(No Model.) 2 Sheets—Sheet 1.

C. S. RIDER.

CONFECTIONER'S KETTLE.

No. 599,047. Patented Feb. 15, 1898.

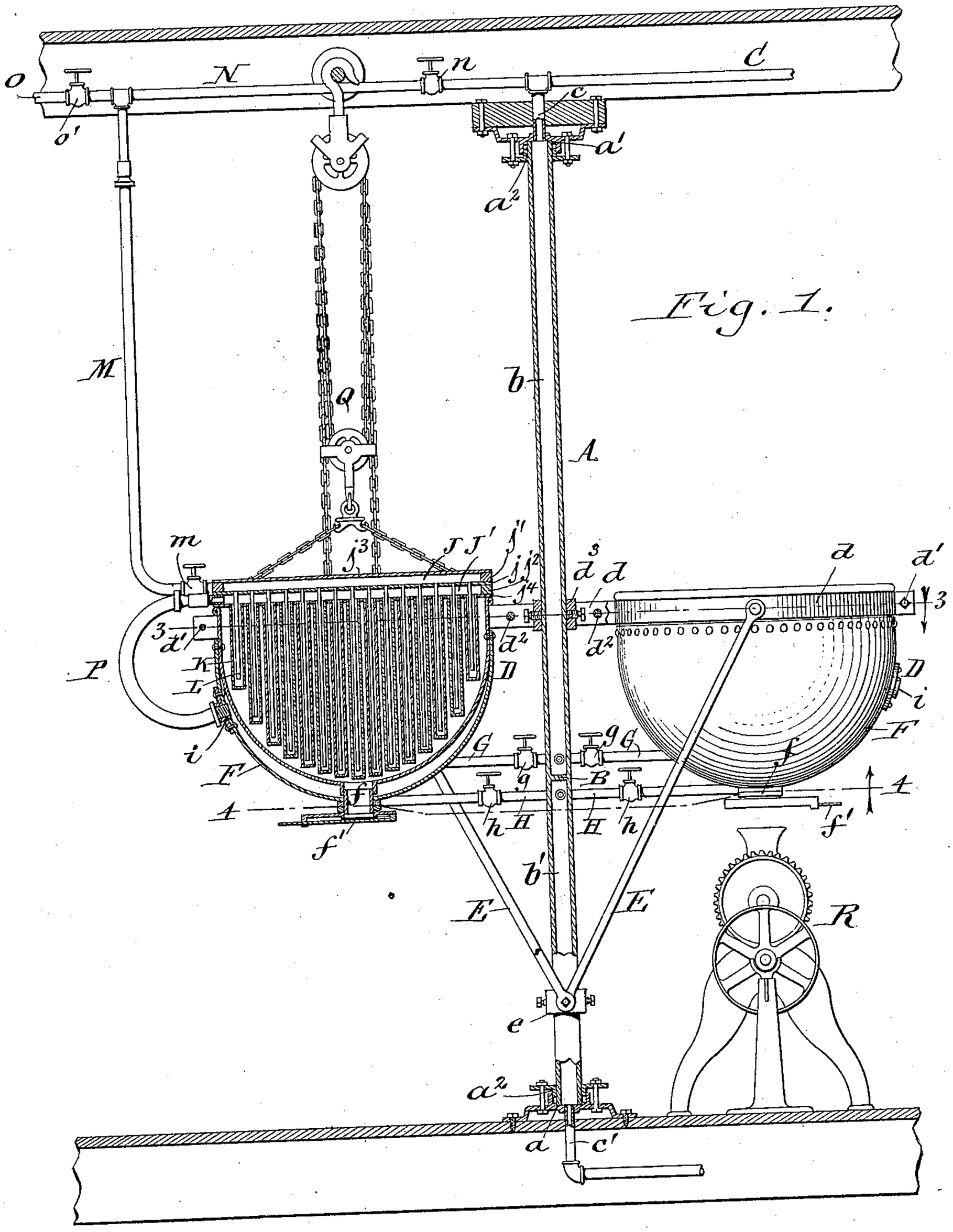


Fig. 1.

Witnesses;
Ernest Pulsford.
Henry L. Deck.

Chas. S. Rider Inventor;
By Wilhelm Bonner
Attorneys

(No Model.) 2 Sheets—Sheet 2.

