

(No Model.)

L. W. NEVIUS.

APPARATUS FOR ADMINISTERING NITROUS OXIDE GAS.

No. 283,137.

Patented Aug. 14, 1883.

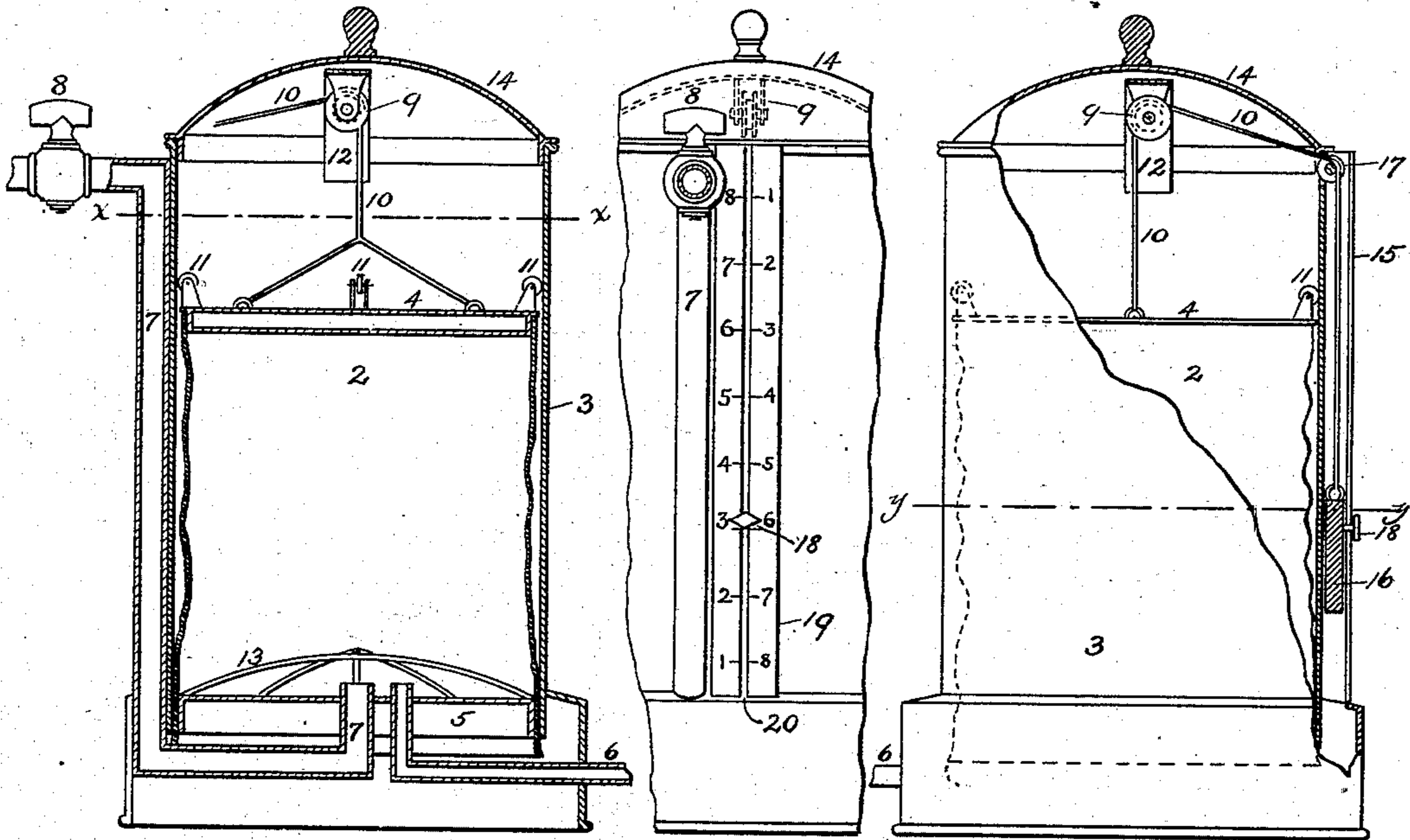


Fig. 1.

Fig. 2.

Fig. 3.

