J. G. STEEN.

Hydraulic Press.

No. 202,292. Patented April 9, 1878.

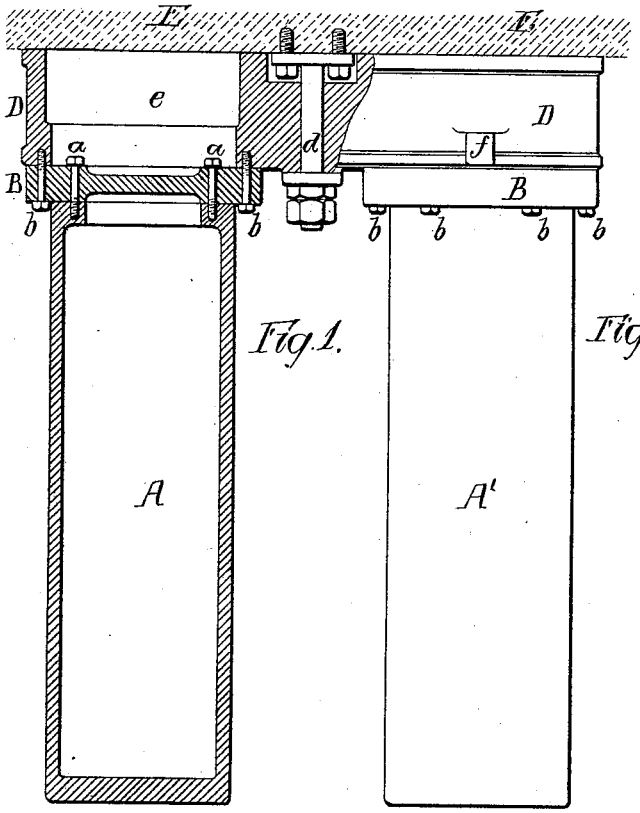


Fig. 1.

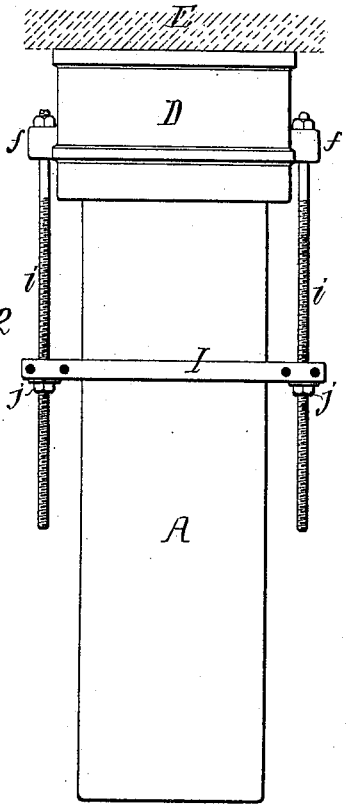


Fig2

Fig. 3

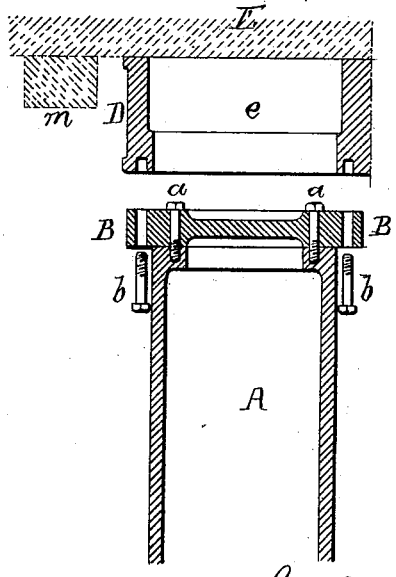
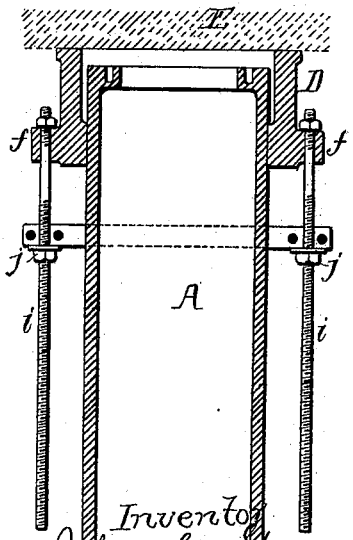


Fig. 4



Witnesses

John McCamer

Harry Smith

Inventor

John G. Steen

by his Attorneys

Howson & Howson

UNITED STATES PATENT OFFICE.