C. S. RIDER.

CONFECTIONER'S KETTLE.

No. 599,047. Patented Feb. 15, 1898.

Fig. 2.

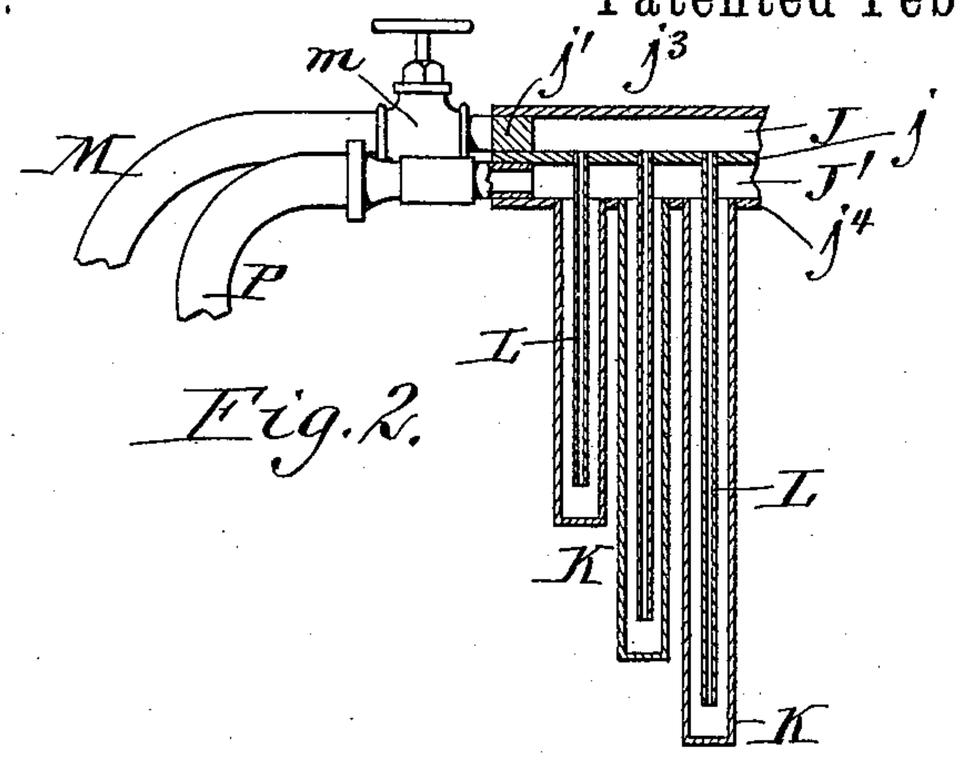


Fig. 3.

