

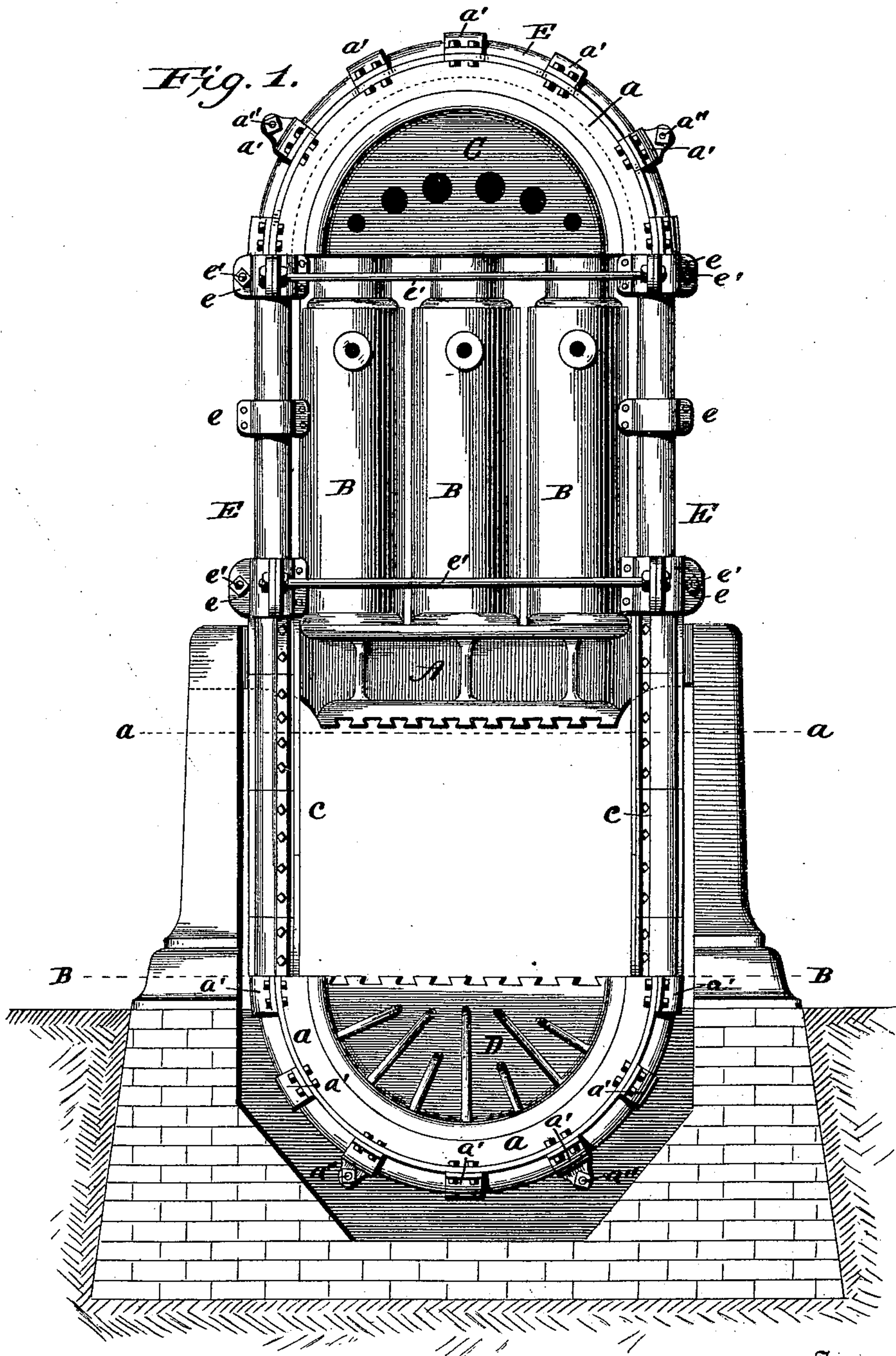
(No Model.)

3 Sheets—Sheet 1.

L. J. MILLER.  
HYDRAULIC PRESS.

No. 459,816.

Patented Sept. 22, 1891.



Witnesses

Frank L. Gibson.

