

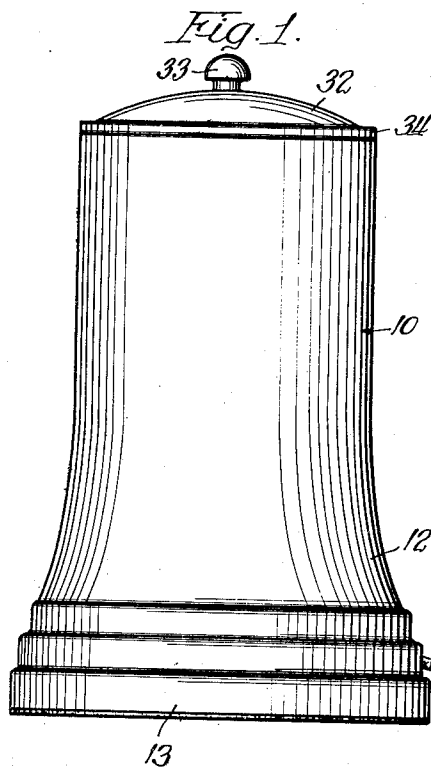
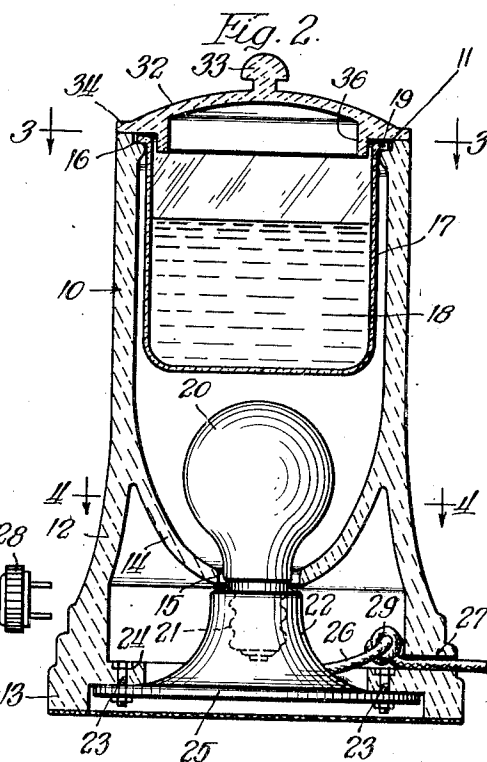
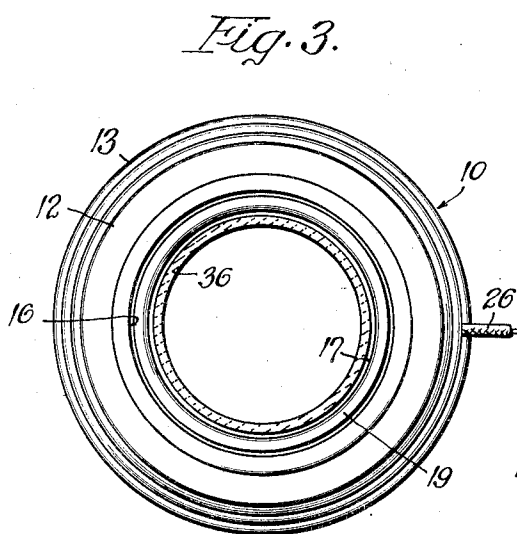
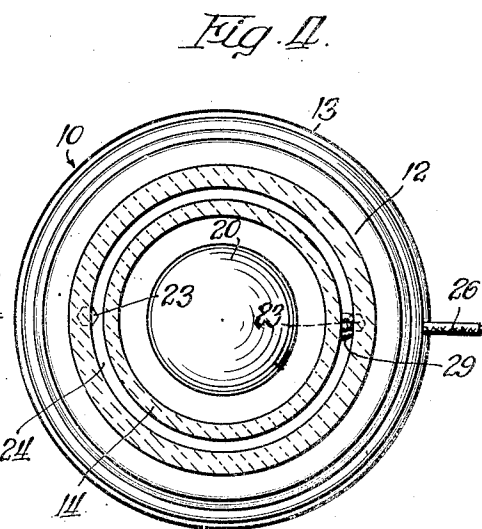
Oct. 24, 1939.

