

No. 660,398.

Patented Oct. 23, 1900.

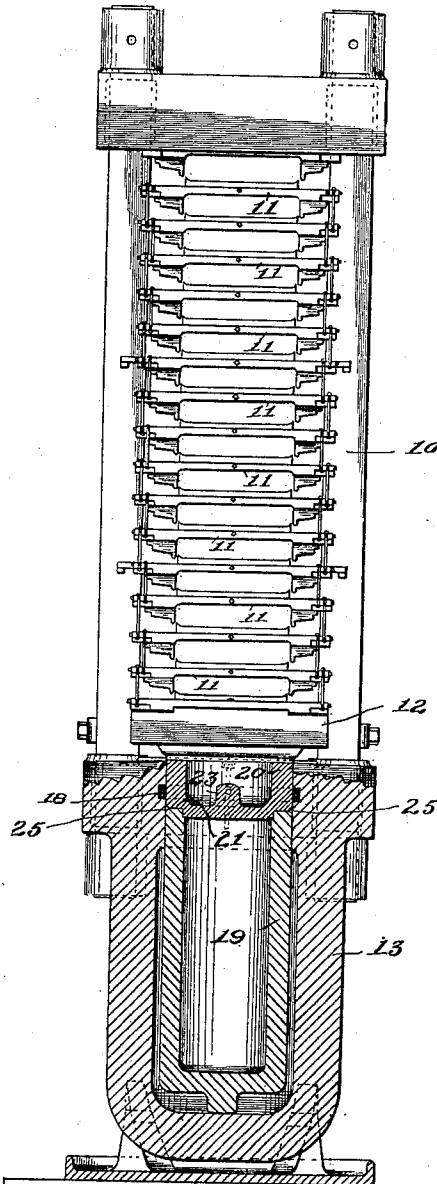
G. A. SAUER.
HYDRAULIC PRESS.

(Application filed Oct. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses:

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Bruce S. Elliott.

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by
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2 Sheets—Sheet 2.

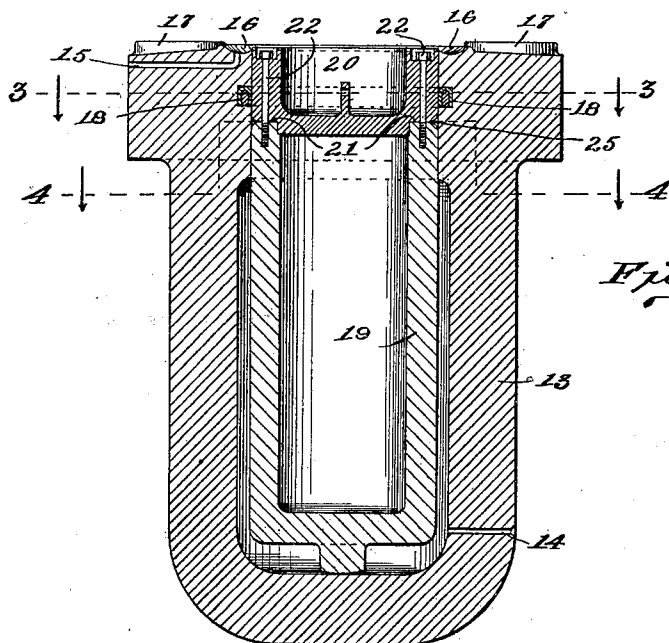


Fig. 2.

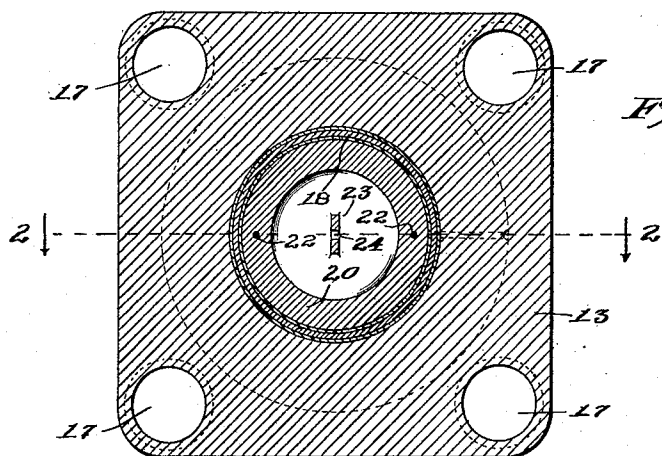


Fig. 3.

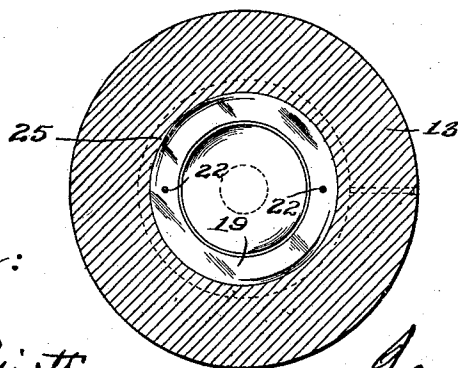


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE ADAM SAUER, OF DAYTON, OHIO, ASSIGNOR TO THE BUCKEYE
IRON AND BRASS WORKS, OF SAME PLACE.

HYDRAULIC PRESS.

SPECIFICATION forming part of Letters Patent No. 660,398, dated October 23, 1900.