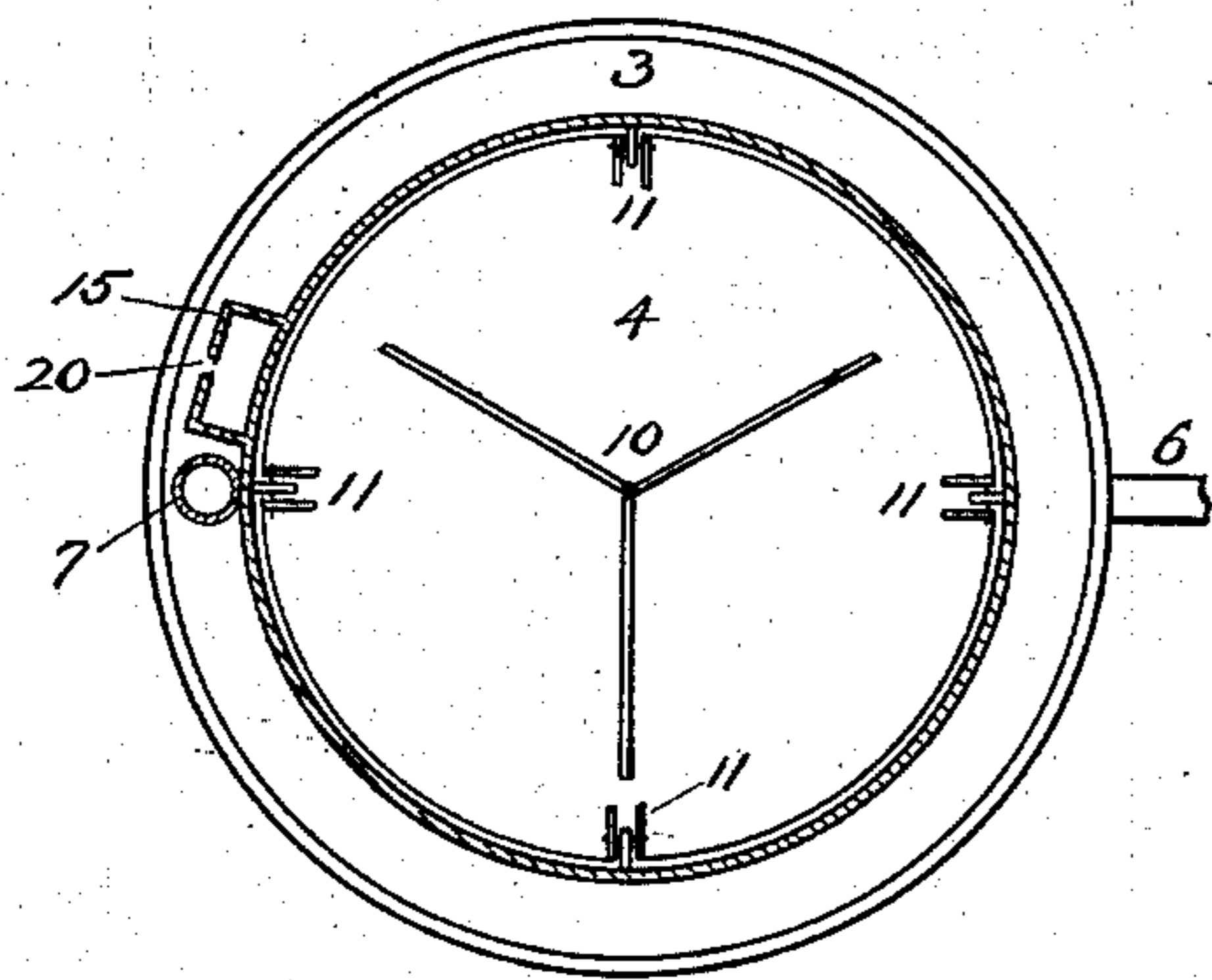


Fig. 4.

