No. 873,132. PATENTED DEC. 10, 1907.

Q. MARINO & E. W. BARTON-WRIGHT.

ELECTRIC ACCUMULATOR.

APPLICATION FILED DEC. 17, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

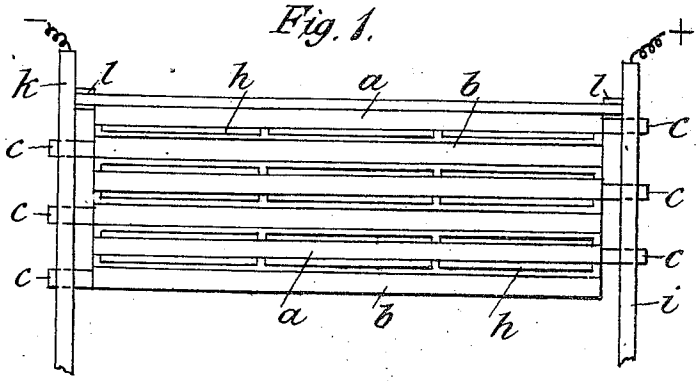


Fig. 2.

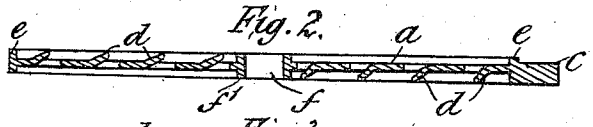


Fig. 3.

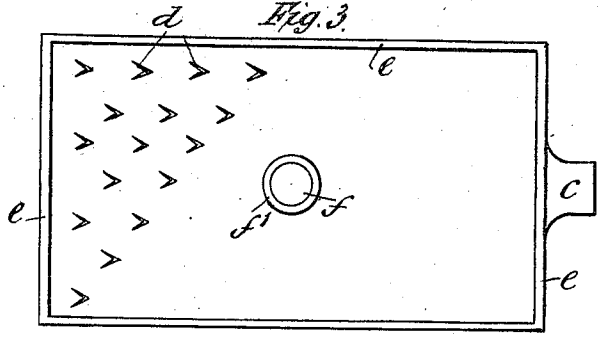
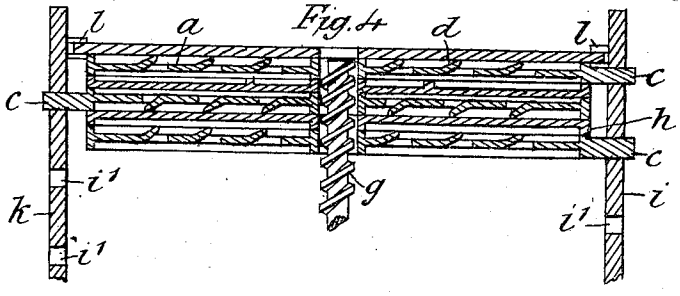


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

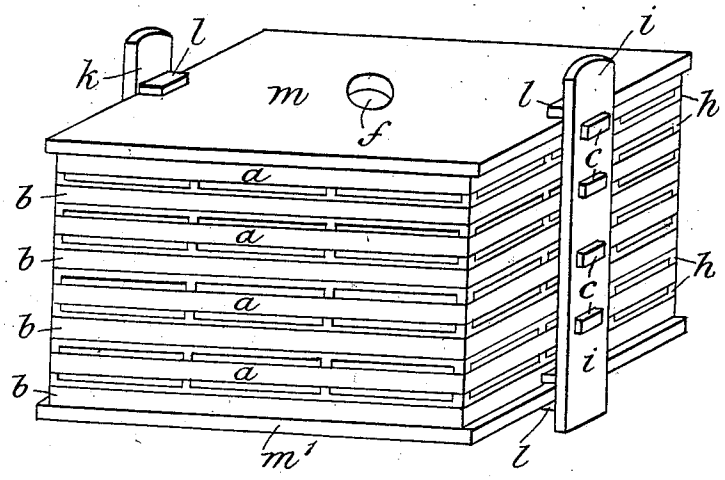


Fig. 6.

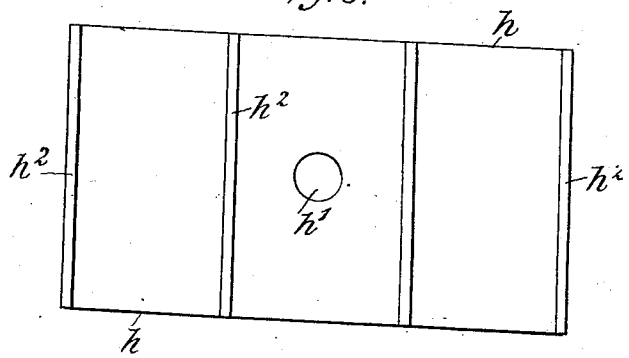
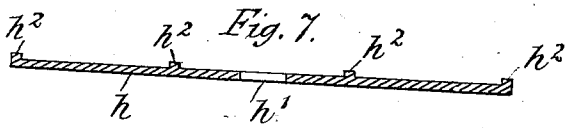


Fig. 7.



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UNITED STATES PATENT OFFICE.

QUINTIN MARINO AND EDWARD WILLIAM BARTON-WRIGHT, OF LONDON, ENGLAND.

ELECTRIC ACCUMULATOR.

No. 873,132. Specification of Letters Patent. Patented Dec. 10, 1907.

