A. W. HUTCHINS.

MEANS FOR DRYING ARTICLES OF JEWELRY, &c.

APPLICATION FILED JAN. 23, 1909.

948,763. Patented Feb. 8, 1910.

FIG. 1.

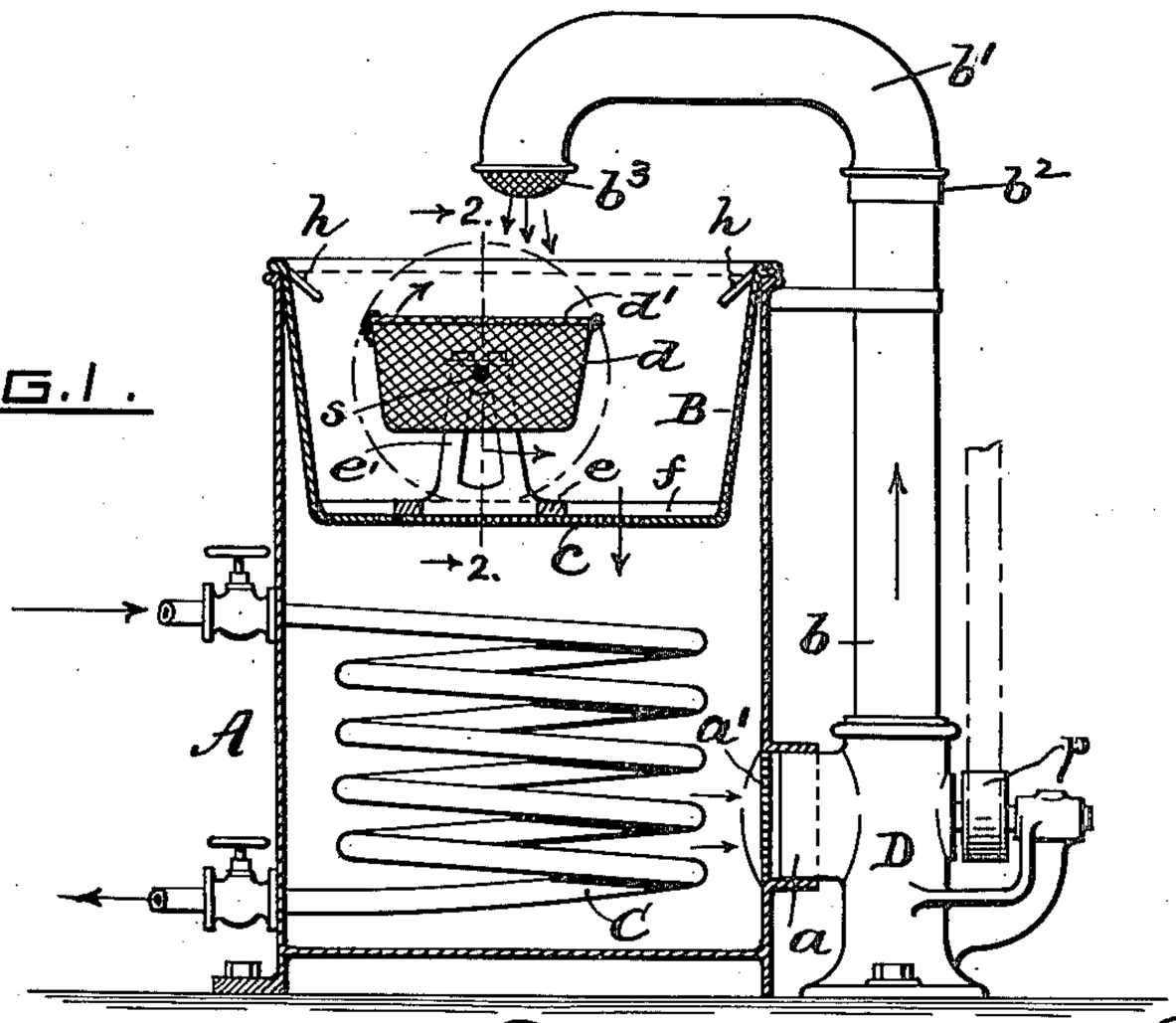



FIG. 2.

