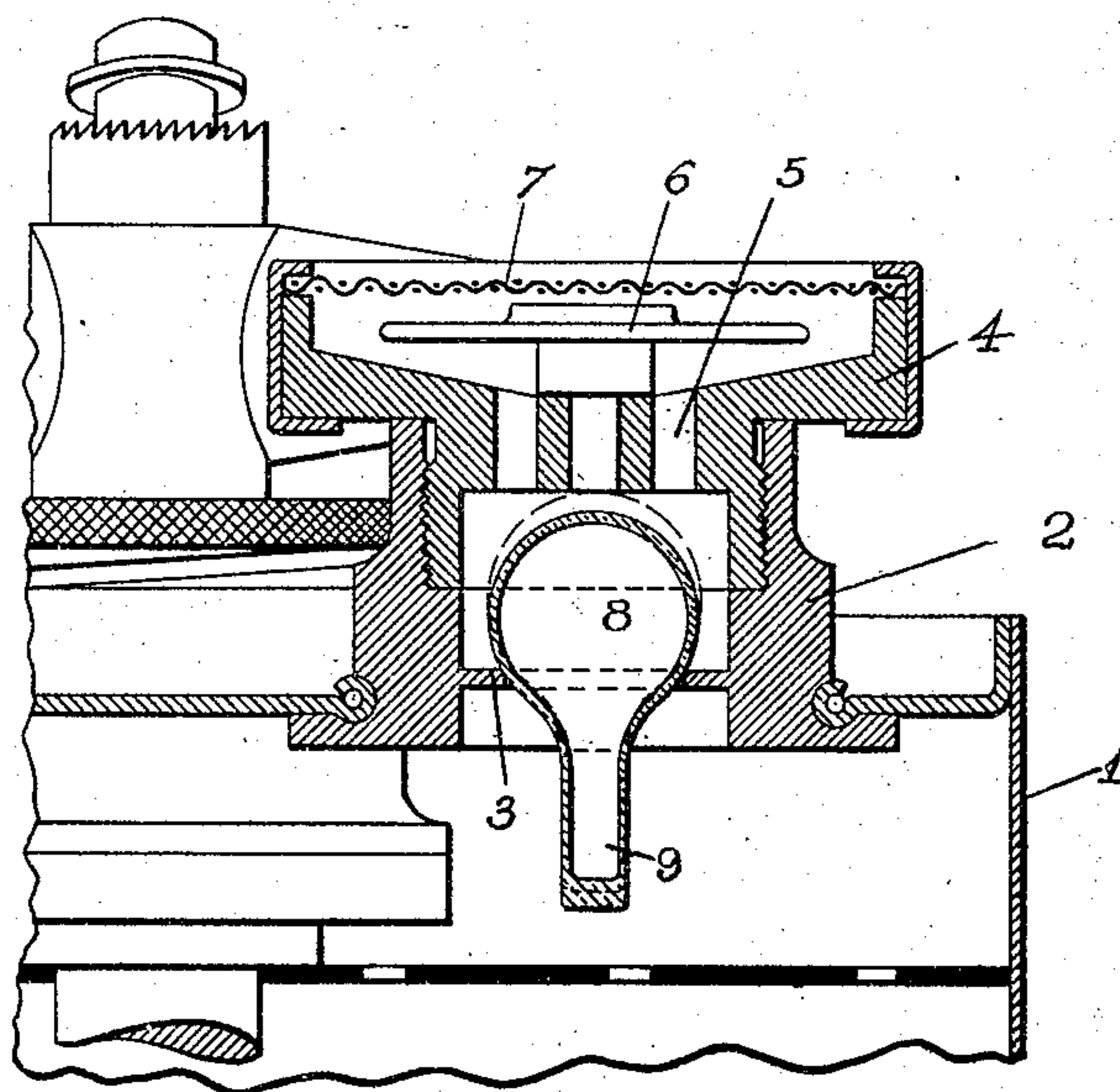


No. 785,297.

