(No Model.)

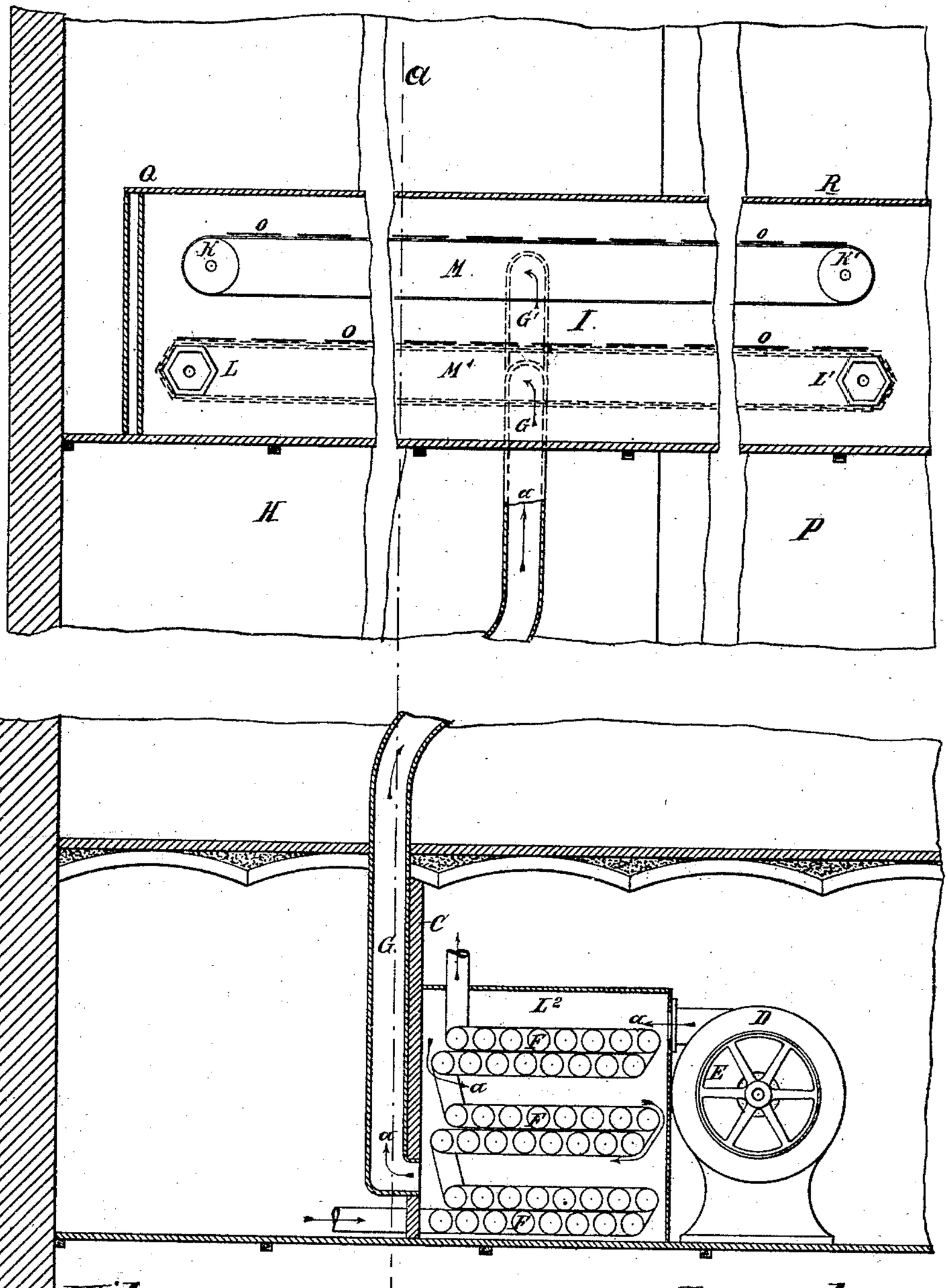
2 Sheets—Sheet 1.

H. STOLLWERCK.

COOLING APPARATUS.

No. 277,804. Patented May 15, 1883.

Fig. 1.



Witnesses.

J. A. Rutherford

Robert Ewett.

Inventor.

Heinrich Stollwerck.

By James L. Norris

Atty.

(No Model.)

