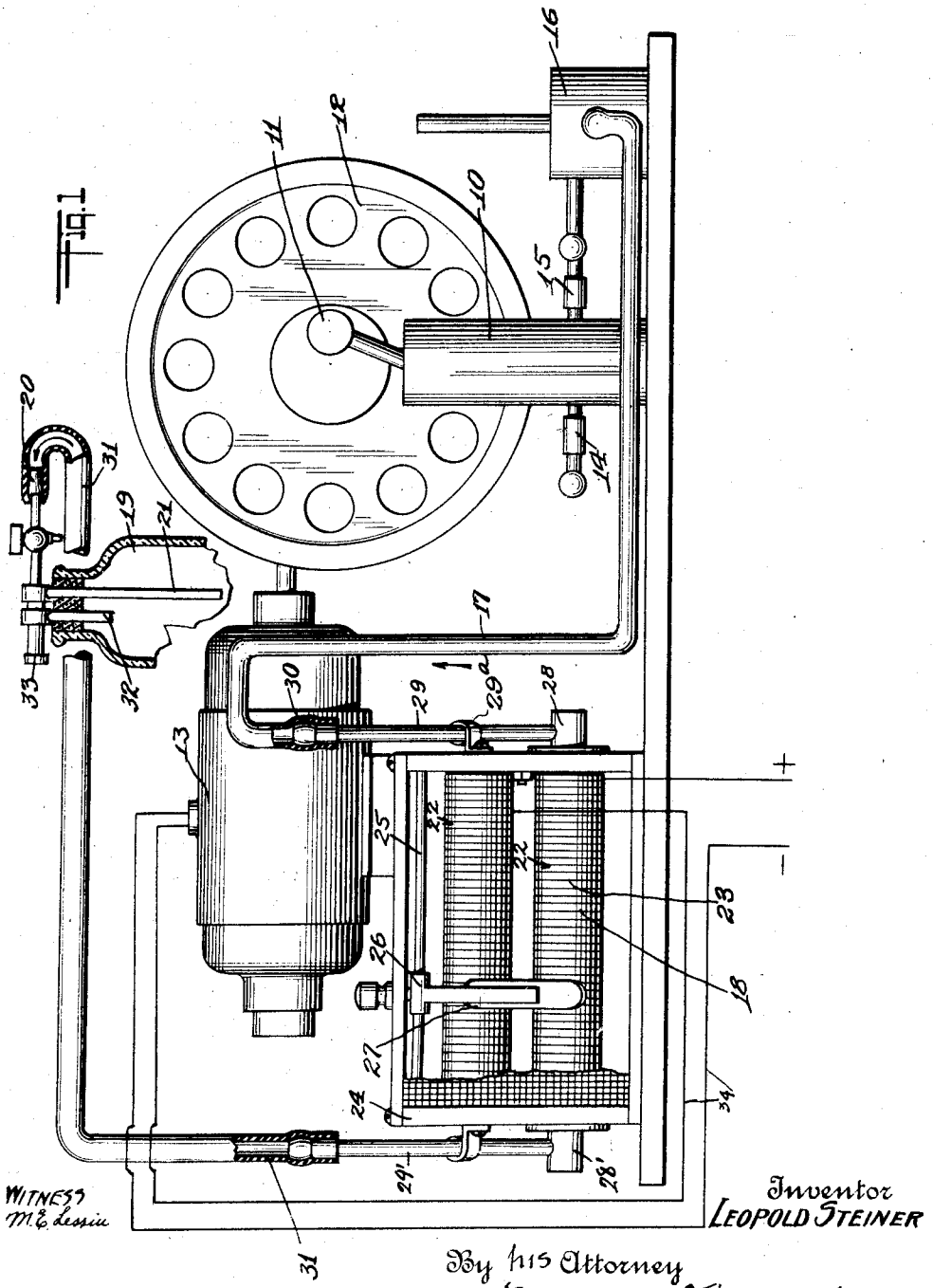
Oct. 2, 1923. 1,469,608

L. STEINER

APPARATUS FOR PREPARING ANAESTHETICS

Filed Aug. 9, 1920 2 Sheets-Sheet 1



WITNESS
M. E. Lessin

Inventor
LEOPOLD STEINER

By his Attorney
Morris Finkelstein

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Filed Aug. 9, 1920 2 Sheets-Sheet 2

