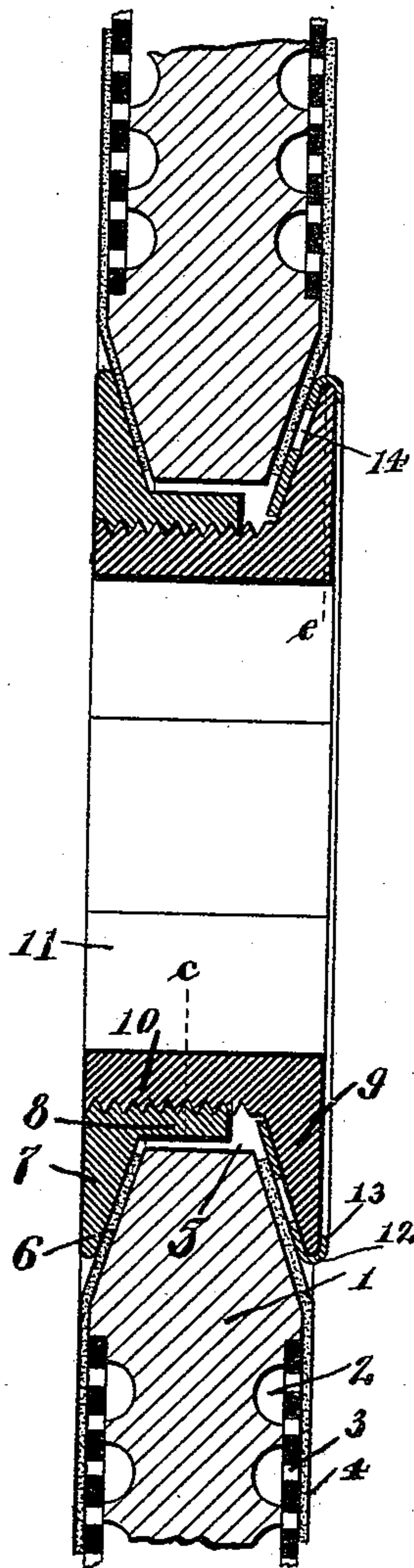


(No Model.)

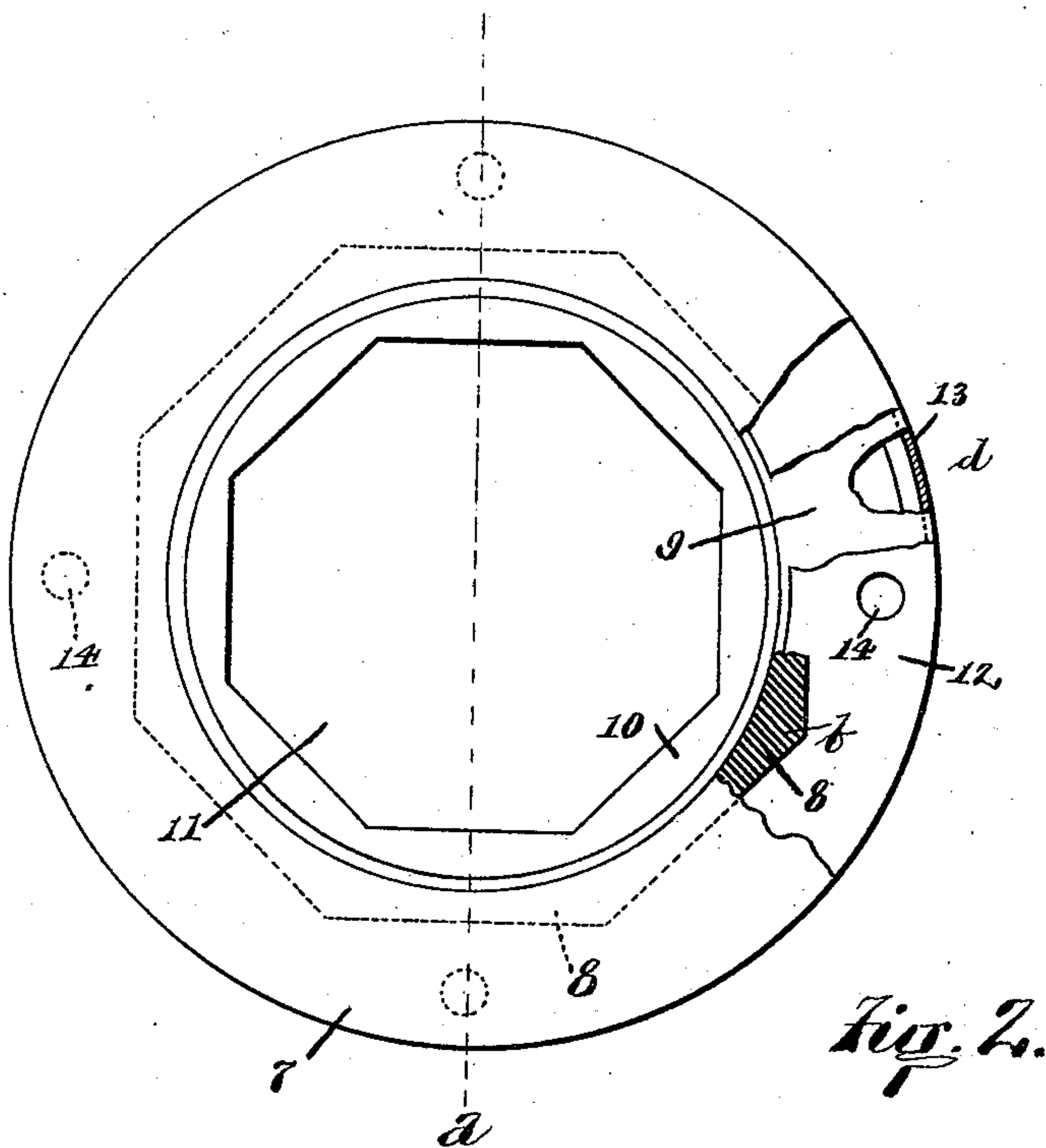
Z. B. COES & G. T. REISS.  
FILTER PRESS.

