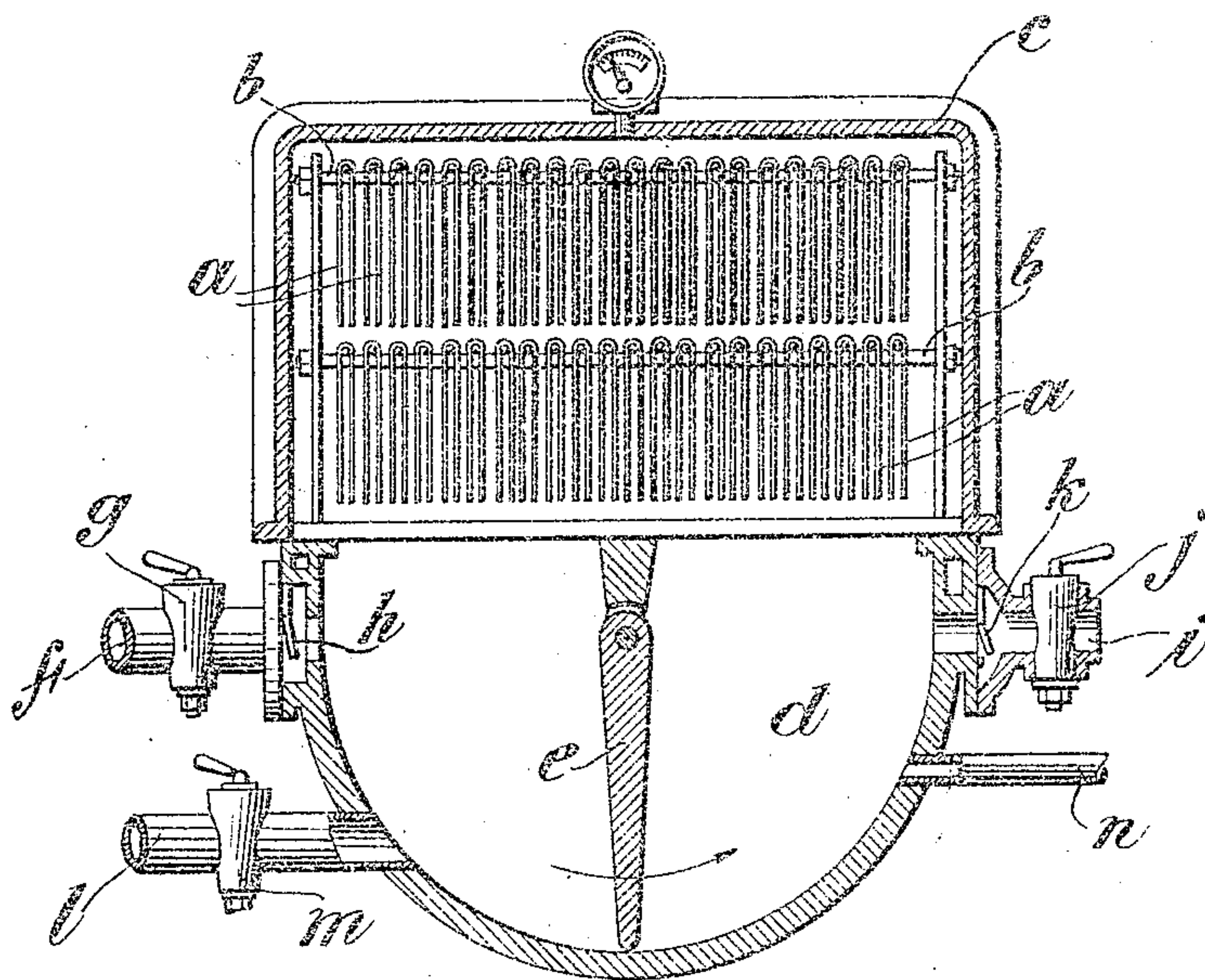


K. GAMMEL.
PROCESS OF DRYING EDIBLE PASTES.
APPLICATION FILED MAY 7, 1910.

994,074.

Patented May 30, 1911.



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UNITED STATES PATENT OFFICE.

KARL GAMMEL, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND MACARONI COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PROCESS OF DRYING EDIBLE PASTES.

994,074.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed May 7, 1910. Serial No. 560,083.

To all whom it may concern:

Be it known that I, KARL GAMMEL, a subject of the Emperor of Germany, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Process of Drying Edible Pastes, of which the following is a specification.

This invention relates to the drying of macaronic pastes, such as macaroni, spaghetti, noodles, and the like, and particularly to the drying of such products by artificial means as distinguished from the so-called natural, or Neapolitan method.

The object of the invention is to dry macaroni paste products without bursting or cracking the goods and without causing them to become bent and crooked.

The various other objects of the invention will be more fully set forth in the following description of the preferred manner of carrying out the process.

