(No Model.) 2 Sheets—Sheet 1.

W. R. FEE.

OIL PRESS.

No. 418,115. Patented Dec. 24, 1889.

Fig. 1.

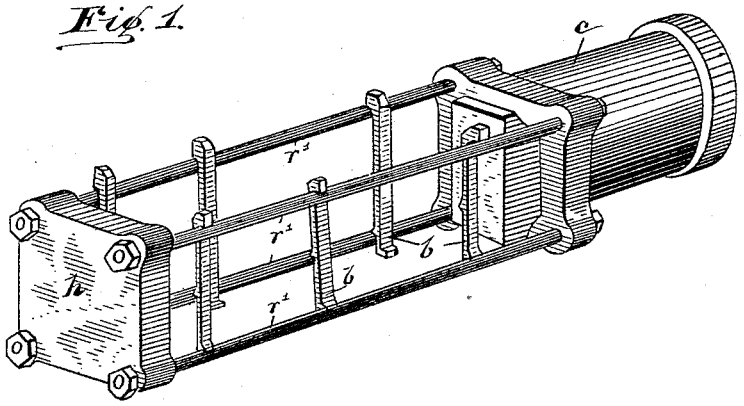


Fig. 2.

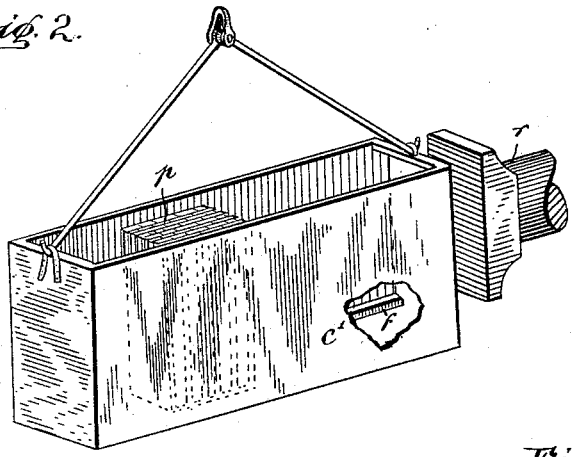


Fig. 3.

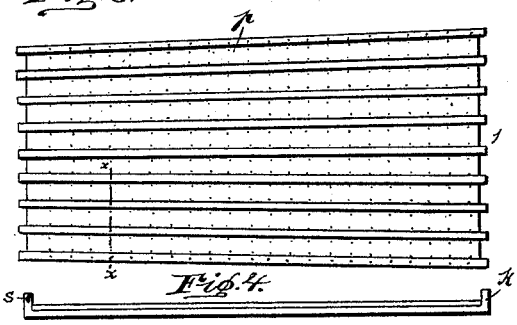


Fig. 4.

Fig. 5.

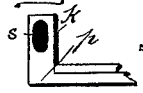


Fig. 6.

Fig. 7.

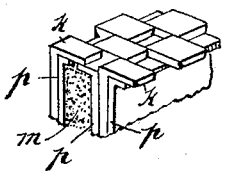
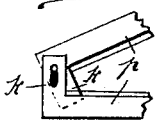


Fig. 8.



WITNESSES.

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(No Model.) 2 Sheets—Sheet 2.

W. R. FEE.

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Fig. 9.

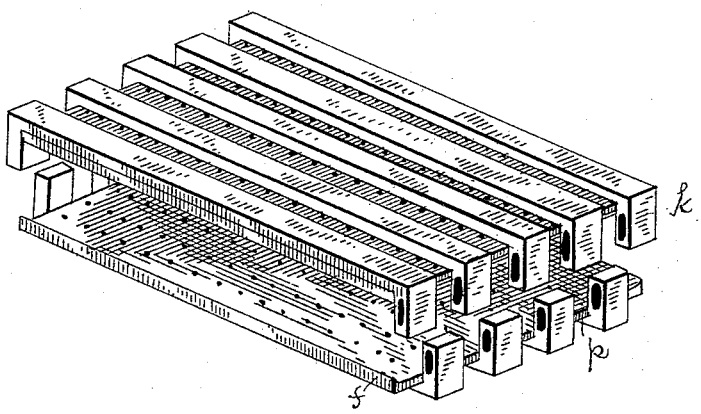
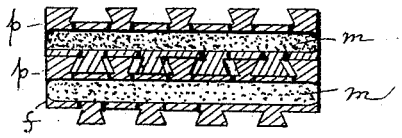


Fig. 10.



WITNESSES.

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INVENTOR.

Wm. R. Fee
By C. F. Jacobs
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UNITED STATES PATENT OFFICE.