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2,177,101

ACID PICKLING BATH DEVICE

Filed Feb. 19, 1937



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UNITED STATES PATENT OFFICE

2,177,101

ACID PICKLING BATH DEVICE

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Application February 19, 1937, Serial No. 126,552

2 Claims. (Cl. 219—45)

This invention relates to an acid pickling bath device for pickling precious and non-precious metals, particularly of the character used in the dental and jewelry arts.

It is known to immerse constructions of this sort in an acid pickling bath for cleansing. Heretofore, however, the pickling baths have been heated to exceptionally high temperatures, and have been carried on under considerable fluctuations in temperature. These high temperatures result in liberation of large amounts of vapors or acid fumes. These acid fumes have been very destructive on office equipment, particularly on chromium plating, nickel, and other metals in the office or laboratory. Further, these fumes have been offensive and dangerous to the operators, and the liberation of such fumes has reduced the cleansing efficiency of the bath. To meet these objections, hoods and exhaust connections have been provided, but these devices have been complicated and expensive and have resulted in considerable loss in the vapors which are liberated from the bath.

One of the main objects of the present invention is to provide a pickling bath device which will not have the foregoing objections, and particularly a device for pickling constructions of the class described without the liberation of large amounts of vapors and acid fumes, and without undesirable fluctuations in temperature.

Another object of the invention is to provide a pickling bath device which is constructed effectively to utilize the heat employed, and preferably provided with a cover formed to return condensed vapors back into the bath device.

Further objects and advantages of the invention will be apparent from the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is an elevational view of an acid pickling bath device embodying the present invention;

Figure 2 is a vertical sectional view through the device shown in Figure 1;

Figure 3 is a horizontal section taken on the line 3—3 of Figure 2; and

Figure 4 is a horizontal section taken substantially on the line 4—4 of Figure 2.

Referring to the drawing, the device shown comprises a main body 10 preferably formed of pottery or suitable ceramic material.

The top of the body 10, which is of generally cylindrical form, is open at 11, and toward the bottom the cylindrical wall of the body 10 flares out at 12 and terminates at its lower end in an

annular base 13. Spaced above the base 13 and at about the bottom of the upper cylindrical part, the body 10 has an internal reflector 14 formed integral therewith. This reflector is preferably formed of generally semi-spherical or generally parabolic form as shown, and at the axis of the body 10 has an opening 15, the purpose of which will presently appear.

The annular upper edge of the body 10 is down-set to form a downset annular ledge 16 for supporting the glass beaker or other suitable vessel 17. The upper edge of the beaker 17 has an out-turned annular flange 19 which rests upon the ledge 16 and suspends the beaker 17 in position concentrically within the body 10 and with the bottom wall of the beaker spaced above the reflector 14.

This beaker or other vessel 17 holds the acid bath which may be a suitable quantity of acid such as hydrochloric, nitric or sulphuric acid, in about fifty per cent solution, or in a solution of any percentage to provide the desired pickle. This acid bath is indicated at 18 in Figure 2.

For the purpose of heating the acid bath 18, I provide an incandescent electric lamp 20 of a rating which, upon completion of the circuit therethrough, will heat the bath 18 to a temperature which I find sufficient to pickle the articles immersed in the bath, but which lamp at the same time is preferably of a rating not to heat the bath to the boiling point. As illustrative of one commercially satisfactory embodiment of the invention, the lamp 20 is of a rating to bring the bath 18 to a temperature of from about 140° F. to about 180° F., and preferably not substantially above 180° F. This temperature range has been found preferable, but any temperature range which will heat the bath 18 to a temperature to pickle the articles immersed therein without the liberation of excessive vapors or acid fumes may be employed. The lamp 20 shown in the drawing is a 30 watt 120 volt lamp.

