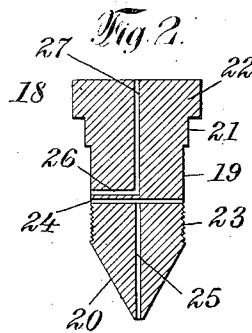
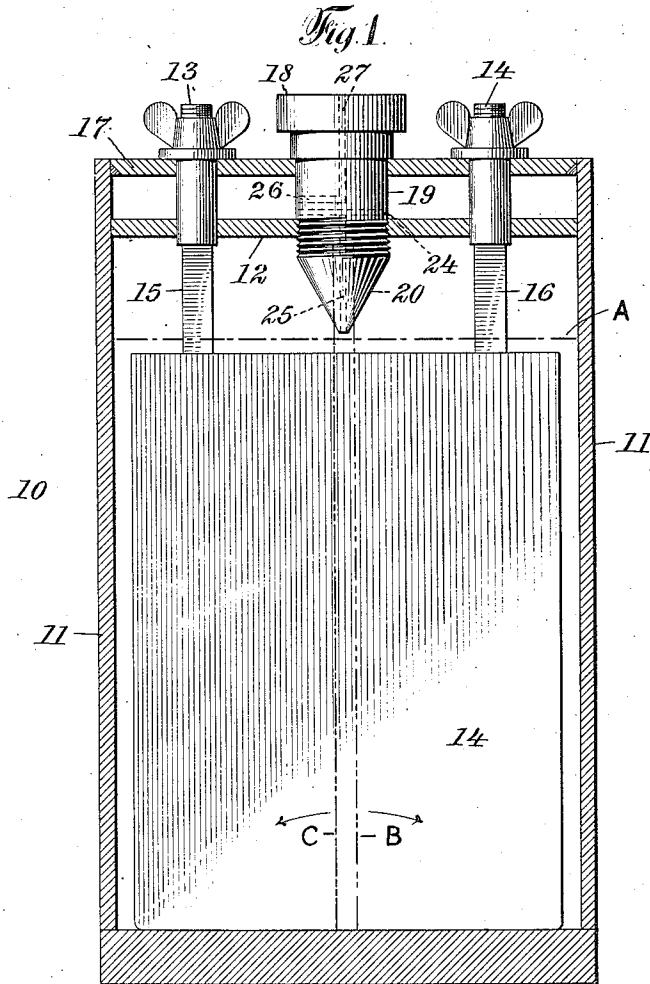


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GAS RELIEF DEVICE FOR BATTERIES.
APPLICATION FILED JULY 16, 1914.

1,149,988.

Patented Aug. 10, 1915.



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GAS-RELIEF DEVICE FOR BATTERIES.

1,149,988.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES STAUDT, a citizen of the United States, residing at Union Hill, Hudson county, in the State of New Jersey, have invented certain new and useful Improvements in Gas-Relief Devices for Batteries, of which the following is a full, clear, and exact specification.

My invention relates to improvements in means for relieving the internal or gas pressure occurring in electric batteries, and the same has for its object more particularly to provide a simple, efficient and reliable device which may be readily secured to a battery receptacle in order to permit of the escape of gas from said battery, while preventing the out-flow of liquid from said receptacle.

Further, said invention has for its object to provide a relief device which may be readily applied to a battery receptacle in such a way that its inner end, which contains the gas relief opening, will always be above the level of the liquid, contained in said receptacle, regardless of the position of said receptacle.

Further, said invention has for its object to provide a device of the character described which, while permitting the free exit of gas from the interior of the receptacle, will effectively prevent the discharge of liquid therethrough.

To the attainment of the aforesaid objects and ends, my invention consists in the novel details of construction, and in the combination, connection and arrangement of parts hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings, wherein like numerals of reference indicate like parts,—Figure 1 is a central vertical section of a storage battery with one form of vent, constructed according to and embodying my invention, applied thereto; and Fig. 2 is a central detail vertical section of the relief device.

In said drawings 10 designates a storage battery comprising a receptacle 11 which is preferably made of glass, rubber or other suitable material not affected by acid. The said receptacle 11 is provided adjacent to its upper end with a partition 12, having a central screw-threaded opening therein, and smaller openings arranged to each side of said central screw-threaded opening in which are secured binding posts 13, 14 having their

lower ends connected with the plates 14 of the battery by contact members 15, 16, respectively.

17 denotes a cover which is arranged flush with the top of the battery receptacle, and secured thereto by cementing or by other suitable means. The said cover 17 is provided with a central opening registering with the screw-threaded opening in the partition 12, and to each side of said opening are provided smaller openings to accommodate the upper ends of the binding posts 13, 14.

