

(No Model.)

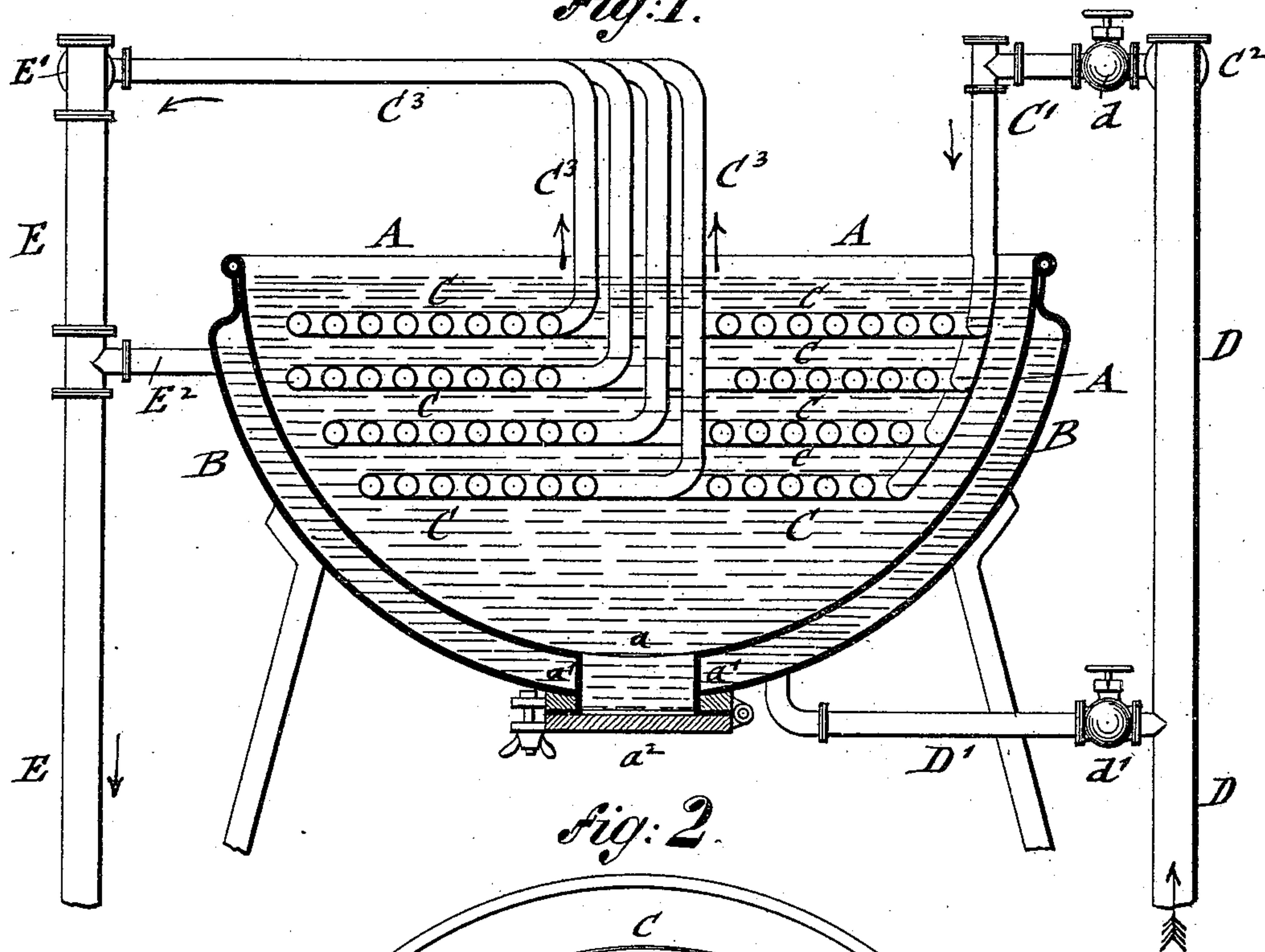
H. HEIDE.

APPARATUS FOR COOLING HOT LIQUID SUGAR.

