Oct. 11, 1927. 1,644,966

O. WESKI

PRESSURE BOTTLE

Filed Sept. 3, 1926

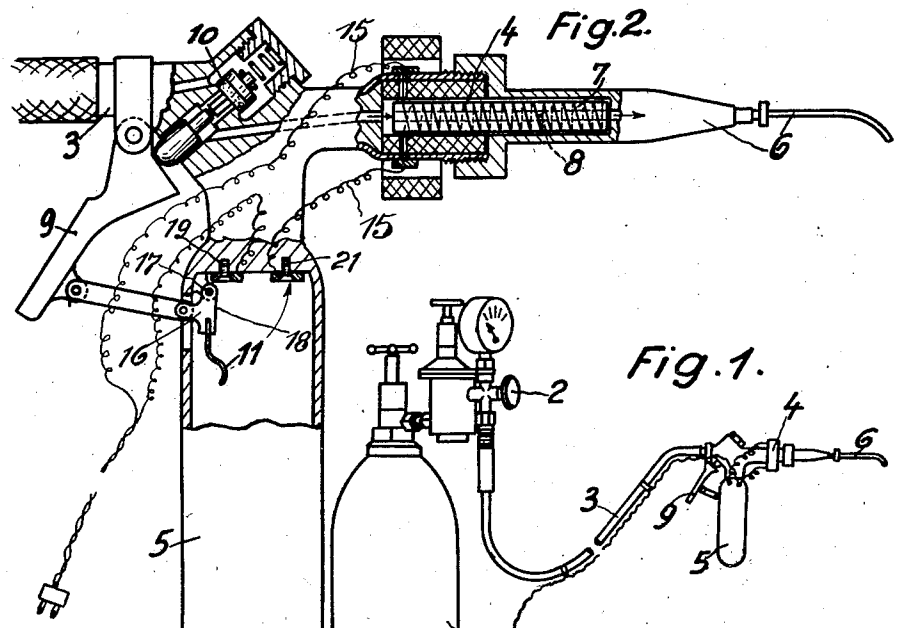


Fig.2.

Fig.1.

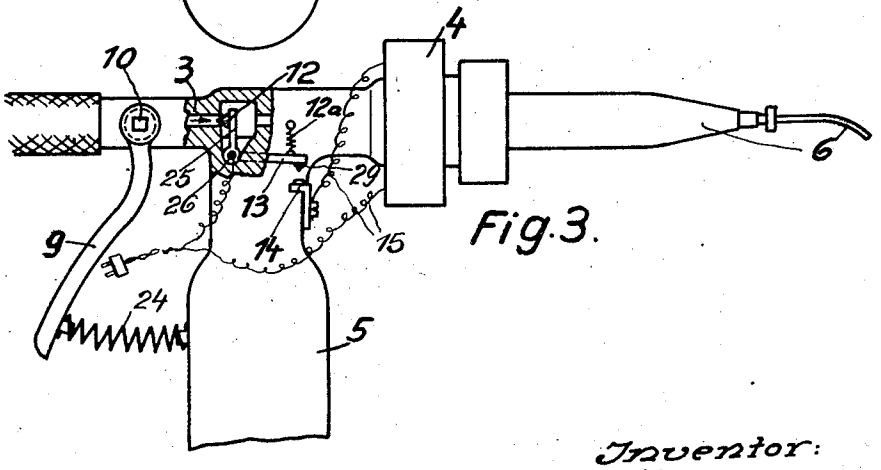


Fig.3.

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Patented Oct. 11, 1927. 1,644,966

UNITED STATES PATENT OFFICE.

OSKAR WESKI, OF BERLIN, GERMANY.

PRESSURE BOTTLE.

Application filed September 3, 1926, Serial No. 133,503, and in Germany August 19, 1926.

My invention relates to pressure bottles serving for the storing up of compressed or liquefied gases and consists essentially in providing a device for heating the gas when being discharged from the bottle.

It is known, that the temperature of a gas, when being discharged from a pressure bottle, will be considerably decreased on account of the rapid evaporation taking place in this case.

According to this invention, the heating device is destined to avoid the reduction of the temperature of the gas, when being discharged from the bottle and in addition to this to raise the temperature of the discharging gas, if so desired, above the temperature of the gas which is contained in compressed or liquefied condition in said bottle.

For many purposes it is of considerable importance to prevent a reduction of the temperature of the gas during its being discharged from the bottle and to eventually also further raise its temperature, especially for medical or dental purposes.

