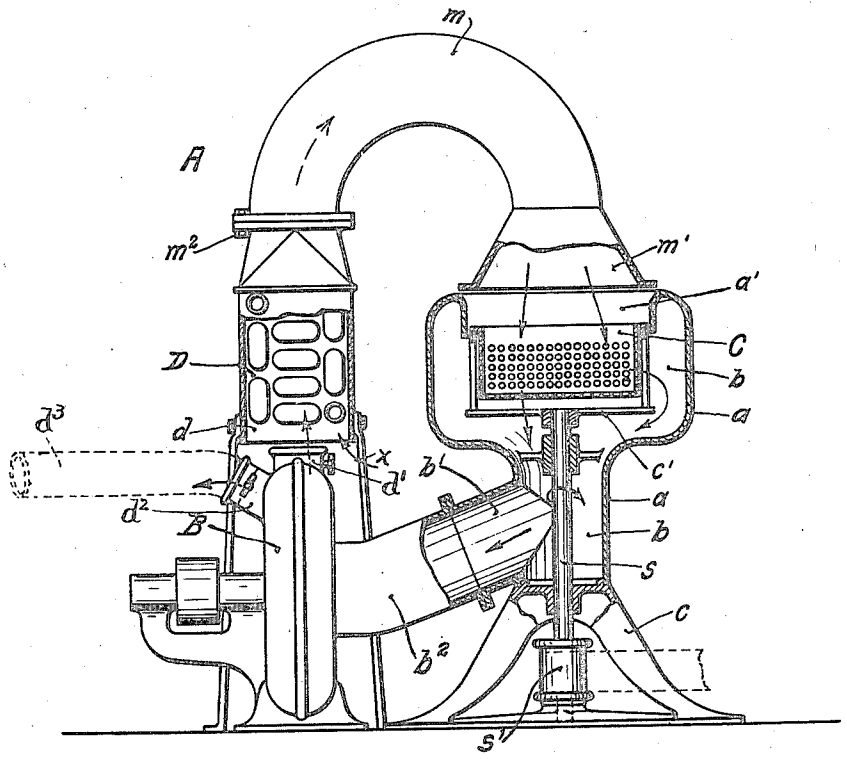
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APPARATUS FOR DRYING JEWELRY AND THE LIKE.

APPLICATION FILED MAY 6, 1915.

1,163,205. Patented Dec. 7, 1915.



Witnesses.

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APPARATUS FOR DRYING JEWELRY AND THE LIKE.

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To all whom it may concern:

Be it known that I, FRANCIS P. BOLAND, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Apparatus for Drying Jewelry and the like, of which the following is a specification.

My invention relates to improved process and means for drying wet or moist articles of jewelry and the like in a continuous manner, all as more fully hereinafter set forth and claimed.

In carrying out my present invention I employ a perforated, revolubly mounted vessel, containing the articles to be subjected to the drying operation, the vessel being inclosed within a practically air-tight, hollow casing, in open communication with the intake side of a revoluble exhaust-fan, which latter in turn acts to draw or suck moisture-absorbent medium, as hot air, through or between the articles under treatment, the thus moisture-charged moving air at substantially the same instant being exhausted into and passing through a heating chamber to evaporate the moisture and re-heat the air, the latter being accompanied by outer or fresh air to replace the air lost by leakage, etc. This additional air mingled with the said used air is also heated in its passage through the heating chamber and conducted from the latter into the said container holding the articles being acted upon.

In the accompanying drawing is represented a sectional elevation of a machine or apparatus embodying my present invention, in which the combined moisture-absorbent and drying medium is effected in a continuously circulating manner.

Referrring to the drawing, A indicates the device or arrangement substantially as a whole and as constructed to perform the functions of a continuous moisture-absorbent and drier.

A stationary casing or housing *a*, inclosing a chamber *b*, is supported on a pedestal *c*. Inclosed within the chamber is mounted a cage or spider element c^1, secured to an upright shaft *s* revolubly actuated by a belt-driven pulley s^1, or other suitable means. An open container C, having perforated side and bottom walls, is removably mounted in the cage and rotated by it; the container is adapted to receive the moist or wet articles subjected to the drying or moisture-absorbing process. The upper portion of the casing *a* is provided with an enlarged opening a^1 through which the container C may pass and be received in the cage.

Contiguous to the mounted container is located a suitably driven exhaust-fan or suction-blower B, having its intake opening communicating with the suction-chamber *b* by means of the connected branches b^1 and b^2. The damper-controlled direct exit nozzle or outlet d^1 from said suction element B exhausts the used or moisture-charged air into a suitable air-heater D, the latter having an enlarged inlet opening *d* located contiguous to the said nozzle d^1; the arrangement being such that it permits of a volume of outer or unused air being drawn into the heater through its said opening *d* (see arrow *x*) and mingle with the charged air as it issues from the outlet d^1. The collected or absorbed moisture carried by the thus used air becomes heated and evaporated in its passage through the heater D and is conducted via the bent tube *m* and its flaring annular outlet m^1 through the said enlarged opening a^1 in register with it and direct into the apertured revoluble work-holder or container C.