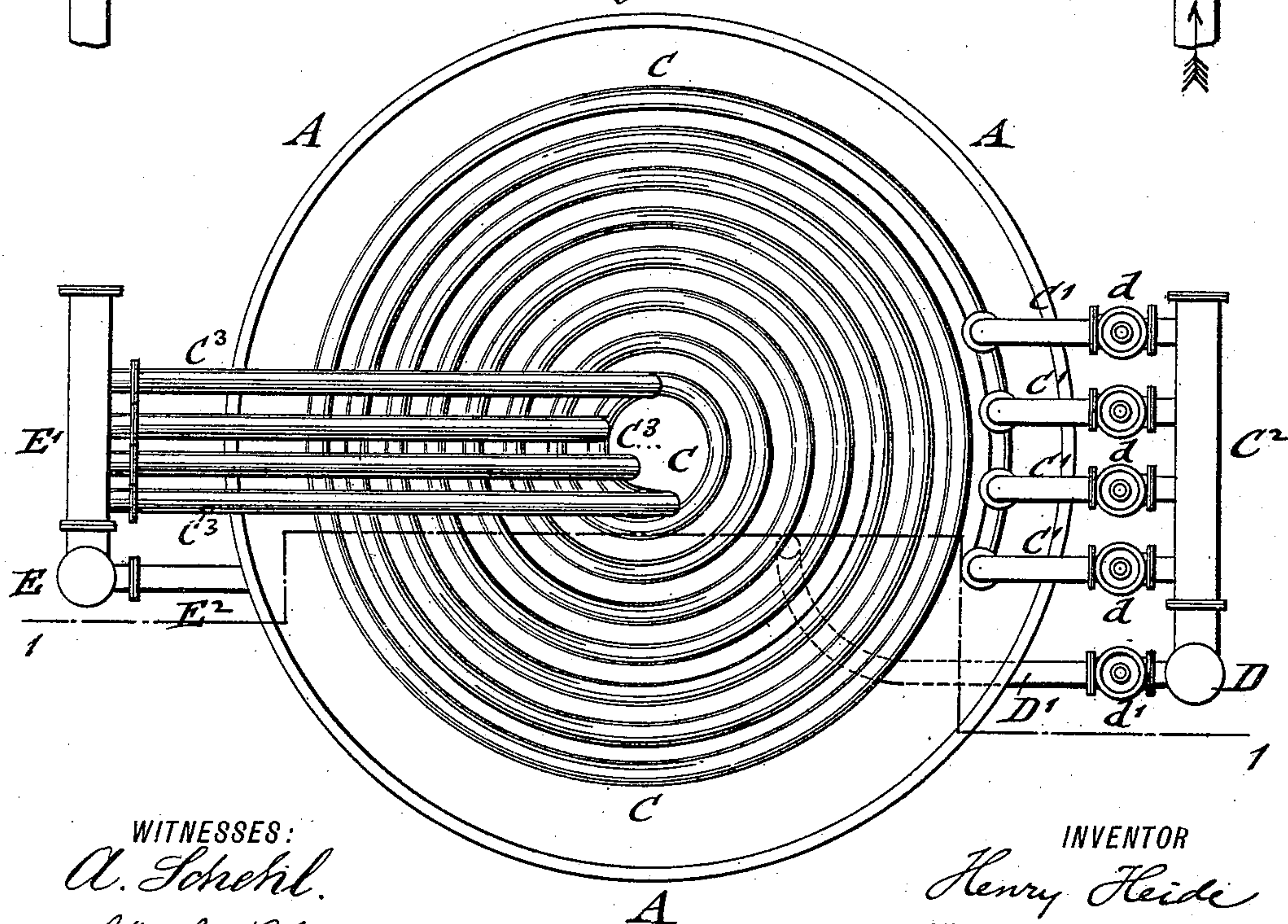
No. 470,823.

Patented Mar. 15, 1892.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*A. Schenk.*  
*Charles Blas.*

INVENTOR

*Henry Heide*  
BY *George Regener*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

HENRY HEIDE, OF NEW YORK, N. Y.

## APPARATUS FOR COOLING HOT LIQUID SUGAR.

SPECIFICATION forming part of Letters Patent No. 470,823, dated March 15, 1892.

Application filed July 1, 1891. Serial No. 398,140. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY HEIDE, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Cooling Hot Liquid Sugar, of which the following is a specification.

