B. BERKOVITS.

FILTER PRESS.

APPLICATION FILED APR. 13, 1907.

947,883.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

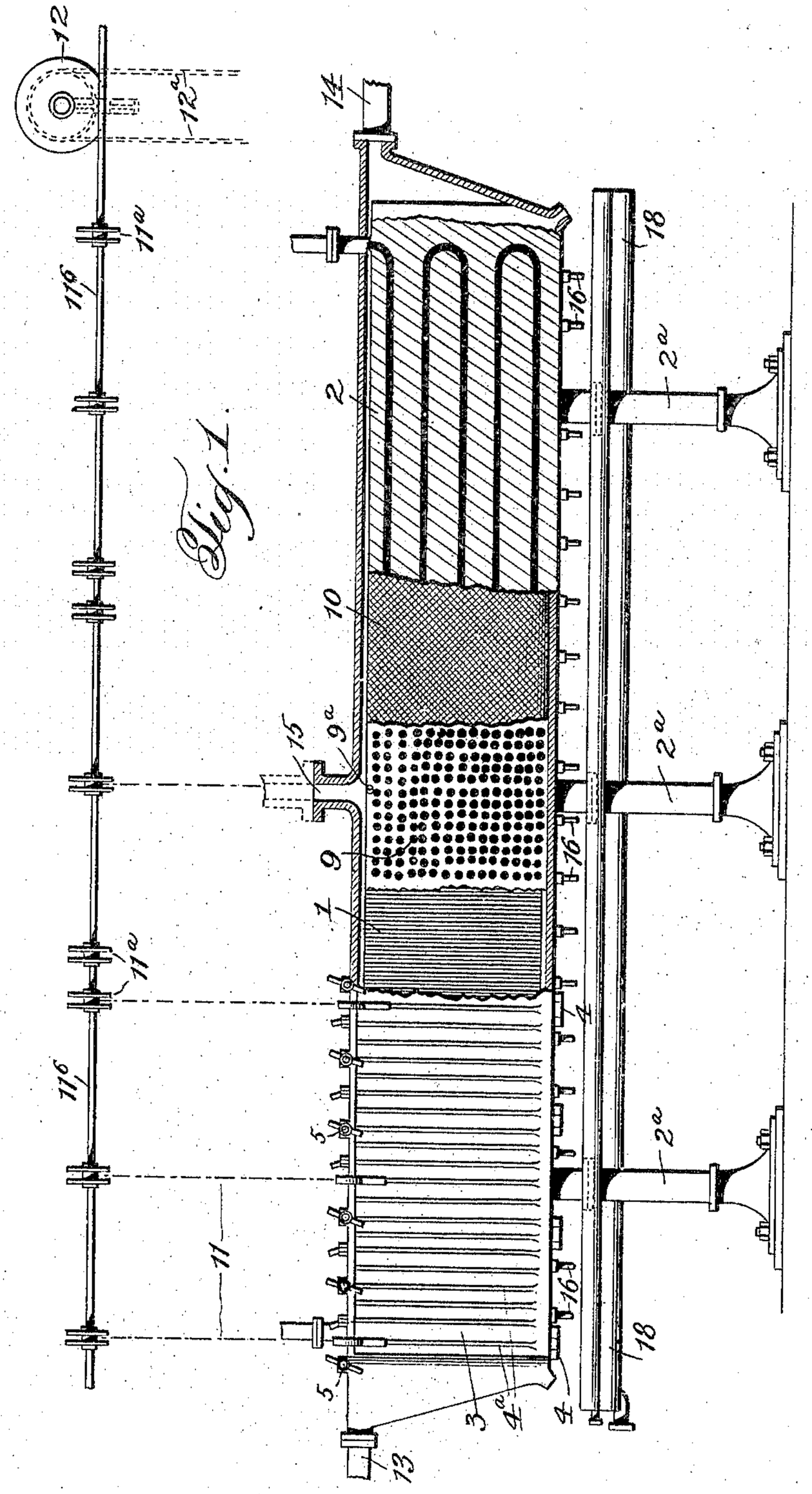
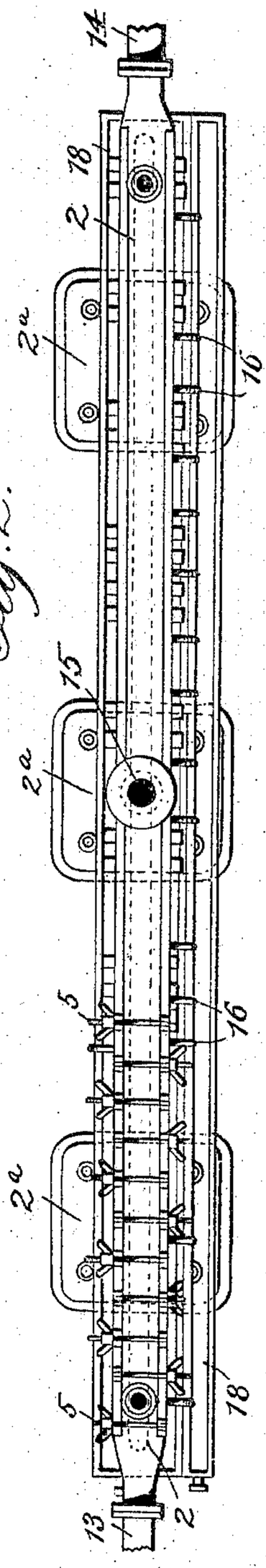


