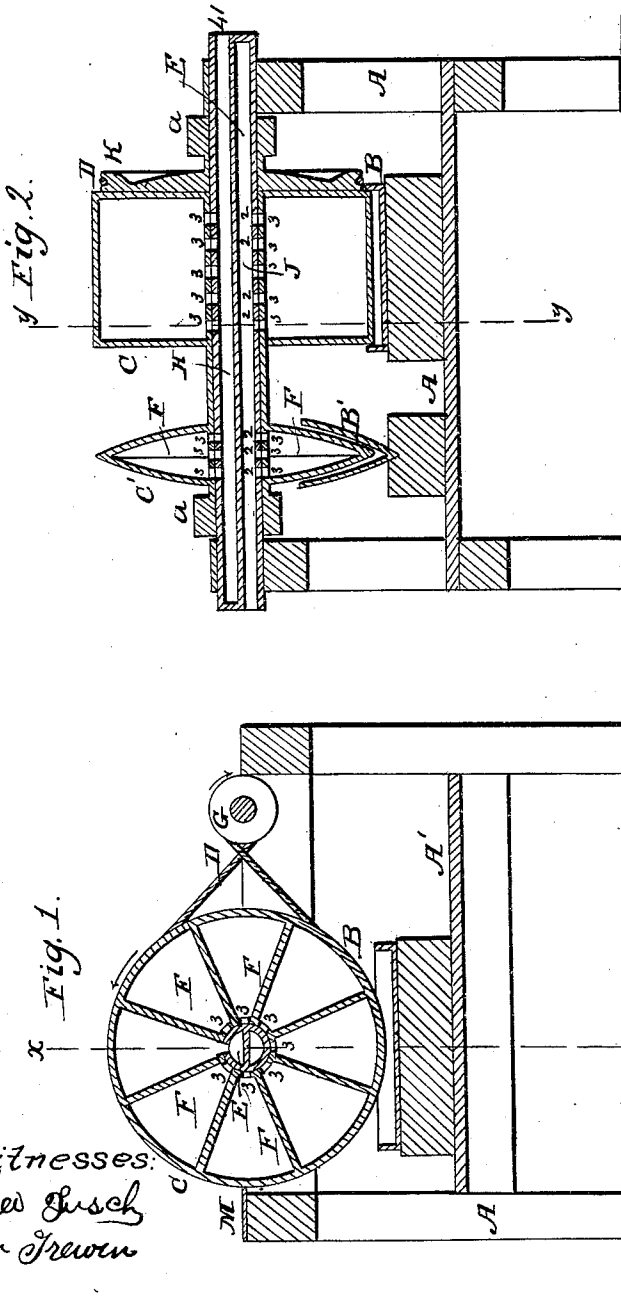


T. H. QUICK.
Desiccating Eggs, Vegetables, &c.

No. 51,084.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN DESICCATING EGGS, &c.

Specification forming part of Letters Patent No. 51,084, dated November 21, 1865.

To all whom it may concern:

Be it known that I, THOMAS H. QUICK, of No. 118 King street, in the city, county, and State of New York, have invented a new and useful Improvement in Desiccating Eggs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of a vertical cross-section of an apparatus for desiccating eggs and other substances embodying the principles of my invention, the line of section being seen at *y* in Fig. 2. Fig. 2 shows a longitudinal section taken on the line *x* of Fig. 1.

Similar letters of reference indicate like parts.

The object of this invention is to desiccate eggs, tomatoes, and other substances for preservation, and also for transportation to distant places, and in climates and under conditions which are unfavorable for their preservation in their natural state.

It consists in the use of rotating surfaces heated by hot water or other liquids, or by fluids, on which surfaces the substances are received and dried, and from which they are removed desiccated before the revolution of such surfaces is completed, the selection of the heating medium being determined, in part, by the degree of heat which the substance to be desiccated can bear without injury to its character and quality.

In this example of my invention, A designates a frame which sustains the desiccating apparatus. The frame has a platform, A', at about the middle of its height, which is made to sustain the receivers or reservoirs that contain the substances to be desiccated.

C is a cylinder of metal, of any convenient diameter and length, fitted to revolve upon the fixed shaft H. It has a sleeve, L, which extends from either end of the cylinder, embracing the shaft, and which enables me to pack the joints between the shaft and cylinder with facility, the letters *a a* designating the places of stuffing-boxes on said sleeve. The shaft is divided longitudinally into equal parts I J by the horizontal diaphragm E, the lower division, J, being open at the left-hand end of the shaft,

and the upper division, I, being open at its right-hand end. The lower division is intended for the admission of the heating medium used in the process, and the upper division for its discharge from the cylinder. Each division is perforated by holes 3, which are to be sufficiently numerous to admit and discharge the water or other medium with facility, the division I being perforated along its upper side and the lower division, J, being perforated along its lower side. The cylinder C is divided into several radial divisions, F—eight in number in this example—extending from end to end of the cylinder, and from its inner to its outer side, as shown in the drawings. Each of these divisions communicates at certain stages of the revolution of the cylinder with the divisions I J of the fixed shaft by means of a series of perforations, 3, which coincide in succession with the perforations 1 2 of the divisions I J.