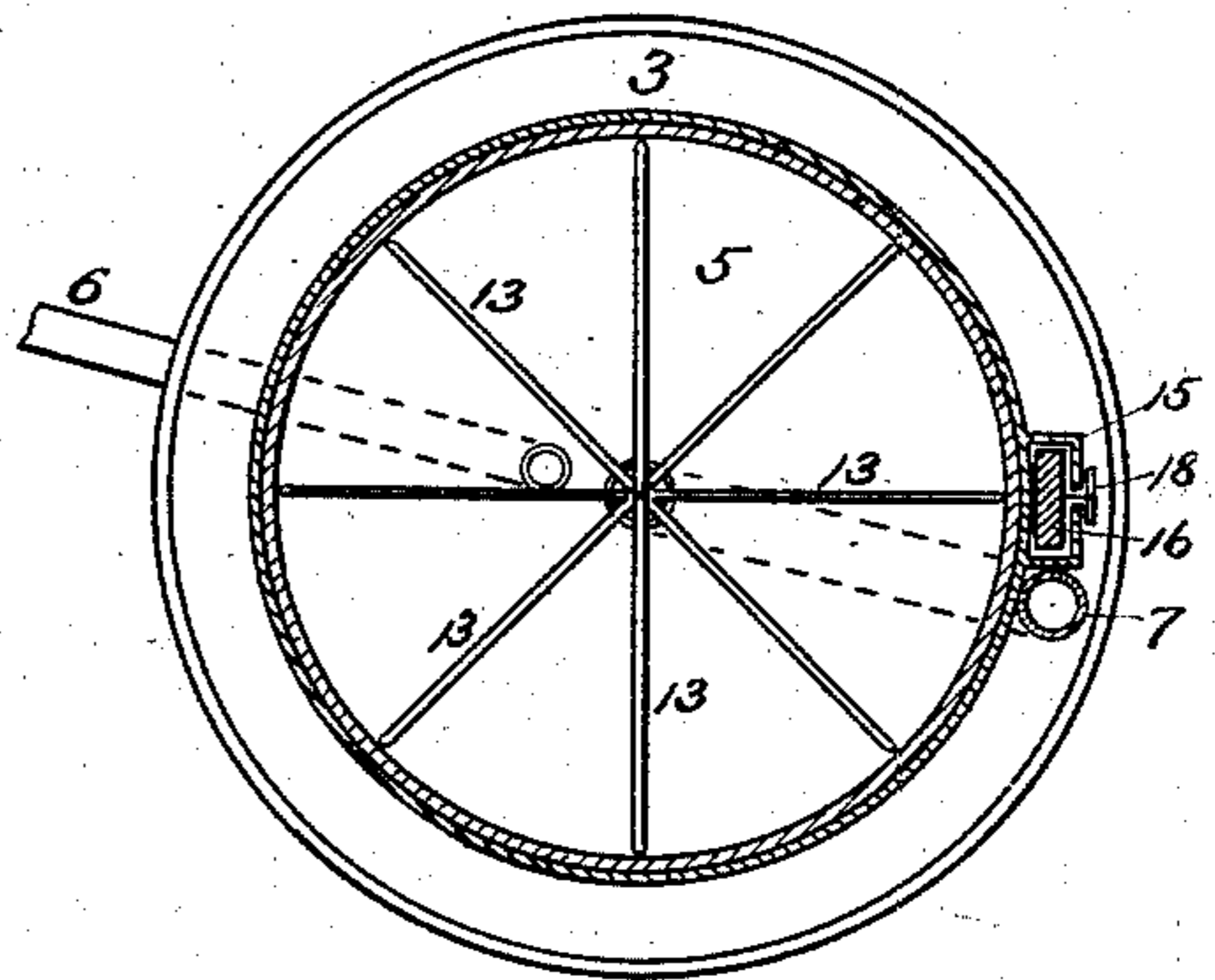


Fig. 5.

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per

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UNITED STATES PATENT OFFICE.

LAIRD W. NEVIUS, OF TOLEDO, OHIO.

APPARATUS FOR ADMINISTERING NITROUS-OXIDE GAS.

SPECIFICATION forming part of Letters Patent No. 283,137, dated August 14, 1883.

Application filed April 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, LAIRD W. NEVIUS, a citizen of the United States, residing at Toledo, county of Lucas, and State of Ohio, have invented a new and useful Improvement in Apparatus for Administering Nitrous-Oxide Gas, of which the following is a specification.

The object of my invention is to provide a simple and effective apparatus for administering gas.

The gas-receivers now in general use are of two kinds—the rubber bag and the tank or water-sealed holder. The objections to the bag are its unsightly appearance, lack of uniform pressure, and liability to injury. The tank or water-sealed holder lacks portability and uniform pressure, is liable to leakage and freezing, shows the patient the amount of gas being consumed by the lowering of the inner tank into the outer casing, and is attended with inconvenience in changing the water from time to time. In my invention I provide against these objections by constructing an apparatus having a flexible receiver with a movable top or bottom operating by means of a balance weight or weights within a rigid outer casing, so arranged that the top of the flexible receiver descending, or the bottom thereof ascending, within the outer case will secure the requisite pressure for the free and uniform out-flow of gas when being administered. I prefer, however, the movable top, partially counterbalanced by a weight, having pointer or index-finger for a guide-scale attached, said top moving vertically within the outer casing, as the gas is admitted to the receiver or discharged therefrom.

In the drawings, Figure 1 represents a vertical sectional view of my apparatus; Fig. 2, an elevation of a front section, showing the indicator or guide-scale on the outer casing, and the exhaust or inhaling pipe with cut-off attached. Fig. 3 is a side elevation with a portion of the outer casing broken away, showing the flexible holder within and the box or recess with weight suspended therein, the front plate of said box forming the guide-scale shown in Fig. 2. Fig. 4 is a horizontal section drawn upon line *xx* of Fig. 1. Fig. 5 is a horizontal section drawn upon line *yy* of Fig. 3.

