

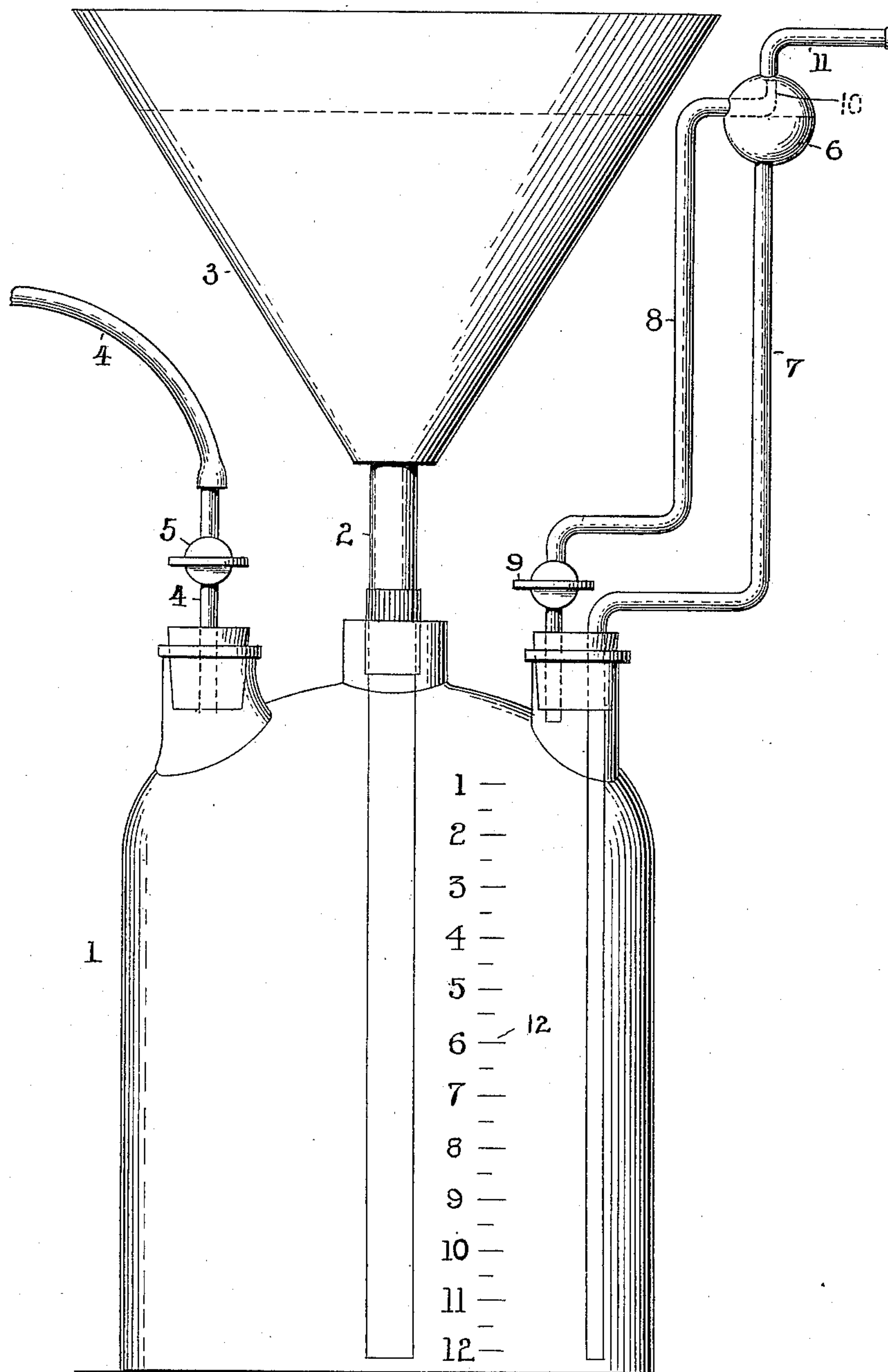
No. 652,149.

Patented June 19, 1900.

E. STERNÉ.  
APPARATUS FOR INJECTING GAS.

(Application filed Jan. 19, 1900.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EMILE STERNÉ, OF PARIS, FRANCE.

## APPARATUS FOR INJECTING GAS.

SPECIFICATION forming part of Letters Patent No. 652,149, dated June 19, 1900.

Application filed January 19, 1900. Serial No. 1,977. (No model.)

*To all whom it may concern:*

Be it known that I, EMILE STERNÉ, a subject of the Emperor of Austria-Hungary, residing at Paris, in the Republic of France, (post-office address 25 Pine street, New York,) have invented certain new and useful Improvements in Therapeutic Apparatus for Injecting Gas into the Human Body, of which the following is a specification.

