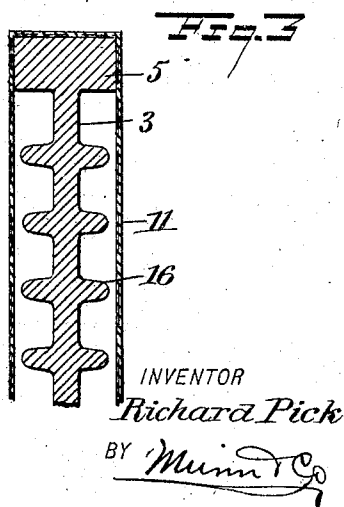
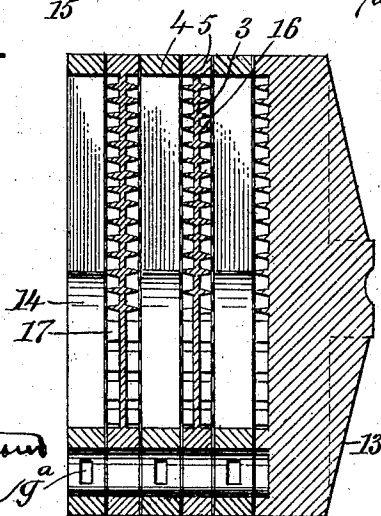
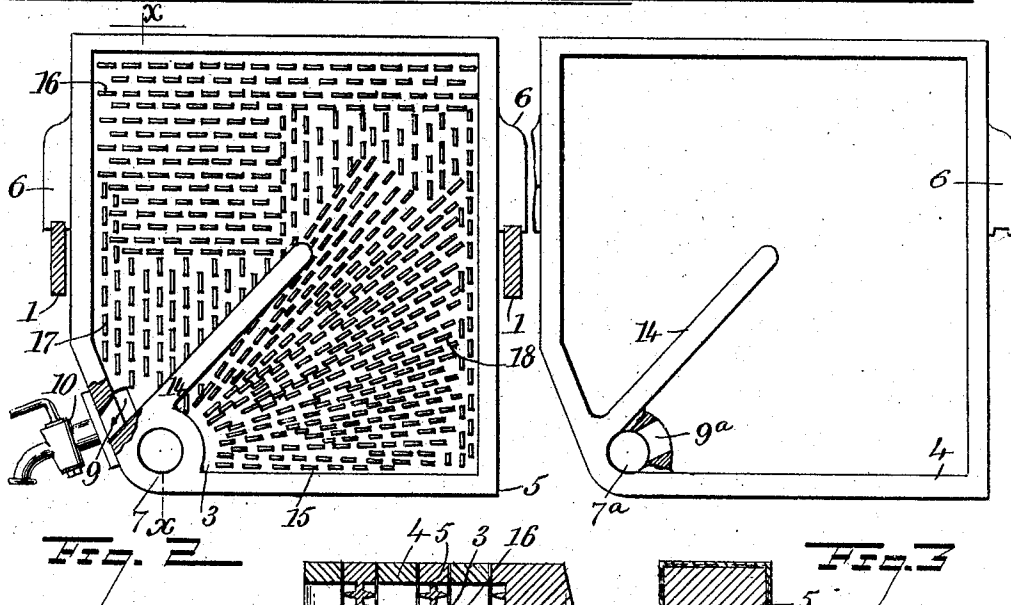
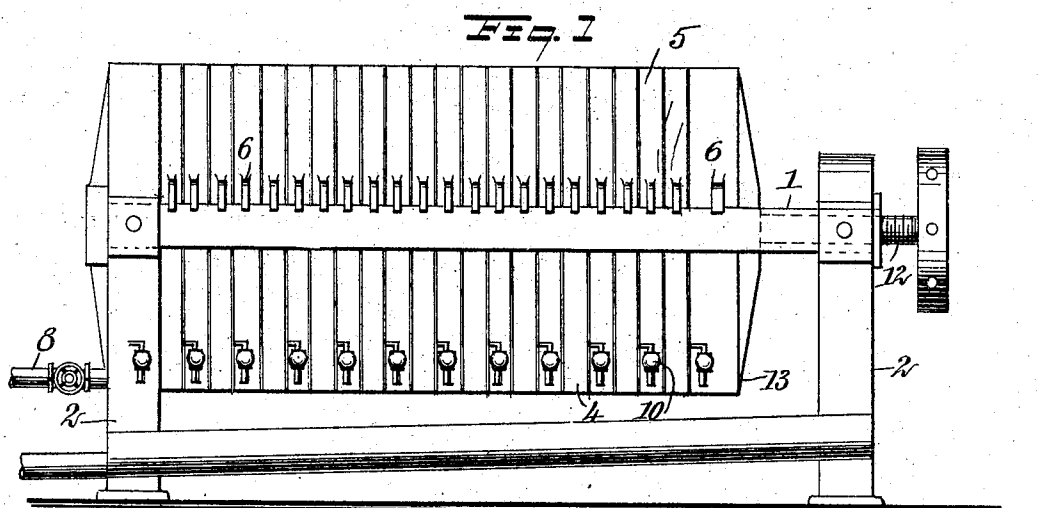


R. PICK.
FILTER PRESS.

APPLICATION FILED AUG. 14, 1905.