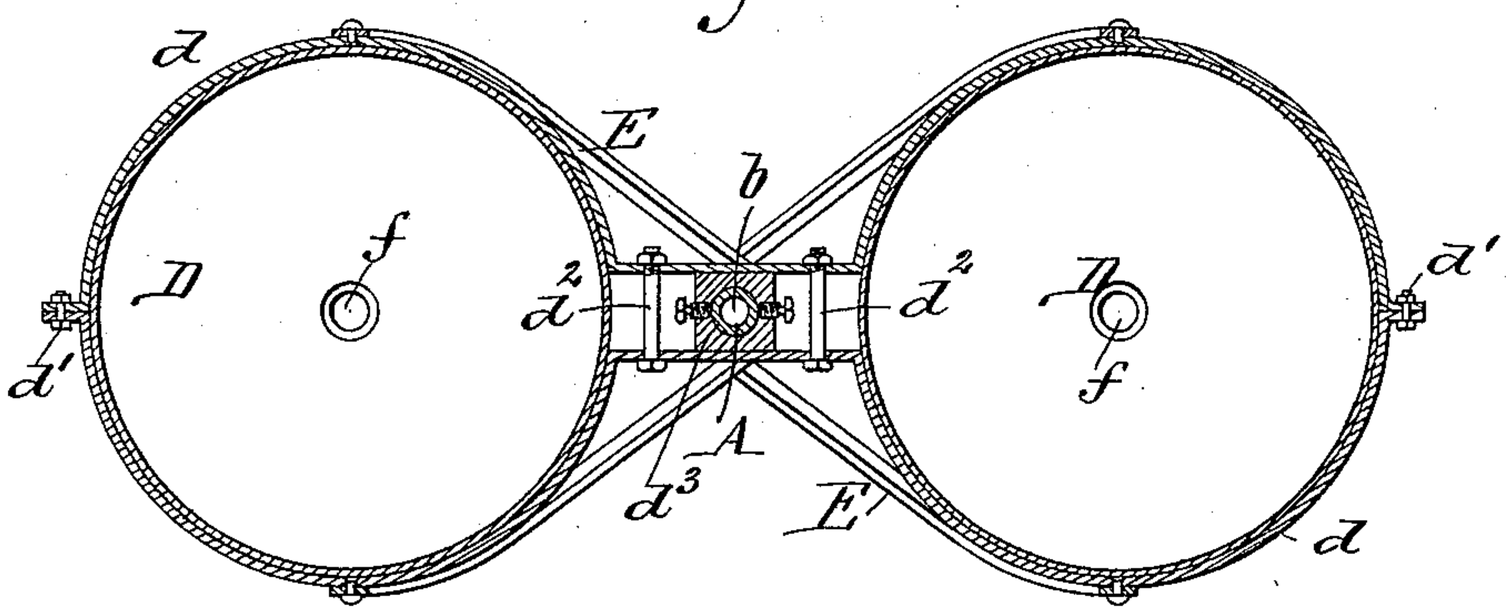
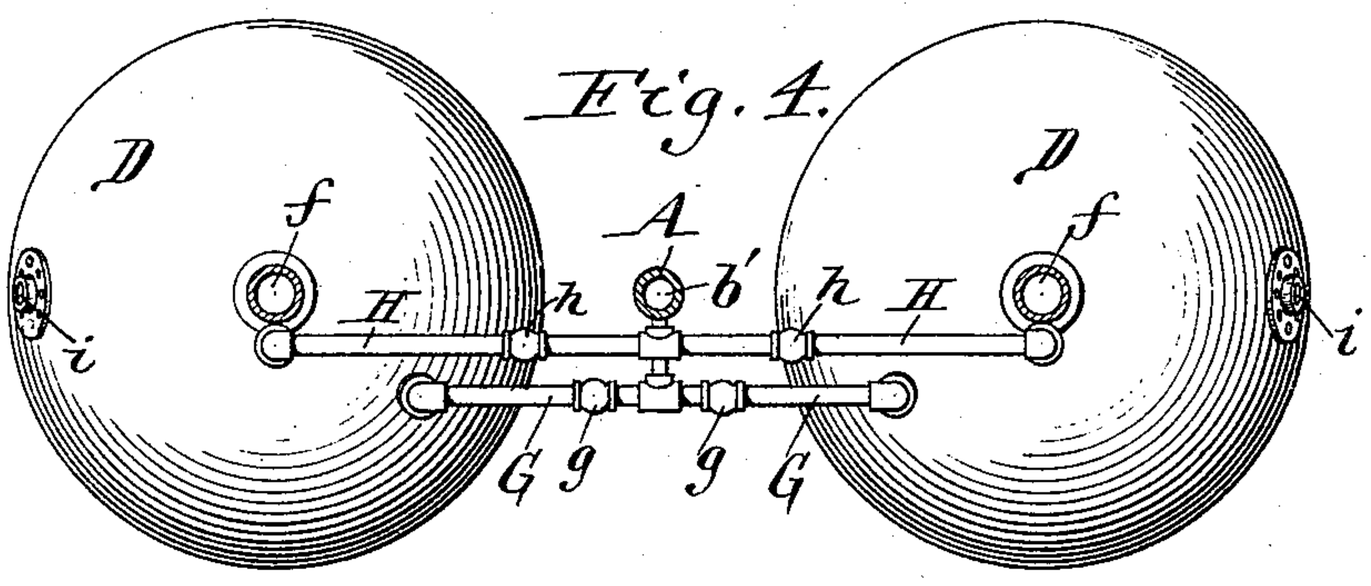


Fig. 4.



Witnesses:
Ernest V. Pulsford.
Henry L. Deck.

Chas. S. Rider Inventor.
By Wilhelm & Bonner
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES S. RIDER, OF SILVER CREEK, NEW YORK, ASSIGNOR TO THE S. HOWES COMPANY, OF SAME PLACE.

CONFECTIONER'S KETTLE.

