No. 806,991. PATENTED DEC. 12, 1905.

F. OLIVER.

PRESS.

APPLICATION FILED APR. 8, 1905.

Fig. 1.

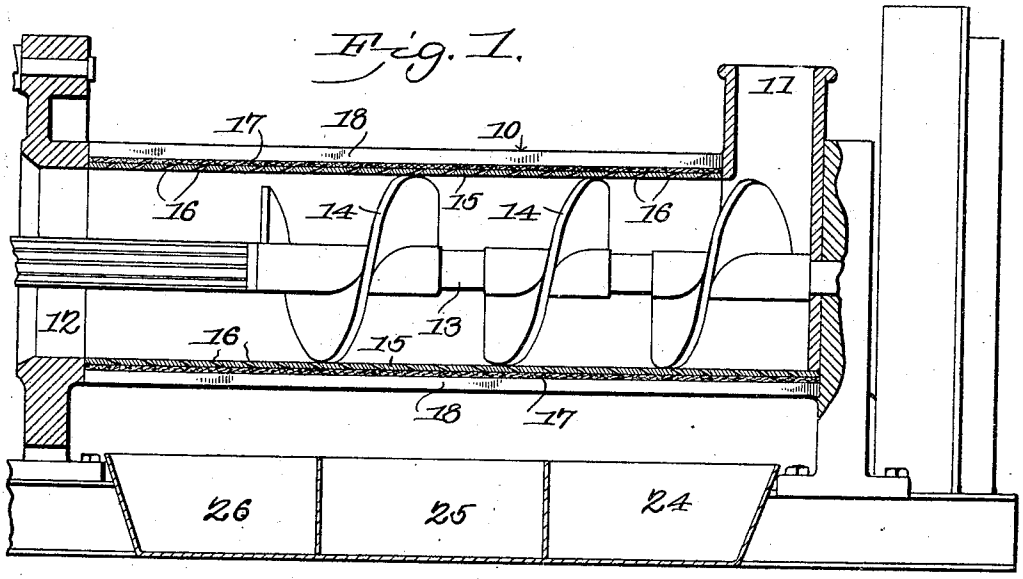


Fig. 2.

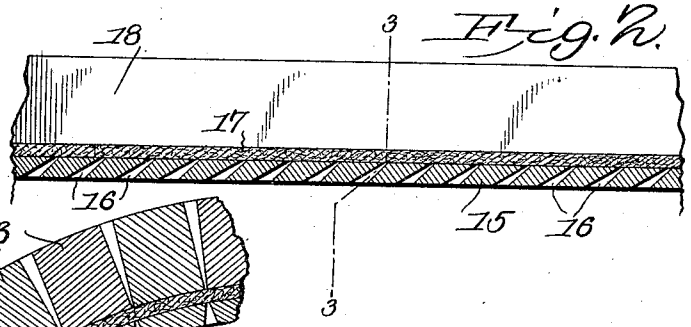


Fig. 3.

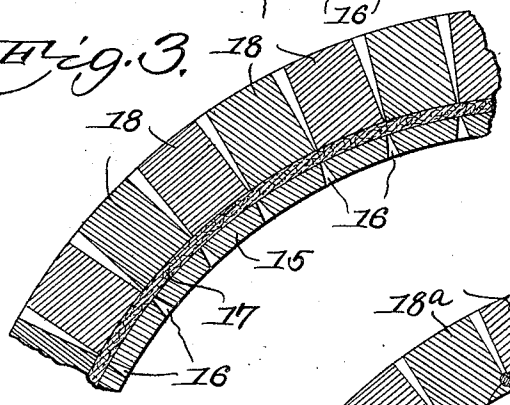


Fig. 5.

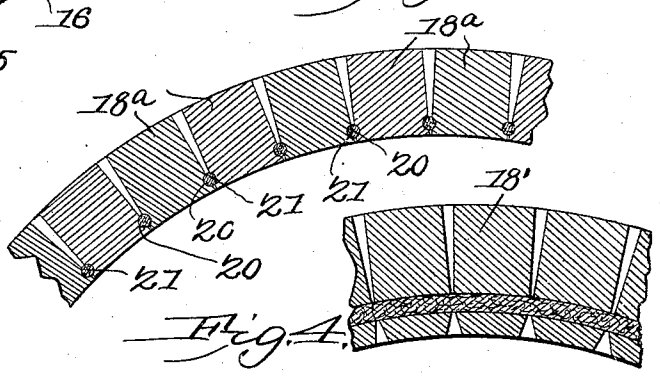


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK OLIVER, OF PORTSMOUTH, VIRGINIA.

PRESS.

No. 806,991. Specification of Letters Patent. Patented Dec. 12, 1905.

Application filed April 8, 1905. Serial No. 254,580.

To all whom it may concern:

Be it known that I, FREDERICK OLIVER, a citizen of the United States, residing at Portsmouth, in the county of Norfolk and State of Virginia, have invented a new and useful Press, of which the following is a specification.

This invention relates to improvements in continuous presses of that type employed for expressing oil or other liquids from cotton-seed or other material.

The principal object of the invention is to provide an improved type of continuous press wherein the passage of any solid material through the oil slots or perforations is prevented.

A further object of the invention is to provide a novel form of press having a straining or filtering medium through which the oil is forced during its passage through the screen bars or perforations of the press-casing.