The letter K designates a pulley formed on one side of the cylinder, which receives in its groove a belt, D, running over a driving-pulley, G. By means of these devices motion is given to the cylinder.

B is a reservoir or receiver supported upon the platform A'. It contains the material or substance to be treated. The periphery of the cylinder moves within the sides of the reservoir, so that it may be slightly immersed in the mass of the substance to be treated, or so that it may be brought in contact with the same.

The operation of the apparatus is as follows: Supposing that eggs are to be desiccated, the mass is first prepared therefor by beating up or in any other suitable way to bring it to a uniform fluidity. Warm water of about the temperature of 136° Fahrenheit is then introduced into the open end of division J of the fixed shaft, when it will pass through its perforations 2 into that division F of the cylinder which is vertically beneath the said shaft, at which time the perforations 2 of the shaft and the perforations 3 of the lowest division F will coincide, so as to allow of the passage of the water. Motion being now given to the cylinder, that portion of its periphery which bounds the lowest division F will move through or in contact with the egg mass, and will be coated with a portion which will adhere thereto. As that division passes out of the reservoir its place will be occupied by the next

division F on the left, which will also become filled with warm water, in the manner above stated, and so on through the series. The periphery of each radial division of the cylinder becomes successively heated or warmed nearly to the temperature of the water, and the time of filling each peripheral section with the heating medium is the time in which such section is in contact with the mass to be treated. The revolution of the cylinder carries the several sections of the periphery upward, and as each reaches a position vertically over the shaft H its perforations 3 will coincide with the perforations 1 in the upper division, I, of the shaft, and the water will be discharged therefrom into the part I of the shaft, whence it will escape at the open end 4 of that division of the shaft. During the time that the water is retained in the radial divisions F it imparts its heat to their peripheries, and the egg-coat becomes dried by means thereof. When the peripheries of the several divisions pass the scraper M, which is a long plate so fixed on the frame A that its edge is close to the periphery of the cylinder along its whole length, the egg-coat, which will then be in a dry condition, will be scraped off, and the same may be received into any suitable receptacle beneath.

The form of the apparatus may be varied and modified without departing from the principle of my invention, an instance of which is given in the hollow disk C', whose sides are convex, but converging and uniting at their circumference. It is also divided into radial divisions F, which communicate in alternation with the divisions I J of the fixed shaft, in the same manner as is described of the cylinder C. The sides of the double-convex disk C' revolve in the reservoir B', whose shape conforms to the form of the revolving disk, so as to cause the egg mass to be brought well up the sides of said disk. The scraper which removes the desiccated substance from its sides is not seen in the drawings, but it is made forked, so as to extend on each side of the disk nearly to the sleeve L. Any suitable receptacle may be provided to catch the egg-coating removed therefrom, so that it shall not fall into the reservoir B' or upon the floor.

In desiccating eggs the heat employed should not be so high as to cook the egg; and that is the reason why steam-heat cannot be applied directly to the periphery of the cylinder C or to any other surface which is to receive the egg. This condition, however, does not apply to all other substances, since steam may be admitted to the radial divisions F when they are used for desiccating tomatoes and other vegetables. In desiccating tomatoes and other

vegetables the process or mode of operation is the same as that described for treating eggs.

It will be observed in operating with my apparatus that the coating on the periphery of the several divisions F is dried on its under side, or on the side in contact with the drying-surface, and it dries, therefore, from within outward. The under side of the coating thereby becomes porous, and it is easily removed by the scrapers, as well as easily dissolved in water when about to be used.

It will be observed that by my invention the substances to be dried are not subjected to the direct rays of a fire nor exposed to currents of warm air which pass over them in order to deprive them of water and moisture, nor are they placed on drying-surfaces which are themselves heated by the direct action of fire; but the heating-surfaces on which the said substances are dried by my process and invention are heated by means of secondary heat—that is to say, by means of the contact with them of a fluid or liquid which has been raised to a suitable temperature before it is brought into contact with such surfaces.

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

1. In desiccating eggs and other substances, the use of a hollow revolving cylinder divided into radial divisions, heated from within, whose peripheries are coated with the egg mass or other substance to be desiccated, substantially as above described.

2. The divided stationary shaft, perforated as shown, substantially as above described.

3. In combination, perforating the inner sides of the radial divisions F of the revolving cylinder or other body and perforating the divisions I J of the stationary shaft, around which the desiccating-surfaces rotate, so that the radial divisions are alternately filled with and emptied of the heating medium, substantially as described.

4. In desiccating eggs or other substances upon surfaces which are kept in motion, depriving them of the water and moisture which are to be removed by the use of secondary heat applied within the surfaces on which the egg mass or other substances are placed, substantially as above described.

5. In desiccating eggs or other substances upon surfaces kept in continual motion, heating such surfaces by the use of hot water or steam or other fluid, substantially as described.

THOS. H. QUICK.

Witnesses:

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