For the purposes of dental treatment, for instance, it has been found desirable to expose the body of a tooth to the action of carbonic acid, which is ordinarily taken from a pressure bottle containing carbonic acid in liquid condition by means of a reduction valve, and to heat the carbonic acid, which is discharged from the bottle. By heating the carbonic acid when acting upon a tooth, for instance, a more or less perfect local anæsthesis will be obtained. By providing the pressure bottle according to this invention with means for heating the gas discharging therefrom, this may be accomplished in a very simple and expeditious way.

The accompanying drawing represents a few examples of the construction according to this invention. In the drawing, Fig. 1 is a diagrammatic view, partly broken away, of the pressure bottle together with a device for electrically heating the gas when discharging from the botttle, Fig. 2 a diagrammatic view of the tip of the apparatus according to the invention in an enlarged scale, and Fig. 3 is a view similar to Fig. 2, showing a heating device which is automatically put into operation through the motion of the gas discharging from the bottle.

The pressure bottle 1, which contains the gas in compressed or preferably liquefied condition is provided with a reduction valve 2, from which a flexible conduit 3 leads to the heating device 4, the latter being preferably constructed to operate by action of electric current. For this purpose, the heating device consists of a heating coil, which may be supplied from a source of electric current by means of a plug contact, as indicated in Fig. 1 of the drawing. By means of the handle 5 the tip 6 may be applied to any desired place to be treated and at the same time the gas discharging from its orifice may be heated by pressing the lever 9 associated with the handle 5, thereby closing the electric circuit for the heating coil 4.

According to Fig. 2 the heating device consists, for example, of a resistance wire 7 wound around a body 8 of insulating material. This body is placed into a bore which is provided in longitudinal direction within the orifice 6. This bore will further serve as a passage for the gas to be heated. For supplying the gas to the orifice 6, the valve 10 is opened by means of the lever 9, the electrical circuit 15—15 for the heating device being at the same time closed. The closing of the electrical circuit, more particularly is effected by rotating the contact block 16 around the point 17, whereby the surface 18 of said contact block 16 will make contact with the terminal 19, while the spring 11, which is provided at the under end of the contact block 16 will at the same time make a conductive connection between the terminals 19 and 21, thus closing the electrical circuit for the heating or resistance wire 7. In this way the heating device for the gas, which discharges from the orifice 6, will be operated simultaneously with the opening of the valve 10.

In the arrangement shown in Fig. 3 the heating device is caused to come automatically into operation by the flow of gas passing through the valve 10, when open. The valve 10 is opened, the same as according to Fig. 2, by pressing the lever 9 against the action of the spring 24 towards the handle 5. The gas will now vehemently pass through the bore 3 in the body of the orifice 6 and thereby lift a small valve cone 12, which is mounted upon the free end of a lever 25 pivotally mounted at 26. A further lever 13 is firmly connected to the lever 25 and a spring 12^a tends to press the valve cone 12 upon its seat in the bore 3. The passage of the gas through

the bore 3 will thus move the contact 29 which is mounted on the free end of lever 13 towards the fixed contact 14 and close the electrical circuit 15—15 for the heating coil 4.

Having thus described my invention and shown some embodiments thereof, I do not wish to be understood as limiting my invention to the specific constructions shown and described herein, especially of the electrical heating means, since many other constructions may be employed without departing from the spirit of my invention. For instance the gas may be heated by means of a gas burner.

I claim:

1. In combination with a pressure bottle for compressed or liquefied gases, a valve associated with said bottle for causing gas to discharge from the latter, a flexible conduit connected at one of its ends to said valve, a tip connected to the other end of said conduit, a handle for said tip permitting to apply the latter at a desired place of therapeutical treatment, a further valve associated with said tip, a lever provided near said handle and adapted to open and close said last-mentioned valve, and heating means adapted to come into and out of operation during open and closed condition of said valve respectively.

2. In combination with a pressure bottle for compressed or liquefied gases, a valve associated with said bottle for causing gas to discharge from the latter, a flexible conduit connected at one of its ends to said valve, a tip connected to the other end of said conduit, a handle for the said tip permitting to apply the latter at a desired place of therapeutical treatment, a further valve associated with said tip, a lever provided near said handle and adapted to open and close said last-mentioned valve, and means for putting the heating device of the tip into and out of operation by the action of the stream of gas passing therethrough.

In testimony whereof I hereunto affix my signature.

OSKAR WESKI.