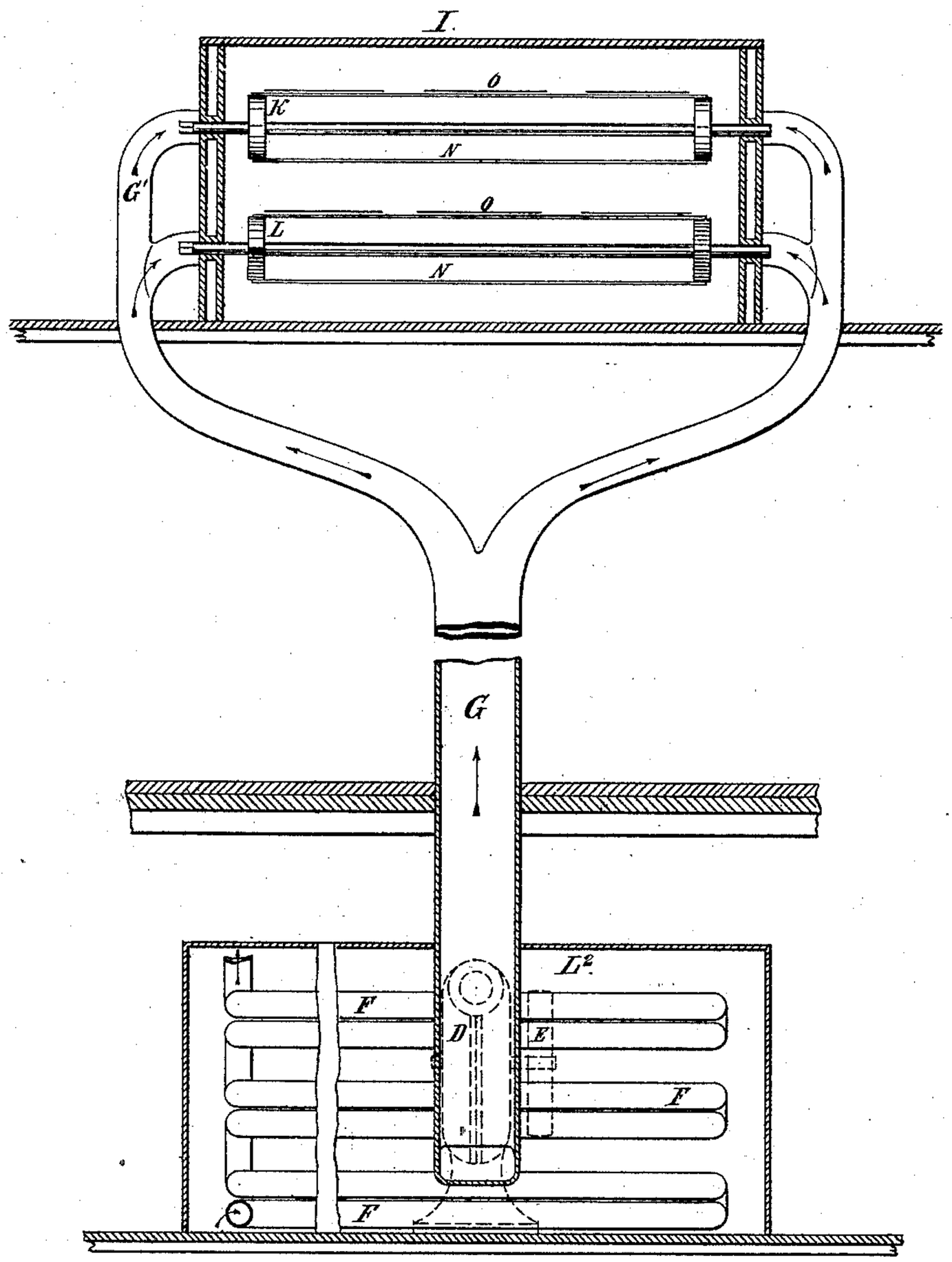
2 Sheets—Sheet 2.

H. STOLLWERCK.

COOLING APPARATUS.

No. 277,804. Patented May 15, 1883.

Fig. 2.



Witnesses.

J. A. Rutherford

Robert Everett.

Inventor.

Heinrich Stollwerck.

By James L. Norris

UNITED STATES PATENT OFFICE.

HEINRICH STOLLWERCK, OF COLOGNE, PRUSSIA, GERMANY, ASSIGNOR TO GEBR. STOLLWERCK, OF SAME PLACE.

COOLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 277,804, dated May 15, 1883.

Application filed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH STOLLWERCK, of the city of Cologne-on-the-Rhine, in the Kingdom of Prussia, and German Empire, have invented certain new and useful Improvements in Apparatus for Cooling Chocolate, Cocoa, and other Articles, of which the following is a specification.

The object of my invention is to provide means for cooling chocolate, cocoa, &c., to such a degree as may be found desirable by the action of a continuous current of dry air, in order to avoid the objections generally resulting from the use of such means of cooling as have heretofore been employed for similar purposes, such as bringing into damp cellars the chocolate or other articles to be cooled, or submitting said articles to the action of ice, &c.

In the drawings forming part of this specification, Figure 1 represents a vertical longitudinal section of the one part and a vertical transverse section of the other part of my improved apparatus, while Fig. 2 is a vertical transverse section of the first-mentioned part and a vertical longitudinal section of the other part of the same.