My invention relates to an improvement in therapeutic apparatus for injecting gas into the human body, and it may be described as a "gasometer" or "gas-containing receiver," wherein the pressure of the gas is determined by hydraulic pressure, and it is so balanced that the gas may be conveyed to any part of the human body intended to be treated with an even pressure under all conditions.

I have illustrated my invention in the accompanying drawing, wherein I have designated the parts by numerals, referring to like parts by like numerals.

1 is a closed receiver adapted to contain fluids.

3 is a reservoir located above the level of the receiver 1 and connected by the tube 2 to the base of the receiver 1.

4 is a tubular connection with the receiver 1, controlled by the valve 5, by which gas may be introduced into the receiver 1.

6 is a closed reservoir on a level with the open reservoir 3—that is to say, on such a level that in the operation of the device the water or equivalent fluid employed will not rise above half the containing capacity of the closed reservoir.

7 is a tubular connection between the bottom of the closed reservoir 6 and the bottom of the closed receiver 1.

8 is a tubular connection between the top of the closed reservoir 6 and the top of the closed receiver 1—that is to say, the tube 8 is connected with the closed reservoir 6 above the water-level.

9 is a valve interposed in the tubular connection 8.

11 is a tubular connection leading from the top of the closed reservoir 6, and 10 is a contracted extension of the tube 8, leading to within a short distance of the entrance to the tube 11.

12 is a scale on the face of the closed receiver 1.

The operation of my device is as follows: I first fill the receiver 1 with water or equivalent liquid. This is done by pouring the water into the reservoir 3 and opening the valve 9. The air within the receiver will flow out of this valve and the water will accumulate within the receiver 1. I then close the valve 9 and open the valve 5. The tube 4 is connected with a vessel containing gas under pressure, and upon the valve 5 being opened the gas will flow into the receiver 1 and if under sufficient pressure will cause the water in the receiver 1 to be forced out of the receiver 1 into the reservoirs 3 and 6 until the water in the receiver 1 has been depressed nearly to the bottom of the receiver 1. The valve 5 is then closed, and it will be understood that the pressure of gas within the receiver 1 is maintained at an even pressure equal to the weight of the water contained within the reservoirs.

In utilizing my apparatus for therapeutic purposes I connect the tube 11 by a tube and nozzle or other suitable means with the part to be affected by the gas. I then open the valve 9 and permit the gas to flow into the human body. It will be understood that the flow will be according to an even pressure, and in the event of a sudden contraction of the parts into which the gas is introduced this instrument is so constructed as to permit the immediate return of the gas to the gasometer, and upon the relaxation of the parts of the body affected the gas will again flow into the body, and thus an even pressure will be maintained within the body, notwithstanding the sudden contraction or relaxation of the muscles of the body. When sufficient gas has been introduced into the body, the valve 9 may be closed, and in the event of a contraction of the muscles of the body under this adjustment the gas will be driven back through the tubular connection 11 and the water lying in the reservoir 6 and tube 7 will be driven down; thus forming a cushion which permits the gas to be suddenly expelled from the body and return thereto upon a relaxation of the muscles.

I may under some circumstances omit the



tube 7 and connect the tubes 8 and 11 directly. In this operation I am able to control the amount of pressure in the human body by opening the valve 9 and permitting as  
5 much pressure as I deem necessary to enter the receiver through the valve 5. I can of course read the pressure developed on the scale 12, and in the event of any contraction  
10 of the parts of the body which would cause the gas to return to the receiver of course the hydraulic pressure would permit the return of this gas in the event of its exceeding the amount of pressure under which the gas is contained within the receiver.

15 What I claim is—

1. As a therapeutic apparatus for injecting gas into the human body, a gasometer consisting of a closed vessel adapted to contain liquid in combination with two reservoirs,  
20 one open and the other closed, located above the closed receiver, tubular connections between the base of the receiver and the base of said reservoirs, an inlet-pipe controlled by a cock communicating with the top of the receiver, and a tubular connection between the  
25 top of the receiver and the top of the closed reservoir above the water-line thereof, said pipe having a cock interposed therein; a tubu-

lar connection between the top of the closed receiver and the part of the human body to  
30 be affected, substantially as described.

2. As a therapeutic apparatus for injecting gas into the human body, a gasometer consisting of a closed vessel adapted to contain liquid in combination with two reservoirs,  
35 one open and the other closed located above the closed receiver, tubular connections between the base of the receiver and the base of said reservoirs, an inlet-pipe controlled by a cock communicating with the top of the receiver, and a tubular connection between  
40 the top of the receiver and the top of the closed reservoir above the water-line thereof, said pipe having a cock interposed therein, a tubular connection between the top of the  
45 closed receiver and the part of the human body to be affected; a scale indicated upon the receiver to designate the amount of water therein and hence the gas-pressure, substantially as described.

Signed by me at New York, N. Y., this 15th  
day of January, 1900.

EMILE STERNÉ.

Witnesses:

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E. W. FINLAYSON.