered that without the barrier the pulp flows across the top of the bar without producing the desired pumping action along the longitudinal central line of the rocking bar, especially when pivoted at the center of the top, as aforesaid. At opposite sides of the center of the pumping-bar we secure to the top thereof upward-projecting ribs *r r*, which, in conjunction with the upwardly-curved side edges of the bar and with the barrier *d*, interposed between said ribs, materially increase the efficiency of the pumping-bar. The inclination of the central portion of the top of the bar toward opposite sides compensates for reduction of the motion of said portion of the pumping-bar.

Each of the described pumping-bars is arranged within a compartment by itself, by means of the stationary bars B B at opposite sides of the pumping-bars, the stationary bars being provided with longitudinal grooves *v*, and upon said bars rest strips *s*, secured to the screen, and having tongues *u* entering the grooves *v*, and thus a tight partition is formed at each side of the pumping-bar.

By widening the pumping-bars, as aforesaid, we employ a smaller number of cranks and

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less motion of the cranks than is required for the same size of screen by the pumping apparatus as heretofore constructed, and consequently the operation of the apparatus is greatly facilitated.

Having described our invention, what we claim is—

1. In combination with the screen, sub-jacent pulp-vat, and rocking pumping-bars in said vat, a barrier projecting from the under side of the screen toward the top of the pumping-bar, to check the flow of pulp across the top of the pumping-bar, as set forth.

2. In combination with the screen, sub-jacent pulp-vat, and rocking pumping-bar in said vat, ribs on top of the pumping-bar, and a barrier projecting from the under side of the screen intermediate the aforesaid ribs, substantially as set forth.

3. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of its top, substantially as shown and described.

4. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of its top, and stationary bars at the sides of said pumping-bar, as shown and set forth.

5. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of the top, stationary bars at opposite sides of said pumping-bar, and a barrier between the screen and pumping-bar at the center of the latter, substantially as described and shown.

6. In combination with the screen and sub-jacent pulp-vat, the pumping-bar having its top inclining from the longitudinal central line toward opposite sides, substantially as described and shown.

7. In combination with the screen and sub-jacent pulp-vat, the pumping-bar having its top inclining from the longitudinal central line toward opposite sides, and the longitudinal side edges of the top curved upward, substantially as described and shown.

8. In combination with the screen and sub-jacent pulp-vat, the pumping-bar having its top inclining from the longitudinal central line toward opposite sides, and ribs projecting from the top of the pumping-bar, as shown.

9. In combination with the screen and sub-jacent pulp-vat, the pumping-bar having its top inclining from the longitudinal central line toward opposite sides and the longitudinal

side edges of the top curved upward, and ribs projecting from the top of the pumping-bar, substantially as described and shown.

10. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at its top and having the top inclining from the pivotal line of the bar toward the sides thereof, as set forth and shown.

11. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of its top and having its top inclining from the longitudinal central line toward opposite sides of the bar, and ribs projecting from the top of the pumping-bar, as shown and set forth.

12. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of its top and having the top inclining from the longitudinal central line toward opposite sides, and the longitudinal side edges of the top curved upward, and ribs projecting from the top of the pumping-bar, substantially as described and shown.

13. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of its top and having the top inclining from the longitudinal central line toward opposite sides of the bar and the longitudinal side edges of the top curved upward, and a barrier interposed between the screen and pumping-bar along the longitudinal central line of the top of the latter, substantially as shown and set forth.

14. In combination with the screen and sub-jacent pulp-vat, the pumping-bar pivoted at the center of its top and having the top inclining from the longitudinal central line toward opposite sides of the bar and the longitudinal side edges of the top of the pumping-bar curved upward, a barrier interposed between the screen and pumping-bar along the longitudinal central line of the top of the latter, and ribs projecting from the top of the bar, all constructed and combined substantially as described and shown.

In testimony whereof we have hereunto signed our names and affixed our seals, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 6th day of September, 1886.

CALVIN RUSSELL. [L. S.]

PATRICK H. CRAGIN. [L. S.]

Witnesses:

C. H. DUELL,

C. BENDIXON.