The heat provided by a given lamp heats the bath to a given temperature and avoids fluctuations in the temperature of the bath. These are important aspects of the invention.

The lamp 20 has the usual contact base for threaded engagement with a socket 21 carried by a support 22 which is secured at 23 by bolts, screws or the like to the internal flange 24 formed integral with the body 10 sufficiently above the bottom of the base 13 so that the flange 25 of the support 22 and the attachment means at 23 will clear the surface upon which the base 13 rests. The lamp 20 is screwed into the socket 21

from the upper open end 11 of the body 10, and when in place, is preferably positioned at the focus of the reflector 14. The socket 21 is provided with any existing or preferred insulated conductor means 26 which extends out through an opening 27 in the body 10 and is provided with a connector 28 for connection with any suitable electric outlet. The conductor 26 is preferably knotted or otherwise formed at 29 within the base of the body 10 to relieve the connection between the conductor means and the socket 21 of any pull on the conductors. The device may, of course, be provided with a suitable switch, but it is deemed sufficient to close and open the circuit through the lamp 20 by merely connecting the conductor means to and disconnecting the same from the electric outlet.

With the acid bath in the vessel 17, as indicated at 18, and the lamp 20 in position, when the circuit through this lamp is completed it operates to heat the acid bath to a temperature from about 140° F. to about 180° F. This has been found amply adequate to provide the desired pickling of constructions of the class described, these constructions being pickled by immersing the same in the bath 18. At the same time, by limiting the heating of the bath to a temperature below the boiling point of the acid solution, objectionable amounts of vapors or acid fumes are not liberated, and, as a result, the device may be used in dental laboratories and the like without destroying chromium plating, nickel, and other metals in the office or laboratory and without offense or danger to the operator. The reflector 14 provides for effective utilization of the heat of the lamp 20, and it will be noted that the main wall of the body 10 and the reflector 14 forms a double-wall construction adjacent the lamp 20. This double-wall construction reduces loss of heat due to conductivity of the body 10.

Further to suppress the vapors or acid fumes, the top of the body 10 is preferably provided with a cover 32 which, like the body 10, may be formed of pottery or suitable ceramic material, and has an integral handle 33. The peripheral flange 34 of the cover 32 rests preferably directly

upon the upper edge of the body 10 as shown.

The cover 32 is of the casserole type and has an integral annular lip or flange 36 which depends downwardly within the internal diameter of the beaker 17 to return any condensed vapors back into the beaker or vessel 17. This reduces the loss of such vapors in the operation of the device, and this loss is further reduced by the relatively low temperatures under which the process is carried out in accordance with the present invention.

I do not intend to be limited to the precise details shown or described.

I claim:

1. As a unitary article of manufacture, a receptacle for a pickling bath device adapted to receive and support a vessel and an electric lamp including its socket therein, comprising an elongated body open at its top and bottom and having a parabolic reflector formed integrally with said body internally thereof and dividing said body into an upper and a lower compartment, said reflector having a central opening therein through which the base of the electric lamp may be projected, and inwardly extending annular flanges formed integrally and internally of said body for supporting said vessel and said socket.

2. As a unitary article of manufacture, a receptacle for a pickling bath device adapted to receive and support a vessel and an electric lamp including its socket therein, comprising an elongated circular body open at its top and bottom and having a parabolic reflector formed integrally with said body internally thereof and dividing said body into an upper compartment and a lower compartment, said reflector having a central opening therein, an inwardly extending annular flange formed internally of said body adjacent its open top to support said vessel, and an inwardly extending annular flange formed internally of said body adjacent its open bottom for supporting said socket, the opening in said reflector enabling said electric lamp to have its bulb disposed in the upper compartment and its socket in the lower compartment.

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