WITNESSES:
John Bergstrom
C. R. Ferguson

INVENTOR
Richard Pick
BY *Munn & Co.*

Fig. 5 ATTORNEYS

UNITED STATES PATENT OFFICE.

RICHARD PICK, OF BUFFALO, NEW YORK.

FILTER-PRESS.

No. 806,491.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed August 14, 1905. Serial No. 274,064.

To all whom it may concern:

Be it known that I, RICHARD PICK, a subject of the Emperor of Austria-Hungary, and a resident of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Filter-Press, of which the following is a full, clear, and exact description.

This invention relates to improvements in devices for filtering under pressure sugar-cane or beet-juice or other liquids, the object being to provide a filter by means of which the liquid may be rapidly and thoroughly filtered with a minimum quantity of water for washing and having high efficiency under comparatively low pressure, which permits the use of small pumps and a saving in the filter-cloth.

I will describe a filter-press embodying my invention and then point out the novel features 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.

Figure 1 shows in elevation a filter-press embodying my invention. Fig. 2 is a side view of one of the plates employed. Fig. 3 shows one of the spacing-frames employed. Fig. 4 is a vertical section of the device on the line *xx* of Fig. 2, and Fig. 5 is a sectional detail through a portion of one of the plates and the filter-cloth.

The frame of the machine comprises side bars 1, supported by uprights 2, and mounted on these side bars are plates 3, which alternate with spacing-frames 4. The plates 3 are arranged centrally in frames 5, and on the sides of the frames 5 and also the frames 4 are brackets 6, which engage upon the upper sides of the bars 1. The plates 3 and the frame 4 at the lower front corner are provided with openings 7 7^a, through which the liquid to be filtered passes, the said liquid being introduced under pressure through a pipe 8. Each plate 3 is also provided with a transverse port 9, having an outlet-controlling cock 10. Each frame 4 is also provided with a transverse port 9^a, forming an inlet-opening.

Clamped between the frames 4 and 5 are the filtering-cloths 11, and the several parts are firmly held together by means of a screw-rod 12, which engages with an end cap 13, which at its inner side is similar to the frames 4, and in its inner side and also in the plates 3 and frames 4 are inwardly and upwardly inclined arms 14, the lower portions of which are in

line with the openings 7, so that the liquid first passes under these arms 14 and thence is forced upward through the filter-cloth and on to the plates 3. To cause a complete circulation and agitation of the liquid, the sides of each plate 3 are provided with variously-disposed lugs or projections, which are clearly shown in Fig. 2—that is, there are horizontally-disposed lugs or projections 15 at the lower portion of the plate, horizontally-disposed lugs or projections 16 at the upper portion of the plates, vertically-disposed lugs or projections 17, and inclined projections 18. These lugs or projections, arranged in the manner shown, cause a whirling or circular motion of the liquid around the arms 14 to the outlet. The circular motion of the liquid is caused by the arrangement of the upward arms, around which the liquid has to pass in order to reach the outlet-cocks.

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

1. In a filter-press, a plate having variously-disposed lugs or projections on its sides giving the largest possible filtering area to the filter-cloth, and arms extended at an upward angle from the lower front corners of the plates.

2. In a filter-press, a plate having on its sides horizontally-arranged projections, vertically-arranged projections, and angularly-arranged projections, and arms extended at an upward angle from the lower front corners of the plates.

3. In a filter-press, a series of plates having projections on the sides and outlet-openings, spacing-frames having inlet-openings and alternating with the plates, arms extended upward at an angle from the lower front corner of the frames and plates, and filter-cloths clamped between the said frames and plates.

4. In a filter-press, a series of plates having projections on their opposite sides, the said plates being provided at the lower front corners with openings for the passage of liquid and also adjacent thereto having discharge-openings, frames in which the plates are arranged, spacing-frames alternating with the frames of the plates, arms extended upward at an acute angle from the lower front corners of the spacing-frames and plates, and filter-cloths clamped between the plate-frames and the spacing-frames.

5. In a filter-press, a supporting-frame, plates mounted on the frame and having variously-disposed projections on opposite sides,

spacing-frames alternating with the plates
and mounted on said supporting-frame, arms
extended upward at an acute angle from the
lower front corners of the spacing-frame and
5 plates, filtering-cloths arranged between the
plates and frames, and means for clamping
the parts together.

In testimony whereof I have signed my name
to this specification in the presence of two sub-
scribing witnesses.

RICHARD PICK.

Witnesses:

PAUL C. HOSEMANN,
C. E. STONE.