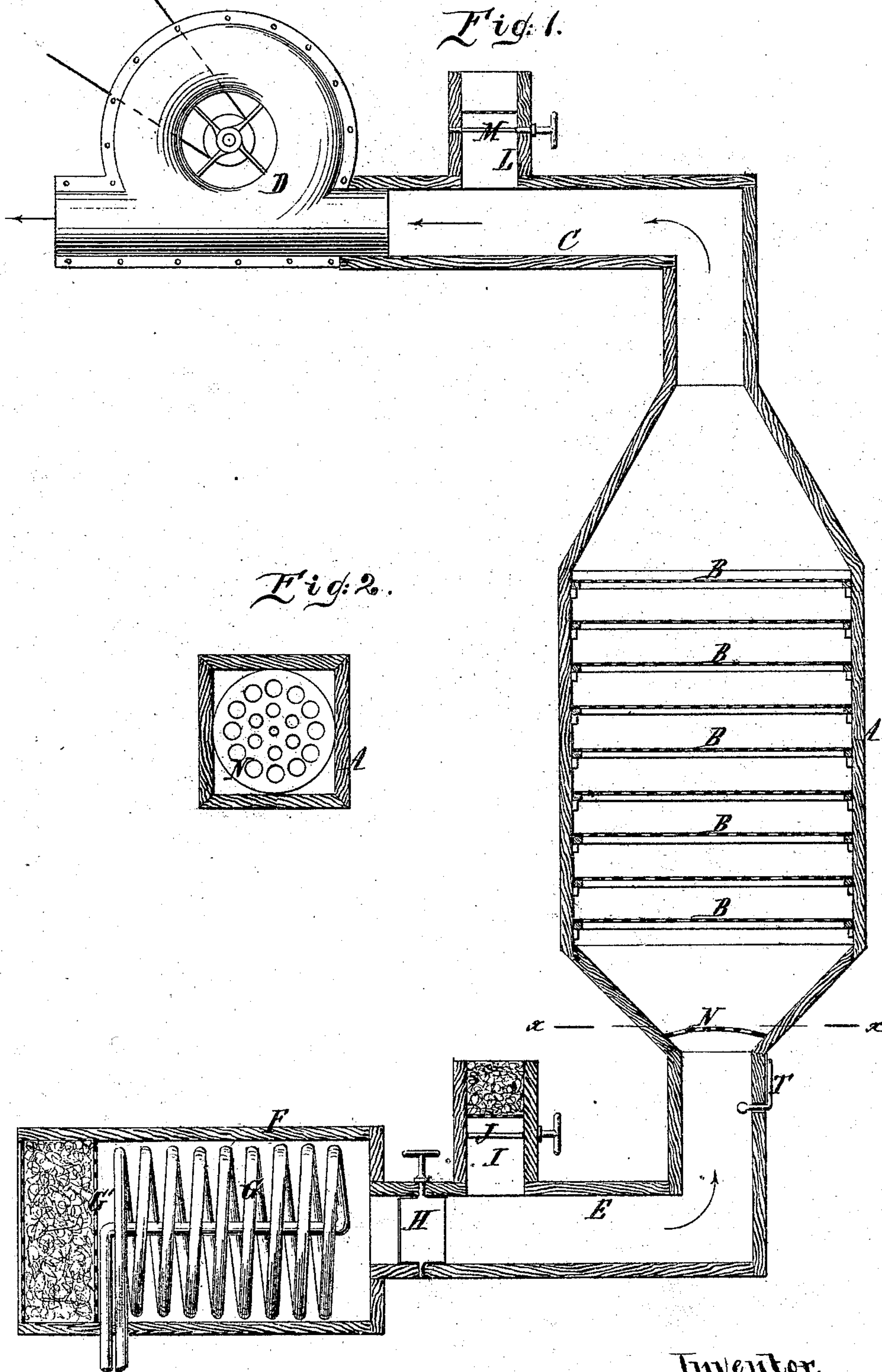


H. ENDEMANN.
 Improvement in Apparatus for Drying Fruits, Meat, &c.
 No. 120,253. Patented Oct. 24, 1871.



Witnesses.
 C. Wahler.
 E. Bilhuber.

Inventor.

H. Endemann.

UNITED STATES PATENT OFFICE

HERMANN ENDEMANN, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR DRYING FRUITS, MEATS, &c.

