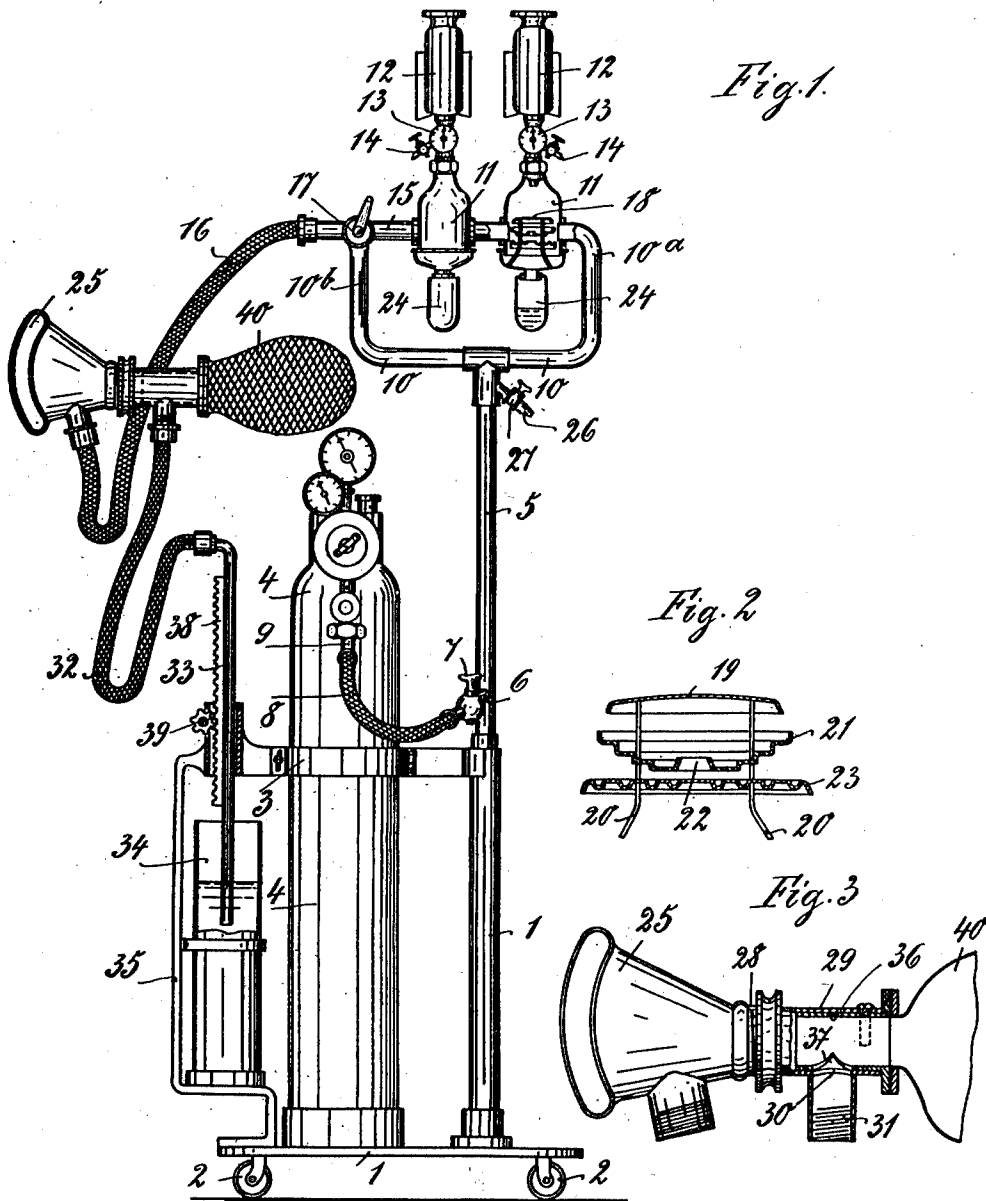


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 APPARATUS FOR ADMINISTERING NARCOTICS.
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR ADMINISTERING NARCOTICS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORG HAERTEL, a subject of the King of Prussia, and resident of No. 1 Ziegelstrasse, Berlin, Germany, have invented certain new and useful Improvements in Apparatus for Administering Narcotics, of which the following is a specification.

This invention relates to certain improvements in apparatus for administering narcotics and especially to that type of apparatus in which the narcotic is administered under pressure and the object of the present invention is principally to provide a readily portable stand or frame for the apparatus and to simplify the construction of said stand or frame and for this purpose the stand or frame on which the apparatus is mounted, is constructed of tubular form and constitutes in part a tubular connection between the pressure gas cylinder and the vaporizer, being connected up to the pressure gas cylinder by a short flexible tube. The employment, however, of at least a short length of flexible tubing is indispensable owing to the variation in size of the cylinders of different manufacturers.