R. W. Bishop

Inventor

L. J. Miller

By his Attorneys

Alexander & Davis

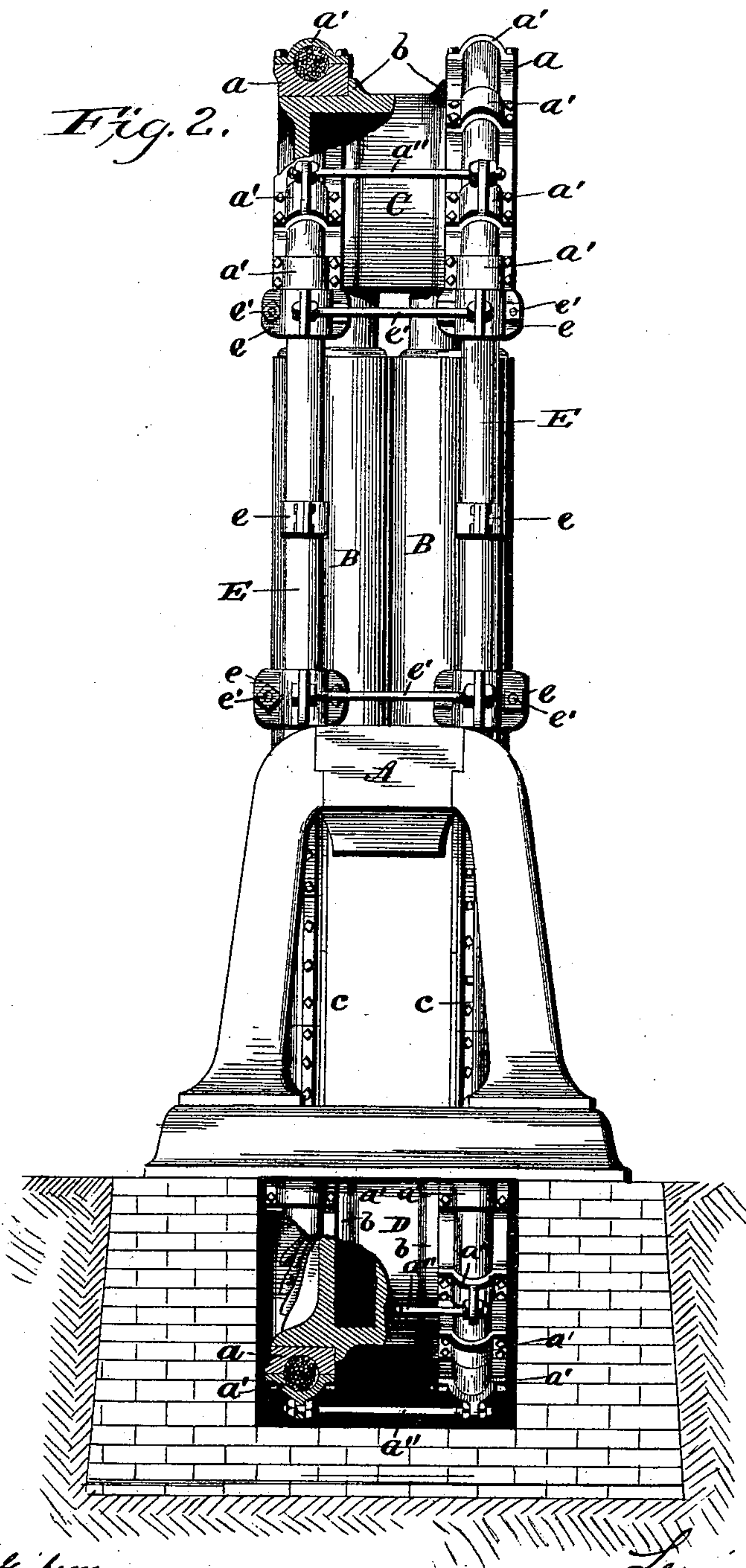
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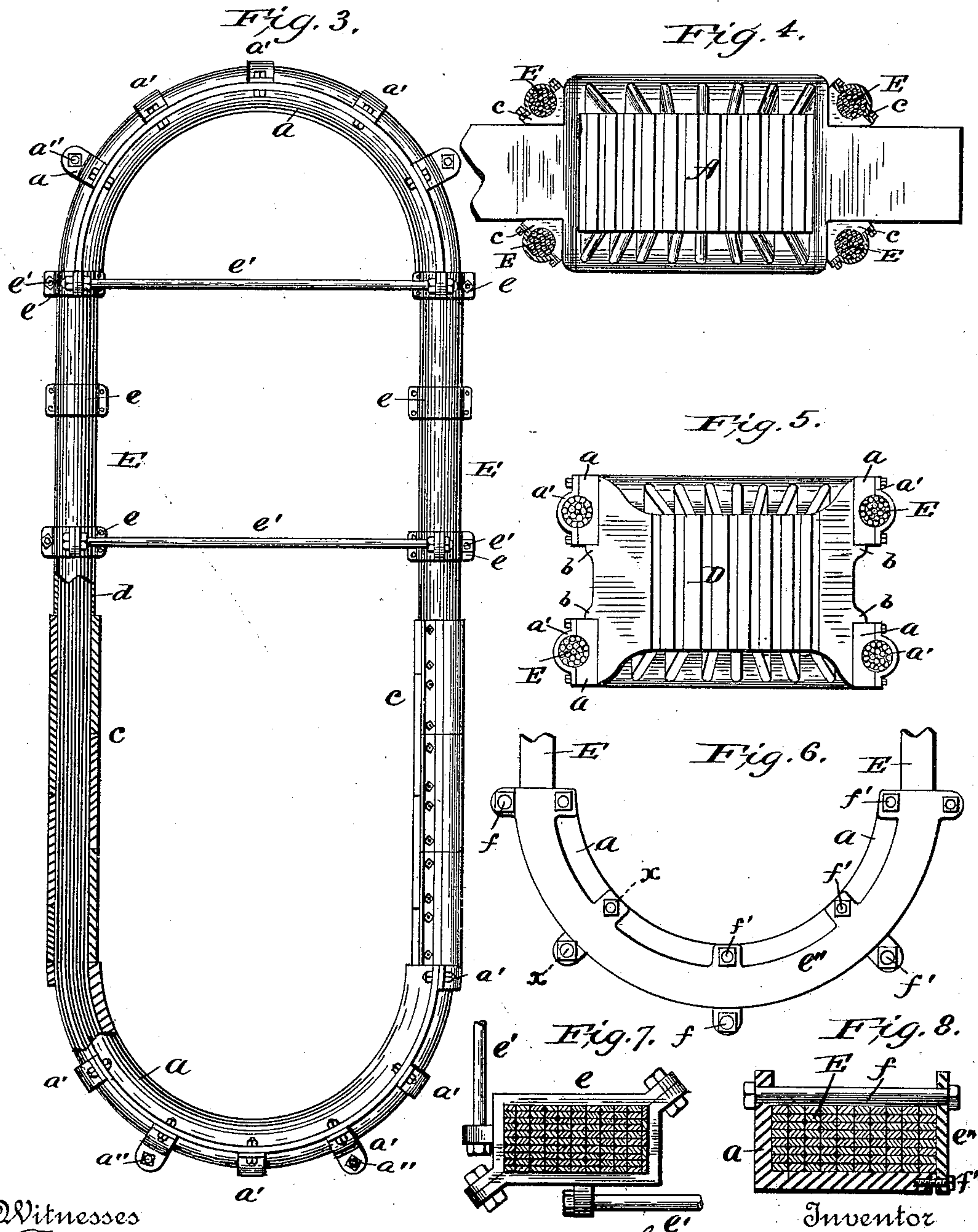
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# UNITED STATES PATENT OFFICE.

