(No Model.)

2 Sheets—Sheet 1.

W. R. FEE.

OIL PRESS.

No. 261,440. Patented July 18, 1882.

Fig. 1.

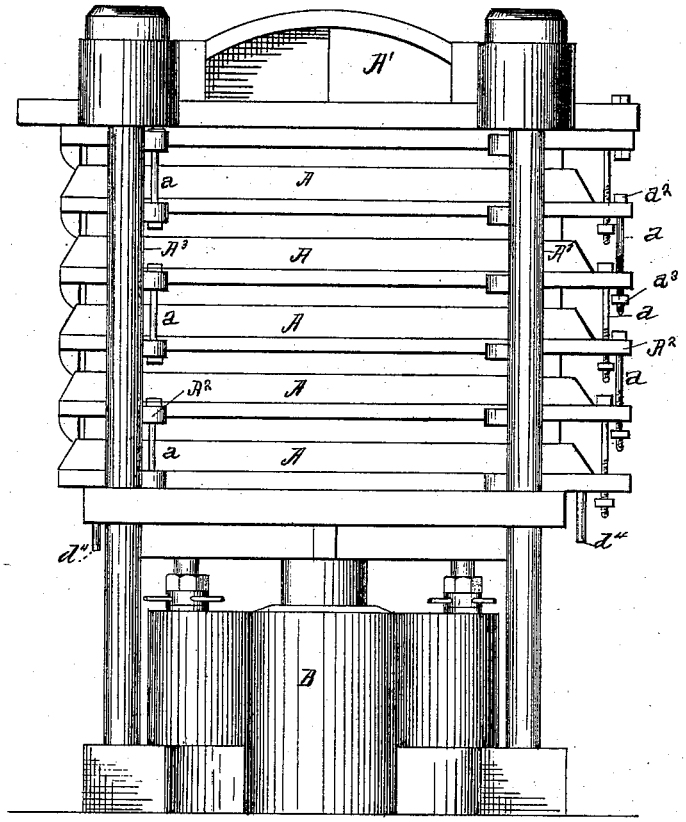
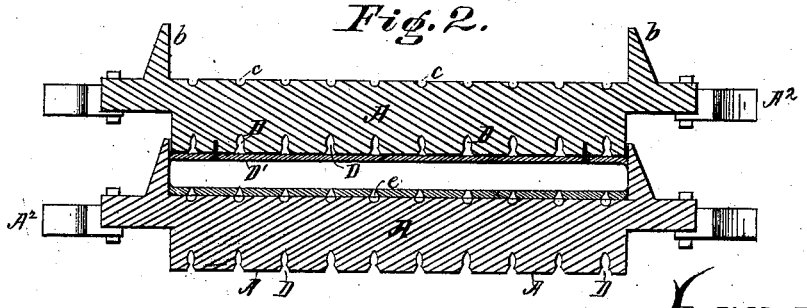


Fig. 2.



Attest:
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Inventor:
Wm. R. Fee,
per Wm. Hubbell Fisher,
Atty.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

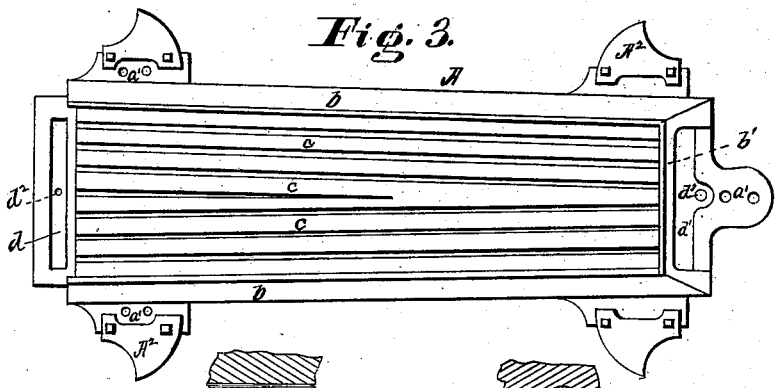


Fig. 4.

