(No Model.)

B. REMMERS.

FILTER PRESS.

No. 427,794. Patented May 13, 1890.

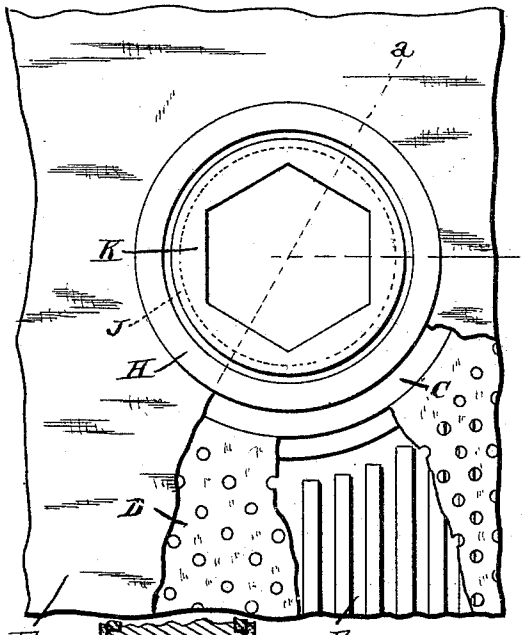


Fig. 2.

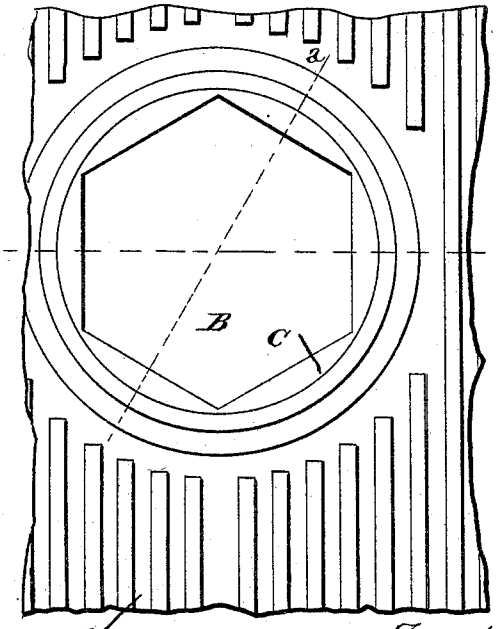


Fig. 1.

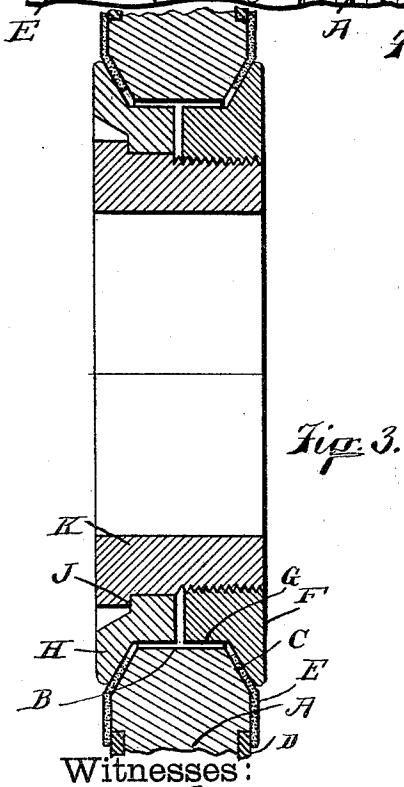


Fig. 3.

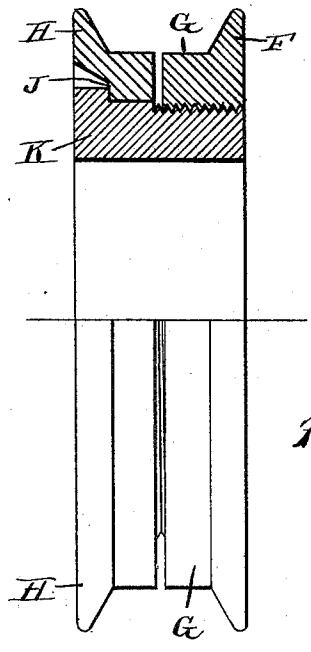


Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

BERNHARD REMMERS, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO THE NILES TOOL WORKS, OF HAMILTON, OHIO.