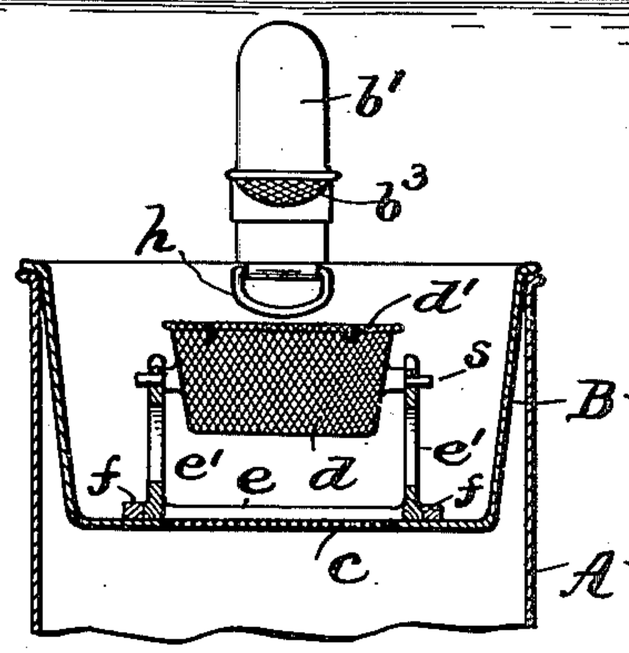
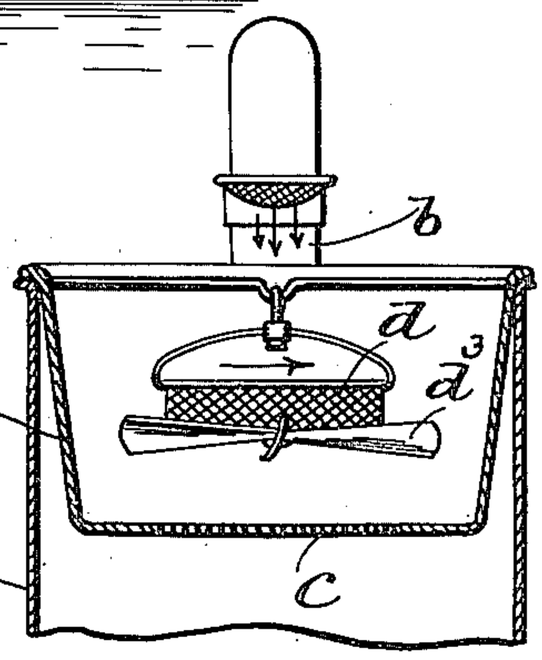



FIG. 3

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# UNITED STATES PATENT OFFICE.

ARTHUR W. HUTCHINS, OF CRANSTON, RHODE ISLAND.

## MEANS FOR DRYING ARTICLES OF JEWELRY, &c.

948,763.

Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed January 23, 1909. Serial No. 473,843.

*To all whom it may concern:*

Be it known that I, ARTHUR W. HUTCHINS, a citizen of the United States, residing at Cranston, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Means for Drying Articles of Jewelry, &c., of which the following is a specification.

My invention relates to an improved means for drying articles after they have been taken say from the cleansing fluid or bath, the invention being well adapted to be employed for drying in mass collar buttons, link buttons, pins and other finished articles of jewelry.

A common or well known way of drying articles of jewelry is to embed them in stationary tanks or pans containing heated saw dust, the articles to then remain therein until the moisture has been absorbed or taken up by the saw dust. Such a method requires not only a comparatively long time but it is imperfectly adapted for drying the interior surfaces of small hollow articles having open chambers. Moreover, the articles are usually subsequently subjected to a light brushing operation for removing therefrom any possibly adhering particles of the saw dust.

The objects I have in view are to greatly facilitate, expedite and cheapen the drying process referred to and at the same time to thoroughly dry the articles without in any way injuriously affecting their finished surfaces.

By employing the improved process the said subsequent operation of brushing is or may be dispensed with.

In carrying out my invention the articles, as they are taken from the bath, are placed loosely in a revolubly mounted container or swinging woven-wire basket having perforated side and bottom walls and cover and subjected to a continuous current or blast of heated air which is directed upon the container and its contents so as to rotate it rapidly upon its axis, whereby the action of centrifugal force quickly throws off from the articles all the drops or particles of liquid carried from the bath and also thoroughly dries the exposed or acted upon surfaces. It may be added that the finished surfaces are not scratched or mutilated in any way during the said drying operation as would be the case were the container revolved slowly, as in a tumbling or rattling process.

In the accompanying sheet of drawings illustrating means or apparatus capable of being employed in carrying out my invention as adapted for expeditiously drying articles of jewelry, &c., Figure 1 represents a central vertical sectional view thereof, in partial elevation. Fig. 2 a transverse sectional view taken through the upper portion of the apparatus on line 2 2 of Fig. 1, and Fig. 3 represents a slightly modified means.

