(No Model.)

R. H. SMITH.

PROCESS OF EXTRACTING PARAFFINE FROM OILS BY FILTER PRESS.

No. 306,653. Patented Oct. 14, 1884.

Fig. 1.

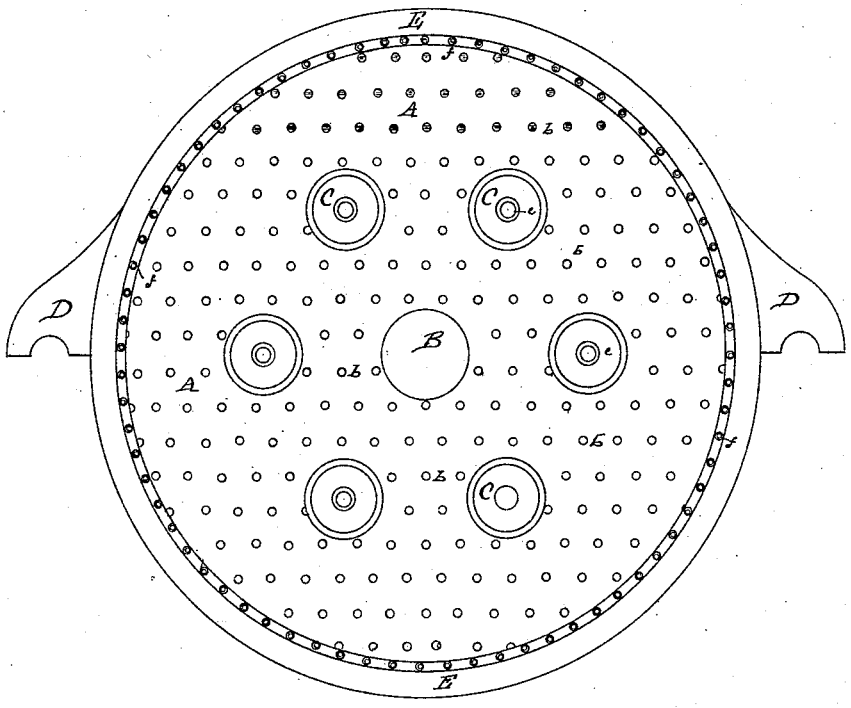
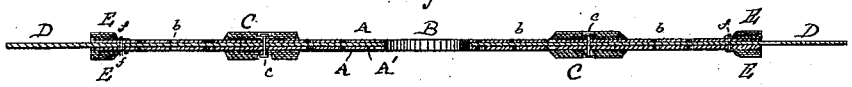


Fig. 2.



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PROCESS OF EXTRACTING PARAFFINE FROM OILS BY FILTER-PRESS.

SPECIFICATION forming part of Letters Patent No. 306,653, dated October 14, 1884.

Application filed March 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN H. SMITH, a citizen of the United States, residing at Carbondale, in the county of Lackawanna, State of Pennsylvania, have invented a Process of Extracting Paraffine from Oils by Filter-Press, and in improvements relating thereto, of which the following is a specification.

Heretofore filter-presses have been composed of a series of cast-iron or wooden plates, constructed with the outer rim of the plates considerably thicker than the web, so that when arranged in the press, with suitable textile material introduced between the plates to act as a strainer, the rims press tightly together, forming within the plates chambers or recesses for the reception of the paraffine or other solid materials.

My improvement consists in making the plate of wrought-iron or other material that will bend rather than break under pressure, and attaching to it a flexible rim or flange, and also a number of pads of the same material, between the flange and the central hole of the plate, the purpose of using these pads being to form a series of intermediate supports, and thus materially strengthen the plates.