Application filed October 30, 1899. Serial No. 735,308. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ADAM SAUER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented new and useful Improvements in Hydraulic Presses, of which the following is a specification.

This invention relates to a construction of ram for hydraulic presses in which the ram is provided with an upper removable section or cap so constructed and arranged that it may be readily and quickly detached and removed to afford easy access to the packing in the press-cylinder whenever said packing needs replacing and without any necessity of removing the entire ram. It is the purpose of my invention to so shape the peripheral edges of the upper and lower sections of the ram at the junction of these parts that said edges may pass smoothly along the cylinder-packing without cutting, abrading, or tearing the packing or inner face of the cylinder during the operation of the press.

For the above-named purposes my invention consists in the features of construction and novel combination of parts in a ram for the cylinder of a hydraulic press, as hereinafter more particularly described and claimed.

In the annexed drawings, illustrating the invention, Figure 1 is a part-sectional elevation of a hydraulic press provided with my improved ram. Fig. 2 is an enlarged vertical transverse section of the press-cylinder and hollow sectional ram on the line 2 2 of Fig. 3. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section of the press-cylinder on the line 4 4 of Fig. 2, with the lower part of the ram in top view.

Referring first to Fig. 1, the number 10 designates a vertical press-frame in which the usual press-boxes 11 are arranged, being supported by a foot-block 12 at the bottom of said frame. The frame 10 may be supported on or secured to the top of the press-cylinder 13 in any usual or suitable manner.

As shown in Fig. 2, the press-cylinder 13 is provided at a suitable point with an inlet-passage 14 for admitting fluid, and at the top of said cylinder there may be provided a drain-passage 15, leading from an annular

recess 16 in the cylinder-top. The upper end of the cylinder 13 is open and may be provided with a preferably-rectangular flange having therein openings 17, Fig. 3, for connection with the frame 10, that holds the press-boxes.

In the upper part of the press-cylinder 13 there is inserted the usual packing 18, Figs. 2 and 3, which may be of any suitable character. When the packing 18 is inserted in the cylinder 13 at some distance below the cylinder-top, as shown in Figs. 1 and 2, the usual ram constructed wholly in one piece must ordinarily be entirely removed from the cylinder in order to afford access to the packing for the purpose of renewing or adjusting it. This would ordinarily necessitate also removal of the upper parts of the press. To avoid these difficulties or objections of the ordinary press construction and to give quick and ready access to the cylinder-packing 18, I construct the ram from a hollow lower section 19, provided with a seat in the upper end thereof, and an upper separately-removable cap-section 20, bolted together, as shown in Fig. 2. The cap or upper ram-section 20 may be hollowed or recessed in its upper side, as shown, and its bottom is formed with an annular rabbet or shoulder 21 to fit snugly onto the top of the main ram-body 19, with the central bottom portion of said cap fitting into the seat of the upper end of the hollow lower part of said ram, as shown in Figs. 1 and 2. The two parts of the ram are securely connected by means of vertically-arranged screw-bolts 22, Figs. 2, 3, and 4, having their heads countersunk in the top of the removable ram-section or cap.

In the recessed top of the cap 20 there is a lifting-lug 23, provided with a perforation 24 for insertion of a hook, lever, or similar device for lifting and removing the said cap from the main body portion of the ram after the bolts 22 have been withdrawn.

The peripheral edges at the top of the ram-body 19 and lower part of the cap 20 are beveled off or rounded, as shown at 25, Figs. 1, 2, and 4, where the said ram-body and its cap are of the same external diameter, so that while in operation the ram may move smoothly and freely without cutting, tearing, or abrad-

ing the packing 18 or the inner face of the cylinder.

With the ram construction above described any necessary repacking of the press-cylinder can be readily and quickly accomplished. For this purpose fluid-pressure will be admitted to the cylinder through inlet-passage 14, Fig. 2, thereby forcing upward the ram and the foot-block 12 and superposed press-boxes. The foot-block and press-boxes will now be jacked up, and after this the pressure will be withdrawn from the press-cylinder, so as to allow the ram to descend to normal position, with the lower section of the ram below the cylinder-packing. The screw-bolts 22 will next be withdrawn, and then by any convenient means, such as a hook or lever engaged with the perforation of the lug 23, the ram-cap 20 can be readily removed, so as to afford easy access to the upper part of the press-cylinder for renewing the packing 18 without taking out the whole of the ram and with the advantage of effecting a large saving of time and labor in packing or repacking the press-cylinder.

By rounding or beveling the peripheral edges of the ram-body and its removable cap at the junction of said parts there will be pre-

sented no sharp edge to cut, abrade, or tear the cylinder-packing, and consequently the packing will not have to be removed so frequently as would be otherwise required.

What I claim as my invention is—

A ram adapted for use in hydraulic presses, consisting of a hollow body portion provided with a pair of recesses, an annular seat in the top thereof, and having the peripheral edge of the top beveled, a cap for said body portion of the same relative diameter, formed with a recess in its upper side and having the peripheral edge of the bottom beveled, a rabbet carried by said cap and adapted to engage the seat of the body portion, means extending through said cap and engaging in the said recesses for detachably securing the cap to the body portion, and a lifting-lug formed integral with said cap and arranged within the recess thereof, substantially as herein shown and described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE ADAM SAUER.

Witnesses:

JOSEPH H. HUBBELL,
JOHN L. H. FRANK.