(No Model.)

J. H. HUBBELL.

OIL PRESS BOX.

No. 589,389. Patented Aug. 31, 1897.

Fig. 1.

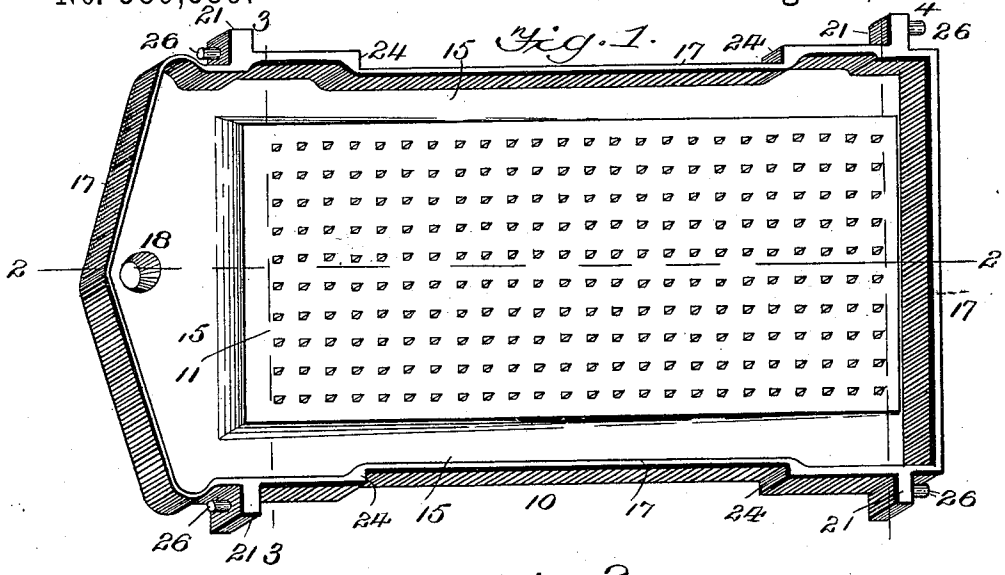


Fig. 2.

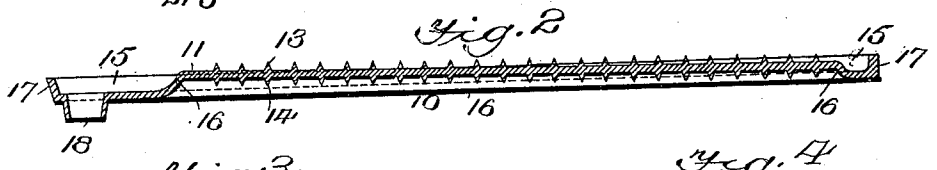


Fig. 3.

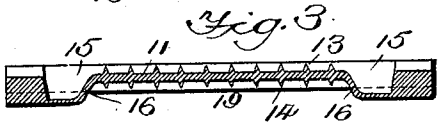


Fig. 4.

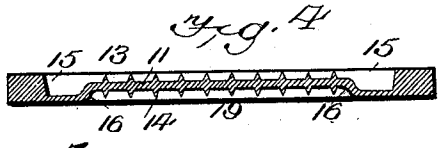


Fig. 5.

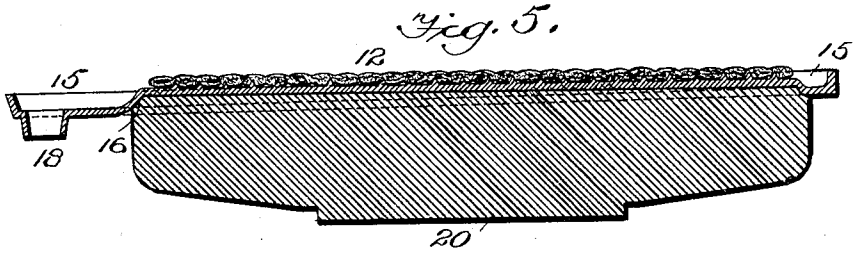
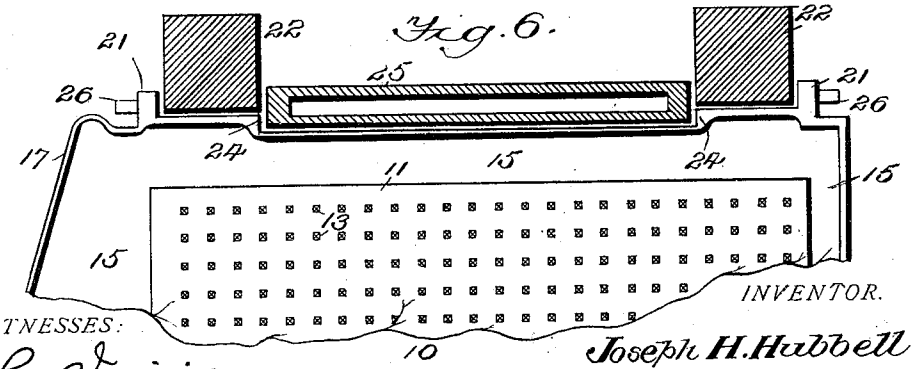


Fig. 6.



