Sept. 8, 1931. J. DIENA 1,822,615

APPARATUS FOR PRODUCING SUDORIFEROUS VAPOR BATHS

Filed May 14, 1930

Fig1

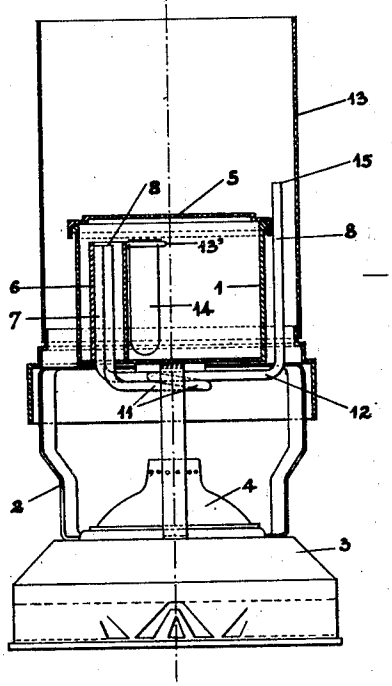


Fig.2

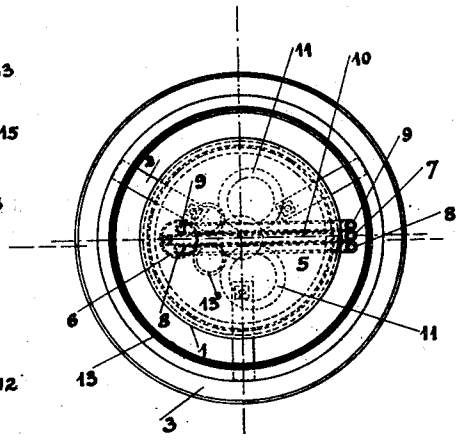


Fig.3

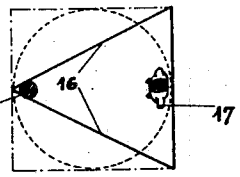


Fig.4

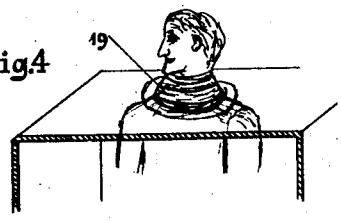
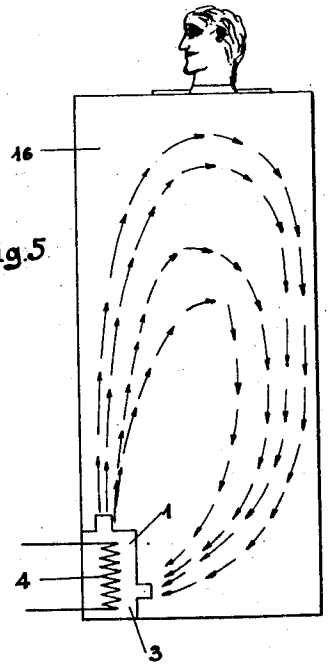


Fig.5



Jacopo Diena
by: B. Singer, atty.

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UNITED STATES PATENT OFFICE

JACOPO DIENA, OF PARIS, FRANCE

APPARATUS FOR PRODUCING SUDORIFEROUS VAPOR BATHS

Application filed May 14, 1930, Serial No. 452,375, and in Belgium May 18, 1929.

Heretofore the sudatory effect on the human corpus has been realized by means of ordinary vapor-baths, produced by heating water, or by hot air. The useful and well-doing effect of vapor-baths exerted on the human corpus is too well-known, so it would not be necessary to explain it in detail. But one knows also its actual defects, and the broad inconveniences of hot air baths.

Now, the present invention has for its object a process to produce superheated dry steam baths.

The effect of superheated dry steam is of considerably higher efficacy because it unites the relatively considerable heat of the hot air with the humidness of the vapor-bath, abstraction made of the fact that its temperature can be much higher without producing an injurious effect by reason of the latent humidity of the superheated steam.

The excessively high temperature (300° C.) of the superheated dry steam sterilizes the vaporized water, sterilizing simultaneously the apparatus and destroys thus radically the spores and bacillus.

The process is characterized by the feature that ordinary steam vapor is superheated by contact with an appropriated surface.