Fig. 2.



Witnesses:

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F. E. Popkins.

Inventor:

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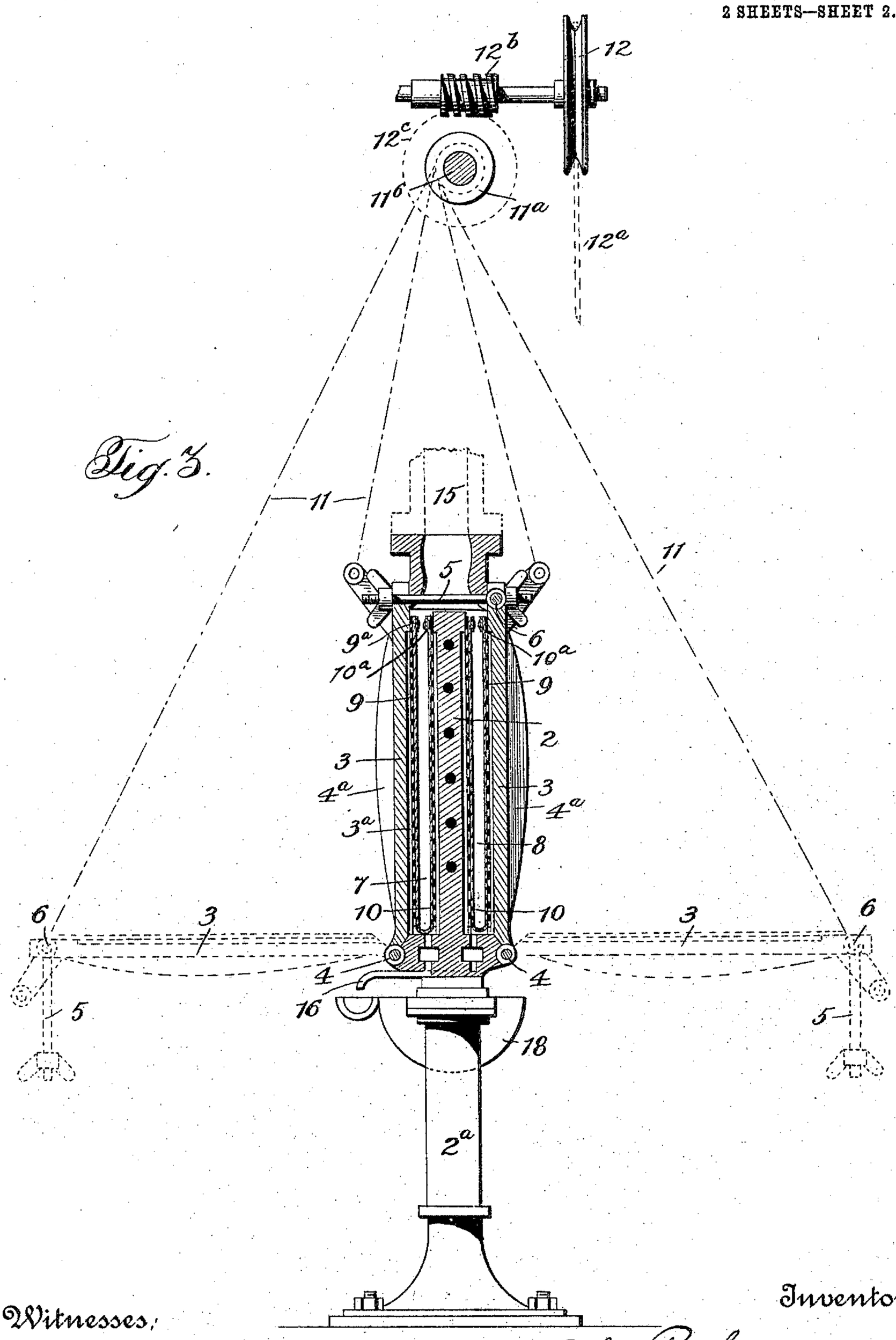
2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

