

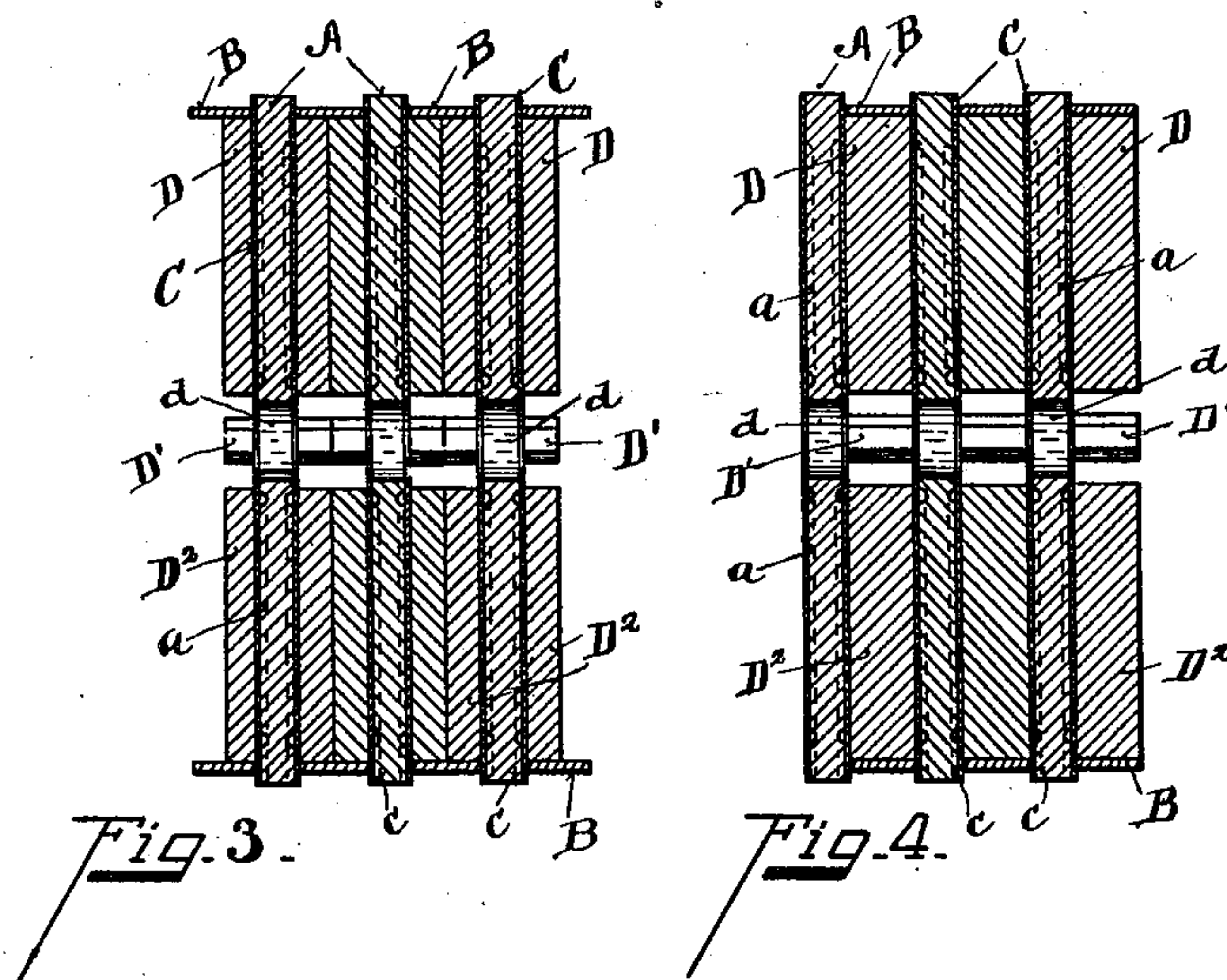