A further object of the present invention is to provide for a more uniform and increased vaporization of the narcotic and to this end the vaporizing receptacle which is located beneath a dropping bottle, is provided with a plurality of substantially horizontal plates or dishes arranged above one another, each alternate plate projecting laterally somewhat beyond its adjacent upper plate and being provided centrally with an aperture through which the narcotic may flow. By this means the narcotic is evenly spread over each plate and is caused to flow in a zigzag path from the circumference of the plates or dishes to the center or vice versa.

My invention has also for its object to enable the apparatus to be connected up to either an oxygen cylinder or to a compressed air supply according to requirements, both the oxygen cylinder and the compressed air means being arranged on the same stand or frame.

I also provide means whereby the pressure of the exhaled gas may be controlled according to requirements.

In order that the invention may be more clearly understood, reference is made to the accompanying drawings which show by way

of example one convenient form of my invention.

Figure 1 is a side view of the apparatus, one of the vaporizing receptacles being shown in section. Fig. 2 is a detail sectional view of the vaporizing device. Fig. 3 is an enlarged detail view of the mask showing the regulating valve in section.

1 designates a stand, which for the purpose of transportation is preferably mounted upon rollers 2. The stand 1 is provided with a lateral clamp 3 of any suitable construction adapted to hold the pressure gas or oxygen cylinder 4 in upright position. In alinement with the stand 1 is arranged a tubular upright 5 having a connection 6 provided with a cock 7, said connection 6 being connected by means of a short length of flexible tubing 8 to the usual connection 9 provided on the cylinder 4. The tubular upright 5 carries at its upper end a fork-shaped member 10, whose shanks 10^a and 10^b are connected by means of a connecting pipe 15 opening into and supporting a vaporizing receptacle 11 arranged beneath a dropping bottle 12 provided with the usual regulating valve 13 and discharge valve 14.

The connecting pipe 15 is connected in the usual manner to flexible tubing 16 for conducting the narcotic to the usual facial mask 25 and intermediate the shank 10^b and connection 15 and flexible tubing 16 is provided a three-way controlling valve 17.

The dropping bottle 12 is adapted to receive the narcotic fluid such as chloroform, ether or the like and the fluid is adapted to drop onto the upper plate of a vaporizing device 18 contained within the receptacle 11 and illustrated more in detail in Fig. 2. The vaporizing device 18 comprises an upper dished plate 19 downwardly directed toward its sides and supported from the bottom of the receptacle 11 on a tripod 20. Beneath the plate 19 is arranged a concentrically corrugated dish 21 of somewhat larger diameter than the dished plate 19 so as to project laterally beyond the same, the dish 21 being provided with a central aperture 22 through which excess non-vaporized narcotic fluid may drop onto a lower substantially horizontal and concentrically corrugated plate 23, the excess fluid being discharged at the circumference of the plate 23 and being collected in a collecting vessel 24 which may be detachably connected to the vaporizing receptacle 11.

It will thus be readily seen that a comparatively extensive vaporizing surface is provided for the narcotic fluid in the path of the oxygen supplied under pressure from the cylinder 4 through the shank 10^a so that efficient vaporization of the narcotic fluid and mixture with the pressure gas is attained.

It will be readily understood that when it is desired to provide more than three vaporizing surfaces such as the plates 19, 21 and 23, alternate plates may be of equal diameter and adapted to project laterally beyond the adjacent upper and lower plates and be provided with a central aperture in a manner similar to the plate 21.

Intermediate the tubular upright 5 and the forked part 10 is provided a connection 26 which may be provided with a controlling valve 27, said connection 26 being adapted, when desired, to be connected to a compressed air supply such as an air compressor or the like, so that in lieu of mixing oxygen from the cylinder 4 with the narcotic in the vaporizing receptacle 11, compressed air admitted through the connection 26 may be mixed therewith.

The facial mask 25 which is of hollow, substantially truncated form, is connected at its narrower end by means of a screwed connection 28 with a valve casing 29 having a valve port 30 opening into a connection 31 which is connected by means of flexible tubing 32 to a hollow rod 33 dipping at its lower end into water or other suitable liquid contained in the cylinder 34 which is mounted preferably beside the oxygen cylinder 4 on a suitable support 35 mounted on the stand 1. The valve port 30 serves for the exit of exhaled gas and is capable of being controlled by means of a rotatable valve sleeve 36 having a port 37 adapted to register with the port 30, the port 37 being preferably of angular form, as seen in Fig. 3. The pressure of the gas in the system and consequently the pressure of the gas supplied to the patient is capable of regulation by immersing the rod 33 more or less in the liquid in the cylinder 34 and for this purpose the rod 33 carries a rack bar 38 gearing with a pinion 39 which may be manually operated from a suitable hand wheel not shown. The facial mask 25 is preferably connected also to a flexible bag 40 which serves to equalize the pressure of the gas in the system and thus prevent slight fluctuations. Said flexible bag 40 also serves as a receptacle in case of vomiting.

