

(No Model.)

J. J. PEARSON.
CARTRIDGE SHELL BATTERY.

No. 512,055.

Patented Jan. 2, 1894.

Fig. 1.

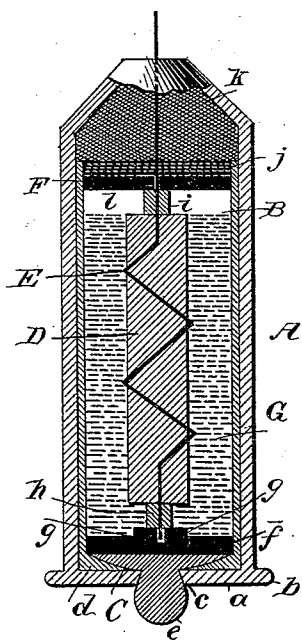
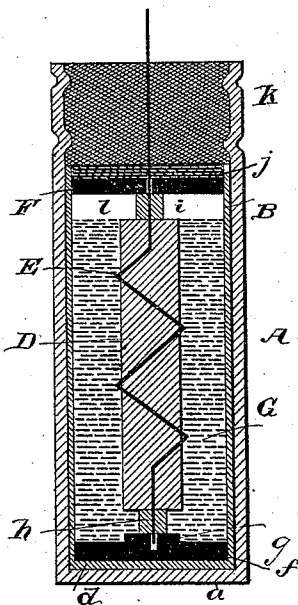


Fig. 2.



WITNESSES:

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JAMES J. PEARSON, OF BROOKLYN, NEW YORK.

CARTRIDGE-SHELL BATTERY.

SPECIFICATION forming part of Letters Patent No. 512,055, dated January 2, 1894.

Application filed January 28, 1893. Serial No. 460,109. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. PEARSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Cartridge-Shell Battery, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical section; and Fig. 2 is a vertical section of a modified form.

Similar letters of reference indicate corresponding parts in both views.

The object of my invention is to construct a simple, compact and powerful sealed battery, which will be inexpensive in its construction and adapted to all of the uses to which such batteries may be applied.

My invention consists in an outer casing or envelope, preferably a cartridge shell, such as is used in the manufacture of cartridges for firearms, a cylindrical lining of zinc or other electro-positive material, a cylinder of silver chloride forming the negative element supported by elastic insulating disks, an electrolytic body interposed between the chloride of silver cylinder and the zinc lining, a hermetic seal closing the open end of the shell, and a silver wire extending through the seal and passing in a zigzag direction through the silver chloride cylinder, the open end of the shell being contracted or grooved to retain the contents, all as will be hereinafter more fully described.

The shell A, which forms the outer envelope or cell of the battery, consists of a cartridge shell such as is used in firearms, made in the form of a hollow cylinder, with a head *a* with or without the flange *b*, and having at the center thereof a cap opening *c*. In the said shell A, is inserted or deposited a lining B, of zinc or other suitable material, the said lining covering the bottom of the shell. In the bottom of the zinc lining B, may or may not be inserted a button C, which projects through the cap aperture *c*, forming a contact knob *e*, which is compressed upon the head *a*, making a tight joint between the said button and the head.

Upon the bottom of the cell is placed a disk *f*, of elastic rubber or analogous material, which is provided at the center with a boss,

bored for a short depth, but not through, to admit the end of the wire E. On this boss rests a cylinder D, of silver chloride, a sleeve *h* acting as a thimble or spacer between the silver chloride cylinder D and the disk *f*, which yields or expands to allow for any expansion or contraction of the shell A, which would otherwise rupture the seal.

The silver chloride is cast upon a wire E, which passes through the cylinder of chloride of silver in a zigzag direction, the said wire protruding through the ends of the silver chloride cylinder in the line of its axis, and extending through the sleeve *h*, and into, but not through the disk *f*. The upper end of the silver wire E passes out of the cylinder D at its axis, and extends beyond the open end of the shell A.

On the top of the silver chloride cylinder D, is placed a short elastic sleeve *i*, and upon this rests a disk F, of soft rubber or analogous material, which fits the zinc lining B. Above the disk F is placed a layer *j* of elastic cement, and upon this layer is placed a solid capping seal *k* of hard cement, the shell A being grooved circumferentially as in Fig. 2, or contracted conically, as in Fig. 1, at the end, before the insertion of the hard cement. In the cell thus formed, before it is closed, is placed the electrolytic material G, which fills the space between the silver chloride cylinder and the zinc lining, leaving a gas chamber *l* at the top, to receive such small amount of gas as may be generated in the working of the battery.

The connection of the cell with the translating devices is effected by bringing the conductors into contact with any part of the shell A, or what is to be preferred, with the projection *e* of the button C, and with the protruding end of the silver wire E. The wire E, in addition to being made in zigzag form, may be twisted spirally, or so shaped that it securely holds the chloride of silver which is cast around it.

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

1. A battery, formed of an outer protecting shell A, a zinc lining B, a silver chloride cylinder D, furnished with a zigzag wire E, for

supporting the silver chloride cylinder, elastic supports for the cylinder which compensate for the expansion and contraction of the shell, electrolytic material placed in the shell
5 and surrounding the silver chloride cylinder, leaving a gas chamber, and a seal for closing the end of the battery cell, formed partly of elastic material and partly of inelastic material, substantially as specified.

10 2. A negative element for a galvanic battery, formed of a body of silver chloride, and

a zigzag silver wire inclosed in the silver chloride, with the apexes of the angles of the silver wire near the surface of the body of silver chloride, the ends of the silver wire protruding from the body of silver chloride and forming supports for the same, substantially
15 as specified.

JAMES J. PEARSON.

Witnesses:

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