The advantages of using textile fabrics or other flexible materials for constructing the flange and central supporting-pads are that they form the necessary thickness for separating the plates without increasing the rigidity of the plates or adding materially to their weight. These flexible flanges also allow of the plates fitting closely together, forming a tight joint when in the press, without the expense or trouble incident to the finishing of cast-iron plates. The plates, for convenience of construction, are made round, and are built up of three thicknesses of wrought-iron riveted together. The central hole is perforated through all three thicknesses of the plate. With the exception of this central hole and those necessary for the rivets holding on the flanges and other parts, the central plate is solid, and is extended on each side into ears to attach the complete plate to the machine. The outer plates are perforated with a large number of small holes, the bottoms of which abut against the central plate. The flexible rim is preferably made up of one or more thicknesses of canvas, ordinary cotton-duck answering for this purpose, though any suitable flexible material may be used. When more than one thickness of canvas is used, and it is preferable to use several thicknesses, these several layers are stitched together, riveting being objectionable, because interfering with the compressibility of the rim. It is best to use three or more thicknesses of canvas, the top and bottom layers being extended farther toward the center of the plate to form a flange below the level of the rest of the rim for the rivets which secure the rim to the body of the plate. These rivets pass through both plates, and should have washers under their heads next the canvas. While I much prefer to rivet the flexible rim to the plate, it may be either placed loosely between the plates, being held in place merely by pressure, or it may be attached to the cloths which are placed between the plates. The central pads are of the same thickness as the outer rim, and of the same or similar flexible material, and it is best that they should be composed of the same number of layers as the outside, as it is important that their compressibility should be the same as the outer rim, that the plate may not be strained. The several layers are stitched together, a hole is pierced through the center pad, and it is riveted through the plate to the pad on the opposite side. The hole through the outer layers of the pads is made larger than the rest, in order that the rivet-head may sink below the surface, and the contact of the two opposite rivets be thus prevented. These pads are made, preferably, with tapering sides, are smaller at the top, and are placed so as to come opposite one another. To form an even bearing-surface, at least three pads should be used; but more can be used, and in very large plates it might be found desirable to use two or more rows of them. In the drawings six pads are shown. These pads may also be used in the old style of plate, and the form of my plate may be varied; but I have found the circular form most convenient. When these pads are used, as they may be, with the old style of plate, it is best to make them of metal or wood.

In the drawings, Figure 1 is a side view of the plate, and Fig. 2 is a central cross-section of the plate.

A A are the outer plates, of wrought-iron, forming with the outer plate, A′, the web. B

is the center hole, passing entirely through the plate. *b b*, &c., are the small holes in the plates A A. C C are the pads, of flexible material, having rivets *c*, for securing them to the plate. D D are the ears for securing the plate in the press. E is the flexible rim, secured to the web of the plate preferably by the rivets *f f*.

My improved plates are introduced and used in a filter-press frame in the usual well-known manner.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Extracting paraffine or solid substances from oils or other liquids by a series of filter-plates so arranged in a frame that the flexible rims of such plates, coming together, form a tight joint and an inner receptacle between the web of the plates for the deposit of the solid substances.

2. A filter-press plate constructed of three or more plates of wrought-iron joined together, the center plate being solid and the outer plate pierced by numerous small holes or openings, substantially as described.

3. A filter-press plate composed of three or more wrought-iron plates and an outer flexible rim, substantially as and for the purpose described.

4. The combination of a filter-press plate with a flexible outer rim, substantially as described.

5. A filter-press plate composed of a wrought-iron plate, a flexible outer rim, and a flexible supporting-pad arranged within the rim, substantially as described.

6. The combination of a filter-press plate with a flexible outer rim and flexible inner supporting pads or blocks, substantially as and for the purpose described.

7. A filter-press composed of a series of filter-plates constructed of wrought-iron plates, an outer flexible rim, and inner flexible pads arranged in the press so that the flexible rims come together, forming a tight joint and an inner receptacle for the deposit of the solid substances, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand.

ROLLIN H. SMITH.

Witnesses:

CHAS. O. MELLEN,

W. A. MANVILLE.