It is well known that the systematic drying of macaronic pastes presents great difficulties, and that the manner of the drying is the chief factor in the successful manufacture of this class of goods. The product necessarily loses a considerable percentage of its volume during the drying process, and in so doing this class of goods is peculiarly subject to dissolution, cracking and breaking, which render the product unsalable. This class of goods is extremely soft and elastic, as it comes from the press, and is usually hung in suitable lengths over sticks or poles and subjected to a very vigorous preliminary drying, which causes the goods to become sufficiently stiff to retain its shape. According to the so-called natural method, the goods, after being subjected to this preliminary drying, are placed in the sun or in a heated room during the day, and are removed to a cool room during the night, where the air is comparatively quiet. During the day time the movement of the air and the heat dry off the outer portions of the goods, and during the night the moisture contained in the interior of the goods gradually works outward toward the surface. This process usually requires from four to eight days, according to atmospheric conditions. If the drying were continued without interruption by this method, the outer portions of the goods would become so dry and so stiff as to cause the goods to

crack and break, or at least to warp and bend to such an extent as to be unsalable.

In the accompanying drawing is shown one form of apparatus for carrying out my improved process, in which the goods to be dried, such as macaroni *a* is represented as, being placed on a plurality of sticks or supports *b* in a suitable frame or casing *c* comprising a chamber *d*. A wing or fly *e* is pivoted to oscillate in this chamber so as to force air through the goods. Air is admitted to the chamber through the pipe *f* provided with a cock *g* and with a valve *h*. The moist air is automatically removed from the chamber through a pipe *i* having a cock *j* and a valve *k* therein. During one stroke or movement of the wing or fly, provided both the cocks are open, the air will be drawn through the pipe *f* and expelled through the pipe *i* and on the return movement of the wing or fly the air will be forced around and through the goods. A pipe *l* provided with a cock *m* provides means for admitting steam into the chamber. A smaller pipe *n* connected with the chamber may be used if desired for withdrawing the air by means of a pump in order to create a vacuum or for any other suitable purpose.

According to my process the goods after being cut to suitable lengths are hung over sticks or poles, or placed in trays, and are then placed in any suitable drying chamber without any preliminary drying whatever. A current of air is then forced around the goods while the same are on the poles, sticks or trays, which may be supported in any suitable manner. This air is constantly changed, and is kept at a suitable temperature depending somewhat on the stage of the drying operation. As soon as the goods begin to bend or warp it is evidence that the outer portion of the goods are becoming too hard, and that all the moisture has been removed from the outer portions that is practical at the time. Instead of waiting until the moisture from the interior of the goods can work its way outward to the surface, however, the goods are thereupon subjected to the action of a small quantity of watery vapor or steam which will be precipitated on the goods and which will soften the exterior. As soon as a small quantity of moisture has collected on the exterior and the goods have come straight, and the tendency

to warping and bending has disappeared, the supply of steam or water vapor is discontinued and the goods are again subjected to the drying action of a current of air which may be heated to a temperature somewhat higher than the temperature first employed, depending upon the stage of the drying. So long as the air is well moistened all danger of bursting or cracking of the goods will not occur, and at the same time the drying can be continued with such moistened air, provided it is kept in motion. Whenever the goods begin to bend or crack, however, it may be considered an indication that more moisture is necessary, and steam or vapor is again admitted. Thereupon the moist air is again circulated until the goods are entirely dry. By means of this process the temperature at which the drying process may be continued is much higher than any heretofore known, as the temperature may be carried as high as 100° F. without impairing the quality or characteristics of the goods. Consequently the time required for drying is very much shorter, and instead of four to eight days, as required by the so-called natural method, the goods may be dried, according to my improved process, in from 6 to 24 hours, depending upon the thickness of the goods. All the desirable characteristics of the goods with respect to color and taste are preserved, and the quality of the goods is greatly improved.

I claim as my invention:

1. The process of drying edible pastes, which consists in placing the goods over

suitable supports so as to remain pendent therefrom, removing the moisture from the outer portion of the goods until same begin to bend, then supplying vapor to said goods to deposit a layer of moisture over the same to restore the goods to their original shape, and then drying said goods by subjecting the same to the action of dry air.

2. The process of drying edible pastes, which consists in placing the goods over suitable supports so as to remain pendent therefrom, subjecting said goods to the action of a current of air to remove the moisture from the outer portion thereof, then moistening said outer portions of the goods to restore the movement of the moisture contained in the interior of the goods toward the surface, then subjecting said goods to the action of a drying current of air having a higher temperature than the first mentioned current, substantially as described.

3. The process of drying edible pastes, which consists in subjecting the goods while in the condition in which they are delivered from the press, to the action of a current of air to remove the moisture therefrom, subjecting said goods to the action of steam to supply moisture to said outer portion, and then subjecting the goods to the action of a drying current of air.

This specification witnessed this 9th day of April, A. D., 1910.

KARL GAMMEL.

Signed in the presence of—

SIDONIA FRIED,
N. A. SMITH.