18 denotes a gas relief device in the form of a plug having a cylindrical body portion 19 provided at its lower end with a tapering point 20, and at its upper end with an enlarged portion 21, forming a shoulder, above which enlarged portion 21 is provided a head 22 which is larger in diameter than said enlarged portion 21 directly below the same. The body portion 19 of the plug is provided directly above the tapering point 20 with screw threads 23 adapted to engage with the interiorly threaded opening arranged in the center of the partition 12, in order to hold said plug duly secured in position. The body portion of said plug 18 is provided directly above the screw threads 23 with a transverse passage 24 which extends entirely through the same, and communicates with a central longitudinal passage 25 extending from said transverse passage 24 downwardly to the end of the tapering point 20 of the plug.

Directly above the transverse passage 24 is arranged a shorter transverse passage 26 which is arranged parallel with, and in close proximity to the transverse passage 24. The said transverse passage 26 extends only to the center of the plug where it meets a second central longitudinal passage 27, arranged in line with the central transverse passage 25, and extending upwardly through the head 22 of the plug 18.

It is well known that in storage batteries the plates 14 are usually immersed in an electrolyte which extends slightly above the upper edge of said plates. In order to provide for the escape of gas during the charging period of the battery the plug 18 is so proportioned that its inner or tapered point 20 will be in a horizontal plane slightly above the normal fluid level of the electrolyte in the battery. The interior capacity of

the battery receptacle is such that when the fluid level is at about the height specified it will be at about the point indicated by A, and when the battery is laid upon any of its sides the fluid will arise to about the level indicated by the lines B, C. In all of the positions above described the end of the point 20 will be above the fluid level.

Any gas generated in the battery will thus always find free exit through the passages 25 and 24, and into the space provided in the battery receptacle above the partition 12, and below the cover 17, from which it can thence pass into the shorter transverse passage 26 through the longitudinal passage 27 to the atmosphere.

Should by any chance a small amount of the liquid within the receptacle accidentally find its way into the space between the partition 12 and the cover 17, by way of the passages 25, 24, when the battery is repeatedly agitated, or is placed upon its side, the said liquid will at once be returned through said passages 25, 24, to the interior of the receptacle below the partition 12, when the battery is restored to its proper vertical position.

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

1. A device of the class described, comprising a plug formed as a unitary structure having a transverse passage extending therethrough, a longitudinal passage extending from said transverse passage to one end of said plug, a second transverse passage, and a second longitudinal passage extending from said second transverse passage to the opposite end of said plug, substantially as specified.

2. A device of the class described, comprising a plug having a transverse passage extending therethrough, a longitudinal passage extending from said transverse passage to one end of said plug, a second transverse passage extending partially through said plug and arranged parallel to said first-named transverse passage, and a second longitudinal passage extending from said second transverse passage to the opposite end of said plug, substantially as specified.

3. A device of the class described, comprising a plug having a transverse passage extending therethrough, a central longitudinal passage extending from said transverse passage to one end of said plug, a second transverse passage extending partially through said plug, and arranged parallel to said first-named transverse passage, and a second longitudinal passage, in line with

said first-named longitudinal passage, extending from said second transverse passage to the opposite end of said plug, substantially as specified.

4. A device of the class described, comprising a plug having a head and a tapered point, and provided with a transverse passage extending through said plug, a central longitudinal passage extending from said transverse passage to the end of said tapered point, a second transverse passage extending partially through said plug and arranged parallel to said first-named transverse passage, and a second longitudinal passage arranged in line with said central longitudinal passage and extending from said second transverse passage through the head of said plug, substantially as specified.

5. A device of the class described, comprising a plug having an enlarged head, a tapered point, and engaging means intermediate said head and point, said plug having a transverse passage extending therethrough, a central longitudinal passage extending from said transverse passage and terminating at the end of said tapered point, a second transverse passage extending partially through said plug and arranged parallel to said first-named transverse passage, and a second central longitudinal passage arranged in line with said first-named central, longitudinal passage and extending from said second transverse passage through the head of said plug, substantially as specified.

6. The combination of a battery receptacle having a cover provided with a centrally arranged opening, and a partition in said receptacle below said cover having an opening therein in line with the opening in said cover, with a plug having a plurality of parallel transverse passages therein arranged intermediate said cover and said partition, a central, longitudinal passage extending from one of said transverse passages to the lower end of said plug, and a second longitudinal passage, in line with said first-named longitudinal passage, extending from the other of said transverse passages through the exposed end of said plug, substantially as specified.

Signed at the city of New York, in the county and State of New York, this 5th day of June, one thousand nine hundred and fourteen.

CHARLES STAUDT.

Witnesses:

CONRAD A. DIETERICH,
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