SPECIFICATION forming part of Letters Patent No. 599,047, dated February 15, 1898.

Application filed March 17, 1897. Serial No. 628,010. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. RIDER, a citizen of the United States, residing at Silver Creek, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Heaters or Coolers, of which the following is a specification.

This invention relates to apparatus which is particularly designed for cooking and cooling confectioners' syrups and creams. Such syrups and creams are cooked and cooled in a kettle; and the object of this invention is the production of an apparatus which permits the operations of cooking and cooling to be effected conveniently in the same kettle, thereby avoiding handling of the product in passing from a cooking to a cooling apparatus, and to so organize the apparatus that the cooking and cooling of a batch of material can be carried on in one kettle while the finished batch is drawn off from another kettle and the latter is cleaned and refilled with a fresh batch.

In the accompanying drawings of two sheets, Figure 1 is a vertical section, partly in elevation, of my improved heating and cooling apparatus. Fig. 2 is a fragmentary vertical section, on an enlarged scale, of the manifold and several of its pipes. Fig. 3 is a horizontal section in line 3 3, Fig. 1, looking downward and omitting the heating or cooling tubes. Fig. 4 is a similar section in line 4 4, Fig. 1, looking upward.

Like letters of reference refer to like parts in the several figures.

A represents a vertical hollow shaft or standard which is journaled at its lower and upper ends in bearings a a', which are secured, respectively, to the floor and ceiling or other stationary parts of the building. The ends of the standard are made steam and water tight in the bearings by means of stuffing-boxes a^2, applied to the bearings.

B is a diaphragm or partition which is arranged in the hollow shaft or standard and which divides the standard into an upper or inlet section or passage b and a lower or outlet section or passage b'.

C represents a steam-supply pipe provided with a branch c, which extends axially through the upper standard-bearing and opens into the upper end of the hollow standard, thereby permitting the standard to be turned without disturbing its communication with the steam-pipe. The lower bearing of the standard is provided with a drain-pipe c', which extends axially through this bearing and opens into the lower end of the standard, thereby permitting the standard to be turned without disturbing its communication with the drain-pipe.

D D represent two kettles which are mounted on diametrically opposite sides of the standard, so as to rotate therewith, and in which the syrup or other material to be heated or cooled is placed. These kettles may be connected with the standard in any suitable manner, preferably by means of two supporting bars or bands d d, which embrace opposite sides of the kettles and are connected with each other at their outer ends by bolts d', while their central portions are clamped by bolts d^2 against opposite sides of a block d^3, which is secured to the standard.

E are inclined braces connecting the outer portions of the supporting-bars with a collar e on the lower portion of the standard.

Each of the kettles has its lower portion inclosed by a jacket F, and is provided with an outlet-spout in its bottom, which extends through the jacket and which may be opened and closed by a valve f'.

G G represent the branches of a steam-pipe, whereby the lower portion of the upper or inlet section of the hollow standard is connected with the jackets of the kettles above the bottom thereof and each of which is provided with a valve g.

H H represent the branches of a drain-pipe, whereby the lower or outlet section of the hollow standard is connected with the lowermost portions of the jackets and each of which is provided with a valve h. Upon opening the valves g and h in the pipes leading to and from each jacket the steam passes from the standard through the pipe G into the jacket and heats the contents of the kettle, and the water of condensation passes from the jacket through the pipe H into the outlet section of the standard.

When it is desired to cool the contents of the kettle, the steam-valve g is closed and cold

water is introduced into the jacket through an opening *i* in the same side thereof, which water after it has taken up heat escapes through the same pipe H which is used to carry off water of condensation during the heating operation.

In order to render the heating or cooling of the contents of the kettle more rapid, a heating and cooling apparatus is immersed in the contents of the kettle, which apparatus is constructed as follows:

J J′ represent two circular manifold chambers arranged one above the other and formed, preferably, by a horizontal center plate or partition *j*, upper and lower frames *j′ j²*, secured to the upper and lower marginal portions of the center plate, and upper and lower plates *j³ j⁴*, secured to the upper and lower sides of the frames *j′ j²*, respectively.

K represents a number of outer depending tubes or pipes, which are closed at their lower ends and which have their open upper ends secured in openings formed in the lower plate *j⁴* of the manifold, so as to communicate with the lower chamber J′.