Fig. 2

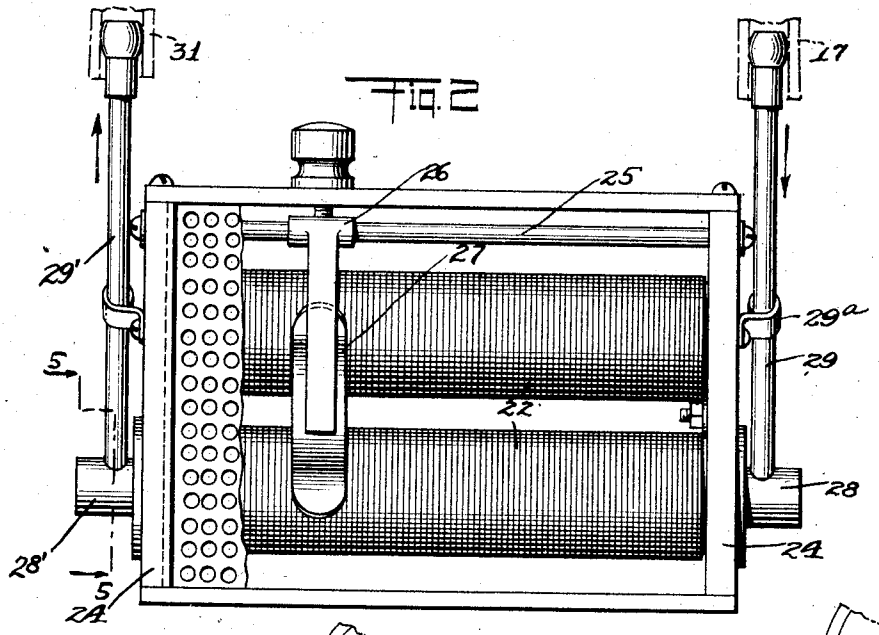

Fig. 3

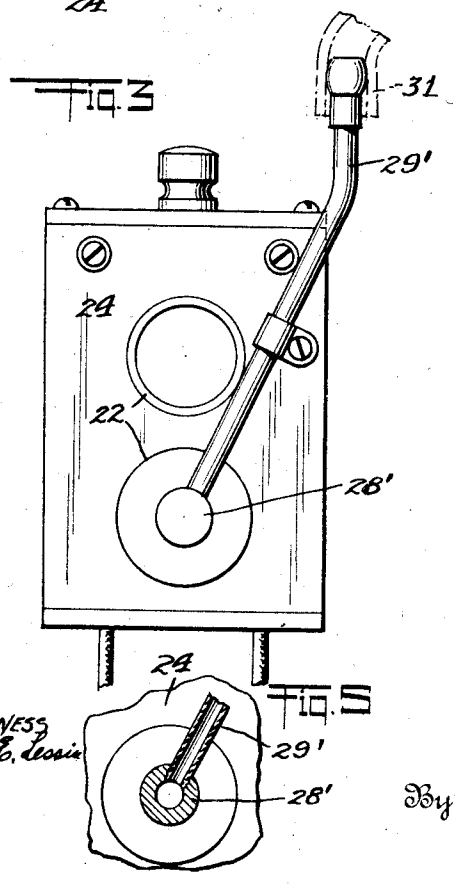

Fig. 4

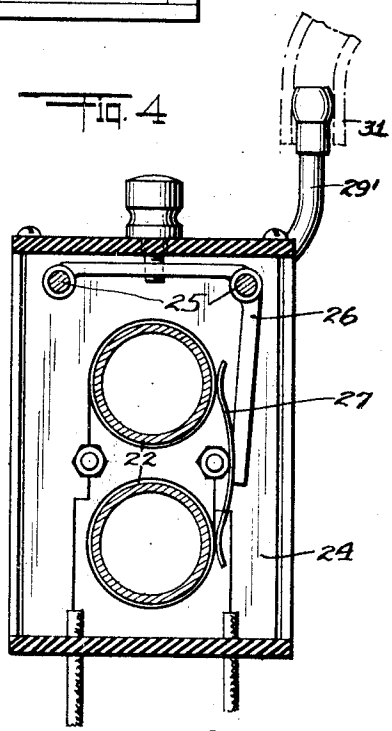

Fig. 5

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UNITED STATES PATENT OFFICE.

LEOPOLD STEINER, OF NEW YORK, N. Y., ASSIGNOR TO LEOPOLD STEINER MFG. CO., INC., A CORPORATION OF NEW YORK.

APPARATUS FOR PREPARING ANÆSTHETICS.

Application filed August 9, 1920. Serial No. 402,188.

To all whom it may concern:

Be it known that LEOPOLD STEINER, citizen of the United States, and resident of the city of New York, in the county of New York and State of New York, has invented certain new and useful Improvements in Apparatus for Preparing Anæsthetics, of which the following is a specification.

This invention relates to an apparatus for preparing anæsthetics. One of the objects thereof is to provide a simple and practical device for supplying heated air to the ether to prevent the same from freezing while being administered to the patient.