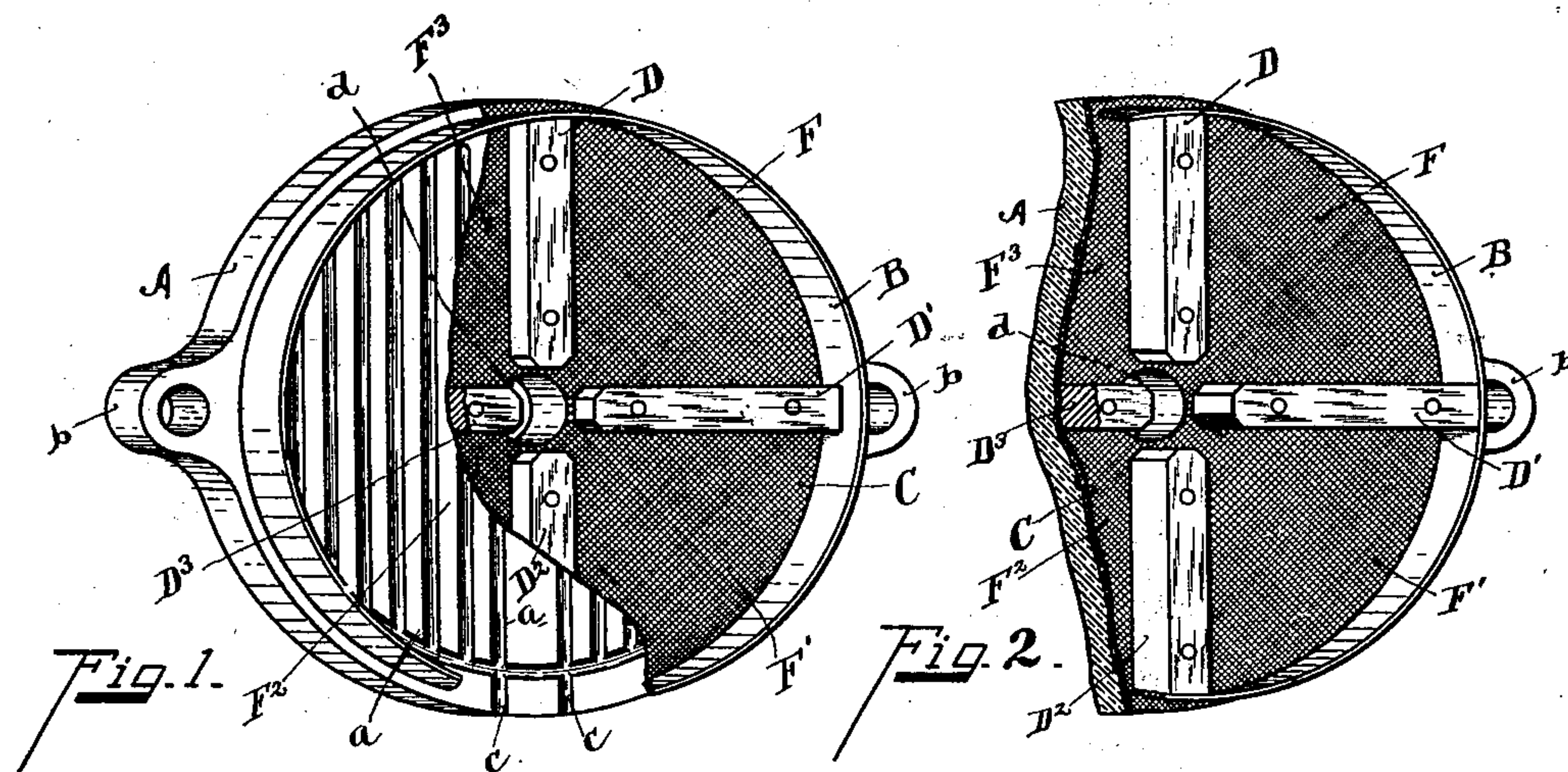
No. 668.802.