The joint drawing shows, given by way of example a form of embodiment of an apparatus for the execution of the process, and moreover some other details.

Fig. 1 is a longitudinal vertical section of the apparatus for heating water and for superheating the steam by contact,

Fig. 2 is a plan view,

Fig. 3 is a section of the cloth-chamber,

Fig. 4 is a detail thereof,

Fig. 5 represents the schema of the superheated steam-vapor circulation within the cloth chamber.

The apparatus consists of a water vessel 1 mounted on supporting arms 2 fixed to a socket 3 which contains the heating device 4 of any kind. The vessel is closed by movable cover 5, closing the vessel in a tight manner in order to avoid the escape of steam. On its interior bottom is erected a vertical tube 6 which isolates the escape tube or tubes 7, 8, 9, from the contact with the surrounding water. Each pipe is provided with some closing device (valve, cock etc.) not shown in the drawings, which constitutes a regulating element for varying the temperature of steam explained in the following description. The tubes 7, 8, 9 traverse the bottom of the water vessel 1, wherein they are closely attached. The horizontal branch 10 of the tube 7 for example continues straight along and below the said bottom which comes for example into contact with the flames of the heating device 4. The branches of the other two (or more) tubes 8 and 9 form each for instance a horizontal spiral 11. The three tubes 7, 8, 9 are then rectangularly bent at 12 and redressed vertically, parallelly to the outer wall of the veseel 1. 13 is a tube, forming a chimney which reposes on the supports 2.

Within the water vessel are lodged two or more rings 13 attacned or fixed to the protecting tube 6. They serve to support two test-tubes from glass 14 etc. which contain medicamental or other substances in liquid etc. form. The test-tubes enter or not the boiling water for distilling purposes of their content. They can also be heated by the generated steam.

The function of the apparatus is the following: The heated water produces steam which is obliged to escape through the tubes 7, 8, 9 which are strongly heated by the flame. The steam and vapors traversing the tubes are dryed and superheated instantaneously by contact and escapes from the tubes at 15. The temperature of steam is about 250° Celsius. When the shortest pipe 7 is closed, the steam traverses only the two longer pipes 8, 9 forming a spiral 11. On this longer way the steam is heated much more intensively and escapes at 15, having a temperature of about 300° C. If one of the pipes 8, 9 is closed and the short pipe is opened, one obtains yet a modified temperature of about 200° C. and so on.

In this manner it is easy to vary at voluntary the temperature of superheated steam.

The ingredients contained in the test-tube 14 is also vaporized and escapes through the same tubes 7, 8 and 9.

The superheated dry steam escaping at 15 enters the large chimney 13 and is mixed with hot air which has been heated by the contact with the flame of the heating device.

The apparatus is placed within some appropriated chamber 16 from cloth etc. This envelope has in the present case a triangular section which occupies the minimum of space. The apparatus can also be placed independently, outwards from this chamber whereinto the steam is introduced in any convenient manner. The person desiring to take a supreheated dry steam vapor bath is placed at 17 and the apparatus at 18.

19 designates a collar which encircles the upper part of the gorge and lower part of the face.

In Fig. 5 the arrows indicate approximately the way of circulation of the superheated dry steam.

It is clear that the apparatus may also be heated by another agent, electricity etc., or in any other manner, and that the superheating of steam may be effected by the same agent.

I claim:

1. Vapor bath apparatus comprising a boiler, a heater for the boiler, a steam duct extending from the steam space in the boiler downwardly through the bottom thereof, across the bottom thereof and upwardly at one side thereof, so that steam from the boiler is superheated as it passes through said conduit below the bottom of the boiler and is then discharged upwardly.

2. Apparatus as claimed in claim 1, including a vertical tube in the boiler in which the intake portion of the steam duct is arranged, said tube being provided with means for holding a vessel such as a tube and in which the boiler is provided with a removable top affording access to the interior thereof.

3. Apparatus as claimed in claim 1, including a plurality of steam conduits of different length, certain of which are provided with coils in the portion thereof below the boiler and including a vertical tube in the boiler in which the intake portions of all of the steam conduits are arranged.

In testimony whereof I have hereunto set my hand this 30th day of April A. D. 1930.

JACOPO DIENA.