L represents a number of inner depending tubes having their open lower ends separated from the lower ends of the outer tubes and having their open upper ends secured in openings in the central plate of the manifold, so as to communicate with the upper chamber J, as shown in Fig. 2.

M represents a flexible pipe or hose which is connected at one end with the upper or inlet chamber of the manifold and which is connected at its other end by a T-coupling with a branch N of the steam-supply pipe and with a water-supply pipe O.

m n o′ represent valves arranged, respectively, in the flexible pipe M, the branch steam-pipe N, and the water-supply pipe O.

P represents a flexible pipe or hose which is connected at one end with the lower or outlet chamber of the manifold and which is adapted to be connected at its opposite end with the inlet-opening of the jacket *i* by a suitable coupling.

Q represents a hoisting device of any suitable construction whereby the heating and cooling apparatus can be raised and lowered, so as to immerse its tubes in the liquid contained in the kettle or raise the apparatus above the kettle. When this heating and cooling apparatus is in its operative position, it rests with its manifold on the rim of one of the kettles and its tubes project downwardly into the contents of the kettle, and the connecting-hose P is coupled with the jacket of the kettle. Upon closing the water-supply valve *o′* and opening the valves *m n* of the flexible pipe M and branch steam-pipe N steam is admitted into the upper manifold chamber and passes thence downwardly through the inner depending tubes, thence upwardly through the outer tubes, thence into the lower or outlet manifold chamber, and thence through the hose P into the jacket, where it joins the steam from the steam-pipe G. The water resulting from the condensation of the steam which enters the jacket through the hose P joins that of the steam which enters the jacket through the pipe G and passes off through the drain-pipe H.

When it is desired to cool the contents of the kettle, the steam-valves *g* and *n* are closed and the water-valve *o′* is opened, whereby the water is conducted through the manifold chambers, depending tubes, and the jacket of the kettle in the same manner, whereby the contents of the kettle are rapidly cooled off.

When the contents of one kettle have been heated and cooled, the coupling-pipe P is detached from the jacket and the heating and cooling apparatus is lifted out of the kettle, after which the standard is turned so as to carry the kettle containing the treated material away from the heating and cooling apparatus and the kettle containing a charge of uncooked material underneath the same.

R represents a cream-beating machine of any suitable construction which is so arranged as to receive the material from the discharge-spout of the kettle after the latter has been swung away from the heater and cooler. The relative arrangement of the manifold heater and cooler and the cream-beater is such that while a new batch of material is being cooked and cooled in one kettle the other kettle stands with its discharge-spout over the inlet of the beater, so as to permit its cooked contents to be discharged into the beater and a new batch of material to be placed in the empty kettle. The cooking and cooling of syrup and like material are thus effected successively and expeditiously in the same kettle, whereby the handling of the material between the cooking and cooling operations is avoided, and the cooked and cooled batch is discharged and a new batch of material introduced while another batch of material is being cooked and cooled, thus making the operation practically continuous.

I claim as my invention—

1. The combination with a rotatable standard provided with an inlet-passage for the heating or cooling medium and an outlet-passage for the spent medium, of a plurality of kettles secured to said standard to rotate therewith and connected with the inlet and outlet passages thereof, and a vertically-movable heating or cooling apparatus supported independently of said standard and adapted to be lowered into the kettle which is placed underneath said apparatus by the rotation of said standard, leaving the other kettle unobstructed by a heating apparatus, substantially as set forth.

2. The combination with a rotatable standard having a descending inlet-passage in its upper portion and a descending outlet-passage in its lower portion, of a stationary supply-pipe communicating with the upper end of said inlet-passage, bearings in which the upper and lower ends of said standard are journaled,

jacketed kettles secured to said standard to rotate therewith, inlet and outlet pipes connecting the jackets of the kettles respectively with the inlet and outlet passages of the standard, a vertically-movable heating or cooling apparatus supported independently of said standard and adapted to be lowered into the kettle which is placed underneath said apparatus by the rotation of the standard, a flexible inlet-pipe connecting said heating or cooling apparatus with the stationary supply-pipe, and a discharge-pipe by which said heating or cooling apparatus communicates with the outlet-passage of said standard, substantially as set forth.

Witness my hand this 11th day of March, 1897.

CHARLES S. RIDER.

Witnesses:
FREDERICK W. THOMAS,
FRED A. WHITAKER.