Another object is to provide a device of this type which shall utilize as the heating medium the air pumped into the ether container for expelling the same and further utilize the heat of the air pump motor rheostat as the means for heating said air.

A further object thereof is to provide a device of this type which shall at the same time serve as the rheostat for the air pump motor and regulate the air supply simultaneously with the speed regulation of the motor.

A still further object is to provide practical apparatus for the purpose described which shall be economical of parts and efficient in action.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings, in which is shown one of various possible illustrative embodiments of this invention,

Fig. 1 is a vertical elevation showing the various parts of the apparatus including the air pumping device, the air heating and rheostat device, and the anæsthetic dispenser and showing the electrical connections diagrammatically;

Fig. 2 is a vertical elevation of the combined rheostat and air heating device shown apart from the assembled apparatus;

Fig. 3 is an end view thereof;

Fig. 4 is an end cross-sectional view thereof; and

Fig. 5 is a detailed sectional view taken along line 5—5 of Fig. 2.

Referring in detail to the drawing, the assembled apparatus shown in Fig. 1 comprises an air pump 10 connected through eccentric 11 to a friction disc 12 driven by an electrical motor 13. The air is sucked into the cylinder through a suitable valve 14 and pumped through valve 15 into a purifier 16. Leading from the purifier 16 is a tube 17 for conducting the air to the heating device and rheostat 18 and thence to the anæsthetic dispenser such as the ether bottle 19 by way of the nozzle 20 and the tube 21 extending into the ether bottle.

The combined rheostat and air heater comprises a pair of hollow cores 22 on which are wound resistance coils 23. These cores are mounted in a suitable arm 24 carrying the guide rod 25 over which moves the arm 26 carrying the usual variable contact maker 27. Extending from one end on one of the cores 22 such as the lower core is a tubular extension 28 into which fits a tubular member 29 supported in a collar 29^a extending from the frame. A similar extension 28′ is provided on the opposite end of the core and fitted thereinto is a similar tubular member 29′. The tube 17 which leads the air from the purifier to the heating device is connected as at 30 to the tubular member 29 which is the intake tube, and the tube 31 is connected to the tubular member 29′ which is the outlet tube and leads the heated air to the ether bottle, the end of tube 31 being connected to the nipple 20 as shown in Fig. 1. As the air passes through the core 22, the heat generated by the current in the resistance wires heats this air which is pumped therethrough under pressure into the ether bottle, where it forces the ether out through the tube 32 and the discharge nozzle 33. The heated air imparts its heat to the ether and thus prevents the same from freezing in the etherizing process and at the same time accelerates the volatilization. The motor which drives the pump is controlled through the rheostat 18 which at the same time serves as the heater for the air, the heat in the coils instead of being wasted thus being utilized and the necessary heating of the air and heat supply for the ether being produced without any additional device or parts. The air supply is further regulated by means of the air heater and rheostat 18 since if the rheostat is manipulated to decrease the speed of the motor the volume

of air supplied is decreased. At the same time the rheostat draws a larger current so that a sufficient quantity of heat units is supplied to the ether though the volume of air supplied is less.

It will thus be seen that there is provided apparatus in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

The electric connections are made in the usual way and include the source of energy and lead wires 24 connecting the rheostat in series with the motor as shown in Fig. 1.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A device for preparing an anæsthetic comprising a volatile anæsthetic material and means for mixing heated fluid therewith to prevent the same from freezing during volatilization, said means comprising a fluid supply and a heating device, said heating device adapted also to regulate the fluid supply.

2. A device for preparing an anæsthetic comprising a volatile anæsthetic material and means for mixing heated fluid therewith to prevent the same from freezing during volatilization, said means comprising pumping means for pumping the heating fluid, an electric motor for operating said pump and a rheostat for said motor adapted to serve also as the heating means for said fluid.

3. A device for preparing an anæsthetic comprising a volatile anæsthetic material and means for mixing heated fluid therewith to prevent the same from freezing during volatilization, said means comprising pumping means for pumping the heating fluid, an electric motor for operating said pump and a rheostat for said motor adapted to serve also as the heating means for said fluid, said rheostat comprising a tubular member having a resistance coil wound thereon and inlet and outlet connections for leading the fluid from said pump into and out of said tubular member.

4. In apparatus for preparing anæsthetics, in combination with an air pump, and an electric motor therefor, a combined rheostat and heater adapted to control said motor and heat the air pumped and comprising a tubular member, an electric coil wound thereon, and inlet connections and outlet pipes connected to said tubular member for leading the air from the pump into and from said tubular member.

Signed at New York city, in the county of New York and State of New York this 2nd day of July A. D. 1920.

LEOPOLD STEINER.