L^2 is a cooler consisting of a large case or box situated in any room of a building, and communicating on one side with a ventilator, D, having the pulley E, and on the other side, by means of a suitable conducting-pipe, G, with the cooling-chamber I, situated in any other room, H—say in the manufacturing-room—even if the degree of temperature there prevailing should be rather a high one. The cooler L^2 contains a system of water-pipes, F, through which a current of water or other liquid or fluid flows, having such a temperature as, according to the season of the year, will either raise or lower the temperature in the cooler L^2 to the desired extent, which for the cooling of chocolate would be about 54° Fahrenheit. The conducting-pipe G, near its other end, diverges into several branches, G′, entering the cooling-chamber I at different points and from different sides. This cooling-chamber I, which may extend through the wall into another room, P, consists of a large closed case or box, which at the same time may be used as a table, and contains a number of band or chain rollers, K K′ L L′, over which endless bands M or endless chains M′ run from one end, Q, of the cooling-chamber to the other end, R, of the same, the said bands or chains being laterally connected with each other, or supported by means of straps or rods N, on which plates O, of tin, may be placed, containing the chocolate or other mass to be cooled.

Having thus described my improved cooling apparatus, I will now proceed to describe its operation.

The ventilator D, which may be run either by hand or by power conveyed to pulley E, blows the air into the cooler L^2, where it passes between the coils of the water-pipe F in the direction indicated by arrows *a*. Through this water-pipe a current of water runs, which is given such a temperature as, according to the season of the year, will either raise or lower the temperature of the air in the cooler to about 54° Fahrenheit, this being the most suitable temperature for cooling chocolate and cocoa. The said air then passes up through the conducting-pipe G, entering the cooling-chamber I from different sides through the branches G′. The chocolate at Q, being placed on the band M or endless chain M′, in plates of tin O, is slowly conveyed from that end, Q, of the cooling-chamber to the other end, R, by rotating the band or chain rollers by means of cranks or otherwise, and is thus thoroughly cooled, the current of dry, cool air which enters through the branches G′ of the conductor-pipe G striking the chocolate or other mass from all sides—that is to say, from the front side in one half of the cooling-chamber, and from the rear in the other half. Arrived at the end R, which, as already stated, may be in some other room of the same building—say the store-room—the chocolate is taken out of the cooling-chamber in a thoroughly-cooled state and stored away, the air from the cooling-chamber escaping from both ends of the latter at a temperature of from 57° to 66° Fahrenheit, due to the warmth taken from the now cooled mass.

A break made in a piece of chocolate taken from the cooling-chamber of my improved apparatus will show the natural color of the chocolate, while chocolate cooled by the apparatus or other means hitherto employed will generally show a whitish-brown break, due partly to the dampness of the air employed for

cooling and partly to the impossibility of securing and steadily maintaining exactly the requisite degree of temperature required.

By the use of my improved apparatus a continuous flow of dry air of any desired temperature is maintained, while at the same time it shows this advantage, that it can be situated in any part of a building—not necessarily in the cellar, as heretofore—and that the desired temperature can be secured and maintained at all times, regardless of the different seasons of the year.

Heretofore a drying apparatus has been composed of a chamber containing traveling belts for carrying the material to be dried, a cooling-chamber located against one side of and connecting with the drying-chamber, and containing a coiled pipe, into which a heating or cooling medium is introduced, and a fan for blowing air over the coiled pipe into the drying-chamber. Therefore I do not broadly claim such features. In another instance a pipe having branches provided with nozzles or orifices has been located on the bottom wall of a drying-chamber under a series of drying-frames, such pipe connecting with a fan located in a separate compartment for driving air through the pipe into the drying-chamber under the drying-frames; but such does not constitute my invention.

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

1. An apparatus for cooling chocolate and similar substances, consisting of a closed cooling-chamber, I, provided with means for supporting and shifting the material, a cooler, L^2, containing a coil of pipe for the passage of a cooling-fluid, a pipe, G, connected at one end with the cooler, and having branches which communicate with the closed cooling-chamber by opening through the opposite walls thereof, and means for forcing air over the coiled pipe in the cooler into the branched pipe, substantially as shown and described.

2. In an apparatus for cooling chocolate, the combination of the closed cooling-chamber I, situated in one compartment, and containing means for supporting and shifting the chocolate or other material, a cooler, L^2, situated in a compartment isolated from that which contains the closed cooling-chamber, and containing a coiled pipe for the passage of a cooling-fluid, a pipe, G, connected at one end with the cooler, and having branches which communicate with the closed cooling-chamber by opening through the opposite walls thereof, and means for forcing air over the coiled pipe into the branched pipe, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HEINRICH STOLLWERCK.

Witnesses:
TH. PEITMANN,
SAMUEL SPACKMAN.