FILTER-PRESS.

SPECIFICATION forming part of Letters Patent No. 427,794, dated May 13, 1890.

Application filed June 15, 1889. Serial No. 314,461. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD REMMERS, a citizen of the United States of America, and a resident of New Orleans, parish of Orleans, Louisiana, have invented certain new and useful Improvements in Filter-Presses, of which the following is a specification.

This invention pertains to that common class of filter-presses in which a series of filter-cells is formed by clamping together a series of plates having recessed faces, each pair of contiguous plates thus forming a filtering-cell between them, cloths clamped between the plates forming filtering-linings for these cells, openings through the webs of the plates and through the cloths forming a continuous admission-channel to all of the cells, the cloths at each side of each cell-wall being clamped thereto around the admission-opening to prevent leakage.

My present invention relates particularly to the device for securing the cloths at the webs of the plates around the admission-openings.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a face view of the central portion of an ordinary filter-plate minus the cloth, sheet-metal backing, and cloth fastening; Fig. 2, a similar view with the cloth, sheet metal, and cloth fastening in place, the cloth and sheet metal being broken away in places to indicate more clearly the arrangement of these parts, which, however, is precisely as usual; Fig. 3, a substantially vertical section in the plane of line *a* through the plate of Fig. 2, with its attachments there shown; and Fig. 4, a similar section, half elevation, of the cloth fastening alone. Figs. 3 and 4 are upon a somewhat larger scale than Figs. 1 and 2.

In the drawings, A indicates the usual ribbed web of an ordinary filter-plate for use in filter-presses of the class above indicated; B, the usual hole through the web of the plate to permit of the passage of the material to the filtering-cells which will be formed between the plates, this hole having a non-circular form, being shown as hexagonal; C, the facial margins around that hole against which the margins of the holes in the cloths are to be clamped; D, the usual perforated sheet metal disposed against the ribbed faces of the plate to prevent the cloth from being forced in between the ribs; E, the usual cloths lying against the sheet metal and having holes coinciding in position with the hole in the plate, the margins of the holes in the cloths being clamped liquid-tight to the facial margins of the hole in the plate; F, the bushing-flange seating against the cloth and pressing the same to one of the facial margins of the hole in the plate, this bushing-flange having a large central opening through it; G, a non-circular hub formed upon and projecting from the inner face of this bushing-flange, this hub projecting into and engaging the non-circular hole in the plate; H, a much similar bushing-flange, similarly provided with a non-circular hub, this second bushing-flange, however, being bored to form a bearing for a collared bushing-screw; J, an outwardly-facing annular bearing in the second bushing-flange to be engaged by the collar of a bushing-screw and K, a bushing-screw provided with a collar, this bushing-screw having a bearing within the bore of the bushing-flange H and having a bearing with its collar against the face J, the bushing-screw engaging the bushing-flange F by a thread and having a non-circular bore, by means of which it may be turned by a plug-wrench.

Heretofore, so far as I know, all cloth fastenings of the screw-flange type for filter-presses have possessed the very serious fault of twisting or wrinkling either one or both of the cloths when they were forcibly screwed up. This fault is entirely remedied in my construction. The two bushing-flanges, being put in place, hold the cloth neatly, and their non-circular hubs, engaging the hole in the plate, prevent their rotation under any circumstances, the bushing-screw being the only rotary element and its turning having no twisting effect upon the cloths. The system also yields a large clear opening from cell to cell. The non-circular feature of the hole through the bushing-screw is a satisfactory expedient for enabling the bushing-screw to be forcibly turned; but it is obvious that other means than a plug-wrench may be employed for turn-

ing the bushing-screw—as, for instance, a suitable implement for grasping or engaging the collar of the bushing-screw.

I claim as my invention—

1. In a filter-press, the combination, substantially as set forth, of a bored bushing-flange, a threaded bushing-flange, and a collared bushing-screw engaging said bushing-flanges and having an opening through it.

2. In a filter-press, the combination, substantially as set forth, of a bored bushing-flange having a non-circular hub adapted to engage a non-circular hole in the plate of the press, a threaded bushing-flange having a similar hub, and a collared bushing-screw engaging said bushing-flanges and having an opening through it.

BERNHARD REMMERS.

Witnesses:
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