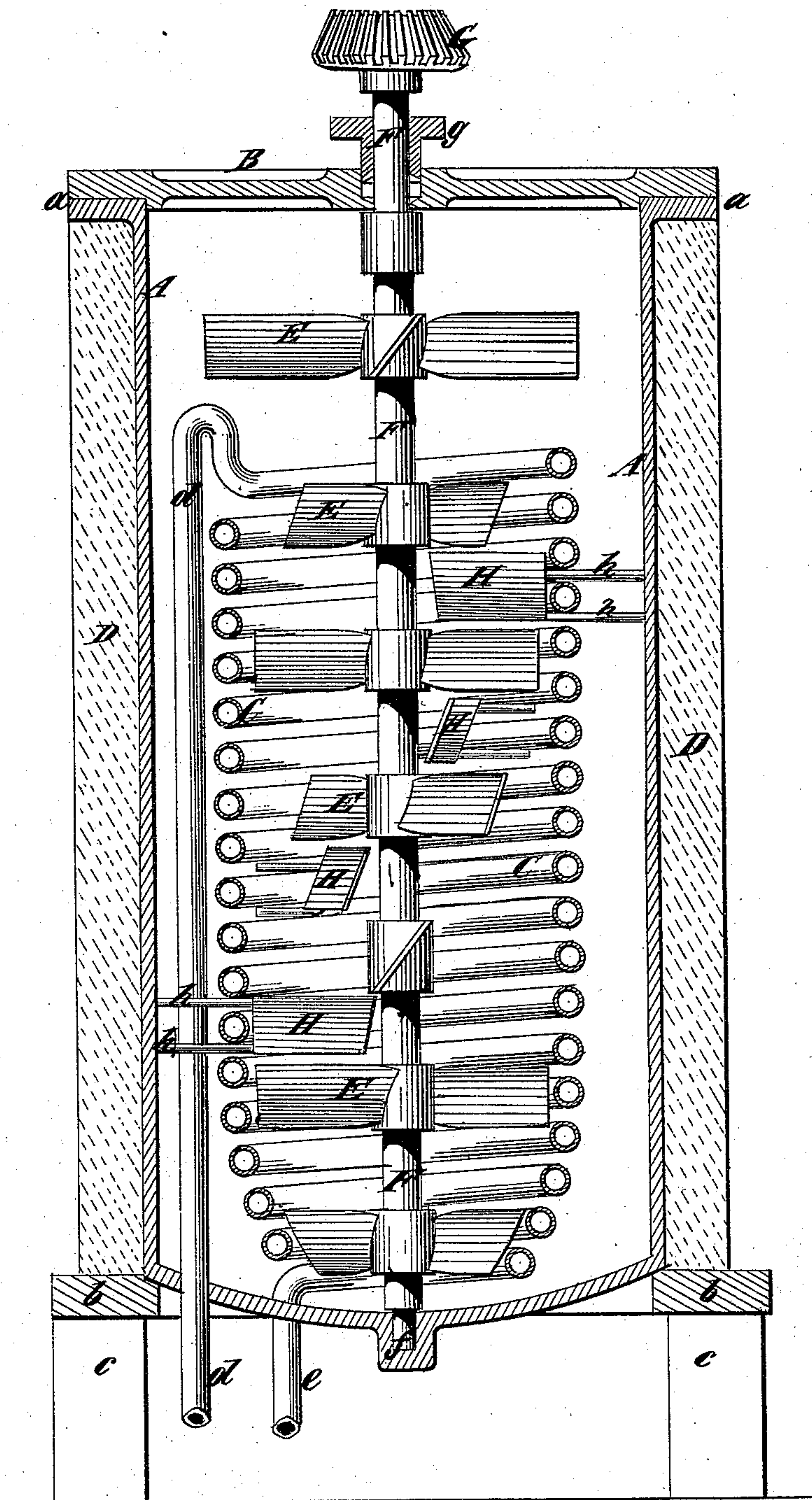


A. KUEHNE.  
 Apparatus for Extracting Glycerine from Fats.  
 No. 215,372.      Patented May 13, 1879.



Witnesses:  
*Fred. Haynes*  
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# UNITED STATES PATENT OFFICE.

