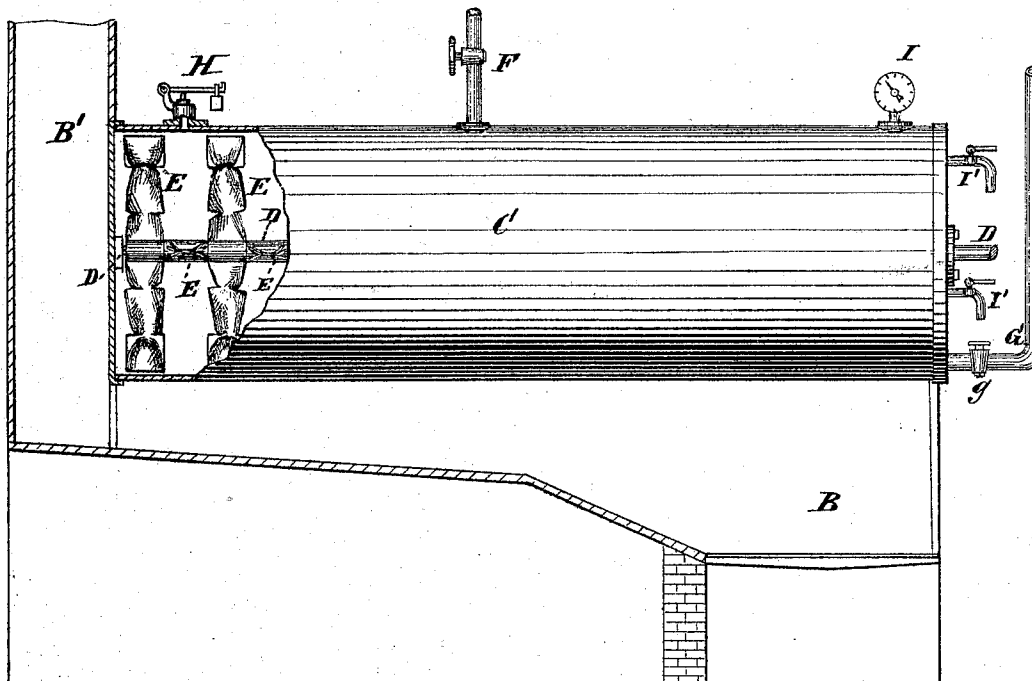


G. W. HATFIELD.
Saponifying Apparatus.

No. 140,701.

Patented July 8, 1873.



Witnesses:
G. Watkins
Solon Kemmer

Inventor:
George W. Hatfield
Per [Signature] Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. HATFIELD, OF NASHVILLE, TENNESSEE, ASSIGNOR TO HIMSELF AND DIXIE OIL COMPANY, OF SAME PLACE.

IMPROVEMENT IN SAPONIFYING APPARATUS.

Specification forming part of Letters Patent No. 140,701, dated July 8, 1873; application filed March 28, 1873.

To all whom it may concern:

Be it known that I, GEORGE W. HATFIELD, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and Improved Saponifying Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which the figure represents a sectional elevation.

The invention relates to means for applying heat, pressure, and mobility to the alkali and fatty matter used in the process of saponification, so that the product will be uniform in its character, and thus adapted to make a soap of the best and most reliable quality. It consists in arranging spirally upon a common shaft a series of paddles or agitators, which are continually lifting and transferring the fluid matter from one end to the other of a close boiler or mixing-chamber.

In the drawing, A represents the base of my soap-making apparatus, upon which is located the furnace B, having the smoke-stack B'. C is the boiler or close mixing-chamber, which is placed over the furnace and receives the fatty matter and alkali that constitute the main ingredients of the soap. E is a series of agitating-blades arranged on a common shaft, D, and F an inlet-pipe, through which the fat and alkali are inserted, and which is connected with a force-pump or elevated reservoir. G is the outlet-pipe, through which the soapy compound is forced by the pressure of steam in the boiler whenever a cock, g, is opened. H is the boiler safety-valve, by which the pressure of steam, generated from the boiling liquid, may be allowed to reach a certain point, and I is the steam-gage. I' is a test-cock for ascertaining the condition of the ingredients during the process of saponification.

It will be perceived that the blades E are

arranged spirally on the horizontal shaft D, so as not only to stir and lift the ingredients, but to transfer them from one end of the close mixing-chamber to the other. This mode of operation has the effect of passing all the fluid equally over the different portions of the boiler and applying the same degree of heat to every portion of matter. Thus the emulsion is not unequally boiled, as hitherto has been the case, but all is uniformly subjected to the same pressure as well as the same heat.

I am aware of the patent granted to E. H. Gibbs, February 6, 1872, which has spirally-arranged blades which are expected to transfer the material from one end to the other of mixing-chamber, but it has no outlet for the return, and therefore makes an incomplete commixture, making, in actual use, some eight or ten different colors and grades of soaps. My blades, being about five inches wide, placed close together, cup-shaped at the ends and flanged about five inches above the cup, are enabled to lift the matter from the bottom as well as carry the steam down into the subjacent mass. The end blade is reversed to raise to center where the blade is again flanged to return. With the machine of Gibbs a batch requires two hours, while the same work will be done by mine in five minutes after the desired pressure is obtained.

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

The blades E, cup-shaped at the ends, flanged thereabove, placed spirally close together, and the end blade reversed, as and for the purpose set forth.

GEORGE W. HATFIELD.

Witnesses:

ROBT. THOMPSON,
THOS. HAYS.