BÉLA BERKOVITS, OF BUDAFOK, AUSTRIA-HUNGARY.

FILTER-PRESS.

947,883. Specification of Letters Patent. Patented Feb. 1, 1910.

Application filed April 13, 1907. Serial No. 368,054.

To all whom it may concern:

Be it known that I, BÉLA BERKOVITS, director, a subject of Hungary, residing at Budafok, county of Pest, and Empire of Austria-Hungary, have invented new and useful Improvements in Filter-Presses, of which the following is a specification.

My invention has relation to filter-presses; and the object is to provide a simple and more efficient device of this character by means of which very rapid and entirely uniform product or mass may be attained.

With this object in view the invention consists of certain features of construction and combination of parts which will be hereinafter fully set forth and claimed.

In the accompanying drawings, Fig. 1 is a front elevation of the filter-press, showing the front and backward plates partially in upright or closed position, partially removed or clapped down, Fig. 2 is a top plan view of the same, and Fig. 3 is a vertical sectional view on the line II—II of Fig. 1.

Referring to said drawings by numerals of reference, 2 designates a central, vertically disposed plate, preferably oblong in shape, and supported lengthwise on pillars 2^a. This plate 2 is formed on its opposite vertical faces with a plurality of vertical parallel grooves or channels 1, constituting passageways for fluid as will be hereinafter set forth. The filtering chamber of the apparatus is formed by this central plate 2, and a plurality of plates 3, located on opposite sides of said central plate, and pivotally connected at their lower longitudinal edges as at 4 to said plate 2, at a point adjacent the lower edges of the latter. These plates 3, 3, are of substantially the same vertical width as the central plate 2, and when in their normal position, as shown in Figs. 1 and 2, are disposed in planes parallel to the vertical plane of the plate, and are secured in this position by means of the bolts 5, in a manner which is obvious. When in closed position, the plates 3, 3, are spaced apart from central plate 2 sufficiently to form a narrow filtering chamber, of a width and length substantially coextensive with that of said plates. The plates 3, 3, are also formed on their respective inner faces, or the faces adjacent the vertical faces of the plate 2, with vertical passages or channels 3^a, and on their outer faces are formed with strengthening ribs, as at 4^a.

It will be noted that the construction and arrangement of the plates 3, 3 are such that they may be readily disconnected from the plate 2 at their upper edges, by loosening the bolts and thumb-screws 5 and throwing the latter on their pivots 4 out of the way, and said plates be then thrown down into a horizontal position to permit inspection or repair of the internal parts of the apparatus.