Specification forming part of Letters Patent No. 120,253, dated October 24, 1871.

To all whom it may concern:

Be it known that I, HERMANN ENDEMANN, of the city, county, and State of New York, have invented a new and Improved Drying Apparatus; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a vertical section of this apparatus. Fig. 2 is a horizontal section of the same in the plane $x x$, Fig. 1.

Similar letters indicate corresponding parts.

This invention consists in the combination of a drying-room containing shelves or trays for the reception of the articles to be dried, with an air-heater, with an air-exhauster, and with suitable valves in the pipe leading into and out of the drying-chamber in such a manner that, by the action of said air-exhauster, a current of hot air can be drawn through the drying-chamber, and by opening the valves in the air or discharge-pipes the temperature of the air passing through the drying-chamber can be regulated with the greatest accuracy.

In the drawing, A designates a chamber, which may be made of wood lined with sheet metal or of any other suitable bad conductor of heat, and which is provided with ribs or lugs to support a series of shelves or platforms, B, so constructed that they can be readily removed from or inserted in the drying-chamber, said chamber being provided with a door to give convenient access to its interior. The platforms or trays are composed of frames supporting bottoms of wire-netting or perforated sheet metal, and on them are spread the articles to be dried. From the top of the drying-chamber extends a pipe, C, which connects with an air-exhauster, D, of any suitable construction, and from the bottom of said drying-chamber extends a pipe, E, to a chamber, F, which contains a steam-coil, G. The mouth of the air-chamber F is covered by a sieve, G', which supports a quantity of loose cotton, so that the air passing in said air-chamber is freed from impurities. In the air-supply pipe E is situated a damper, H, to close the same, and from said pipe rises a nozzle, I, furnished with a valve, J, and protected by a quantity of loose cotton resting on a sieve, K. From the exhaust-pipe C extends

a nozzle, L, provided with a valve, M. Just above the junction of the air-supply pipe with the drying-chamber is placed a sieve, N, which is circular, while the transverse section of the drying-chamber is square, as shown in Fig. 2, and the perforations of the sieve are small in the center and they increase gradually toward the circumference. By this arrangement the current of air passing in from the supply-pipe is spread and evenly distributed throughout the drying-chamber. A thermometer, T, inserted in the supply-pipe allows of observing the temperature of the air passing up into the drying-chamber.

When the air-exhauster is set in motion a current of air is caused to pass through the air-chamber F, where the same is heated by coming in contact with the steam-coil and this current of heated air passes up through the drying-chamber. This air is freed from its impurities by the cotton in the mouth of the air-chamber F. If it is desired to reduce the temperature of the air the valve J in the supply-pipe E is opened, and consequently a quantity of cold air will be mixed with the air that has passed the steam-coil. If it is desired to increase the temperature of the air in the drying-chamber, the valve M in the exhaust-pipe is opened, and thereby the speed of the air passing through the steam-coil is reduced, and consequently its temperature is raised.

In using my apparatus in desiccating meat, where the temperature of the air must not rise above 140° Fahrenheit, I construct the same in the following proportions: I make a steam-coil of one-half inch pipe, pass steam of forty pounds, pressure through it, and extend said steam-coil to such a length that I obtain two square feet of heating-surface for every cubic foot of air passing through the same per minute. For instance, if the capacity of the drying-chamber is twenty-eight cubic feet and the exhauster takes off fourteen cubic feet of air per minute, the heating-surface of the steam-coil must be twenty-eight square feet.

In some cases I have found it of advantage to place the exhauster at the bottom of the drying-chamber and the steam-coil at the top, so as to dry with a downward current of air; but in this case the temperature of the air cannot be raised above 125°, since air of a higher temperature cannot be made to travel downward in a uniform current except by a regular exhaust-pump. It is

obvious that for a steam-coil any other suitable air-heating apparatus can be substituted.

With my apparatus, constructed as above described, I am enabled to dry beef or other meat in three hours so that it can be packed and preserved for a long time.

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

The combination of an air-exhauster and an

air-heating apparatus with a drying-chamber and with valves J M, which allow of regulating the temperature of the air made to pass through the drying-chamber by the action of the exhauster, substantially as herein shown and described.

H. ENDEMANN.

Witnesses:

H. P. ALLEN,
WILLIAM ROBERTS.

(48)