(No Model.)

J. JOHNSON.

FILTER PRESS.

No. 402,455. Patented Apr. 30, 1889.

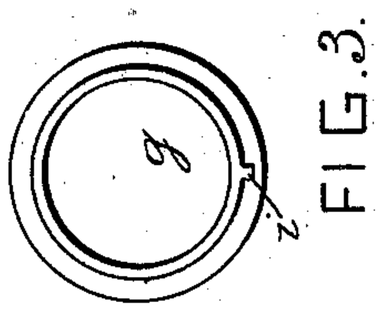

FIG. 3.

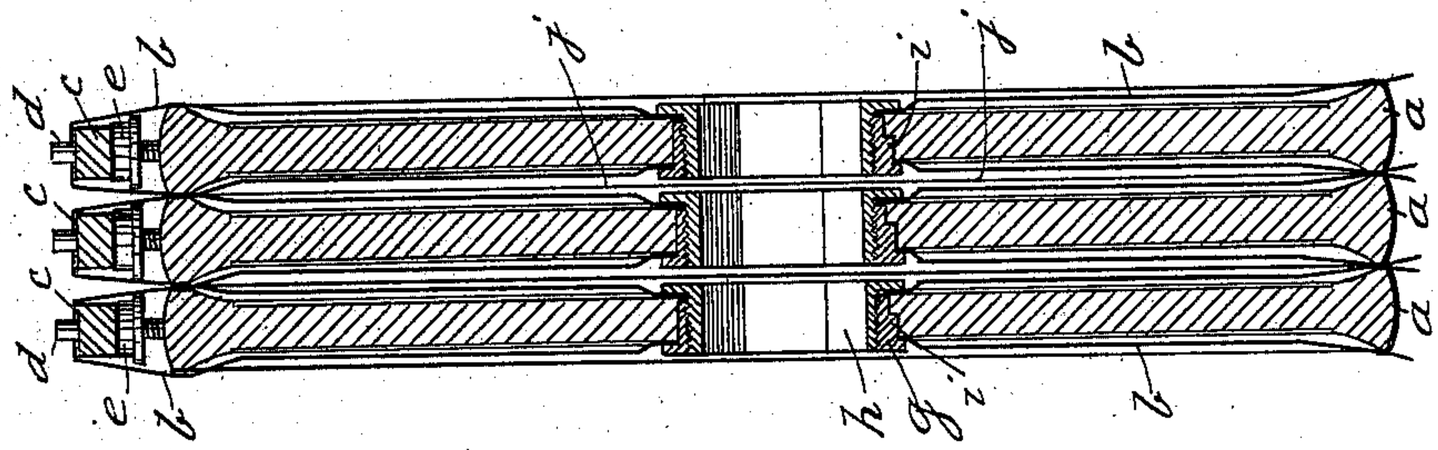

FIG. 2.

