(No Model.)

A. KENDRICK & E. L. JERAULD.

APPARATUS FOR EXTRACTING OIL FROM CODS' LIVERS.

No. 275,828. Patented Apr. 17, 1883.

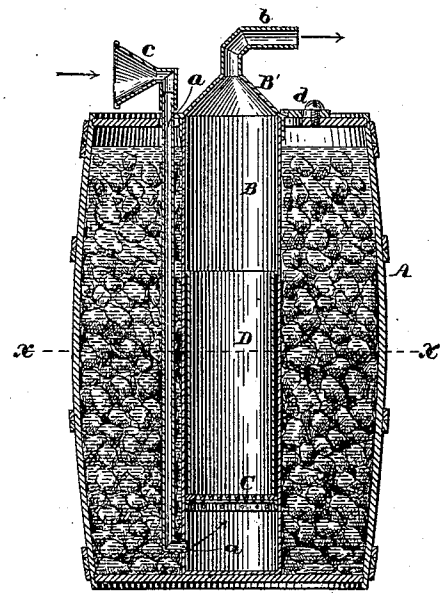


Fig. 1.

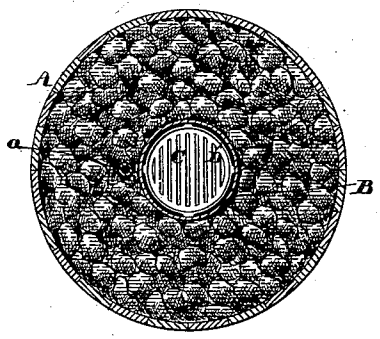


Fig. 2.

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UNITED STATES PATENT OFFICE.

ALONZO KENDRICK AND ENSIGN L. JERAULD, OF HARWICH, MASS.

APPARATUS FOR EXTRACTING OIL FROM CODS' LIVERS.

SPECIFICATION forming part of Letters Patent No. 275,828, dated April 17, 1883.

Application filed January 22, 1883. (No model.)

To all whom it may concern:

Be it known that we, ALONZO KENDRICK and ENSIGN L. JERAULD, both of Harwich, in the county of Barnstable and State of Massachusetts, have invented a new and useful Apparatus for Extracting Oil from Cods' Livers, of which the following, taken in connection with the accompanying drawings, is a specification.

Our invention relates to an apparatus for facilitating the extraction of cod-liver oil, more especially adapted for use on board fishing-vessels.

Heretofore it has been the practice to place the livers in hogsheads or butts upon deck and depend upon the action of the sun thereon for extracting the oil from the livers. This practice, while working very well, was found to be objectionable on account of the great length of time required to extract the oil, and the consequent great number of hogsheads required to extract the oil from all the livers on a long voyage—say to the Grand Banks. Ordinarily such a voyage would require from ten to fifteen hogsheads or butts to contain the livers and properly extract the oil therefrom, and they occupy a great deal of valuable room on deck which is needed for other purposes. Another objection to this old method is that the extraction of the oil is imperfect or incomplete—that is, a considerable proportion of the oil remains in the livers, and is therefore lost.

To obviate these objections by reducing the number of hogsheads or butts required to be carried and obtaining a much larger percentage of the oil is the object of our invention; and it consists in the employment of a specially-constructed stove or heating apparatus inserted in the center of the mass of livers contained in the hogshead or other vessel and aiding or expediting the extraction of the oil from the livers by building and maintaining a slow fire therein.

Figure 1 of the drawings is a central vertical section of our improved apparatus, and Fig. 2 is a horizontal section of the same on line *x x* on Fig. 1.

A is a hogshead of ordinary construction, except that it has a hole cut through one of its heads of sufficient size to permit the insertion of the stove B, as shown. The stove B consists of a cylinder of a height about equal to the length of the hogshead A and a diameter of about eight inches, and closed at its bottom, and may be left open at the top or be provided with the hood B′ and smoke-pipe *b*, as shown in Fig. 1.

C is a grate of ordinary construction, supported upon suitable ledges at a suitable distance from the bottom of the cylinder, and upon which rests the lining-cylinder D, made somewhat smaller in diameter than the cylinder B, and arranged concentric therewith, with an air-space between it and said cylinder B, as shown, the object of which is to prevent too great a heat being applied to the livers surrounding the exterior of the cylinder B.

An air-supply pipe, *a*, communicates with the interior of the cylinder B, beneath the grate C, and extending upward alongside of and parallel to the cylinder B, to which it is secured, is bent at right angles above the upper head of the hogshead A, and terminates in a funnel, *c*, which, with the upper section of the pipe *a*, may be revolved about the axis of said pipe for the purpose of increasing or diminishing the amount of air supplied to the fire by turning it toward or from the wind.

We prefer to make the whole stove, except the grate, from galvanized sheet-iron; but it may be made of other material, if desired.

The operation of our invention is as follows: The livers, as fast as they are taken from the fish, are thrown into the hogshead till a sufficient quantity is contained therein to nearly fill the hogshead after the stove has been inserted therein. The stove is then inserted through the opening in the upper head of the hogshead and forced downward through the mass of livers and water contained in said hogshead until it rests on the bottom thereof, where it is secured by chocks or buttons engaging with the upper end of the cylinder and secured to the upper head of the hogshead, as shown at *d* in Fig. 1. A slow wood-fire is started and maintained in said stove, so as to raise the temperature of the mass of livers and liquid surrounding it, and thus hasten the extraction of the oil. The fire may be started before or after the insertion of the stove in the hogshead. When the oil is properly extracted the stove is withdrawn, and the oil is dipped out, and the

water in the bottom of the hogshead is drawn off through a suitable faucet or hole stopped by a spigot, and the refuse matter discharged from the hogshead, when it is ready for repeating the operation.

By the use of our improved apparatus the oil is much more completely extracted from the livers than in the old way, the saving in oil being about twenty-five per cent., and it is accomplished in much less time, thus enabling less than one-half the number of hogsheads formerly required to suffice for this purpose on a long voyage to the Grand Banks, and thereby saving much valuable space on deck for other purposes.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The method of extracting cod-liver oil which consists in confining a mass of the livers between the upright walls of a furnace, and the walls of a vessel surrounding said furnace, and subjecting them to the action of heat from a fire built within said furnace, substantially as described.

2. The cylinder B, provided with the grate C, in combination with the lining D, arranged with an air-space between it and said cylinder B, and draft-pipe *a*, all arranged and adapted to operate substantially as and for the purposes described.

3. A stove composed of the cylinder B, closed at its lower end, the grate C, lining-cylinder D, arranged with an air-space between it and said cylinder B, the removable hood B′ and pipe *b*, and the air-supply pipe *a*, all combined and arranged substantially as described, for the purposes specified.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 10th day of January, A. D. 1883.

ALONZO KENDRICK.
ENSIGN L. JERAULD.

Witnesses:
HENRY T. CROSBY,
FRANK L. CLIFFORD.