LEWIS J. MILLER, OF PHILADELPHIA, PENNSYLVANIA.

## HYDRAULIC PRESS.

SPECIFICATION forming part of Letters Patent No. 459,816, dated September 22, 1891.

Application filed April 27, 1891. Serial No. 390,543. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS J. MILLER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hydraulic Presses, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 represents a front elevation of my improved press; Fig. 2, a side elevation thereof, a portion of the lower platen and upper cross-head being in section; Fig. 3, partly a side and partly a sectional elevation of the endless link employed in this press; Fig. 4, a horizontal sectional view of the links in the line *a a* on Fig. 1, looking upward against the lower face of the upper platen; Fig. 5, a horizontal sectional view of the links, taken on the line *B B* and looking downward upon the lower platen; Fig. 6, a side elevation of a portion of one of the links, showing a modified form of the shoe; Fig. 7, a transverse section through the link employed with the shoe shown in Fig. 6, showing the form of the clamps employed therein; and Fig. 8, a section on the line *x x* of Fig. 6.

This invention has particular relation to that class of hydraulic cotton-presses wherein the upper platen is stationarily mounted upon suitable pedestals and the lower platen is movable with respect to it, this lower platen being semicircular in shape and resting in the lower curved ends of endless links, the upper curved ends of which embrace a semicircular cross-head supported upon pistons working in suitable cylinders secured to the said stationary platen, as will more fully hereinafter appear.

The nature and objects of the present improvements will fully appear in the course of the following specification.

Referring to the accompanying drawings by letters, *A* designates the upper platen suitably supported; *B*, the vertical cylinders thereon; *C*, the upper cross-head semicircular in shape in vertical section; *D*, the lower platen similarly shaped, and *E* the two endless links connecting the upper cross-head and lower platen and constructed of bunches of steel-

wire strands wound around and around until a sufficient thickness is obtained.

