No. 643,001. Patented Feb. 6, 1900.

W. E. OVERTON.

PRESS FOR FERTILIZING MATERIAL.

(Application filed May 23, 1899.)

(No Model.)

Fig. 1.

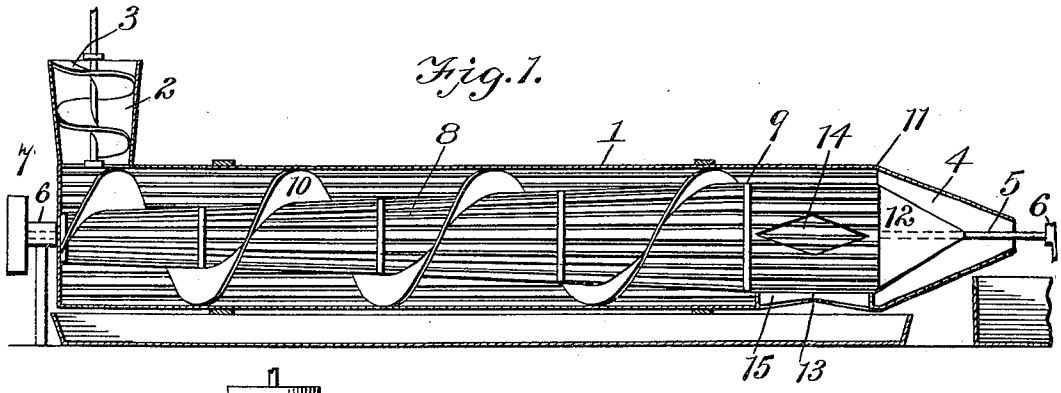


Fig. 2.

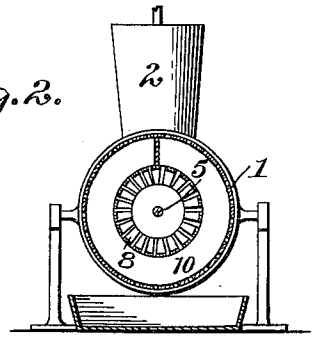


Fig. 3.

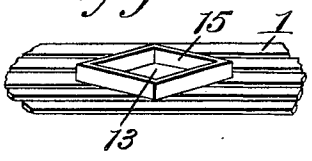


Fig. 4.

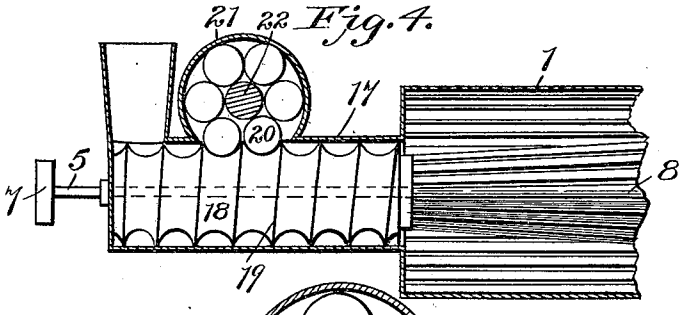
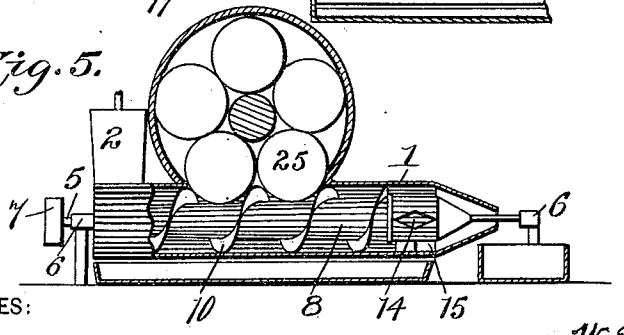


Fig. 5.



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PRESS FOR FERTILIZING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 643,001, dated February 6, 1900.

Application filed May 23, 1899. Serial No. 717,938. (No model.)

To all whom it may concern:

Be it known that I, WILLIS E. OVERTON, a citizen of the United States, and a resident of Ripraps, in the county of Elizabeth City and State of Virginia, have invented certain new and useful Improvements in Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a central vertical longitudinal section of the invention. Fig. 2 is a section on the line *x x*, Fig. 1. Fig. 3 is a detail view of the opening of the outer shell. Fig. 4 is a detail view illustrating a modified form of feeding mechanism. Fig. 5 is a detail view illustrating the application of such modified feeding mechanism to the screw-flange of the inner drum of the press.

This invention has relation to presses more particularly designed for use in pressing cooked fish for the purpose of removing oil and water therefrom, but which is also applicable for pressing other material of various kinds.

The object of the invention is to provide a press of simple and durable character by which the desired operation can be carried out in a rapid, thorough, and effective manner; also, to provide means of improved character for feeding the press; also, to provide improved means for preventing the press or its feeder from becoming choked or clogged by the material passing through it.

With these objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the numeral 1 designates the outer stationary cylindrical shell of the press, which is suitably supported in horizontal or nearly horizontal position. In the form shown in Fig. 1 this shell has at its rear end portion, at its upper side, a feed-hopper 2, in which is journaled a feeding-screw 3. The shell is constructed of slats suitably secured to an external supporting-frame or from perforated material, the particular construction being immaterial so long as it is provided with numerous openings throughout its length, and particularly at its lower side, for the escape of water and oil. At its discharging end the shell has a conical extension 4, from which the more solid material is discharged.