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JOSEPH H. HUBBELL, OF DAYTON, OHIO, ASSIGNOR TO THE BUCKEYE IRON AND BRASS WORKS, OF SAME PLACE.

OIL-PRESS BOX.

SPECIFICATION forming part of Letters Patent No. 589,389, dated August 31, 1897.

Application filed May 4, 1897. Serial No. 635,051. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. HUBBELL, 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 Oil-Press Boxes, of which the following is a specification.

This invention relates to oil-press boxes, and has for its object to provide improved and thoroughly effective means for preserving the cloths and hair mats from destruction by spreading sidewise, also to provide a perfect drainage for the box while maintaining it in a true horizontal position, thus obviating any liability to absorption of the expressed oil by the cakes, cloths, or mats, and to generally so improve the form and construction of the oil-box that it will better withstand the strains to which it may be subjected in a press.

The invention consists in an oil-press box having the novel features of construction hereinafter described and claimed.

In the annexed drawings, Figure 1 is a perspective of my improved oil-press box viewed from the top. Fig. 2 is a central vertical longitudinal section of the box on the line 2 2 of Fig. 1. Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 1. Fig. 4 is a vertical transverse section on the line 4 4 of Fig. 1. Fig. 5 is a central vertical longitudinal section of the oil-press box with a hair mat thereon and showing the oil-box as supported on the foot-blocks of a press. Fig. 6 is a part plan of the oil-box with press-columns and a press side wall in section.

The oil-press box 10 is constructed with a raised and horizontal mat-bed 11, on which is to be supported a hair mat 12, Fig. 5, and the cloths that envelop the meal to be pressed. On its upper surface the mat-bed 11 is provided with spurs 13, that are adapted to engage the under mat or under side of a mat and prevent it from slipping or spreading. Similar spurs 14 are provided on the under side of the mat-bed to engage the upper side of a mat supported on the mat-bed of a lower oil-box. These spurs 13 and 14 have a triangular shape and are arranged in parallel transverse and longitudinal rows, as shown, with extensive flat surfaces between and around them. The mat 12 is thus enabled to lie flat upon the bed 11 and maintains a horizontal position without wrinkling, slipping, or spreading under the pressure to which the mat and inclosed meal are subjected. Thus, also, the meal is not liable to be squeezed out from the edges of the mat and into the gutters 15 that surround the elevated mat-bed, and consequently these gutters are not likely to become fouled or clogged.

It will be noted that the inner walls of the gutters 15 are formed by flanges 16, that depend from all sides of the elevated and horizontal mat-bed 11, while their outer walls are constituted by an upwardly-extended flange 17, which surrounds the oil-box. The rear end of the oil-box is preferably somewhat bowed or pointed, as shown, and the gutter in this portion is deepest and has leading therefrom a spout 18, Figs. 1, 2, and 5, for discharge of oil. In the forward or front end of the box the gutter 15 is of least depth, and from this point the gutter gradually increases in depth along each side of the box toward its rear end, as indicated by the dotted line in Fig. 2. The greater depth of the gutter 15 at the rear end of the oil-box and its least depth at the front end will also be seen by reference to Figs. 3 and 4, which represent cross-sections near opposite ends of the box. Thus while the elevated mat-bed 11 is in a true horizontal position the inclination of the gutters from front to rear of the oil-box furnishes a perfect drainage, so that the expressed oil cannot stand in pools to be reabsorbed by the mats, cloths, and oil-cake.

The elevation of the horizontal mat-bed 11 provides on its under side a recess 19, in which the under spurs 14 are located. By reference to Figs. 2, 3, and 4 it will be seen that the points of the depending spurs 14 are above the level of the lowermost portions of the side flanges 16, that constitute the inner side walls of the drainage gutter or gutters. These side flanges 16 therefore occupy a favorable position for assisting the spurs in preventing lateral spreading or displacement of a mat both on its upper and under sides. The bottom mat is generally less liable to side-spreading by reason of the greater compactness of the under side of an inclosed cake and because an effective prevention of movement in the

top mat, as by the aid that the flanges 16 afford to the spurs 14, will at the same time secure the bottom mat in place, especially as the lowermost portions of the flanges 16 will to some extent assist the spurs 13 on an underneath oil-box. Neither the top nor bottom mats are affected so much by spreading lengthwise as sidewise. It is preferable to provide all the boxes in a press with hair mats on both sides, above and below, except the top and bottom boxes.

In the extraction of flaxseed-oil by pressure it is customary to apply on a surface of, say, thirteen by thirty-two inches, on these hair mats a pressure of three hundred and fifty to four hundred tons, and to avoid destruction of the mats it is very essential that the most effective means should be provided to prevent slipping, spreading, or tearing of the mats, as well as the cloths that envelop the oily material. This result is fully and economically attained by means of the triangular spurs 13 14 and the depending flanges 16 of the elevated mat-bed.