A still further object of the invention is to provide an improved form of press of such nature that the oil may be kept clear of foreign matter and be in condition for use immediately after its delivery from the press.

A still further object of the invention is to provide for the separation of different qualities of oil from the material at different points in the length of the press-casing, so that the oil at the feed end, expressed under comparatively light pressure, may be kept separate from the oil expressed under heavier pressure, the first being a virgin oil, which may be used for table or medicinal purposes, while the oil exuding toward the latter end of the operation, where the pressure is much greater, is tainted or flavored by other ingredients expressed from the more thoroughly crushed seeds or other material.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a press constructed in accordance with the invention. Fig. 2 is a detail sectional view, on an enlarged scale, of a portion of the shell or casing. Fig. 3 is a transverse sectional view of the same on the line 3 3 of Fig. 2. Fig. 4 is a view similar to Fig. 3, illustrating a modification of the invention. Fig. 5 is a similar view illustrating a further modification.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The press illustrated in Fig. 1 includes a casing 10, having at one end a feed-hopper 11 and at the opposite end a discharge-opening 12, the area of which may be regulated in any desired manner in accordance with the character of the material under treatment. Extending axially of the casing is a shaft 13, on which are mounted spaced screw members 14, which in revolving force the material from the feed to the discharge end of the casing, the material being subjected to continuously-increasing pressure from the feed to the discharge end and the oil or other material which it contains being forced out through numerous small slots or perforations in the casing. The present invention relates principally to the construction of the casing and the manner in which the oil expressed under different pressures is delivered to independent vessels.

In the construction shown in Figs. 2 and 3 the casing comprises an inner shell 15, provided with numerous perforations 16, said perforations being preferably tapering in form, with their largest diameters at the inner surface of the shell, and these perforations, moreover, are arranged with their longitudinal axes in planes oblique to the longitudinal axis of the casing proper, with the inner and larger ends pointing in the direction of the discharge end of the casing. Around this inner shell 15 is placed a straining or filtering medium 17 in the form of vegetable, animal, or mineral substance, or a combination of two or more, and this filtering medium is retained in place by an outer shell or casing 18 of any suitable construction, the casing, as shown in Figs. 2 and 3, comprising a plurality of longitudinally-disposed parallel bars slightly spaced to form passages for the oil or other liquid.

In Fig. 4 is shown a slightly-modified construction, in which the casing 18′ is provided with radially-arranged perforations for the passage of the oil.

In the operation of a press constructed in the manner described the seeds or other ma-

terial are placed under sufficient pressure to force the oil therefrom, the oil passing through the perforations 16, thence through the straining or filtering medium 17, and finally through the spaces between the bars 18 or through the perforations of casing 18'. Owing to the peculiar arrangement of the perforations 16, the material as it passes toward the rear end of the casing will tend to clear the perforations and draw therefrom the crushed seed, so that said perforations will be maintained clear for the passage of the oil; but in many cases a wire-screen or foraminous material of any form may be successfully employed in lieu of the particular construction of inner shell herein described.

In the construction shown in Fig. 5 the bars 18^a are provided near their inner edges with longitudinal grooves 20 for the reception of a filtering medium of any desired form in cross-section, this in some instances being in the form of a twisted rope or cable of vegetable or animal material or a combination of two or more, or in some cases a cable formed of wire may be employed. The cross-sectional contour of the filtering material may be circular, triangular, or polygonal, as desired, and is so arranged that it may be readily renewed when clogged through long use.

It is apparent that the material placed in the press is first subjected to comparatively light pressure at the feed end and that this pressure gradually and continuously increases toward the discharge end, at which point the material has lost its original character and shape. The oil expressed near the feed end is a virgin oil of such quality that it may be used for table or medicinal purposes; but toward the latter end of the operation the flavor of the oil will be altered, as the seed is more thoroughly crushed.

In carrying out the present invention reservoirs or receptacles of any desired number are placed under the press, three of such receptacles 24, 25, and 26 being shown in the present instance, the vessel 24 receiving the pure oil at the first stage of compression and the vessels 25 and 26 receiving the oil of poorer quality at the intermediate and final stages, respectively, of the operation.

Having thus described the invention, what is claimed is—

1. A continuous press, having a casing provided with liquid-passages, the axes of which are disposed in planes oblique to the longitudinal axis of the casing.

2. A continuous press, having a casing provided with liquid-passages, said passages gradually decreasing in area from their inner to their outer ends.

3. A continuous press having a casing provided with liquid-passages, said passages gradually decreasing in area from their inner to their outer ends and being disposed with their longitudinal axes in planes oblique to the longitudinal axis of the casing.

4. A continuous press having inner and outer casings provided with liquid-passages, the passages of the inner casing being disposed with their longitudinal axes oblique to the longitudinal axis of the casing, and a straining or filtering medium between said casings.

5. A continuous press, the casing of which is provided with liquid-passages, a compression member therein, and liquid-receptacles arranged to separate the liquid at different stages of compression.

6. A continuous press having a perforated casing, a screw within the casing, and a plurality of vessels for receiving liquid of different qualities expressed at different points in the length of the casing.

7. A press having means for progressively increasing the pressure on the charge, and receptacles for successively receiving the expressed liquid.

8. A press having means for advancing the charge and progressively increasing the pressure thereon, and receptacles consecutively arranged for successively receiving the expressed liquid.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FREDERICK OLIVER.

Witnesses:
FRANK C. HALL,
C. E. DOYLE.