

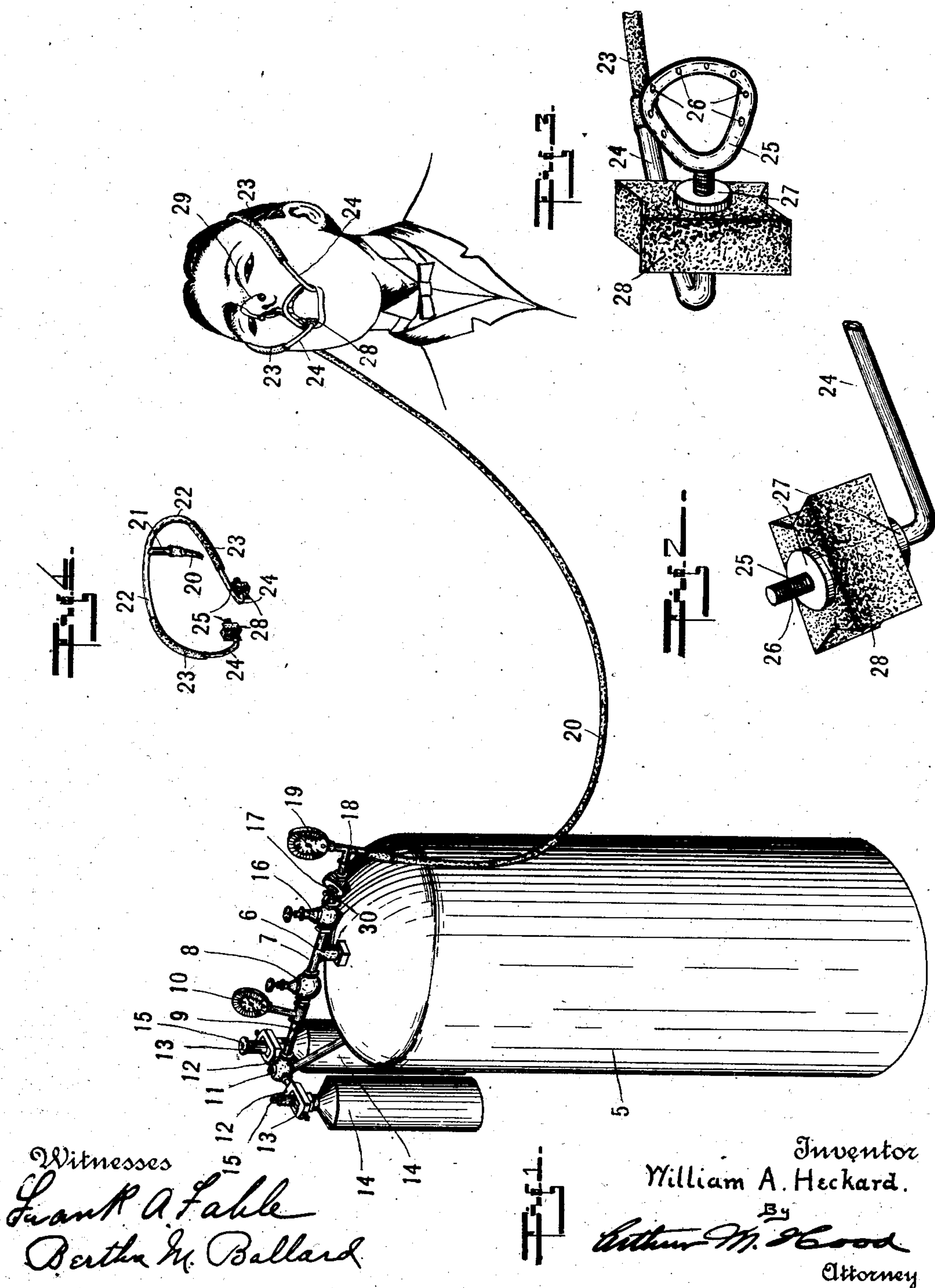
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W. A. HECKARD.
APPARATUS FOR ADMINISTERING ANESTHETICS.

APPLICATION FILED AUG. 12, 1901.

NO MODEL.



UNITED STATES PATENT OFFICE.

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APPARATUS FOR ADMINISTERING ANESTHETICS.

SPECIFICATION forming part of Letters Patent No. 721,185, dated February 24, 1903.

Application filed August 12, 1901. Serial No. 71,698. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. HECKARD, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Apparatus for Administering Anesthetics, of which the following is a specification.

My invention relates to an improvement in apparatus for administering anesthetics, especially anesthetics having a greater specific gravity than air.

The object of my invention is to provide an apparatus by which an anesthetic may be administered, especially nitrous oxid, through the mouth under a continuous pressure and by means of which the pressure may be controlled through a wide range, so as to enable the operator to keep the patient under absolutely proper condition.

A further object of my invention is to provide means by which the discharge-nozzles are automatically held in position, at the same time holding open the mouth of the patient in such a way as not to interfere with dental or other surgical operations in the mouth or throat.

By means of this apparatus continued anesthesia through any desired period may be produced, the mouth of the patient being in the meantime kept open and free for interior operations.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of my apparatus in operation. Figs. 2 and 3 are details of desirable forms of nozzles. Fig. 4 is a perspective view of the head-piece and nozzles.

