

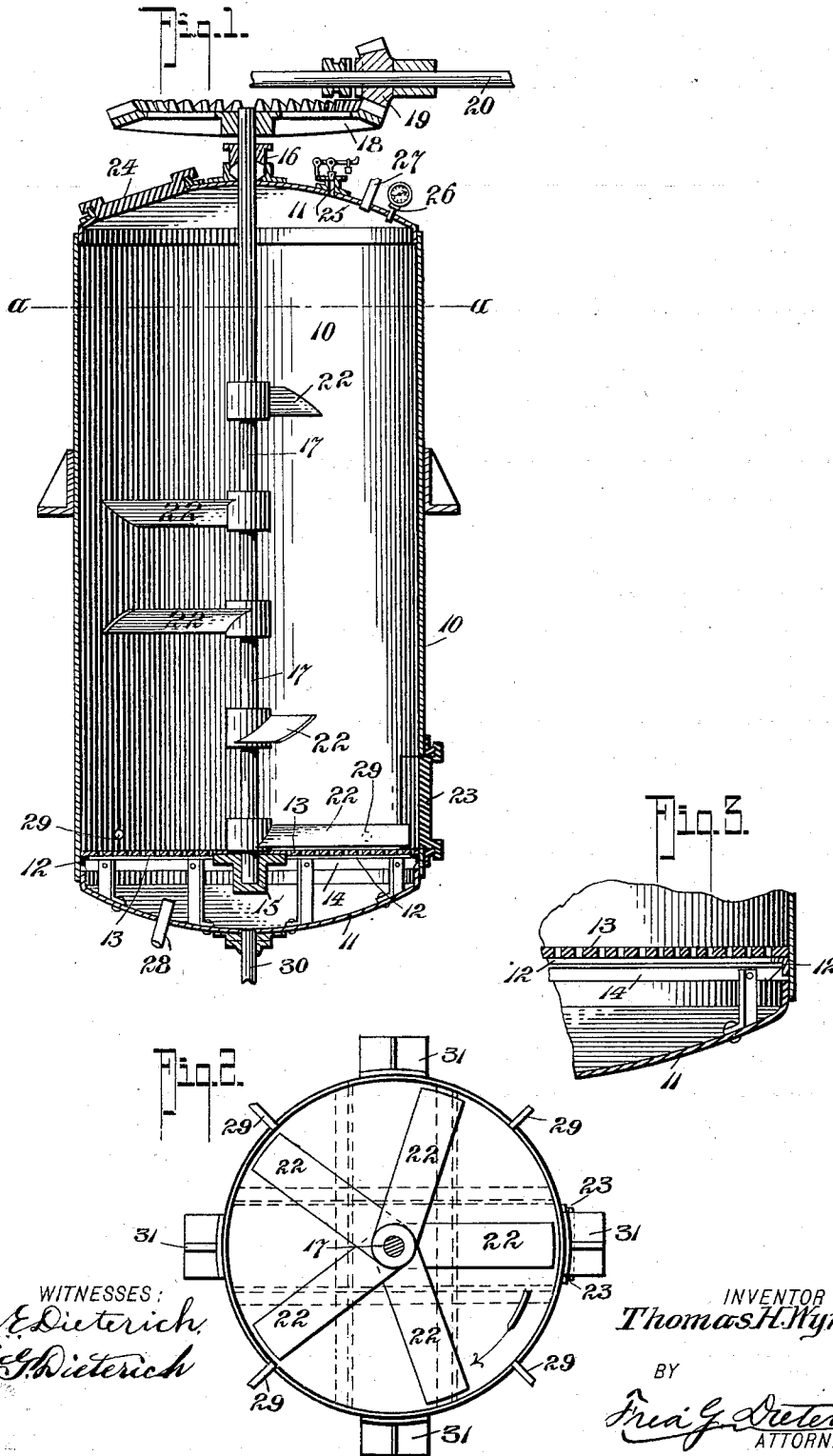
No. 628,378.

Patented July 4, 1899.

T. H. WYMONDE.
RENDERING APPARATUS.

(Application filed Oct. 22, 1898.)

(No Model.)



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THOMAS H. WYMONDE, OF VANCOUVER, CANADA.

RENDERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 628,378, dated July 4, 1899.

Application filed October 22, 1898. Serial No. 694,279. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HERBERT WYMONDE, a subject of the Queen of Great Britain, residing at Vancouver, in the Province of British Columbia, Canada, have invented new and useful Improvements in Digesters for Treating Fish-Offal, of which the following is a specification.

My invention relates to improvements in an apparatus for treating fish-offal; and it consists in a closed vessel for subjecting the offal to a cooking agency and of expressing the moisture therefrom by steam-pressure, such cooking and expressing being effected while the matter is kept in constant agitation by agitators arranged in the vessel. The agitation not only assists in cooking, but also greatly facilitates in separating the moisture from the solids, the said agitation being the essential feature of my improvement.