Again referring to the drawings, A designates a cylindrical shaped sheet-metal vertical tank or casing provided with a well-known form of steam-heating coil C arranged to be connected to a steam supply. Above the coil and supported by the upper rim of the casing an open pan B is removably mounted, its bottom *c* being perforated and provided with a pair of parallel horizontal guides *f*. A basket-supporting frame is slidably mounted between the guides on said bottom *c*. The frame consists of a base *e* and laterally separated vertical sides $e^1$ integral therewith terminating at the top in capped bearings arranged to support the outer end portions of the shaft or trunnions *s* of a suitable basket or container. The said container, *d*, may have any desired form and be made of woven wire or of sheet-metal; the walls being suitably perforated. The hinged cover or top $d^1$ is also perforated and adapted to be secured in position when closed. The shaft *s* is located centrally of the container so that the latter will be substantially in equilibrium and freely rotate, see arrow and dotted circle Fig. 1.

A suitable exhaust air blower or fan D provided with an open intake nozzle *a* is located contiguous to the casing A. A screen $a^1$ is interposed between said nozzle and the interior of the casing. The air from the blower passes upwardly via pipe *b* and horizontal branch $b^1$ (arranged to swing at the joint $b^2$) and is discharged through the outlet screen $b^3$.

The following is a description of my improved system for drying moisture from articles of jewelry, &c.: It is assumed that steam is circulating through the coil C and that the exhaust blower D is located, connected and adapted to be rapidly rotated by a belt-driven pulley *p*. The attendant now

takes the previously finished articles of jewelry, as collar-buttons or other units as the case may be, from the bath and puts them in the then open revolubly mounted container $d$ and then closes and secures its cover $d^1$. Meanwhile, any water or liquid carried over from the bath drips from the articles and passes through the bottom of the container and horizontal partition $c$ into the heated chamber below and is immediately evaporated therein. The attendant now gradually slides the frame and its pivotally mounted charged container until its center of gravity is in non-alinement with the discharge-outlet so that the force of the continuous current of heated air flowing therefrom will impinge upon the container and its contents and cause it to revolve, its speed being controlled by the relative distance horizontally between the center of the pivot and center of the discharge, and also to some extent by the weight and arrangement of the articles inclosed within the container. The resulting effect upon the latter is to blow off some of the surface fluid and also to produce a degree of centrifugal force which causes the solid particles or drops of liquid to be thrown off bodily from the articles and through the perforated walls and cover, the heated air itself at the same time serving to dry the exposed surfaces of the revolving articles as they are successively brought into contact with it; the air also permeates the interstices lying between the articles and thoroughly dries the corresponding surfaces. More or less of the discharged air passes downward through the walls of the container and the continuously open bottom $c$ of the pan B into the coil containing chamber below and becomes reheated therein and again enters the blower through the intake passage thereby producing a continuous circulation. The action of the blower also draws outer air through the pan's base into the heating chamber of the casing. It may be added that heat from the coil also rises through the base $c$ and serves to assist in the drying operation even while the downward flow of heated air from the discharge orifice is in action upon the revolving container. At the termination of the drying process, which requires only a few minutes, the air blast may be shut off, the pipe swung to one side or the container be withdrawn from the zone of the air pressure, followed by removing the articles from the container. The action of the process upon said contents operates to thoroughly dry them both externally and interiorly and without appreciably changing or affecting the degree of finish originally given to them.

The pan B is provided with swinging handles $h$ whereby it may be readily lifted from the casing.

In the arrangement shown in Fig. 3 the container $d$ is suspended in the pan B so as to rotate in a horizontal plane; it is provided with a plurality of propeller-like blades $d^3$ secured thereto which are adapted and positioned so as to be acted upon by the pressure of the downflowing hot air discharged from the outlet nozzle and causes the container to revolve.

In either of the means represented the force of the discharged hot air current operates to first blow off more or less of the fluid lying on the exposed surfaces of the articles in the container or vessel; the temperature of the air immediately completes the drying of said surfaces. At the same time the issuing air sets the container in motion which is continued until the action of the thus produced centrifugal force causes the remaining fluid, if any, to be expelled through the walls of the container. It may be noted that unless the container is rotated the said added advantages resulting from the action of centrifugal force will not be attained.

I claim as my invention:—

1. The combination with a revolubly mounted container of the character described, of means adapted to direct a current of air under pressure upon the container and cause the latter to rotate, for the purpose hereinbefore set forth.

2. The combination, with a revolubly mounted container of the character described adapted to hold washed articles of jewelry, of a current or jet of heated air under pressure directed upon the said container for rotating the latter solely by its force, the air at the same time further acting to evaporate the moisture from the container's contents.

3. In a continuous drying system of the character described, a revoluble container having net-like walls for temporarily holding wet or moist articles, a heating chamber located therebeneath, and means for receiving heated air from said chamber and discharging it under pressure upon and through said container and into the chamber for reuse, the force of the discharging air itself causing the container to rotate while its temperature at the same time acts to evaporate the moisture from the container's contents, substantially as set forth.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ARTHUR W. HUTCHINS.

Witnesses:
CALVIN H. BROWN,
GEO. H. REMINGTON.