The facial mask is preferably only connected with the hollow rod 33 when the narcotic is being administered together with oxygen in order to economize the consumption of oxygen, while when the narcotic is administered together with compressed air, the facial mask 25 may be disconnected

from the flexible tubing and rod 33 and the exhaled gas allowed to escape direct through the connection 31 into the atmosphere. In this case also the flexible bag 40 may be dispensed with.

The compressed air supplied to the apparatus is preferably moistened by passing the same through suitable moistening apparatus before or after compression.

I claim:—

1. Apparatus for administering narcotics, comprising a stand having a tubular upright forked at its upper end and forming a gas connection, a vaporizing receptacle supported between the forks of said end and communicating therewith, and a pressure gas cylinder mounted in said stand and in gas connection with said tubular upright.

2. Apparatus for administering narcotics, comprising a stand having a tubular upright forked at its upper end and forming a gas connection, a vaporizing receptacle supported between said forked end and communicating therewith, a pressure gas cylinder mounted in said stand and a short length of flexible tubing connecting said pressure gas cylinder and tubular upright.

3. In apparatus for administering narcotics, the combination with a dropping bottle for containing the narcotic, and a vaporizing receptacle beneath said bottle, of a plurality of substantially horizontal plates, and an intermediate centrally apertured dished plate, lower at the center than at the periphery, said horizontal plates and apertured plate being superposed alternately in said receptacle and said apertured plate projecting laterally beyond the superposed horizontal plate, whereby the narcotic is caused to alternately flow from the center to the circumference of said horizontal plates and from the circumference to the center of said apertured plate.

4. In apparatus for administering narcotics, the combination with a dropping bottle for containing the narcotic, and a vaporizing receptacle beneath said bottle of a plurality of substantially horizontal plates, and a centrally apertured and concentrically corrugated dished plate, lower at the center than at the periphery, said horizontal plates and apertured plate being superposed alternately in said receptacle and said apertured plate projecting laterally beyond the superposed horizontal plate, whereby the narcotic is caused to alternately flow from the center to the circumference of said horizontal plates and from the circumference to the center of said apertured plate.

5. In apparatus for administering narcotics, the combination with a dropping bottle for containing the narcotic, and a vaporizing receptacle beneath said bottle, of an upper inverted dished plate, a substantially horizontal and concentrically corrugated

plate, and an intermediate centrally apertured and concentrically corrugated dished plate, lower at the center than at the periphery, and projecting laterally beyond
5 said upper inverted dished plate, whereby the narcotic is caused to alternately flow from the center to the circumference of said upper inverted dished plate and horizontal plate and from the circumference to the center
10 of said apertured plate.

6. Apparatus for administering narcotics comprising a stand having a tubular upright forked at its upper end and forming a gas connection, a vaporizing receptacle supported
15 between the forks of said end and communicating with said forks, a pressure gas connection to said tubular upright, a facial mask, a supply connection between one of said forks and said facial mask, and a
20 rotatable valve intermediate said supply connection, forks and vaporizing receptacle, whereby the pressure gas may be supplied to said facial mask either through the one of said forks and through the vaporizing
25 receptacle or through the other of said forks without passing through said vaporizing receptacle.

7. Apparatus for administering narcotics, comprising in combination a stand, a pressure gas cylinder, a vaporizing receptacle, a
30 connection between said cylinder and said receptacle, a facial mask, a connection between said facial mask and said vaporizing

receptacle, a liquid cylinder, a hollow rod adjustable in said stand and immersible in
35 the liquid in said cylinder, and a connection between said hollow rod and facial mask.

8. Apparatus for administering narcotics, comprising in combination a stand, a pressure gas cylinder, a vaporizing receptacle, a
40 connection between said cylinder and said receptacle, a facial mask, a connection between said facial mask and said vaporizing receptacle, a liquid cylinder, a hollow rod
45 adjustably immersible in the liquid in said cylinder, a connection between said hollow rod and facial mask and a regulating valve intermediate said facial mask and the hollow rod.

9. Apparatus for administering narcotics, 50 comprising in combination a stand, a pressure gas cylinder, a vaporizing receptacle, a connection between said cylinder and said receptacle, a facial mask, a connection between
55 said facial mask and said vaporizing receptacle, a liquid cylinder, a hollow rod adjustably immersible in the liquid in said cylinder, a connection between said hollow rod and facial mask, and a flexible bag connected to said facial mask. 60

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GEORG HAERTEL.

Witnesses:

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ERNST KATZ.