The raised and horizontal mat-bed 11 not only holds the mats 12, Fig. 5, in place but elevates them so far above the drainage-gutters 15 that even should any oil be retained in the gutters by their becoming fouled with meal it will not come in contact with the edges of the cloths or mats or be taken up by capillary attraction, and thence reabsorbed by the cakes, which in some presses is a difficulty that causes a large loss of oil.

By reference to Fig. 5 it will be noticed that the mat-bed 11, or all that portion of the oil-box on which great pressure is exerted, is in an exact horizontal position as well as that portion of the press foot-block 20 on which the mat-bed fits, while the inclined drainage-gutters 15 fit into depressions on the edges of said foot-block, but without close contact therewith at the sides, the intention being that the great pressure employed shall come only where it is opposed and in a perfect vertical direction against horizontal planes to save all parts of the oil-boxes and press from undue strain and to retain the oil-boxes in the most effective position without risk of injury.

It has been a common practice in vertical presses to throw the press-frame somewhat out of plumb and thereby tilt the boxes rearwardly to effect drainage of the oil. In such cases the ordinary guide-lugs 21 will bind on the press-columns 22, Fig. 6, and when the oil-boxes are let down to be refilled the front lugs will hug closely to the front columns because of the press being thrown back at the top out of plumb, while the boxes being suspended at the top and linked together will naturally tend to gravitate to a horizontal position so far as the lugs 21 and columns 22 will permit. On sending the boxes up, and also while they are standing under great pressure, the lugs 21 will soon become bent and broken and the boxes will be rendered unfit for service. To avoid this difficulty, some press-builders set the press-frame in a true vertical position and hang the boxes low at their back ends to provide drainage, but this requires a wedge-shaped foot-block and a wedge-shaped top piece to accommodate the oil-boxes. Under great pressure the foot-block struggles to slip out of the press, thus throwing the ram out of plumb, tearing off the back lugs of the ram-block and of several of the lowermost oil-boxes and crowding back several of the uppermost boxes, with bending and breaking of their front lugs.

Instead of employing the lugs 21 as a means for guiding the oil-boxes I provide the opposite sides of each oil-box with a countersunk formation that furnishes the shoulders or jaws 24, which are opposed by the ends of the press side walls 25 or other suitable supports. By means of the jaws 24, formed and located as shown, the box-guiding is brought into relation with the very strongest part of the box and strain and breakage are avoided. The lugs 21 will thus be employed only as supports for the pins 26, to which are to be attached the ordinary links for connecting and suspending a number of oil-boxes in a body.

With this improved oil-box the press is to occupy a vertical position, while the boxes are at all times horizontal. The elevation of the horizontal mat-bed 11, its spurs 13 14, the flanges or shoulders 16, and the inclined gutters 15 insure a perfect drainage of oil and a reliable protection for the mats, while the means for guiding the boxes and linking them together avoid the greater part of the strain to which oil-press boxes are usually exposed.

Although my improvements are illustrated with reference to a "mat-box," so called, it will be obvious that to some extent they are also applicable to a closed box.

What I claim as my invention is—

1. An oil-press box having an elevated horizontal mat-bed with flanges depending from the sides of said mat-bed and forming a recess at its under side, the upper and under sides of said mat-bed being provided with spurs to hold a mat in place assisted by the said depending flanges, and drainage-gutters surrounding the elevated horizontal mat-bed and inclined from front to rear of the box, substantially as described.

2. An oil-press box having drainage-gutters extended around its sides and inclined from front to rear of the box, and provided with a horizontal mat-bed elevated above said gutters and having spurs on its upper and under sides to engage a mat and hold the same in place, the under spurs being within a recess formed by flanges that depend from the edges of the elevated horizontal mat-bed and which form the inner side walls of the drainage-gutters and which are adapted to assist the under spurs in preventing side slip or spreading of a mat, substantially as described.

3. An oil-press box provided with drainage-gutters extended around the sides of the box and inclined from front to rear, an elevated horizontal mat-bed having triangular spurs on its upper and under sides to hold a mat in place, the under spurs being located in a recess formed by the inner side walls of the drainage-gutters, and jaws on the sides of the box to engage supports for guiding a series of boxes in a press, substantially as described.

4. An oil-press box having an elevated horizontal mat-bed formed with spurs on its upper and under sides to hold a mat in place, drainage-gutters surrounding said elevated mat-bed and having their inner side walls formed by flanges depending from the edges of the mat-bed and forming a recess in which the under spurs are located and countersunk outer side walls having jaws formed therein to engage supports for guiding the box, substantially as described.

5. The combination with a press-frame, of oil-boxes having countersunk sides provided with jaws 24 formed therein to engage supports for guiding the boxes and with lugs 21 having pins 26 for attachment of connecting links, substantially as described.

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

JOSEPH H. HUBBELL.

Witnesses:
JOHN L. H. FRANK,
GEORGE F. FORMIFF.