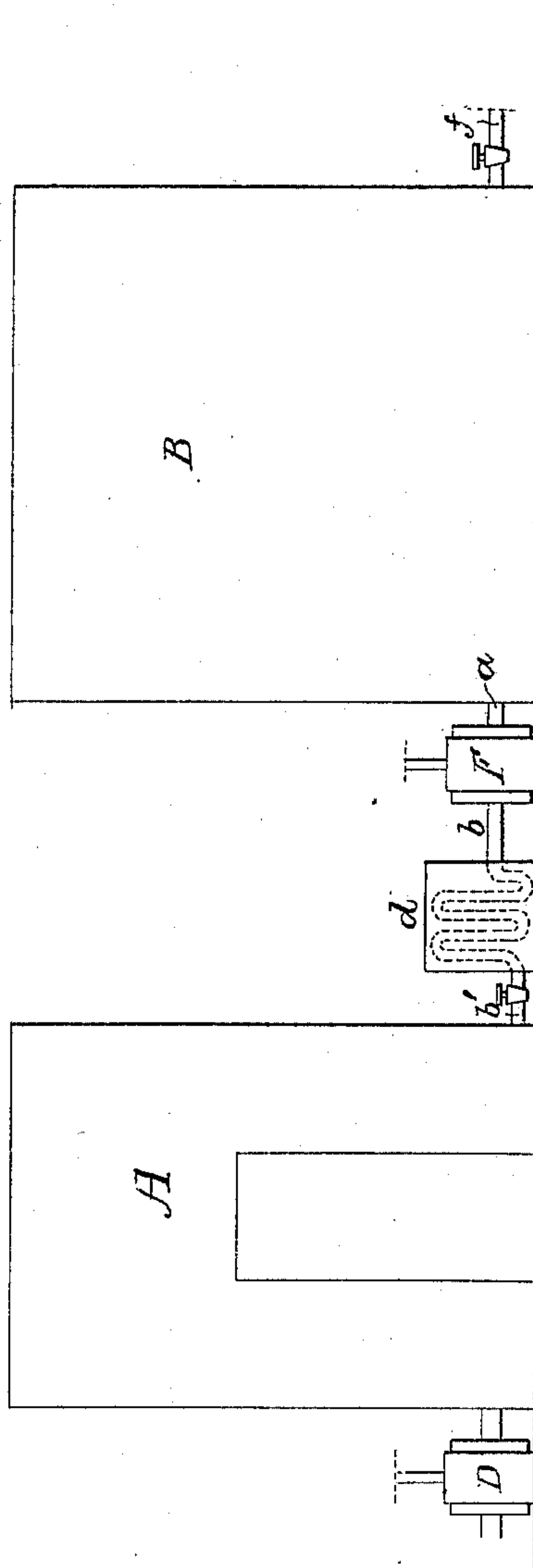


(No Model.)

I. M. MITCHELL.
PROCESS OF PRESERVING FOOD.

No. 277,768.

Patented May 15, 1883.



Witnesses
Jas. L. Skidmore
Harry Smith

Inventor
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by her Attorneys
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UNITED STATES PATENT OFFICE.

ISABEL M. MITCHELL, OF PHILADELPHIA, PENNSYLVANIA.

PROCESS OF PRESERVING FOOD.

SPECIFICATION forming part of Letters Patent No. 277,768, dated May 15, 1883.

Application filed August 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, ISABEL M. MITCHELL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in the Preservation of Food, of which the following is a specification.

My invention relates to certain improvements in the preservation of perishable articles of food by treatment with ozone gas.

The invention consists, mainly, in subjecting the articles to the action of the gas while in an air-tight chamber from which the air has been exhausted and its place supplied by gas, it having been found that by this means the gas acts upon the articles of food in a short time and in such a thorough manner that said articles can, after treatment, be exposed to the atmosphere without risk of decay.