In Fig. 1, on the left, the plates 3, are shown in their upright or closed position, and on the right in their lowered position, while in the central portion of said figure the plates are entirely removed.

By the construction above described it will be seen that the plates 3, 3, together with the plate 2, form on each side of the latter longitudinally disposed chambers 7, 8, which serve as the filtering chambers.

In order to provide efficient filtering means, the channeled inner faces of the plates 3, 3 and also of the plate 2, are covered with foraminous material 9, such as a wire mesh or sieve, said plates of foraminous material being secured in place by means of fastening screws 9^a let through the same and into the respective plates, in a manner which is obvious.

Located in each of the spaces between the plates 2, 3, and covering the faces of the plates 9, 9, is a filtering cloth or bag 10, secured at its upper opposite longitudinal edges to the upper portions of said plates 2, 3, by means of bands or strips 10^a the medial portions of said cloths being dropped down to a point adjacent the lower edges of said plates. It will thus be seen that the cloths are substantially U-shaped in cross section, that the side portions of the same cover the sieve plates, to prevent passage of small particles therethrough, and that the lower closed portions prevent escape of particles which might otherwise pass down and out at the lower edges of the plates.

As the plates 3, 3 may be of considerable weight, and therefore somewhat difficult to raise and lower, I may employ a suitable lifting device for accomplishing the purpose stated, an efficient means comprising ropes or chains 11 adapted to be wound and unwound from pulleys.

13, 14 designate supply pipes arranged at the opposite ends of the filter, and 15 is a similar supply pipe located at an intermedi-

ate point, the purpose of a plurality of pipes being to evenly distribute the mass throughout the filtering chambers.

At the bottom portions of the filtering chambers are a plurality of delivery cocks 16, from which the filtrate is drawn and flows into a gutter or channel 17 arranged longitudinally of the filter.

Arranged longitudinally of the filter is also a catch-basin 18, to catch the drippings from the apparatus.

In operation, the fluid mass entering the pipes 13, 14, 15, flows down into the chambers 7, 8 and is evenly distributed therein. The mass is then filtered through the cloths 10 and sieves or foraminated plates 9, and flows down through the channels or grooves in the plates 2, 3, to a point adjacent the bottom of the latter whereby it may be drawn off by the cocks 16 mentioned.

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

1. In a filter press the combination of an elongated substantially rectangular center plate, substantially similar side plates, one upon each side of the center plate and spaced from the latter to form therebetween chambers, the opposite faces of the center plate and the inner faces of the side plates being grooved, a foraminous covering for each of said grooved surfaces, and a filtering cloth in each chamber comprising an endless bag secured at its upper edges only to the center and side plates.

2. In a filter press, the combination of a body part having upon one surface a series of grooves and a foraminous covering, a cooperative side plate having upon its inner surface a series of grooves and a foraminous covering, means for pivotally mounting the coöperating plate to the body plate, and a filter bag interposed between the respective plates.

3. In a filter press, the combination of an elongated substantially rectangular center plate, approximately similar plates one upon each side of the center plate, means for pivotally connecting the said plates to the center plate, whereby they may be swung from a point substantially perpendicular to the center plate to a position substantially at right angles thereto, means for locking the side plates in closed position, a filtering bag interposed in each chamber between the body and side plates, the bags being open at their upper ends only, and means for feeding the charge through said openings into the bags.

4. In a filter press, the combination of a substantially elongated center plate, oppositely disposed side plates pivotally connected to the body to swing outwardly therefrom, means for locking the side plates in closed position and at a point laterally spaced from the center plate to form a chamber upon each side of the center plate, a foraminous covering for each of said plates, a filtering bag extending throughout the length of each chamber, the bag being open at its upper edge, and means for feeding the charge comprising a plurality of inlet pipes and a connecting chamber extending from end to end of said chambers at the top thereof.

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

BÉLA BERKOVITS.

Witnesses:
CHARLES EDWARD ZALMER,
WILLIAM HULITAN.