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T. A. EDISON.
GAS SEPARATOR FOR STORAGE BATTERIES.
APPLICATION FILED AUG. 16, 1904.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF ORANGE, NEW JERSEY, ASSIGNOR TO EDISON STORAGE BATTERY COMPANY, OF ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GAS-SEPARATOR FOR STORAGE BATTERIES.

SPECIFICATION forming part of Letters Patent No. 785,297, dated March 21, 1905.

Application filed August 16, 1904. Serial No. 220,911.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, Orange, Essex county, New Jersey, have
5 invented a certain new and useful Gas-Separator for Storage Batteries, of which the following is a description.

In my improved storage battery I make use of a gas-separator, the function of which is to
10 separate mechanically-entrained globules of the electrolyte from the escaping gases. In constructing this separator I make use of a small puppet-valve normally closing a vent from the can or vessel in which the active
15 materials are supported and arranged to be automatically opened when a sufficient gas-pressure accumulates to thereby allow gas to escape against a liquid film at a sufficiently high velocity to overcome the surface tension
20 thereof, whereby the entrained globules will coalesce with the film to be separated from the gases. Such a method is described and claimed in my patent of the United States granted July 5, 1904, No. 764,183.

I find in practice that sometimes when excessive foaming of the electrolyte takes place the amount of liquid which passes upward past the valve is so great as to cause an accumulation of liquid above the valve-seat, gradually
30 filling the space between the valve-seat and the gauze and sometimes actually overflowing the latter. This gradual accumulation of liquid is due to the fact that the valve by its weight closes very quickly, and during excessive foaming the rate of flow of the liquid
35 passing upwardly is greater than that possible in the opposite direction during the short intervals that the valve may be open.

The object of my invention is to overcome
40 this objection, and to this end the invention consists in constructing a gas-separator of the type described wherein the valve will be light enough to float on the solution, so that so long as there may be any considerable accumulation of liquid above the valve-seat the valve
45 will remain open and the liquid be allowed to flow back into the cell.

The invention also relates to the employ-

ment of a valve for the purpose constructed of glass, with a hollow head, so as to float on
50 the solution, and preferably to a valve with a spherical head, so as to form a tight joint at the valve-seat.

In order that the invention may be better understood, attention is directed to the accom-
55 panying drawing, forming a part of this specification, and in which I illustrate a sectional view of a part of the storage-battery can or receptacle with my improved gas-separator applied thereto. 60

In the drawing, 1 represents the can, which is ordinarily made of sheet-steel carefully nickel-plated, and 2 a nipple held in place in an opening therein by turning over the edges of the metal around said opening to form a
65 bead, as shown. In the nipple 2 is formed a valve-seat 3, having, preferably, a slightly-concaved upper edge, as shown. Engaging the nipple 2 is a small casing 4, having a perforated diaphragm 5, carrying a deflector 6,
70 above which is arranged the gauze 7. The object of the deflector 6 and gauze 7 is explained in my patent above referred to.

8 represents the valve made, preferably, of glass, with a hollow spherical head, as shown,
75 and preferably having a projection 9 for centering the valve in the seat. The valve 8 is so proportioned as to float on the solution used, but preferably with but little reserve buoyancy, so that the valve does not com-
80 mence to float until there is a considerable accumulation of liquid above the valve-seat. By making the valve with a hollow spherical head, as shown, the valve as a whole may be made heavy enough to give the necessary
85 pressure on the valve-seat to permit the desired separating operation to take place, as I describe in my said patent.

Having now described my invention, what I claim as new therein, and desire to secure by
90 Letters Patent, is as follows:

1. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable valve normally engaging said seat,
95 substantially as set forth.

2. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a hollow floatable valve normally engaging said
5 seat, substantially as set forth.

3. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, of a hollow spherical glass valve normally engaging
10 said seat, substantially as set forth.

4. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable valve having a spherical head nor-
15 mally engaging said seat, substantially as set forth.

5. In a gas-separator for storage batteries,

the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable valve having a hollow spherical head
20 normally engaging said seat, substantially as set forth.

6. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a
25 floatable glass valve having a hollow spherical head normally engaging said seat, substantially as set forth.

This specification signed and witnessed this 18th day of July, 1904.

THOS. A. EDISON.

Witnesses:

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