

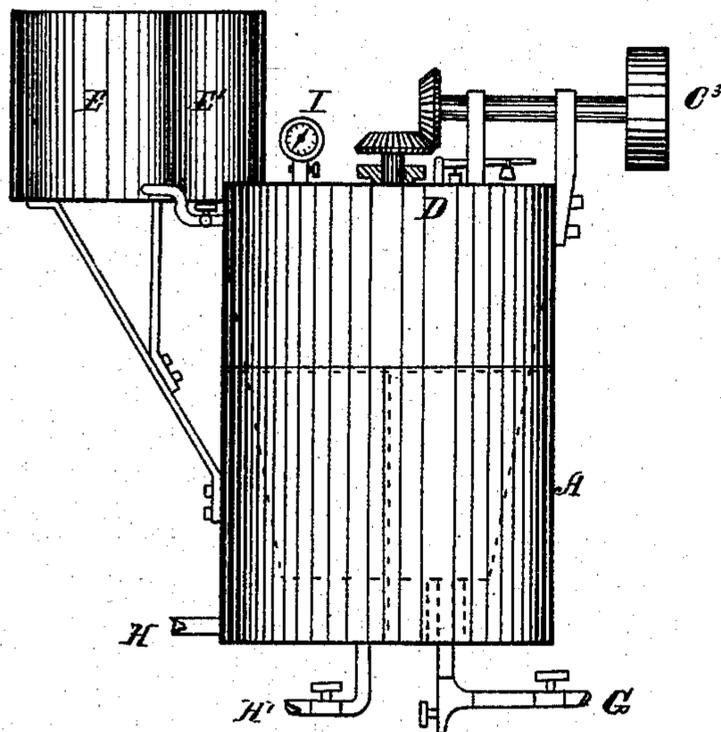
(No Model.)

A. H. PRITCHARD.  
SOAP BOILING APPARATUS.

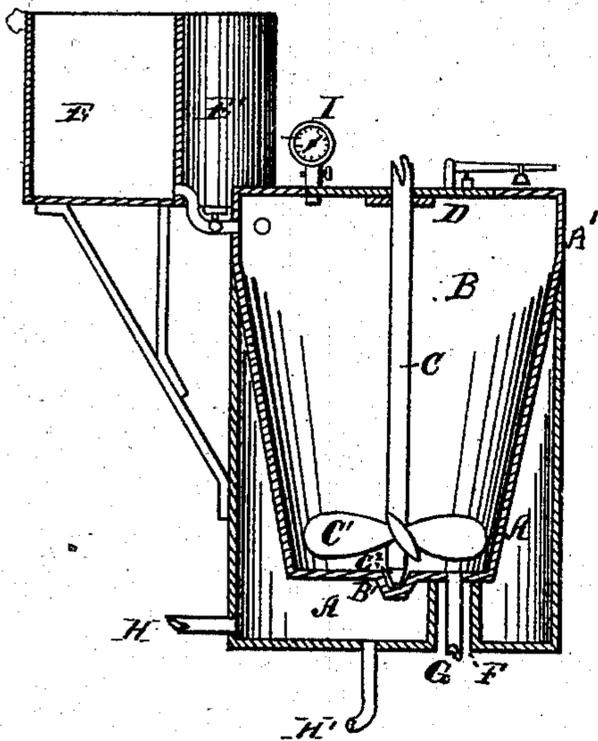
No. 249,256.

Patented Nov. 8, 1881.

*Fig. 1.*



*Fig. 2.*



WITNESSES.

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# UNITED STATES PATENT OFFICE.

ALFRED H. PRITCHARD, OF DETROIT, MICHIGAN.

## SOAP-BOILING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 249,256, dated November 8, 1881.

Application filed January 20, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED H. PRITCHARD, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Soap-Boiling Apparatus; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists in providing a steam-heating jacket with a vertical boiler depending into it from the upper end, the said boiler provided with a central vertical shaft having a propeller-wheel agitator at its lower end, whereby the contents may be stirred by hand or by power, pipes connecting directly with the upper end of the boiler supplying the necessary charges of oleaginous ingredients and alkali, and a draw-off pipe leading directly from the bottom of the boiler.

In the drawings, Figure 1 is an elevation of an apparatus embodying my invention. Fig. 2 is a longitudinal vertical section of same.