JOHN G. STEEN, OF READING, PENNSYLVANIA, ASSIGNOR TO SEYFERT, McMANUS & CO., OF SAME PLACE.

IMPROVEMENT IN HYDRAULIC PRESSES.

Specification forming part of Letters Patent No. **202,292**, dated April 9, 1878; application filed September 8, 1877.

To all whom it may concern:

Be it known that I, JOHN G. STEEN, of Reading, Pennsylvania, have invented a new and useful Improvement in Hydraulic Presses, of which the following is a specification:

My invention relates to certain improvements in that class of hydraulic presses in which two or more cylinders are employed, the object of my invention being to so construct a press of this class that ready access may be had to the interior of the cylinders for purposes of repairing, &c. This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view, partly in section, of the pistons of a duplex hydraulic press with my improvement; Fig. 2, an end view of the same; and Figs. 3 and 4, detached sectional views of part of the same.

A and A′ are two pistons, constructed in the usual manner, for adaptation to hydraulic cylinders, which it has not been deemed necessary to illustrate in the drawing. The upper end of each of these pistons is connected by means of bolts *a* to a plate, B, which is in turn connected by means of bolts *b* to a block, D, hung upon a central bolt, *d*, arranged midway between the two pistons, and secured to the cross-head E of the press. (Shown in dotted lines in the drawing.)

In the block D, immediately above each of the pistons A A′, is formed an opening, *e*, of a diameter equal to or slightly greater than that of said pistons, and on each side of said block D in line with the centers of the pistons are formed lugs *f*, for a purpose rendered apparent hereinafter.

When it is desired to gain access to the interiors of the cylinders of the press for the purpose of repairing the same or for any other reason, the pistons A A′ are first raised to their fullest extent, carrying with them the block D and cross-head E. The latter is then supported in its elevated position by means of beams *m*, Fig. 3, or by blocks or other suitable devices, and the bolts *b*, which serve to confine the plates B to the block D, are removed. The pistons are then allowed to descend, as shown in Fig. 3, so that access can be had to the bolts *a*, which are withdrawn, and the plates B removed from the top of the pistons. The latter are now elevated to as great an extent as the cylinders will admit, and a yoke, I, Figs. 2 and 4, clamped around each of the same some distance below the upper end. A long bolt, *i*, is now passed through the opening in each of the lugs *f* on the block D, the heads of these bolts resting on the lugs, and their lower ends passing between and extending some distance below the bars of which the yokes are composed, nuts *j*, adapted to the bolts, bearing upon the under edges of said bars. By operating these nuts the pistons will be raised, their upper ends entering the openings *e* in the block D, as shown in Fig. 4. As soon as the lower ends of the pistons are raised above the tops of the cylinders the block D is turned on its central bolt *d*, so as to bring the pistons to a position at right angles to the cylinders, the interiors of which are thus readily accessible.

In order to restore the press to its proper working position the above operations are reversed.

The above arrangement forms a simple and ready means of accomplishing the object aimed at in a more effective manner and without involving such a loss of time as is demanded by the present system. Moreover, the cross-head of the press is not weakened by the formation in it of openings adapted to the upper ends of the pistons.

It is not absolutely necessary that the plan of hanging the block D to the cross-head by means of a central bolt, as shown and described, should be adopted in every case, as other means, such as guides on the cross-head, to permit the sliding of the block so as to move the pistons out of line with the cylinders, could be used.

I claim as my invention—

1. In a hydraulic press having two or more cylinders, the combination of the pistons and their plates B with a block, D, hung to the cross-head of the press so as to be capable of moving thereon to an extent necessary to carry the pistons away from the mouths of the cylinders, as set forth.

2. The combination of the pistons and their

plates B with a block, D, pivoted to the cross-head, as set forth.

3. The combination of the pistons A A′, the block D and its openings *e*, the plates B, and the bolts *a* and *b*, as specified.

4. The combination of the pistons and their yokes I, the block D, its openings *e* and lugs *f*, and the bolts *i*, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN G. STEEN.

Witnesses:
BARNET H. WEST,
CHAS. W. BUCKLAY.