The object of my apparatus is to provide a means whereby the residue from fish-canneries and other residuary offal may be utilized and converted into their respective marketable products and to effect such work in a very cheap and effective manner. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of my apparatus. Fig. 2 is a sectional plan of the same on the line *a a*, and Fig. 3 shows a sectional detail of the bottom of the digester and the means for supporting the grid on which the matters being treated are deposited.

Similar numerals designate corresponding parts in the several views.

The body 10 is a cylindrical vessel closed at each end by the dish-shaped ends 11. Suitably supported on an annular rim 12 above the dished bottom 11 is a perforated bottom or grid 13. This grid is preferably made in sections for convenience in putting it in position, and it is supported at its center by cross-ties 14. This structure requires to be of sufficient strength to support the weight of the load superadded to the pressure of steam intended to be employed.

Securely fixed to the center of the grid 13 is a step 15, and resting in this and passing upward through the center of the vessel and journaled in a packing-gland 16 at the top is

a shaft 17. This shaft 17 is arranged to be turned at comparatively a slow speed by the gears 18 and 19, communicating with the shaft 20. The beveled pinion 19 is loosely mounted on the shaft 20 and is thrown in and out of contact by the clutch 21, slidably mounted on the same shaft. Secured to the shaft 17 within the closed vessel and arranged spirally thereon are agitating-blades 22. These agitating-blades 22 are placed at an oblique plane, so that as they are passed around in the direction of the arrow the offal will be agitated and constantly lifted upward, and thus loosened for the steam to percolate through the entire mass, and when the digester is intended to be emptied by reversing the movement of the shaft 17 the blades 22 will depress the matters treated and force them from the closable opening 23. In order to enable the material to be thoroughly discharged, the lowermost blade is arranged to travel over the upper face of the grid and is located in the plane of the opening 23. The closure for the opening 23 is arranged to fit so that its inner wall will be flush with the inner shell of the cylinder 10. This provides that no matters will be allowed to lodge therein and escape the intermingling movement caused by the blades 22.

24 indicates a closable opening in the top shell or end 11 for the introduction of the offal.

A safety-valve pipe 25 is provided to guard against a strain greater than the digester will stand with safety, and a steam-pressure gage-pipe 26 is also provided to show the pressure employed.

The steam-pressure is introduced by the pipes 27 and 28 at the top and bottom, respectively, and to assist in permeating the mass at its greatest density pipes are introduced through the shell 10 at intervals on a plane just above the grid 13, as 29. These pipes 29 may be increased in number according to the requirements of the matters being treated.

30 indicates the pipe for drawing off the oil and aqueous matters that have been ejected from the mass treated.

The digester is supported at a suitable elevation by the lugs 31, which lugs must rest on a strong frame. Thus by having the digester

so poised the matters treated can be handled very cheaply, as in emptying and recharging the stuff will gravitate to and from the same.

In handling large quantities of offal it is intended to have a number of the digesters placed in line on the same plane, so that the shaft 20 may pass over the entire lot and thus operate the whole plant of digesters.

In the operation of my invention the opening 23 is closed tight, and the digester is charged or filled through the opening 24. The said opening is then closed tight. The agitators are put in motion in the direction of the arrow, and the steam is turned on by the top and bottom pipes 27 and 28 and by the side pipes 29 until the entire mass is cooked, when the pipes 28 and 29 are closed, and extra pressure is added through the pipe 27. This will express the oil and aqueous matters from the whole, which oil and water will pass through the grid 13 to the depending basin 11, whence it is drawn off to suitable tanks by the pipe 30. When the expressing has been completed, the vents 23 and 24 are opened and the agitators are reversed. This will force the residue through the opening 23 in a very rapid and efficient manner.

It is shown from the foregoing that my improved digester is well adapted to perform the work for which it was designed. The application of the agitators shows a decided advantage over a vessel without that assistant for treating all semiliquid matters, as the agitators insure a universal cooking to the whole

mass, besides preventing the matters from clogging, and thus insuring more perfect work.

Having now described my invention and the operation thereof, what I claim as new, and desire to be protected in by Letters Patent, is—

A digester for treating fish-offal, comprising a closed vessel having a closable opening near its bottom, a horizontal grid located at the bottom of the said opening and having a central bearing, said grid being arranged above the bottom of the vessel, a vertical shaft journaled at its lower end in the bearing of the grid and extending through the top of the vessel, a radial series of obliquely-arranged agitator-blades disposed spirally on the shaft, and adapted to lift the material when rotated in one direction and capable, when rotated in the opposite direction, of expelling the solid material through the said opening, one of the blades being arranged to travel over the upper face of the grid and located in the plane of said side opening, the pipe 30 extending from the bottom of the vessel for drawing off the oil and aqueous matters, and the steam-pipes arranged at the top and bottom of the vessel, substantially as described.

Vancouver, British Columbia, September 30, 1898.

T. H. WYMONDE.

In presence of—

W. G. TRETHEWEY,
ROWLAND BRITTAIN.