WILLIAM R. FEE, OF CINCINNATI, OHIO, ASSIGNOR TO THE EDINBURG PULLEY COMPANY, OF EDINBURG, INDIANA.

OIL-PRESS.

SPECIFICATION forming part of Letters Patent No. 418,115, dated December 24, 1889.

Application filed February 26, 1889. Serial No. 301,275. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. FEE, of Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Oil-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

My invention relates to the construction of presses for extracting oil from cotton and other seed meal, and will be understood from the following description.

In the drawings, Figure 1 is a perspective view of the press with its frame for holding the inclosing-case. Fig. 2 is a similar view of the case with some of the books set in proper position, as indicated by the dotted lines, a part of one side being broken away, showing the flange at the bottom of the opposite side. Fig. 3 is a back view of one of the perforated pressing-plates. Fig. 4 is an edge view of the same. Fig. 5 is an enlarged view of one end of the device shown by Fig. 4, showing one of the horizontal interlocking projections and its slot. Fig. 6 is a sectional view, Fig. 3. Fig. 7 is an enlarged perspective view of the upper end of three of the plates, showing two of them with their interlocking ends and the meal-sack *m* between the rear two. Fig. 8 is an enlarged detail view of one end of the two interlocking hinged plates forming the book. Fig. 9 is a perspective view of the two sides of the mat nearly ready for jointing. Fig. 10 is a cross-section of two of the mats when nested together, showing a meal-sack between each pair.

The object of my invention is to provide a press for extracting oil from cotton, flax, or other seeds. Heretofore presses have been provided with sliding boxes which required either oil-cloth or hair-cloth mats on both sides of the cakes to be pressed, or the mats themselves were so arranged that the oil had to be pressed out to the edges instead of being taken directly through the sides of the mat, or if the mats were perforated on one side they were placed in the press horizontally, so that the drainage from the mat or cake would be only on the under side. By these various arrangements it is obvious that the cake would have to be subjected either to a very great pressure or the pressure would have to continue on the same a longer time than if the drainage passed through both surfaces of the cake, as herein proposed, and in order to accomplish this successfully I set the hydraulic press in a horizontal position, and instead of having a separate box for each mat or "book," as it is technically called, I make one box whose sides are flanged at the bottom, which is capable of holding twelve or more vertically-disposed books, and the plates forming these books are made of metal and take the place of the pliable books or hair mats ordinarily used. The drainage from the cake is mainly through these plates, which have horizontal perforations, chiefly along the line of channel-ways formed vertically on the backs of the plates between adjacent ribs, and the oil thus flows downwardly in these channels without obstruction during the process of pressing. These plates have slightly-flanged edges to grip the corners of the sack and interlocking horizontal projections or knuckles at the ends for closing over and beneath the ends of the sack, so that the oil is pressed from the cake as fully around the edges as in the center, and hence the body of the cake comes out of the mat sharply formed and neat in appearance and requiring no trimming or shaping.

In detail, *c* is the cylinder of the press, and *r* its ram, this cylinder having a squared end, which is connected by rods *r'* to the outer head *h*, the ends of the rods being secured by nuts, as shown, thus forming a frame-work for holding the case *c'*, which is shown in Fig. 2.

b are brace-stirrups, which have projections resting upon the upper and lower rods and flanged ends upon which the sides of the case rest. This case consists of a rectangular box with open bottom and top and an opening in one end to admit the ram. The lower ends of the sides are formed with narrow flanges *f*, and these support the books, which are composed of two of the pressing-plates *p*, preferably hinged together, as shown in Fig. 8, and have between them the meal-sack *m*, and are

set back to back, their ribs nesting the one within the other in a vertical position in this case until it is filled. The case is then lifted by the crane through its bail and set into the frame-work, (shown in Fig. 1,) so that the lower ends and sides of this case will rest upon the braces *b*. This device serves not only as a support for the cases, but also to brace the rods *r'*, holding the frame-work rigidly in place. The plates themselves are made of metal and have a series of ribs formed on the back, as shown. These plates, being a little wider at the top than at the bottom, facilitate its withdrawal from the inclosing-case, and the ribs conform to this taper. Along each side of the ribs is a series of small perforations, and these perforations may be made through the outer ribs, if desired, and through these the oil passes during the operation of pressing, and thence downward in the channels or grooves, passing out at the open end of the box into the receptacle placed below to catch the oil. The sides of these plates have narrow flanges *f'*, as shown in Fig. 6, for gripping the edges of the sack and assist in forming the edges of the cake. Similar flanges are preferably carried along the ends of these plates also. On these ends are also formed horizontal projections or knuckles *k*, and those of the inner plate are adapted to interlock with those of the other when the two are set in position on each side of the sack of meal forming the book, thus closing up the ends of the book about the sack of meal and preventing the oil from escaping in that direction. These projections have vertical slots *s* formed through them, as shown in Fig. 5, and, if desired, they may be hinged together by passing a pin through these slots, as shown in Fig. 8. This hinge, however, is a matter of convenience, as the plate can be used without the slots.