It may be desirable at certain times, as for example, in case the circulating air be surcharged with moisture, to divert all or the major portion of the air exhausted from the blower direct into the atmosphere. In order to accomplish this result the blower may be provided with a damper-controlled branch exhaust nozzle d^2. In such case the damper of nozzle d^1 is closed and that of nozzle d^2 opened and outer air caused to continuously enter the heater D via its inlet-opening *d*; the said outer air is heated in its passage through the heater and flows via duct *m*, m^1 to and through the container, the suction action of the blower at the same time causing the moisture-charged air to enter the blower and be exhausted therefrom into the atmosphere through the then open nozzle d^2, followed by other unused or outer air which becomes heated in passing through the heater, as before described. If desired, the waste or used air may be conducted from the blower by means of a pipe d^3, substantially as indicated by dotted lines.

It will be seen now that by means of my invention the continuous suction action operates to draw both the used or moisture charged air and a quantity of normal outer

air through the heater D; the result being to evaporate moisture from the air while it is moving and at the same time to heat it. All the thus heated air is conducted to and through or between the articles therein; the suction produced by the element B also causing the air to be drawn into the lower portion of chamber *b* and into the said suction or partial vacuum-producing means B, from which latter the moisture-charged air is discharged into the heater D, and so on, in a continuous manner, until the articles in the container are thoroughly acted upon. Meanwhile some of the fluid or moisture may be removed bodily from the articles through the perforations in the walls of the revoluble container C by centrifugal action. If desired, the container may be given a short preliminary run to extract the major portion of the fluid adhering to the articles, supplemented by subjecting the latter to a suction circulation of hot air to complete the moisture-removing operation, or the said two operations may be performed simultaneously or conjointly.

The tube or goose-neck *m*, connecting the heater D and moisture-extracting chamber *b* of the casing *a*, is pivoted at m^2 to swing laterally, thereby rendering the container, etc., readily accessible at any time, as in placing, examining and removing the work.

Minor changes in the construction and arrangement of the parts may be made without affecting the scope and efficiency of the invention. Obviously, the length of time required to remove the moisture and vapor from the goods in the container C will depend upon the character and condition of the articles and the judgment of the operator in charge, the operation varying from a few seconds to two or three minutes.

I claim:

1. In a system for drying articles of jewelry and analogous articles of metal, the combination with means for sucking or inspiring air, the said means having disposed air-intake and air-outlet openings, and a housing forming a substantially air-tight chamber connected to said air-intake opening, of a suitable container mounted within said housing chamber, said container adapted for holding the moist or wet articles to be dried, a heater element arranged to receive the moist air drawn through the container and exhausted through said outlet or exhaust opening, means for reheating the exhausted air while the latter is moving through the heater element, and means for conducting the hot air from the heater to reengage the articles in the container.

2. In an air-circulating drying system of the general character described, the combination with an apertured revoluble work-container and a chambered housing inclosing said container, of an air-heater, means for conducting air from the heater into said housing chamber and container, and a controlled air-suction element or means, said suction means having independent inlet and exhaust-openings disposed, respectively, with relation to the said housing chamber and air-heater, constructed and arranged whereby the said suction means is adapted to draw or suck moisture-charged air into its inlet-opening and exhaust the said charged air through the exhaust-opening into said heater to reheat the air, and means for conducting the heated dry air into the chambered housing.

3. In a combined moisture-absorbing and air-heating system for treating moist or wet articles of jewelry and the like, the combination with air-suction or exhaust means having main inlet and outlet openings, of a container for holding said articles while they are being acted upon, a substantially air-tight chambered casing having the container mounted therein, the casing being connected to the said main inlet opening of the suction element, a heater into which the moisture-carrying air is exhausted from the suction element in a continuous manner, means for admitting dry outer air into the heater concurrently with the admission of the moisture-carrying air, means for moving the mingled moist and dry air through the heater, the heater at the same time reheating the air, and means for conducting the thus heated air into the casing chamber and said container.

4. In an apparatus or device for extracting moisture from wet surfaces of articles by hot air and at the same time drying the said articles, the same consisting in the combination with a chambered casing having inlet and outlet openings, a vessel for containing said articles movably mounted in the chamber of said casing, and means for rotating the vessel, of a suction blower having intake and exhaust openings, its intake opening connected with the outlet passage leading from the casing chamber, a heater arranged to receive the moisture-charged air direct from the exhaust opening of the suction-blower and reheating the air, means for controlling the volume of outflow of air from the exhaust opening of said blower into the heater, and means for conducting heated dry air from the heater to engage the articles mounted in said vessel.

5. In an apparatus of the character described, the combination with a hollow casing, and a suitable container mounted therein adapted to hold moist articles, of an air-suction or exhaust-blower element having its intake opening communicating with an outlet leading from said casing, an air-heating element arranged to receive outer air and increase its temperature, controlled means for exhausting the moisture-laden

air direct from the exhaust blower into the heater to reheat the moist air, independently controlled means for preventing the moisture-laden air from entering the heater, and means for conducting heated dry air from the heater into the said casing to engage the articles mounted in the container.

6. In an apparatus of the character described, the combination with a casing and a rotary container therein adapted to hold moist articles, of an exhaust blower, a heater connected with the exhaust blower and casing, a connection between the casing and exhaust blower, and selective means for connecting the exhaust blower to the heater or atmosphere.

In testimony whereof I have affixed my signature.

FRANCIS P. BOLAND.