The simplest method of carrying out my invention is to place the articles in a vessel or chamber containing a generator of ozone, after starting which the chamber is closed air-tight, the generation of the ozone exhausting the air which was contained in the chamber, and the ozone, when generated, taking the place of the air and exercising the desired preservative effect upon the articles exposed to its action. This is assisted by the dryness of this atmosphere due to the moisture-absorbent character of some or all of the ozone-generating chemicals.

In carrying out the invention on a large scale I may use apparatus such as shown in the accompanying drawing, in which A and B represent two air-tight chambers, the capacity of the chamber B being considerably greater than that of the chamber A.

D is an exhaust-pump communicating with the chamber A; and F is a combined exhaust and force pump, the suction-pipe *a* of which communicates with the chamber B, and the force-pipe *b* with the chamber A, said pipe *b* passing through a box, *d*, containing water or ice, and serving to cool the gas in its flow through the pipe.

The chamber A is the treating-chamber, and should be provided with suitably-packed doors to permit ingress and egress, and with means for supporting the various articles to be subjected to the preservative influence of the ozone.

A valved pipe, *f*, serves to connect the cham-

ber B with a suitably-located generator of ozone, or an ozone-generator is placed in the said chamber.

The operation of the apparatus is as follows: The articles to be preserved are placed in the chamber A, and when the latter is filled the pump D is set in operation so as to exhaust the air from the said chamber A. During these operations the chamber B has been filled with ozone. This being accomplished, the pump F is put in operation to draw the ozone from said chamber B and force it through the pipe *b* and into the chamber A, from which the air has been previously exhausted, as above set forth. The ozone is pumped into the chamber A until the required pressure is reached. In practice I have found a pressure of thirty pounds to the square inch to give good results, although a greater or less pressure than this may be employed, if desired. The treatment is continued for from fifteen minutes to two hours, in accordance with the character of the articles under treatment and the pressure imparted to the gas in the chamber A, after which, the valve in the pipe *b* being closed, the chamber is opened and the articles removed therefrom prior to a repetition of the operation. By first exhausting the air from the chamber A and then forcing the ozone gas into the same, I am enabled to effect the thorough subjection of the articles under treatment to the preservative influence of the ozone, as the complete impregnation of the articles with the gas is insured. If the air is not exhausted from the chamber containing the articles to be treated, said air will be mixed with and will dilute the ozone gas to such an extent as to interfere with its preservative properties; hence the importance of the first step of the process. It is advisable to extract the animal heat from the articles before treatment, and to maintain them in a comparatively cool condition during treatment; hence the subjection of the ozone to the influence of the cooler *d* before it enters the chamber A. The chamber B serves as a reservoir for the ozone, and permits the storage of a sufficient volume of the same to permit a continuous pumping into the chamber A until the proper pressure therein has been reached.

Instead of forcing the ozone into the cham-

ber A, it may be simply permitted to flow into the same after the air has been exhausted from it; but the use of the ozone under pressure is preferred.

5 I do not desire to claim, broadly, in this application the use of ozone gas as a means of preserving perishable articles of food; nor do I claim, broadly, the cooling of gas between the generator and a chamber or reservoir into
10 which the gas is introduced; but

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

15 1. As an improvement in the preservation of perishable articles of food by means of ozone gas, the mode herein described, which consists in placing the articles in an air-tight chamber, exhausting the air contained therein, supplying its place with the gas, subjecting the articles to the action of the gas for a limited pe-

riod, and then removing them from the chamber, as set forth. 20

2. As an improvement in the preservation of perishable articles of food by means of ozone gas, the mode herein described, which consists in placing the articles in an air-tight chamber, exhausting the air therefrom, supplying its place with the gas which has been subjected to cooling influences, subjecting the articles to the action of the gas for a limited period, and then removing them from the chamber, as
25 set forth. 30

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

ISABEL M. MITCHELL.

Witnesses:

HARRY DRURY,
HARRY SMITH.