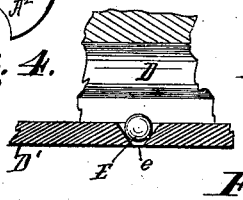


Fig. 5.

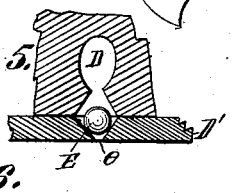


Fig. 6.

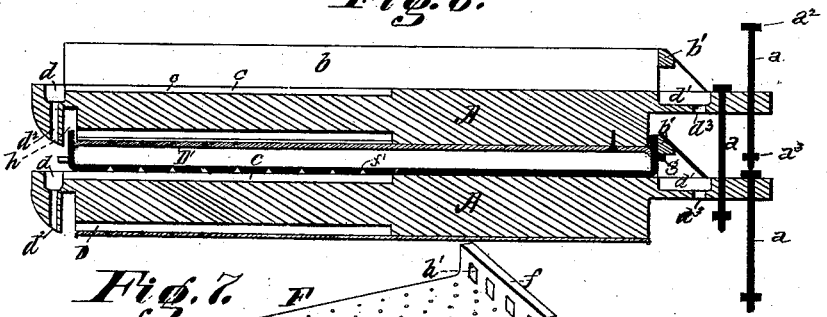


Fig. 7.

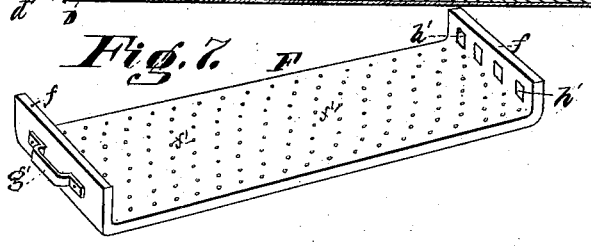
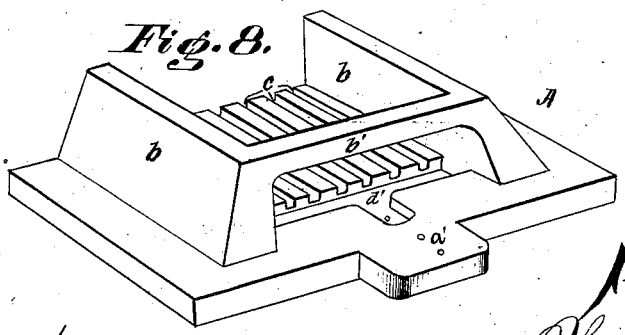


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM R. FEE, OF CINCINNATI, OHIO, ASSIGNOR TO THE PLANTERS OIL MACHINERY COMPANY, OF SAME PLACE.

OIL-PRESS.

SPECIFICATION forming part of Letters Patent No. 261,440, dated July 18, 1882.

Application filed December 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. FEE, of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Oil-Presses, of which the following is a specification.

My invention relates especially to presses for the manufacture of cotton-seed oil, but it may, however, be employed with equal facility in the manufacture of castor-oil, linseed-oil, &c.

The purpose of my invention is to provide a convenient and efficient means for thoroughly removing the oil from the seed.

The various features of my invention will be obvious from the following description and the drawings, which latter form part of this specification.

Figure 1 is a side elevation of a press complete employing the various features of my invention. Fig. 2 is a transverse section through two of the boxes of the press. Fig. 3 is a top view of one of the boxes. Figs. 4 and 5 are detail views, showing the valves which control the flow of oil. Fig. 6 is a central longitudinal section through two of the boxes of the press, showing the mat in position. Fig. 7 is a perspective view of one of the mats which I employ. Fig. 8 is a perspective view, showing the rear end of one of the boxes.

