A. B. LAWTHER.
Hydraulic Press.

No. 199,297. Patented Jan. 15, 1878.

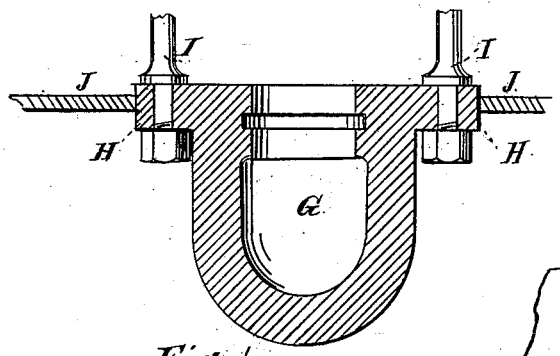

Fig. 1.

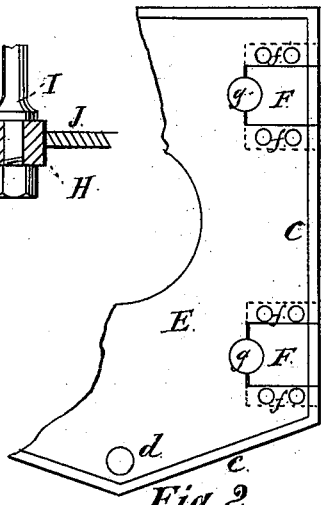

Fig. 2.

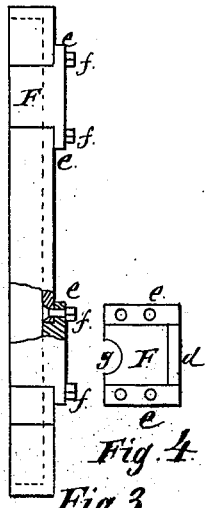

Fig. 3.

Fig. 4.

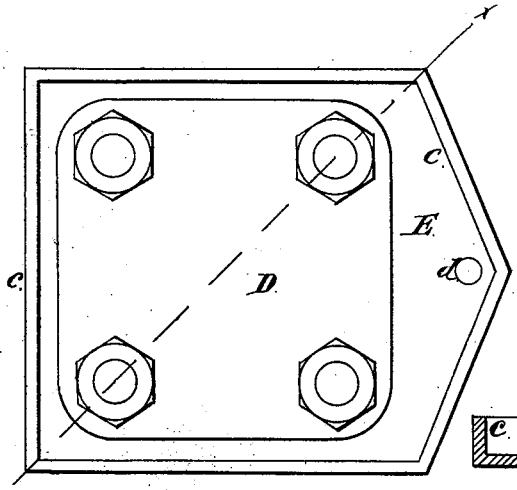

Fig. 5.

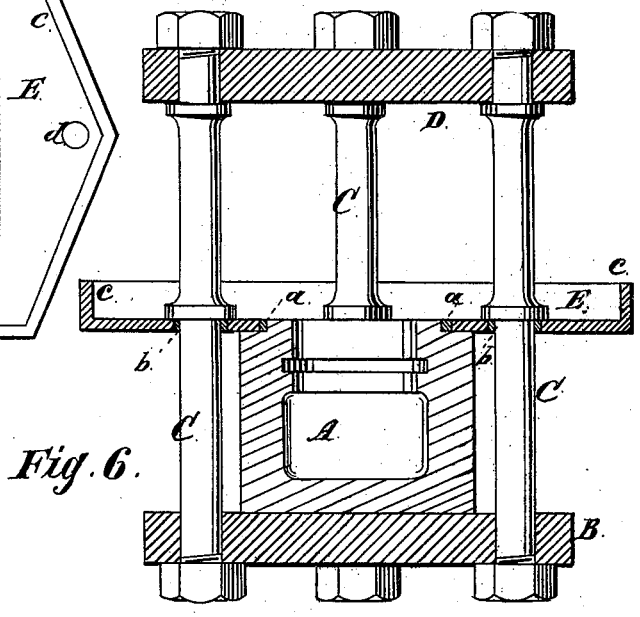

Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE

ALFRED B. LAWTHER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HYDRAULIC PRESSES.

Specification forming part of Letters Patent No. **199,297**, dated January 15, 1878; application filed November 30, 1877.

To all whom it may concern:

Be it known that I, ALFRED B. LAWTHER, of the city of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Hydraulic Presses, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is a detail in section, showing the old mode of securing the cylinder to the posts; Fig. 2, a detail in plan, showing one form of the supporting or joining plate; Fig. 3, a side view of the same; Fig. 4, a detail of the detachable pieces; Fig. 5, a top or plan view of the press; Fig. 6, a vertical section on line *x* of Fig. 5.

In hydraulic presses for pressing oil-seeds and similar substances, as formerly constructed, the cylinder was provided with lugs at the top for attachment to the columns or posts, which attachment was made either by solid heads or screw-nuts. This form of construction, by reason of the shortness of the columns, possessed the advantage of preventing a lateral motion or swaying of the head of the press when the charge was unevenly disposed, the short columns securing the necessary stiffness for this purpose, and that portion of the cylinder to which the lugs were attached, being nearly of a square outline in plan, and larger than the body of the cylinder, enabled the press to be placed below the level of the floor, and in such manner as to easily permit the floor to be laid in contact therewith, so that the press could be easily taken apart. This convenience of placing the press partly below the level of the floor was also an advantage for the purpose named. Although this form of construction possessed some advantages, the construction was such that it had the disadvantages of being unfavorably arranged for strength, and of exposing the cylinder to other strains than those due to the pressure of the confined liquid.