No. 447,024.

Patented Feb. 24, 1891.



*Fig. 1.*



*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

ZORESTER B. COES AND GEORGE T. REISS, OF HAMILTON, OHIO, ASSIGNORS  
TO THE NILES TOOL WORKS, OF SAME PLACE.

## FILTER-PRESS.

SPECIFICATION forming part of Letters Patent No. 447,024, dated February 24, 1891.

Application filed November 3, 1890. Serial No. 370,228. (No model.)

*To all whom it may concern:*

Be it known that we, ZORESTER B. COES and GEORGE T. REISS, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Filter-Presses, of which the following is a specification.

Our invention is designed to avoid the wrinkling of the cloths where they are clamped at the passages through the webs of the plates, and will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a central section of the passage through the web of a filter-plate provided with our improvements; and Fig. 2 is a face view of one of the cloth-clamps, parts being broken away to exhibit at *b* the hub 8 of one of the flanges in vertical section in the plane of line *c*, and to exhibit at *b* the lining 9 in vertical section in the plane of line *e*.

In the drawings, 1 indicates the usual web of a plate of a filter-press; 2, the usual drain-channels in the faces of the web; 3, the usual perforated plates of sheet metal secured against the grooved faces of the webs to keep the cloths from sinking into the grooves; 4, the usual cloths disposed against the perforated plates; 5, the usual opening through the web of the plate to permit the passage of material to the cells formed between the plates, this opening being in our construction non-circular; 6, those portions of the cloths disposed against the margins of the opening 5, which cloth portions must be tightly clamped to the margins of the opening to prevent leakage of material improperly behind the cloths; 7, a clamp-flange seating against one of the cloths and pressing it against the margin of the plate-opening; 8, a non-circular hub projecting inwardly from this clamp-flange and fitting the non-circular opening 5, so that the clamp-flange 7 is incapable of rotation in the plate; 9, a second clamp-flange to act in connection with the other cloth; 10, a hub projecting inwardly from this clamp-flange and screwing into the hub of the first clamp-flange, so that rotation of clamp-flange 9 will serve to draw the two flanges forcibly toward each other; 11, a non-circular opening through the hub 10, open to permit the

passage of the material being filtered, and non-circular to permit the employment of a plug-wrench in screwing up the clamp; 12, a thin loose sheet-metal lining disposed against the inner face of clamp-flange 9, being interposed between that flange and its cloth; 13, a turned flange or roll upon the periphery of this lining, this roll engaging over the periphery of flange 9 and serving to secure the lining loosely but permanently to the flange; and 14, holes through the lining to permit the lining to take a better frictional hold upon its cloth.

Opening 5 and hub 8 are in the exemplification formed octagonal; but any non-circular form will answer. Opening 11 is shown as octagonal; but any provision of flange 9 to permit the employment upon it of a wrench or spanner will be the equivalent of this octagonal feature. Clamp-flange 7 being properly placed against its cloth, the rotary flange is then to be screwed firmly to place. The turning of the rotary flange, if that flange were in direct contact with its cloth, would tend to shift and pucker and wrinkle the cloth where clamped and prevent the making of a proper tight joint; but while flange 9 rotates lining 12 remains stationary against the cloth, the frictional rubbing therefore taking place between the flange and the lining, the tendency to pucker and wrinkle being thus avoided. Holes 14 permit the cloth at those points to sink somewhat into the lining, and thus guard against the rotation of the lining as its flange rotates; but in practice the holes are not found essential, the frictional grip of the cloth upon a lining unprovided with holes being found all sufficient with all the different qualities of cloth with which our invention has been tested. The rolling of the lining over its flange at 13 serves to unite the lining to its flange and prevent the lining from dropping off when the flanges are out of the press, and it also holds the lining properly to place against the flange and prevents it from dropping down into the threads while the clamp is being applied.

We claim as our invention—

1. In a filter-press, the combination, substantially as set forth, of a clamp-flange provided with a threaded and non-circular hub

adapted to engage a non-circular plate-opening, a rotary clamp-flange provided with a threaded hub to engage the first-mentioned clamp-flange and having provision to receive  
5 a wrench by which it may be turned, and a lining loosely disposed upon the hub and against the inner face of said rotary clamp-flange.

2. In a filter-press, the combination, substantially as set forth, of a clamp-flange provided with a threaded and non-circular hub adapted to engage a non-circular plate-opening, a rotary clamp-flange provided with a threaded hub to engage the first-mentioned  
15 clamp-flange and having provision to receive a wrench by which it may be turned, and a lining loosely disposed upon the hub and against the inner face of said rotary clamp-flange, and provided with perforations through  
20 its face.

3. In a filter-press, the combination, substantially as set forth, of a clamp-flange provided with a threaded and non-circular hub adapted to engage a non-circular plate-opening, a rotary clamp-flange provided with a  
25 threaded hub to engage the first-mentioned clamp-flange and having provision to receive a wrench by which it may be turned, and a lining loosely disposed upon the hub and against the inner face of said rotary clamp- 30 flange, the periphery of said lining being turned over the periphery of said rotary flange.

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