A are the boxes of the press, which are made of iron or steel or other strong metal, a number of which boxes are employed in each press, each succeeding box being suspended from the one immediately above it by bolts *a*, the top box being suspended from the upper part of the frame A′. Below the boxes is the press B, which may be a hydraulic or other form of press, as desired. The bolts *a*, by which the boxes are suspended, pass loosely through holes *a′* at the sides and rear ends of the boxes, and each bolt is provided with a head, a^2, and nut a^3, so that when the platen of the press is lowered each box will hang from the one immediately above it, excepting the upper box, which hangs from the upper part of the frame. When the platen of the press is elevated one box after another is lifted, the bolts *a* slipping through the openings *a′* until all of the boxes are tightly compressed between the platen and the top of the frame.

The boxes A are each provided with the upwardly-extending side flanges, *b*, both ends of said boxes being open, the rear end of each box, which is slightly narrower than the front end, being provided with the yoke *b′*, which extends across the end from one flange *b* to the other, as shown. The lower face of the bottom of each box A is narrowed, as shown in Fig. 2, so that it will fit closely between the flanges *b* of the box immediately below it. The upper face of the bottom of each box between the flanges *b* is provided with a series of longitudinal channels, *c*, which extend from end to end of the box and conduct off part of the oil from the seed being pressed. At either end of each box are troughs *d d′*, formed in the bottom of the box, and into which the channels *c* empty their contents. From these troughs *d d′* are passages or openings d^2 d^3, which conduct the oil from one trough to the one immediately below it, the bottom trough being provided with a tube, d^4, to which a pipe may be connected to convey the oil to any desired point.

The under surface of the bottom of each box A is provided with a number of longitudinal channels, D, shaped as shown in Figs. 4 and 5. A plate, D′, is secured to the lower face of the bottom of each box, said plate being provided with a series of openings, *e*, said openings being preferably circular and reamed, as shown in Figs. 4 and 5, and corresponding in position to the channels D in the under side of the bottom of each box.

In the reamed portion of each of the openings *e* is placed a ball-valve, E, the shape of the channel D above each line of valves being such that the balls may be slightly raised to permit oil from below to pass up through the openings *e* and into the channel D, and yet not permit the balls to be moved away from the openings to which they belong. By this means oil is permitted to flow upward through the openings *e* and into the channels D, through which it is conveyed to the ends of the boxes, where it is discharged, the balls acting as valves to prevent any backward flow of oil through the openings *e*.

F is the mat which I employ for placing the seed or meal in the press. This mat is made of metal, and is provided at either end with an upwardly-extending flange, *f*, the sides of the mat not having any flanges. This mat is made

of a size to snugly fit into the boxes A between the flanges *b*. The rear flange *f* is provided with a lug, *g*, which, when the mat is in the box, fits under the yoke *b'*, holding the mat firmly down upon the bottom of the box, and the front flange *f* is provided with a handle, *g'*, by which the mat is placed in and removed from the press. When the boxes are pressed together the front flange *f* of the mat enters the recess *h* in the under side of the bottom of the box immediately above it, preventing the flange from being forced out by any degree of pressure which may be applied. The bottom of the mat F is provided with a series of openings, *f'*, which correspond in position to the line of the various channels *c* in the upper face of the bottom of the boxes, so that any oil which is forced through the openings *f'* will pass into said channels and be conducted off. The rear flange *f* of the mat is provided with a number of openings, *h'*, through which oil may escape. The side edges of the bottom of each mat F are slightly turned up, and the corresponding edges of each plate D' are slightly turned down, as shown, so that when the various boxes and mats are in position the edges of these plates come nearer together than the remaining portions of the plates. The purpose of this is to press the seed or meal away from the sides of the box, to lessen the adhesion, and also to press the oil toward the center of the box, where it will be forced out through the openings *e* in the plate D' and the openings *f'* in the mat.

The boxes A are each provided with the adjustable wings A^2, which bear against the posts A^3 of the frame, and may be so adjusted as to cause the bottom of each box to accurately enter the box immediately below it.