Heretofore some soap-boiling apparatus have been made with a boiler located within a steam-jacket, and with an agitator within the boiler operated by steam or hand power, and such devices have been provided with horizontal and vertical boilers requiring a horizontal agitator, and of such construction that the boiling saponaceous contents were often in contact with the packing at the point where the agitator-shaft entered the boiler. Moreover, the inlet and exit pipes have been passed through the walls of both the exterior jacket and interior boiler, causing them soon to work loose by expansion and contraction of the parts, and requiring much trouble and expense to repair them; and in these devices, generally, the steam has been admitted directly to the inner boiler, and at the same time to the jacket, thus maintaining the pressure alike in the two, so that if it was at any time desirable to boil the soap under considerable pressure it was necessary to create a corresponding pressure of steam in the steam-jacket.

It is the object of my invention to so construct these parts that a small agitator may be effectively employed, requiring but little power; that the saponaceous contents shall not

be in contact with the shaft-packing, and so that any desired pressure may be generated within the boiler with only a moderate pressure in the jacket, thus effecting a large saving of fuel.

To this end, A is a steam-jacket; B, a soap-boiler depending from the top A' down into the steam-chamber. At the bottom is a shoe, B', for the reception of the gudgeon C<sup>2</sup> at the end of shaft C.

C' is a propeller-wheel agitator, the wings of which, when in operation, give a thorough circulating movement to the contents of the boiler.

C<sup>3</sup> is any suitable driving mechanism for operating either by hand or power.

D is a man-hole for ready access to the interior, when necessary, for cleaning out or for repairs. E is a reservoir for holding oleaginous ingredients, and E' a similar one for containing the alkali. These are connected directly with the inner boiler without passing through the outer shell or jacket, and are provided with stop-cocks, through which the charge may be fed to the boiler and the passage be then closed during the boiling operation.

F is a space leading to the bottom of the boiler. The bounding wall of this space supports the base of the boiler, and facility is afforded for connecting directly with the boiler the draw-off pipe G without the necessity of passing the latter first through the wall of the steam-jacket and then through the boiler itself—a construction which would render it difficult to stop any leakage should it occur at this point; but by my construction this difficulty does not arise. H is the steam-inlet, and H' the exit-conduit.

The operation is as follows: The charge having been introduced into the boiler, it is closed tight, steam is admitted into the jacket, and the agitator is set in motion as the temperature brings the boiler contents to the boiling-point. The steam thus generated within the boiler accumulates and exerts a considerable pressure, which pressure may, if necessary, be indicated upon a pressure-gage, I, and this pressure can be brought to any desired height by simply maintaining a steam-generating heat within the jacket, while the pressure in the jacket is far below that in the boiler. The pressure in the boiler can be decreased at any

time, either by a safety-valve mechanism or by partially cutting off the supply of steam in the steam-jacket. In this way, with a small consumption of fuel, the soap can be boiled under  
5 any desired pressure.

I am aware that open vertical soap-boilers have heretofore been provided with steam-jackets and vertical shafts with stirring-blades projecting radially, such boilers being connect-  
10 ed with reservoirs for holding soap-making materials, and I do not claim such an arrangement.

What I claim is—

1. In a soap-boiling apparatus, a closed steam-  
15 tight boiler for the soap ingredients, a steam-jacket surrounding the latter, and an agitator, the construction being such that the ingredients being boiled by the steam in the jacket themselves generate a pressure within the boiler  
20 without the introduction of steam from the boiler, substantially as described.

2. In a soap-boiling apparatus, a vertical steam-tight boiler for the soap ingredients and depending into a steam-jacket, a vertical agi-  
25 tator located therein, steam-packed where its shaft passes through the top plate, and means for rotating the shaft, substantially as described.

3. In a soap-boiling apparatus, a steam-tight boiler for the soap ingredients, a steam-jacket

surrounding the same, reservoirs for the ingre- 30  
dients, and from which they may be passed through suitable valves into the boiler, and an outlet-passage leading from the valves and governed by a valve for discharging the soap,  
substantially as described. 35

4. In a soap-boiling apparatus, a vertical closed and steam-tight boiler surrounded by a steam-jacket, a vertical agitator-shaft passing through the top plate and provided at its bot-  
tom with a propeller-wheel agitator, substan- 40  
tially as described.

5. In a soap-boiling apparatus, a closed steam-tight boiler for the soap ingredients, a surround-  
ing steam-jacket, an agitator, and a man-hole 45  
in the upper plate, whereby ready access can be had to the interior at any time, substantially as described.

6. The combination, with a soap-boiler and a surrounding steam-jacket, of an open well, F, through which the soap-discharge pipe can  
50 be introduced without passing through the steam-jacket, substantially as described.

In testimony whereof I sign this specifica-  
tion in the presence of two witnesses.

ALFRED H. PRITCHARD.

Witnesses:

HENRY F. QUELCH,  
W. M. PORTER.