Application filed December 17, 1906. Serial No. 348,234.

To all whom it may concern:

Be it known that we, QUINTIN MARINO, engineer, residing at 28 Montague street, Russell Square, W. C., in the county of London, England, and EDWARD WILLIAM BARTON-WRIGHT, engineer, residing at 1 Albermarle street, Piccadilly, W., in the county of London, England, both subjects of the King of Great Britain and Ireland, have invented certain new and useful Improvements in the Construction of Electric Accumulators, of which the following is a specification.

This invention has for its object the construction of electric accumulators and is especially applicable to accumulator batteries where plates and fibers of treated wood in connection with the same are employed.

According to the said invention each positive and negative plate of the accumulator is formed of a sheet of lead provided with a terminal and having its faces roughened or serrated, the said faces or surfaces of the plates being recessed or formed with raised edges to provide receptacles in which the active material is spread and compressed. Each plate is formed with one or more holes in alinement with each other and the edges of which are likewise raised. In order to insure the escape of the expanded gas which may have been produced, an Archimedean or similar screw rod is passed through the hole or holes in the plates, the same being formed of wood or other non-conductor. The positive and negative plates are arranged horizontally and alternately one above the other in such manner that on one side of the element the terminals of all the positive plates are situated, and upon the opposite side the terminals of the negative plates are situated. Each positive and negative plate is separated by a plate of wood of about one millimeter in thickness, which wood is specially treated, and is of similar dimensions to the lead plate and perforated with an equal number of holes. The two surfaces of each wooden plate are lined with a layer of wood fibers, previously specially treated, so that the active material comes into contact only with the fibers, each lead plate being situated between two wooden plates covered with such fibers, or instead of using the said fibers the surfaces of the wooden plates may be formed with cross ridges or ribs thus allowing spaces between the lead plates and the wooden plates for the passage or flow of the active material or existing liquid.

The terminals of the plates of the same nature are connected with each other by a vertical leaden rod or plate to which they are soldered, the said rods or plates being provided with two projections at the top and bottom between which are supported ebonite plates for insuring the tightness, strength and compactness of the element or series of plates forming the accumulator. And in order to more fully describe our said invention reference is had to the accompanying drawings in which

Figure 1 is a side elevation of the upper portion of one of our improved accumulators, Fig. 2 is a longitudinal section of one of the lead plates, and Fig. 3 is a plan of the same. Fig. 4 is a sectional elevation of the upper portion of the accumulator. Fig. 5 is an elevation in perspective of a complete accumulator. Fig. 6 is a plan of one of the wooden plates, and Fig. 7 is a longitudinal section of the same.

a are the positive lead plates and *b* are the negative plates.

c are the terminals projecting from the center of each plate on one side thereof and *d* are the roughened surfaces of the plates which may be produced by cutting and bending outwards small portions of the same to triangular or other shapes on each side of the plate as partly shown in Fig. 3, or circular holes may be punched through the plate leaving rough or blurred edges projecting from the faces.

e are the raised edges on each side of the plate for forming a receptacle for receiving the active material spread and compressed therein.

f is a hole passing through the center of each plate, the edges *f'* of which project beyond the faces.

g is the Archimedean or other screw rod, formed of wood or other non-conducting material, and passing through the central hole *f* of each of the plates. This screw enables any expanded gas, which may have been produced, to escape, and it also carries away or receives any of the active material which may have passed down the hole *f* from any of the plates, the said screw being capable of removal for cleaning purposes or the like.

h are the plates of treated wood perforated with a hole *h'* in line with the hole *f* in the plates and formed on one face with ribs h^2. The plates *h* are placed between each posi-

tive and negative plate, the ribbed faces bearing against the positive plates and the plain faces bearing against the negative plates, thus permitting of a freer circulation of the electrolyte between them and the positive plates than that between them and the negative plates.

Instead of forming the wooden plates with the ribs h^2 the two surfaces may be lined with a layer of wood fibers, previously treated, so that the exciting liquid comes into contact only with said fibers.

The terminals of the positive plates and the terminals of the negative plates are connected to each other respectively by the vertical leaden rod or plate i on one side of the accumulator and the rod or plate k on the other side of the same. For this purpose the terminals c pass respectively through slots i' formed in the rods or plates i and k to which the said terminals are soldered.

The upper and lower ends of the rods or plates i and k are provided with two projections or flanges l between which are held and supported an ebonite plate m at the top and an ebonite plate m' at the bottom of the accumulator for insuring the tightness, strength and compactness of the same.

By means of our invention plates of any desired shape or size may be used in the construction of accumulator batteries owing to the horizontal position of the plates.

Having now fully described the nature of our said invention, what we claim and desire to secure by Letters Patent is:—

In electric accumulators having the positive and negative plates supported horizontally and alternately one above the other, the combination therewith of separating boards of specially treated wood placed between the said plates and lined on each side with a layer of specially treated wood fibers, a hole or holes, formed in each plate and board in line with each other, a raised rim forming the edge of each hole so as to provide a continuous passage or tube running vertically through the said plates and boards, and a vertical screw-threaded rod fitted within and passing through each of the said passages or tubes for effecting the escape of the expanded gases, substantially as described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

QUINTIN MARINO.
EDWARD WILLIAM BARTON-WRIGHT.

Witnesses:
FREDERICK MICAH MELLOR,
JOHN JAMES RAWLEY.