The operation of my invention as above described is as follows: The mat F is placed in a supplemental box similar in shape to the boxes A, and filled with the seed or meal from which the oil is to be extracted. The contents of the mat are then subjected to a slight pressure by a supplemental press to cause the contents to be retained within the mat while it is being transferred to the press. The ordinary bag may be used in connection with my improved mat; but I prefer to use merely facing-cloths, as they are much cheaper than the bags and serve the same purpose. When bags are used, however, my mat causes the wear of the bags to be greatly reduced in comparison with the wear to which the bags are subjected when they are used in connection with the hair mats now most generally employed, for the reason that these latter mats permit of a certain amount of stretching, and the bags are thereby subjected to great strain and are constantly being torn; but this is not the case where my mat is used, as it does not permit of any longitudinal or transverse strain of the bags. The platen of the press is now lowered, allowing the boxes to be suspended as above described, when one of the mats F, after it has been filled, may be placed in each one of the boxes A. When the boxes have all been filled the platen of the press is elevated, and the seed or meal in the various boxes is then thus tightly compressed between the bottom of one box and the one immediately above it until the oil is all extracted. The oil as it is pressed from the seed is forced in two directions—viz., up through the openings *e* in the plate D' and down through the openings *f'* in the bottom of the mat F. The oil which is forced up through the plate D' lifts the valves E and goes into the channels D, through which latter it flows till it reaches the troughs *d'* and outlets d^2, the valves E preventing the oil from returning backward through the openings *e*. The oil which is forced down through the bottom of the mat F passes into the channels *c*, and thence into the troughs *d* and *d'*, the greater portion of it passing into the trough *d'*, as the rear ends of the boxes are placed slightly lower than the front ends to facilitate the flow of the oil. When the oil has all been extracted the platen of the press is lowered, and the various mats containing the dry oil-cake may be removed.

By my improved box and mat I am able to thoroughly extract the oil from the seed, and at a much less expense than by the old bag or book methods, and I obtain a greater quantity of oil from a given quantity of seed than can be obtained from any other process, as I provide so many different points at which the oil may escape.

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

1. An oil-press consisting of a number of boxes located one above another, and an appropriate pressing device, the bottom of said boxes being each provided with a series of longitudinal channels for conducting the oil into troughs formed in either end of the bottom, substantially as described.

2. In an oil-press, a series of boxes, A, located one above another, and each provided with the side flanges, *b*, the upper surface of the bottom of each box being provided with the channels *c*, and the lower face of the bottom of said boxes being provided with the channels D and the plate D', secured to said bottoms and provided with openings *e*, corresponding in position to the channels D, substantially as and for the purposes specified.

3. The boxes A, each provided with the channels D, and having secured thereto the plate D', provided with openings *e*, corresponding in position to the line of the channels D, each of said openings being provided with a ball-valve, E, substantially as and for the purposes specified.

4. The removable mat F for oil-presses, having the end flanges, *f f*, the bottom of said mat being provided with a series of openings, *f'*, and the rear flange *f* being provided with the openings *h'*, substantially as and for the purposes specified.

5. The combination of the boxes A, provided with side flanges, *b*, and channels *c*, and the removable mat F, provided with the end flanges, *f f*, and the openings *f'*, said openings being directly over the channels *c* when the mats are in the boxes, substantially as and for the purposes specified.

6. The combination of the boxes A, provided with channels *c* and side flanges, *b*, yoke *b'*, and recess *h*, and the removable mat F, provided with openings *f'*, corresponding in position to the line of the channels *c*, and the end flanges, *f*, one of said flanges being provided with the lug *g* to fit under the yoke *b'*, substantially as and for the purposes specified.

7. The boxes A, located one above another, the bottom of each box being provided with the channels *c* and D, and having secured to the lower face of the bottom the plate D', provided with openings *e*, in combination with the removable mat F, provided with end flanges, *f f*, and openings *f'* in the bottom of the mat, and *h'* in the rear flange *f*, substantially as and for the purposes specified.

8. In an oil-press, two or more boxes, A, each box being suspended from the one above it by bolts *a*, and all being suspended from the frame A', in combination with a press located below said boxes, substantially as and for the purposes specified.

9. The combination of the boxes A, suspended from the frame A', each box being provided with the adjustable wings A^2 and the posts A^3, substantially as and for the purposes specified.

WM. R. FEE.

Attest:
WM. E. JONES,
J. WM. STREHLI.