5 designates a shaft which extends centrally through the said shall, being suitably supported and journaled at its end portions, as at 6. This shaft is designed to be driven by any suitable source of power, as indicated at 7. Secured to this shaft is an inner shell or drum 8, which is of gradually-increasing diameter from the receiving end of the press to a point 9 near its discharging end, whereby an annular space or chamber of gradually-diminishing thickness is formed between the two shells. This inner shell is also of slatted or perforated construction and is provided with a spiral flange or screw 10, which is also of diminishing character, its diameter at all points being such that it turns closely within the outer shell. From the point 9 to the point 11 (a distance which may be two feet or more in length) the inner shell is of uniform diameter, and from the point 11, which coincides with the end of the cylinder portion of the outer shell, is a conical extension 12, which lies within the conical discharging portion 4, but is of greater pitch in order that sufficient clearance may be provided to permit a free discharge of the more solid material. The flange or screw 10 stops at the point 9.

Between the points 9 and 11 the outer shell is provided at its under side with an opening 13, preferably diamond or lozenge shaped, and the inner drum or shell has a similar opening 14. The opening 13 is surrounded by a fence 15, which closes the space between the two shells at this point.

The operation is as follows: The material fed into the press is delivered onto the screw of the inner drum or shell and is thereby carried toward the discharging end. By reason of the increasing diameter of the inner drum or shell the material is formed into a layer of gradually-decreasing thickness, being thinnest at the point 9 where the pressure is greatest, whereby all water and oil contained in the material is expressed and passes out

either into the inner drum or through the perforated or slotted wall of the outer drum. Both drums being perforated or slotted, there is afforded a ready means of escape for the water and oil as fast as it is expressed. The water and oil which collects to a greater or less extent in the inner drum has a free escape through the openings 13 and 14 and may be collected, together with that escaping along the length of the drum, in a suitable trough or tank. The oil and water are subsequently separated by the usual methods. The more solid material is forced through the space between the points 9 and 11 and around the fence 15, the resistance offered to its passage at this point being such as to require a high degree of pressure throughout the press to overcome it. In this manner I am enabled to dispense with the use of the pressure-plates commonly employed.

In Fig. 4 I have illustrated a modified form of feeding mechanism which is preferable to that above described for many purposes and especially in large presses. In this form the outer shell 1 is formed with the rearward cylinder extension 17 of non-slotted or non-perforated character, and within the same on the shaft 5 is a feed-cylinder 18, having the screw-flange 19, which turns in close relation to the inner wall of the extension 17. Said extension is slotted longitudinally, preferably at the top, and arranged to work in said slot are a continuous series of loose clearing-disks 20, which are mounted in a race box or casing 21 around a central fixed bearing 22. The lower portions of these disks extend down into the screw-flange 19, as shown, and by the revolution of said screw-flange the series is kept in motion around the bearing 22. In the arrangement shown two of the disks are shown in engagement with said flange; but the number is not material. These disks exert a continuous scraping and clearing action upon said flange to remove the material which adheres thereto and which without some device of this kind seriously chokes and obstructs the feed. A similar arrangement of disks 25 may be applied to the screw-flange 10 of the inner drum 8 in connection with the feed shown in Fig. 1. (See Fig. 5.)

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a press, the combination with an outer cylindrical non-rotary shell, provided with a conical discharging extension, of an inner rotary screw-flanged drum or shell having perforated or slotted walls, and of increasing diameter from the receiving end of the press to a point near its discharging end, said inner drum or shell also having a conical extension of less pitch than the conical extension of the outer shell, and a straight portion intermediate the conical extension, and the screw-flanged portion, substantially as specified.

2. In a press, the combination with an outer non-rotary cylinder drum or shell, of an inner rotary drum or shell of increasing diameter from the receiving end of the press to a point near its discharge end, and having a screw-flange surrounding such portion thereof, and a straight portion beyond the end of said flange, substantially as specified.

3. In a press, the combination with an outer non-rotary cylinder drum or shell, of an inner rotary drum or shell of increasing diameter from the receiving end of the press to a point near its discharge end, and having a screw-flange surrounding such portion thereof, and a straight portion beyond the end of said flange, said straight portion having an opening therein, and the outer shell having a corresponding opening, and a fence surrounding said opening, substantially as specified.

4. In a press, the combination with the outer fixed cylindrical shell, and the inner rotary shell, having a surrounding screw-flange, of a continuous series of edgewise-disposed cleaner or clearing-disks loose with relation to each other adapted to engage the said flange, together with a runway and bearings for said disks, substantially as specified.

5. A feeding attachment, consisting of a fixed outer shell having a longitudinal slot, an inner rotating drum or cylinder having a screw-flange, and a continuous series of edgewise-disposed rolling clearing-disks adapted to extend through said slot into engagement with said flange, together with a runway for said disks, substantially as specified.

6. In a press, the combination of the outer fixed cylindrical shell having an extension at its receiving end, the shaft extending centrally through said cylinder and extension, the press-drum on said shaft of gradually-increasing diameter toward the discharge end of the press, and having a screw-flange, the feed drum or cylinder on said shaft within said extension, and also having a screw-flange, and a continuous series of edgewise-disposed rolling clearing or cleaning disks arranged to engage the flange of said feed-drum, together with a raceway for said disks, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIS E. OVERTON.

Witnesses:
HIRAM H. LUTHER,
J. L. REEVE.