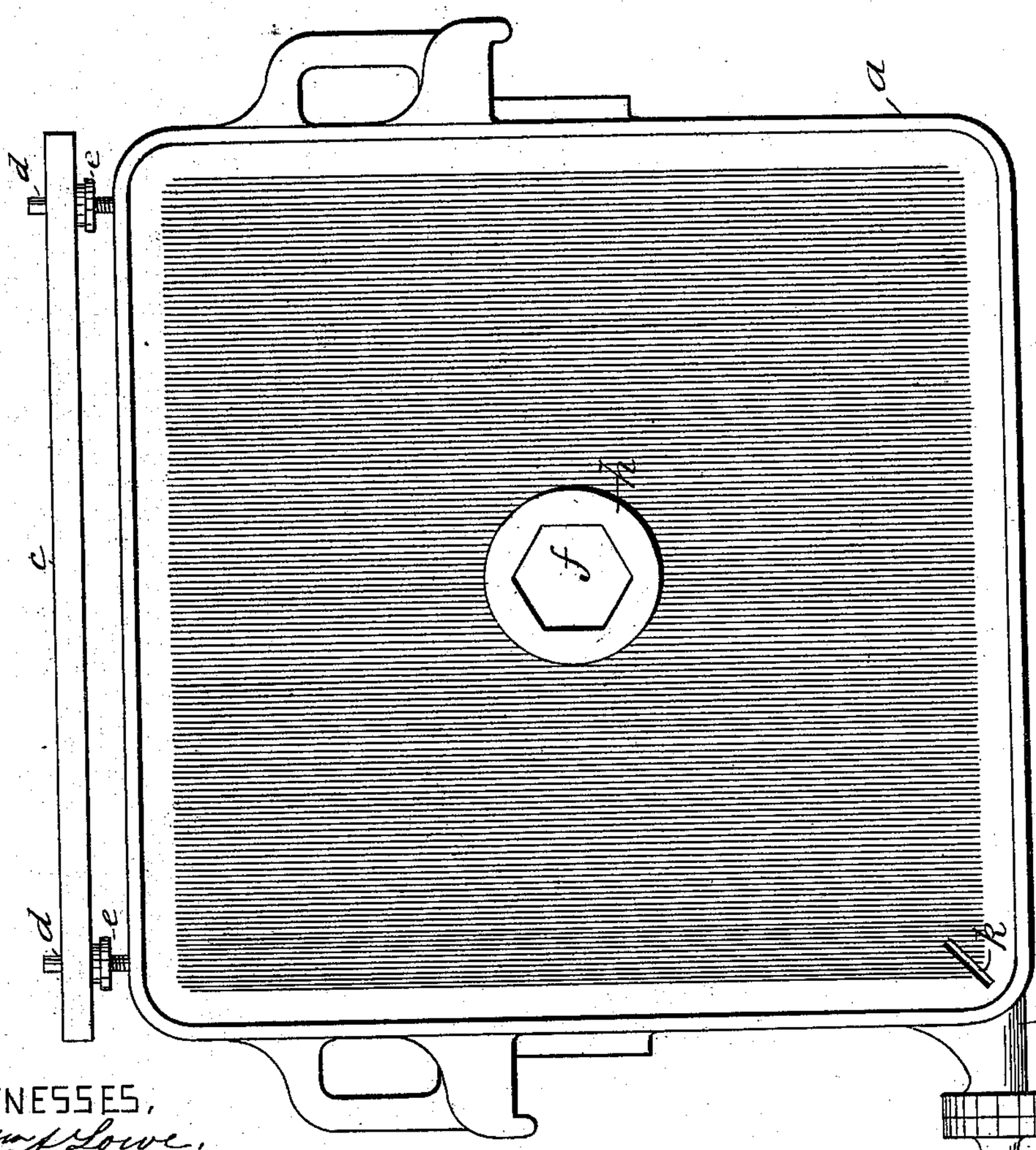

FIG. 1.

WITNESSES,
Wm. A. Lowe.
D. J. Morgan,

INVENTOR
John Johnson
By
A. D. Thayer
Attorney

UNITED STATES PATENT OFFICE.

JOHN JOHNSON, OF BROOKLYN, NEW YORK.

FILTER-PRESS.

SPECIFICATION forming part of Letters Patent No. 402,455, dated April 30, 1889.

Application filed September 8, 1888. Serial No. 284,873. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOHNSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Filter-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide improved means of supporting and adjusting the filtering-cloths used in the cells between the diaphragms of filtering-presses, as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of a diaphragm of a filter-press provided with my improved cloth supporting and adjusting device. Fig. 2 is a transverse sectional elevation of a series of diaphragms as they are used side by side in the press with the cloth supporting and adjusting devices and the duplex filtering-cloths of my invention. Fig. 3 is a detail of the bush-clamp used to clamp and pack the cloths tightly on the margins of the center openings of the diaphragms, through which the substance to be filtered flows along to the different cells within the press.

The plates or diaphragms *a* are made in all respects the same as heretofore, except as to the devices for supporting and adjusting the filtering-cloths *b*, which, according to my invention, consist of the bar *c*, extending the whole length of the top of the diaphragm, and adjustably supported a suitable distance above it, so as to be readily shifted higher or lower, or toward or from the plate, the stud-screws *d* and thumb-nuts *e* being in this instance used for the purposes; but of course any approved form of support and adjusting devices may be used, and the said bars being so that they enable the use of duplex cloths *b* to be used by hanging them at the middle across the bars, said duplex cloths being double the length of the ordinary single cloths and serving for both sides of the diaphragm, and being thus adjustable for both sides of the diaphragm at once, which economizes time and labor as compared with adjusting each cloth separately, as they have to be when made and suspended separately, as heretofore done.

The adjustment of the cloths by shifting them higher or lower from time to time is made necessary by the shrinking and stretching to which they are subject in repeated use, which alters their center openings relatively to the center openings, *f*, through the diaphragms, around which the margins of the center openings of the cloths have to be clamped by the bush-clamps *g h*, to prevent escape of the substance to be filtered without passing through the cloths.

The bush *g* is internally threaded, and has one or more key-ribs, *i*, formed on it to interlock with a corresponding recess or recesses in the center opening of the diaphragm, and the bush *h* has an external thread and screws into bush *g*, to draw the respective flanges onto and clamp the cloths tight on the diaphragms; but these devices are only represented to illustrate the press more fully, and are not claimed.

In the common arrangement of the supports for the filter-cloths there are two or three hooks provided at the top of the diaphragm for each cloth, and the cloth is made with a wide hem along the top and provided with as many eyelets as there are hooks to be suspended thereon, which, it will be seen, is more complicated and expensive than the contrivance of my invention, besides not being capable of holding and adjusting the cloths as evenly as my device.

Separate filter-cloths—one for each side of the diaphragm—may of course be hooked on or otherwise connected separately with my improved bar-support, if desired, with the advantage of being attached at a greater number of points, so as to be held more evenly and so as to be adjusted alike and together at all points.

The cells of the press before mentioned are the spaces inclosed between the concavities of the diaphragms at *j*, common to all presses of the like character, and wherein the substance to be filtered is collected under high pressure and the fluid portion is forced through the cloths and down the grooved surfaces of the plates to the passage *k*, and thence out through the nozzle *l*.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with the diaphragm or partition-plates severally in a filter-press, of a filtering-cloth support consisting of a bar extending along the top of the same and fixed adjustably thereon toward and from the plate, and a filtering-cloth suspended from said bar, substantially as described.

2. The combination, with the diaphragms or partition-plates severally in a filter-press, of a filtering-cloth support consisting of a bar extending along the top of the same and fixed adjustably toward and from the plate, and a duplex filtering-cloth suspended on said support and each side of the plate, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN JOHNSON.

Witnesses:
W. J. MORGAN,
STEVE C. BYRNE.