To overcome these disadvantages an improved form of press has been constructed, in which the lugs for attachment of the cylinder to the columns or posts have been attached either to the bottom of the cylinder or to a separate piece on which the cylinder could stand. This form of construction rendered the use of longer columns necessary, thereby decreasing the resistance to lateral motion at the head of the press furnished by the short columns, and the form or outline at or near the top of the cylinder is such when the press is together as to render the joining of the floor to the press impracticable.

To furnish a means for stiffening the long columns, to prevent lateral motion of the head, and to render the joining of the floor to the press practicable, are the principal objects of this invention; and its nature consists in providing a plate, located at or near the top of the cylinder, by means of which the cylinder can be tightly and rigidly joined to the columns; in forming and locating such plate that it will enable the floor to be laid in contact therewith; in providing such plate with a flange or rib and a suitable opening, and packing or fitting the cylinder or columns to the plate, so that the plate forms an efficient means for catching and carrying away any leakage or drip from the press; and in the several parts and combination of parts hereinafter set forth and claimed as new.

In the drawings, A represents the cylinder; B, the bottom lugs or flange; C, the columns or posts; D, the head; E, the metal joining-plate; F, the detachable piece; *a b*, the soft-metal packing between the plate, cylinder, and columns; *c*, the flange or rib on the outer edge of the plate; *d*, the drip-opening or channel-way; *e*, the flanges on the piece F; *f*, the bolts; *g*, the opening for the columns.

The cylinder A, lugs or flange B, columns C, and head D may be of any of the ordinary forms of construction of that style of hydraulic presses in which long columns are used, and the cylinder attached to the columns by lugs or flanges located at the bottom of the cylinder, which lugs may be attached directly to the cylinder A, or to a separate piece on which the cylinder can stand.

The plate E may be of any suitable form, and is attached to the cylinder A at or near the top thereof, and is provided with suitable openings *g*, by means of which it is attached to the columns C. This plate E may be joined to the cylinder and columns by machine-fitted surfaces, slightly coated with any suitable plastic cement, to render the joints tight; but as such accurate fitting is expensive, it is pref-

erable to fit the plate to the cylinder and columns so loosely as to permit the use of soft-metal packing between the surfaces of the plate, cylinder, and columns, to render the joints tight, as shown in Fig. 6, *a* being the soft-metal packing between the cylinder A and plate E, and *b* the soft-metal packing between the columns C and plate E.

The manner of constructing the plate E will depend upon the form or style of long columns used. If the columns have solid heads, the plate should be made as shown in Figs. 2, 3, and 4, so as to enable the plate to be inserted after the press is put together; and for this purpose the plate is provided with detachable pieces F, which fit corresponding openings in the plate, for the passage of the columns, which pieces F are provided with flanges *e*, for securing them in place to the plate. In this form of the plate E one half of the opening *g* is formed in the plate, and the other half in the piece F.

In manufacture, after the press is put together, the plate E is inserted and brought to the proper location; then the pieces F are inserted in their openings in the plate, and secured in place by means of bolts *f*, securing the plate, cylinder, and columns together. The joints around the columns C and between the plate E and pieces F are to be filled with a packing of soft metal to render them tight. If the columns are made with screw-nuts, then the plate may be in one piece, suitable openings being provided for the columns.

The plate E is larger than the body of the press, and its form or outline is such that when the press is in position it will enable the floor to be laid in contact with the plate, thereby making it convenient to take the press apart for the purpose of repairs, &c.

The plate E is provided on its outer edge with an upward-projecting flange or rib, *c*, and a suitable opening, *d*, is provided in the plate, so that this plate E forms a receptacle, in which any leakage or drip from the press will be caught, and from which it will be carried away to the proper receptacle through the opening or channel-way *d*.

When the form of plate having the piece F is used, this piece is also to be provided with a flange or rib corresponding to the flange or rib on the outer edge of the plate, the joint being made tight by packing or fitting.

The soft-metal packing can be most conveniently put in in a melted state, and afterward made tight by calking.

In Fig. 1 is shown the old mode of attaching the cylinder to the columns, G representing the cylinder, H the lugs or flanges, I the columns or posts, and J the floor.

By connecting the cylinder and columns by means of the plate E, as shown and described, it enables the floor to be laid so that the press is easily accessible for repairs, prevents the cylinder from being exposed to other strains than those due to pressure, secures the head of the press against lateral motion or swaying, and forms a receptacle to catch all drip or leakage, so that this press possesses the advantages of presses having long and short columns.

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

1. The cylinder A and columns C, in combination with the plate E, for joining the cylinder and columns, substantially as specified.

2. The cylinder A and columns C, in combination with the plate E and a soft-metal packing, substantially as and for the purposes specified.

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Witnesses:

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