In the drawings, 5 indicates an administering or intermediate reservoir of comparatively large capacity. Leading from the top of said reservoir is a pipe 6, which leads into a cross-pipe 7, to one end of which is attached a valve 8, from which leads a pipe 9, having a pressure-indicator 10 communicating therewith. Secured to the end of pipe 9 is a coupling 11, from which leads a pair of yokes 12 12 of the usual form and which are adapted to receive the discharge-neck 13 of a storage-cylinder 14, each of said

cylinders being materially smaller than the intermediate reservoir 5 and each adapted to contain the anesthetic under high pressure, which in the case of nitrous oxid is in the neighborhood of one thousand pounds and results in liquefaction. Each of the cylinders 14 is usually provided with a valve 15. Secured to the opposite end of pipe 7 is a valve 16, beyond which is an adjustable pressure-reducing valve 17. Leading from valve 17 is a pipe 18, with which a pressure-indicator 19 communicates. Leading from pipe 18 is a flexible tube 20, which is secured to the receiving-stem 21 of a yoke consisting of a pair of diverging arms 22, to each of which is attached a short piece of flexible tubing 23, in the end of which is placed the stem 24 of a discharge-nozzle 25, having a discharge-opening 26. A portion of the nozzle 25 may be threaded to receive check-nuts 27, between which may be secured a rubber or other suitable wedge 28. The nose of the patient is closed by means of a suitable clamp 29.

In operation the nozzles 25 are placed in the mouth of the patient, as indicated in Fig. 1, the tubes 23 passing up over or around the head of the patient out of the way of the operator, thus leaving the mouth of the patient open and free for operation. In case the operator desires to work upon one side of the mouth, where a wedge 28 is normally held, the wedge may be moved forward or back upon its nozzle by means of check-nuts 27, or, if desired, may be entirely removed, the anesthetic being administered and the mouth being held open by means of the other nozzle. The operator first opens one of the valves 15 and valve 8, valve 16 being closed. The gas passing from the small storage-cylinder 14 into the large intermediate reservoir 5 expands, and the pressure in the reservoir 5 is indicated by the pressure-indicator 10. Valve 16 is then opened and the gas allowed to pass from the reservoir 5 through the several pipes to the discharge-nozzles and into the mouth of the patient. The desired anesthesia is produced by regulating the pressure of the gas passing into the patient, and thus may be absolutely controlled by means of the

pressure-reducing valve 17, which is provided with the usual thumb-nut 30, the operator being able to judge accurately of the pressure of the gas passing to the patient by means of the indicator 19.

It has heretofore been customary in the administration of nitrous oxid to place a flexible bag or balloon between the supply-reservoir and the discharge-nozzle, the pressure of the gas passing to the patient being determined by the amount of inflation of the bag. Such pressure is many times insufficient, the patient in reality obtaining the anesthetic by inspiration only. At no time is the gas sufficiently under control of the operator. In my construction the intermediate reservoir 5 is rigid, and by the use of the pressure-reducing valve 17 and the indicator 19 anesthetic is forced into the mouth of the patient under a definite pressure, and the operator is able to control absolutely and accurately the pressure of the gas passing to the patient. Practical use of my apparatus has demonstrated this to be an important feature.

I claim as my invention—

1. An apparatus for administering anesthetics consisting of, a comparatively rigid expansion-tank forming an administering-reservoir, a pipe carried by and leading into said reservoir, means for attaching a supply-pipe to said tank, a pipe leading from the administering-reservoir, a reducing-valve in said pipe, and a discharge-nozzle connected to said pipe beyond the reducing-valve.

2. An apparatus for administering anesthetics consisting of, a comparatively rigid expansion-tank forming an administering-reservoir, a pipe carried by and leading into said reservoir, means for attaching a supply-tank to said pipe, a pressure-indicator connected with the reservoir, a pipe leading from the reservoir, a reducing-valve mounted in said pipe, a discharge-nozzle connected with said reducing-valve, and a pressure-indicator mounted between the reducing-valve and nozzle.

3. In an apparatus for administering anesthetics, a mouthpiece therefor consisting of, a tubular body adapted to partially encircle

the head of the patient, a pair of discharge-nozzles, and flexible connections between each of said nozzles and said body, whereby a nozzle may be inserted into the mouth of the patient so as to allow free access into the mouth.

4. In an apparatus for administering anesthetics, a mouthpiece therefor consisting of, a tubular body, a pair of discharge-nozzles, flexible connections between each of said nozzles and said body, and a block carried by each of said nozzles and adapted to be placed between the teeth of the patient.

5. In an apparatus for administering anesthetics, a discharge-nozzle therefor consisting of a tubular stem, and a block mounted on said stem and adjustable longitudinally thereon.

6. In an apparatus for administering anesthetics, a mouthpiece therefor consisting of a tubular portion, and a soft wedge carried by the tubular portion and adapted to be placed between the teeth of a patient so as to allow free access into the mouth.

7. An apparatus for administering anesthetics consisting of, a comparatively rigid administering-reservoir, a pipe carried by and leading into the reservoir, a pressure-gage communicating with the reservoir, means for attaching a high-pressure supply-tank to said pipe, a pipe leading from the reservoir, a discharge-nozzle connected to the last-mentioned pipe, an adjustable reducing-valve arranged between the reservoir and nozzle, and a wedge carried by the nozzle and adapted to be inserted between the teeth of the patient.

8. An apparatus for administering anesthetics consisting of, a rigid expansion-tank forming an administering-reservoir, a pipe carried by and leading into said reservoir, means for attaching a supply-tank to said pipe, a pressure-indicator connected to the reservoir, and a pipe leading from the reservoir.

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Witnesses:

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