Patented Feb. 26, 1901.

J. F. POGUE.
FILTER PRESS.

(Application filed Apr. 4, 1900.)

(No Model.)



Witnesses

Witnesses
Oliver B. Kaiser
Viola L. Georgi

Inventor

Inventor
John F. Fogue
By William R. Hood
Attorney

Астрономия

UNITED STATES PATENT OFFICE.

JOHN F. POGUE, OF CINCINNATI, OHIO.

FILTER-PRESS.

SPECIFICATION forming part of Letters Patent No. 668,802, dated February 26, 1901.

Application filed April 4, 1900. Serial No. 11,419. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. POGUE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Filter-Presses, of which the following is a specification.

My invention relates to an improvement in filter-presses in which a plurality of filter-plates with cylindrical compartments between them are compressed together concentrically between compressing-heads, and the brewers' grains, distillers' slops, or other material is centrally fed into said compartments through said heads and the liquid expelled through the filter-plates under the compression of the steam or other means used for charging the press.

One of the objects of my invention is to get a more perfect compression, and hence more perfect preparation of the product.

Another object of my invention is to simplify and strengthen the parts.

Another object of my invention is to more conveniently center the cylinders to the filter-plates.

These functions and others are all conjointly performed by the simple improvement which I attach to the filter-plates.

Further details of my invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of my improvement. Fig. 2 is a broken perspective view of a modification. Fig. 3 is a central vertical section of a series of filter-press heads. Fig. 4 is a similar view of a modification.

A represents one of the series of filter-plates. It has the vertically-arranged channels *a*.

B represents the compression-chambers, which are practically hoops or rings. The filter-plates have the usual ears *b b*, provided for concentrically mounting the plates in series between the clamping-heads, the posts and rods forming the support, as well as the clamping-heads, being of the usual form, not necessary to herein show. The external peripheries of the plates are channeled at *cc* to drain off the fluid collected from the channels *a a* in the filter-plates.

C represents the straining or filtering cloth, attached to each face of the plates over the channels *a a*.

D D' D² D³ represent a series of partitions attached to the faces of the filter-plates over the cloth C. These are diametrically arranged radially on the faces of said plates, but are not connected at their center, where they abut the orifice *d*, through which the slops are fed into the press. These partitions form four chambers F F' F² F³, and the spaces between their meeting ends in the center form induction-orifices. Preferably the middle section of the filter-head, abutting the middle vertical partition, is not provided with a channel *a*, but left solid, not only forming a rigid support for this partition, but strengthening greatly the entire plate. These partitions are in length equal to the internal diameter of the rings B, into which they fit, forming a support for the same, having the four bearing-points on the inner periphery of said rings and fitting the rings snugly. In the preferred form each plate has these partition-beams on each face, each partition protruding out from the face of the plate a distance equal to half the width of the rings B, so that two plates clamped upon opposite sides of a ring will have these partitions of the opposing plates meeting in the middle of the ring and completely separating it into four separate compartments, communicating with the induction-orifice *d*. It will also be observed that each ring has on its periphery four bearings or supports formed by the ends of the partitions, each being equal in width to the width of the rings. This forms a more perfect support, as well as a centering for the rings. It is obvious that each plate could have its partitions upon only one face and of the entire thickness or width of the rings and that in such case the plate would be clamped against the plane face of an opposing plate, the partitions of said first-named plate projecting through the ring and terminating flush with the face of the opposing plate. These partitions keep the cloth C from buckling and hold the cloth tangent over channels *a a*, so giving the greatest efficiency of both plates and cloth. They strengthen the plates, which are weakened by the draining-slots, and are thereby effectually braced so as to fully withstand the

pressure, as well as strengthening them in handling. They support the rings and center them; but most important of all more slops can be compressed and dried in a ring
 5 thus divided than with the plain rings, almost four to one. This is obviously because in each compartment the material has not only the resistance of the periphery, represented by a quadrant of the ring, but the resisting-
 10 surfaces of the abutting sides of the partitions. Also the liquid pressed out of the slops cannot traverse through the entire bulk of the material compressed solidly in the ring, but is subdivided and forced through the cloth
 15 into the vertical channels *a a* and passes to channels *c c* entirely out of contact with the rest of the material under pressure. One or more of these partitions could be used; but it is obvious that there is a limit at which ad-
 20 vantages from the degree gained in compression by the added resistance would be more than offset by the space lost in the room taken up by the surplus partitions. Obviously radial arrangements of these partitions are pref-
 25 erable as being the only means for forming narrow induction-passages to the central orifice *d*.

Each compartment, practically the quadrant of the rings in the form herein shown,
 30 has an internal resistance extending radially from the center to the periphery, and hence the slop is squeezed from the sides instead of

simply from the periphery, as in the old form, and the result is a perfect compression of the material. The life of the filter-plates is
 35 greatly prolonged in addition to this gain in efficiency.

Having described my invention, I claim—

1. In a filter-press, the combination of a series of filter-plates and rings, draining-channels in the plates, straining-cloths over the
 40 faces of said plates, radially-arranged partitions secured to said plates over said cloths, the said partitions being adapted to project into said rings so as to completely divide the
 45 same into separate compartments open at the center, substantially as specified.

2. In a filter-press a filter-plate having draining-channels, a straining-cloth stretched
 50 over the face of said plate, a series of radially-arranged partition-strips secured to the face of said plate over said cloth, the said strips having a space between their inner ends, and a ring adapted to fit against said plate and
 55 bear upon the outer ends of said strips, whereby said ring is divided by the plate into compartments having a common central induction-orifice, substantially as specified.

In testimony whereof I have hereunto set my hand.

JOHN F. POGUE.

Witnesses:

OLIVER B. KAISER,
 VIOLA T. GEORGI.