This invention relates to an improved apparatus for cooling hot liquid sugar that is to be used in the manufacture of cream-candy, so that its change from the crystalline structure into the soft creamy mass can be accomplished in a quick and effective manner.

The invention consists of an improved apparatus for cooling hot liquid sugar which comprises a cooling-vessel having a jacket extending around the same and a series of horizontal pipe-coils arranged at different levels within the cooling-vessel, a common supply-pipe in independent communication with each of the several coils and with said jacket, and a common discharge-pipe also in communication with the several coils and the jacket of the cooling-vessel.

The invention consists, secondly, of the combination, with a cooling-vessel having a jacket surrounding the same, of a series of horizontal pipe-coils arranged at different levels within said vessel, a common water-supply pipe connected with the different coils and with the jacket, a common discharge-pipe for the same, and independent cut-off devices interposed between the supply-pipe and the several coils and the jacket.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved apparatus for cooling hot liquid sugar preparatory to making cream-candy from the same on line 1 1, Fig. 2; and Fig. 2 is a plan of the same.

Similar letters of reference indicate corresponding parts.

A in the drawings represents an open vessel in the shape of a kettle, which is provided with a jacket B, that extends around the same, and with a bottom opening  $\alpha$ , having a discharge-tube  $\alpha'$ , that is closed by a hinged trap-door  $\alpha^2$ , provided with a fastening device, so as to tightly close the discharge-tube  $\alpha'$  and prevent any escape of liquid sugar

from the interior of the vessel A while it is exposed to the cooling action in the same.

In the interior of the vessel A is arranged a series of horizontal pipe-coils C C, that are arranged at different levels within the vessel A, one below the other, the outer end of each pipe-coil being connected by an upwardly and outwardly bent portion C' with a horizontal manifold C<sup>2</sup>, which is connected with the supply-pipe D, through which the water or other cooling medium is supplied to the different pipe-coils arranged in the cooling-vessel A. The supply-pipe D is also connected by a branch pipe D' with the bottom of the jacket B, the connecting portion C' of the coils C, and the branch pipe D' being provided with suitable stop-cocks  $d$  and  $d'$ , which serve for cutting off the supply of the cooling medium from any one or more of the pipe-coils, so that the cooling medium can be supplied to any number of the pipe-coils in the cooling-vessel according to the quantity of hot liquid sugar that is to be cooled in the same.

The horizontal pipe-coils C are connected at their inner ends by upwardly and outwardly bent portions C<sup>3</sup> with a horizontal manifold E', that communicates with the discharge-pipe E, which is connected by a branch pipe E<sup>2</sup> with the upper part of the jacket B, so that the cooling medium, after passing through the jacket, is conducted to the common discharge-pipe E.

The hot liquid sugar that is to be cooled is transferred to the vessel A from the kettle in which it is boiled and then cooled by permitting the cold water from the water-supply pipe D D' to pass through the several horizontal pipe-coils C and the jacket B, said cooling operation being required preparatory to the kneading or mixing operation by which the liquid sugar is gradually changed into cream sugar. When the reduction of the temperature of the liquid mass is accomplished, it is dropped into a mixing-machine which is located below the cooling-vessel, by opening the trap-door of the cooling-vessel, and then exposed in the mixing-machine to the usual kneading or mixing action, whereby the crystallization of the sugar is prevented and a white creamy mass obtained, which is known as "cream-sugar" or "fondant."

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

5 1. The combination, with a vessel provided with a jacket surrounding the same, of a series of horizontal pipe-coils arranged at different levels within said vessel, a common supply-pipe placed in independent communication with each of the several coils and with  
10 the jacket, and a common discharge-pipe, also in independent communication with the several coils and with the jacket, substantially as set forth.

15 2. The combination, with a cooling-vessel provided with a jacket surrounding the same, of a series of horizontal pipe-coils arranged

at different levels within said vessel, a supply-pipe connected with the several pipe-coils and the jacket, a common discharge-pipe also in communication with the several pipe-coils 20 and the jacket, and independent cut-off devices between the supply-pipe and the several coils and the jacket, substantially as set forth.

In testimony that I claim the foregoing as 25 my invention I have signed my name in presence of two subscribing witnesses.

HENRY HEIDE.

Witnesses:

CHARLES SCHROEDER,  
A. M. BAKER.