AUGUST KUEHNE, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO HIMSELF  
AND FREDERICK ULRICH, OF NEW YORK, N. Y.

## IMPROVEMENT IN APPARATUS FOR EXTRACTING GLYCERINE FROM FATS.

Specification forming part of Letters Patent No. **215,372**, dated May 13, 1879; application filed  
December 30, 1878.

*To all whom it may concern:*

Be it known that I, AUGUST KUEHNE, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Extracting Glycerine from Fats, of which the following is a specification.

My invention relates to that class of apparatus for extracting glycerine from fats in which the fats to be treated are placed in a closed receiver or boiler and highly heated by the application of steam while under pressure at the same time that they are agitated or mixed by means of revolving blades or stirrers.

It consists in various novel combinations of parts, whereby such apparatus may be made much more expeditious and economical in its operation, and in which glycerine free from acid may be extracted without the use of chemicals.

The accompanying drawing represents a central vertical section of an apparatus embodying my invention.

A designates a receiver or boiler, which may be of cast or other metal, and B designates a head or cover therefor, which is secured to the flange *a* by means of bolts or otherwise. The receiver or boiler is shown as supported upon a base, *b*, and columns *c*.

C designates a coil of pipe, made of copper or other suitable material, and of which one or more may be employed. This coil is provided with an inlet, *d*, for steam, and an outlet, *e*, for steam and condensed water.

When the apparatus is in operation a current of steam (preferably highly superheated) passes through the coil C, and heats the fats within the receiver or boiler A.

For the purpose of preventing loss of heat by outward radiation, the receiver or boiler A may be covered with a jacket, D, of wood, felt, or other non-conducting material; and, if deemed desirable, it may be surrounded by a steam-jacket, which will still further prevent radiation.

In order to thoroughly heat the fats, and also to properly mix them and render them thoroughly homogeneous, I employ stirrers or blades E, substantially like those of a screw-

propeller, which are secured to the shaft F. This shaft rests in a step-bearing, *f*, in the bottom of the receiver or boiler, and passes through a stuffing-box, *g*, in the head or cover B thereof. It is provided with a bevel-gear wheel, G, through which motion may be imparted to it by any suitable mechanism. The stirrers or blades E are inclined, as clearly shown, and, as they are revolved, act as lifters to the material within the receiver or boiler. In order to render them more effective, I interpose between them other blades, H, which are stationary, and fastened to the sides of the receiver or boiler by means of stay-bolts *h*, extending between the coils of pipe. These stationary blades H are inclined reversely to the revolving stirrers or blades E, and aid in lifting material forced against them by the revolving stirrers or blades.

Any number of revolving and stationary blades may be employed, and they are preferably arranged in spiral lines, so as to act uniformly on the material to be reduced.

After the glycerine is entirely separated from the fats, the contents of the receiver or boiler may be drawn out through any suitable outlet, and the receiver or boiler supplied with fresh fats to be treated.

Although by my apparatus glycerine may be separated quickly and cheaply by heat and pressure alone, if desirable, chemicals may also be used, as is usual in apparatus of other kinds for accomplishing this object.

By means of the revolving and stationary blades having inclined or oblique faces the fats are constantly carried from bottom to top of the receiver or boiler, and also moved around within the same, during the operation of the apparatus, and are also forced through the spaces between the coils, so that all portions of the fats are, in turn, brought into contact with the heating-surfaces of the coils.

Instead of a single coil of steam-pipe, as represented, two or more coils may be used within the boiler.

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

1. In an apparatus for extracting glycerine from fats, the combination, with a receiver or

boiler, of a central rotary shaft provided with a series of rotary blades or stirrers and a coil of steam-tight pipe surrounding said shaft and its blades or stirrers, and adapted to conduct a current of steam through said boiler, substantially as and for the purpose set forth.

2. The combination of the boiler A, rotary shaft F, having blades E, stationary blades

H, and the coil of steam-tight pipe C, surrounding both said rotary and stationary blades, substantially as described.

AUGUST KUEHNE.

Witnesses:

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