The sack of meal to be pressed is placed between two of these plates in the manner shown, and this forms the book, and it is set in the case *c'* in a vertical position, the wider end of the plates being at the top and its width extending across that of the box, and when the box is filled it is set in position in the frame-work of the press, resting upon the stirrup-braces, and, the ram being entered through the open end of the box, the books are pressed, the oil escaping through the edges of the sack between the flanges of the plates, but principally directly through the sides of the sacks, passing through the perforations in the plates, and running down the channels formed between the ribs, as hereinbefore described. I am thus able to dispense with the use of hair mats or books altogether, while at the same time by providing means for draining the oil directly through the pressing-plates a great saving is effected, as a considerably greater quantity of oil can be extracted from the same amount of meal in the press herein shown than in others commonly in use.

The hydraulic ram is one of the ordinary kind, and indeed my inclosing-case may be used with the ordinary press. The pipe-connections to the cylinder are not shown herein, as they constitute no part of my present invention.

In nesting the books one against the other in the case one of the plates thus nested against the other is formed with one more rib, while the opposite one will have one less rib and one more groove or channel, thus allowing the ribs of one to register with the grooves of the other, saving considerable space, and at the same time making the series thus nested together compact and firm when placed in position in the case.

What I claim as my invention, and desire to secure by Letters Patent, is the following:

1. In an oil-press, a book for receiving a meal-sack, composed of a pair of perforated pressing-plates, each having a series of ribs upon its back forming longitudinal grooves between them, flanges upon its sides, and a series of projections on the ends thereof, such projections on one set to correspond with the space between the projections on the other, whereby the two are adapted to interlock, substantially as shown and described.

2. In an oil-press, a series of pressing-plates, their inner faces smooth, forming a back for the facing-cloth, their backs provided with ribs and grooves between them, and a series of perforations extending longitudinally in the angles of the grooves along the sides and near the edges of the outer ribs for draining the oil from both sides and from the edges of the cake, substantially as shown and described.

3. In an oil-press, an inclosing-case having an open bottom and sides having flanges at their lower ends, in combination with a series of vertical perforated plates resting upon such flanges and nested therein, substantially as shown and described.

4. In an oil-press, a book for receiving the material to be pressed, composed of two vertical perforated plates, their inner faces being smooth, their backs provided with ribs forming grooves between them for nesting the same, having on each end horizontal projections for interlocking with each other and closing the ends of each pair of plates over the sack of oil-meal placed between them, substantially as described.

5. In an oil-press, a book composed of two perforated plates for hinging together, as shown, their inner faces being smooth, having horizontal projections at their upper and lower ends, their backs having corresponding ribs with grooves between them, in combination with an inclosing-case for nesting the books therein, such case having an open end to admit the passage of the ram, a ram, and a hydraulic press, substantially as shown and described.

6. A mechanism for pressing oil from seeds, comprising a hydraulic press set in a horizontal position, an inclosing-case having an open end to admit the passage of the ram, its

sides flanged at their lower ends, an open bottom, and a series of pressing-plates wider at the top than at the lower end, between each pair of which is placed the material to be operated upon, such plates being perforated, their inner faces smooth, their backs grooved for nesting together, and set in a vertical position in such case and upon the flanged ends of the sides thereof, substantially as described.

7. In an oil-press, a book for holding the sack of material, comprising a pair of tapered pressing-plates, their sides slightly flanged for gripping the edges of the sack, their ends having horizontal interlocking projections for closing over and beneath the ends of the sack, their inner faces plain, their backs having ribs with grooves between, such plates having perforations at the junction of such ribs and grooves, substantially as shown and described.

8. In an oil-press, a book for inclosing the meal-sack, composed of a pair of tapered pressing-plates, their edges having flanges narrower than the width of the sack for gripping the sides thereof, their ends having interlocking horizontal projections for closing the ends of the book about the sack, their backs ribbed and grooved for nesting adjacent books back to back, such plates being perforated horizontally to admit the oil to pass through them into such grooves and set in a vertical position in a series in an inclosing-case, in combination with such case and a hydraulic ram, substantially as described.

In witness whereof I have hereunto set my hand this 19th day of February, 1889.

WILLIAM R. FEE.

Witnesses:
C. P. JACOBS,
E. B. GRIFFITH.