In Fig. 1, 2 represents my flexible receiver supported by end 10 over pulley 9, and partially counterbalanced by weight 16, (shown in Fig. 3,) the whole operating vertically within the rigid outer casing, 3. 11 11 represent the guides which keep the top of flexible holder in a horizontal position, and prevent its oscillation, at the same time allowing it free play within the outer casing. 5 is the removable bottom, between the periphery of which and the outer casing the flexible sides of the receiver are securely held in position. 6 is the supply-pipe through which gas is introduced from an outside cylinder. 7 is the exhaust or inhaling pipe; 8, its cut-off; 13, the wire guards attached to the removable bottom, so as to prevent the top or flexible sides of the receiver from falling upon and obstructing the openings in the supply and exhaust pipes. 12 is the brace to which pulley 9 is hung, and 14 the cap or cover which fits upon and incloses the outer casing.

In Fig. 2, 19 is the guide-scale, so divided as to indicate the number of gallons introduced into or discharged from the receiver. 18 is the pointer or index-finger attached to weight 16, hung in box 15, (shown in Fig. 3,) and by means of a vertical opening in the face of the scale-guide having free play thereon. 7 is the exhaust-pipe, and 8 its cut-off. The dotted lines near the top indicate the line of the brace to which pulley 9 is hung.

In Fig. 3, 3 is the rigid outer casing, partially broken away; 2, the flexible receiver; 11, one of its guides; 10, pulley-cord; 9, supporting-pulley hung on brace 12; 16, balance-weight hung in box 15; 18, the pointer attached to face of said weight; 17, the small roller which lessens the friction as pulley-cord moves over and enters the box 15. 14 is the cap or cover which incloses the outer casing. The dotted lines represent the flexible receiver within the casing and the under line of the removable bottom.

In Fig. 4, 3 is the outer casing; 4, top of flexible receiver; 10, center line of pulley-cord; 11, guides to top of flexible holder; 6, supply-pipe; 7, exhaust-pipe; 15, box in which balance-weight is hung; 20, the opening along which pointer moves on face of guide-scale.

In Fig. 5, 5 is the removable bottom, having

wire guards 13 attached for the protection of openings to supply-pipe 6 and exhaust-pipe 7; 15, box with weight 16 and pointer 18 connected therewith. The outer casing should
 5 be constructed of metal or other suitable material. The inner receiver should be of flexible material, preferably rubber. The top of the flexible receiver should be so adjusted by means of the counterbalance-weight as to se-
 10 cure for it the requisite pressure for a free and uniform outflow of gas. The supply and exhaust pipes, from the line of the outer casing to the connecting-tubes, which enter the re-
 15 movable bottom of the receiver, may be of flexible material, so as to be readily disconnected in case it becomes necessary to remove the bottom.

I am aware that a flexible receiver within an outer case has long been known in connection
 20 with the manufacture and distribution of illuminating-gas, and that the slotted tube having the weight and pointer suspended therein has been used independently of the outer casing. My improvement consists in combining
 25 the slotted tube with the outer casing, so as to form a part thereof, and in providing a scale-bar on the surface of said casing, so that by means of the pointer attached to the weight hung in said tube, and the slot along the face
 30 of said scale-bar, through which the stem of the pointer has a vertical movement, an accurate measurement is secured of the inflow and outflow of gas.

What I claim as my invention, and desire to secure by Letters Patent of the United States, 35 is—

1. In a gasometer having a flexible receiver within a rigid outer casing for administering nitrous-oxide gas, the combination of a weight with pointer or index-finger attached thereto, 40 a vertical scale-bar on the outer face of the rigid casing, a vertical opening along the line of the center of said scale-bar, through which the stem of the pointer moves, substantially as set forth and described.

2. In combination with the inner receiver of a gasholder, a vertical scale-bar for the measurement of the inflow and outflow of gas, an index-finger moving in a slot along said scale-bar on the face of the outer casing, a 50 suspended weight connected with the inner receiver and imparting a vertical movement to the index-finger attached to said weight as the receiver ascends or descends, substantially as set forth.

3. In a gasometer, the combination of outer casing, 3, flexible receiver 2, weighted top 4, balance-weight 16, removable bottom 5, with guard 13, pointer 18, attached to weight, guide-scale 19, on which pointer indicates the inflow 60 and outflow of gas in a receiver, substantially as and for the purposes set forth.

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Witnesses:

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