Heretofore the curved faces of the cross-head and platen have been double-grooved for the reception and retention of the curved ends of the wire links; but this was objectionable on account of the difficulty experienced in placing the cross-head and platen in place in the ends of the links. I overcome this objection by securing to the links within their curved ends semicircular shoes *a*, grooved for the reception of the round links and clamped thereto by flanged clips *a'*, which are curved to fit the round links and are bolted to the shoes, a suitable number of these clips being employed to keep the links in the grooves in the shoes and to compel them to retain their shape. These shoes are slipped on the plain curved faces of the cross-head and platen from opposite sides thereof, (the latter being made to nicely fit within them,) and they abut against shoulders *b*, formed on the curved sides of the same. The shoes are prevented from slipping off the platen and cross-head by transverse horizontal bolts *a''*, connecting suitable lugs formed upon opposite pairs of clips *a'*, a suitable number of these bolts being employed.

Another difficulty with the wire links heretofore employed had been their tendency to bulge or spring outwardly when at rest; but I overcome this objection by inclosing the portions of the links below the upper platen with rigid casings or tubes *c*, which are constructed of semi-tubular flanged sections clamped or bolted around the links, the joints of the outer sections alternating with the joints of the inner sections, thereby "breaking" the joints and rendering the casing rigid from end to end. The inner sections are formed angular in cross-section and fit against angular shoulders formed upon the upper cross-head, (which the links embrace in the usual manner,) whereby the links are guided in their vertical movements.

From the upper ends of the casings to the cross-head the links are preferably inclosed in a casing of thin sheet metal *d*, wrapped around the same and clamped thereon by means of sectional clamps *e*, embracing the



links. These clamps *e* may be connected together by means of horizontal tie-bolts *e'*, which serve to prevent the upper portions of the links spreading.

5 As shown in Figs. 6, 7, and 8, rectangular links composed of rectangular wires may be employed instead of the round links shown in the other figures. In this case the clamps *e* and the shoes will be shaped to correspond  
10 to the cross-section of the links, and the shoes will each be provided with a removable clamping side plate *e''*, connected to the shoes by bolts *f f'*, these removable clamping-plates and bolts serving to clamp and hold the rect-  
15 angular-wire tightly in place.

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

1. The combination of the platen, cross-  
20 head, cylinders, links encircling the cross-head and platens, and shoes secured in the ends of the links and embracing the lower platen and the cross-head, substantially as de-  
scribed.

25 2. The combination of the platens, the lower one being semicircular in shape, the cross-head, cylinders, links embracing the platens and cross-head, and curved movable shoes clamped within the curved lower ends  
30 of the links and fitted on the semicircular lower platen, substantially as specified.

3. The combination of the platens, the movable one being semicircular in shape and provided with shoulders on its perimeter,  
35 cylinders mounted on the stationary platen and containing pistons, a semicircular cross-head mounted on the pistons and also provided with shoulders, endless links embracing in its curved ends the cross-head and lower  
40 platen, curved shoes secured in the curved ends of the links, embracing the lower platen and the cross-head and abutting against the shoulders on the same, and means for pre-

venting the shoes slipping off the lower platen and the cross-head, substantially as and for 45 the purpose described.

4. The combination of the semicircular platen and cross-head, the intermediate platen and cylinders, the wire links connecting the semicircular platen and the cross head, and  
50 curved removable shoes secured in the ends of the links and fitted on the cross-head and semicircular platen, each of the shoes having one of its sides removable and arranged so as to clamp the wires of the links, substantially 55 as described.

5. The combination of the platens, cross-head, cylinders, wire links, and sectional clamping-casings embracing the vertical portions of said wire links, substantially as de- 60 scribed.

6. The combination of the cross-head and lower platen, the intermediate stationary platen provided with oppositely-projecting shoulders, cylinders on this platen, wire links, 65 and angular guides secured to the lower portions of said links and fitting against the shoulders on the stationary platen, substantially as and for the purpose specified.

7. The combination of the platens, cylin- 70 ders, cross-head, and wire links, sectional clamps on the vertical portions of the wire links, and tie-rods connecting the said clamps, substantially as and for the purpose de-  
scribed.

8. A link for presses, constructed of bunched strands of wire incased in thin sheet metal, and sectional clamps clamped around the said sheet metal and incased wires, substantially 80 as and for the purpose described.

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

LEWIS J. MILLER.

Witnesses:

J. P. HENNESSY,  
J. F. KOLLOCK.