No. 700,598. Patented May 20, 1902.

M. M. BAIR.

PRIMARY BATTERY.

(Application filed Mar. 21, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

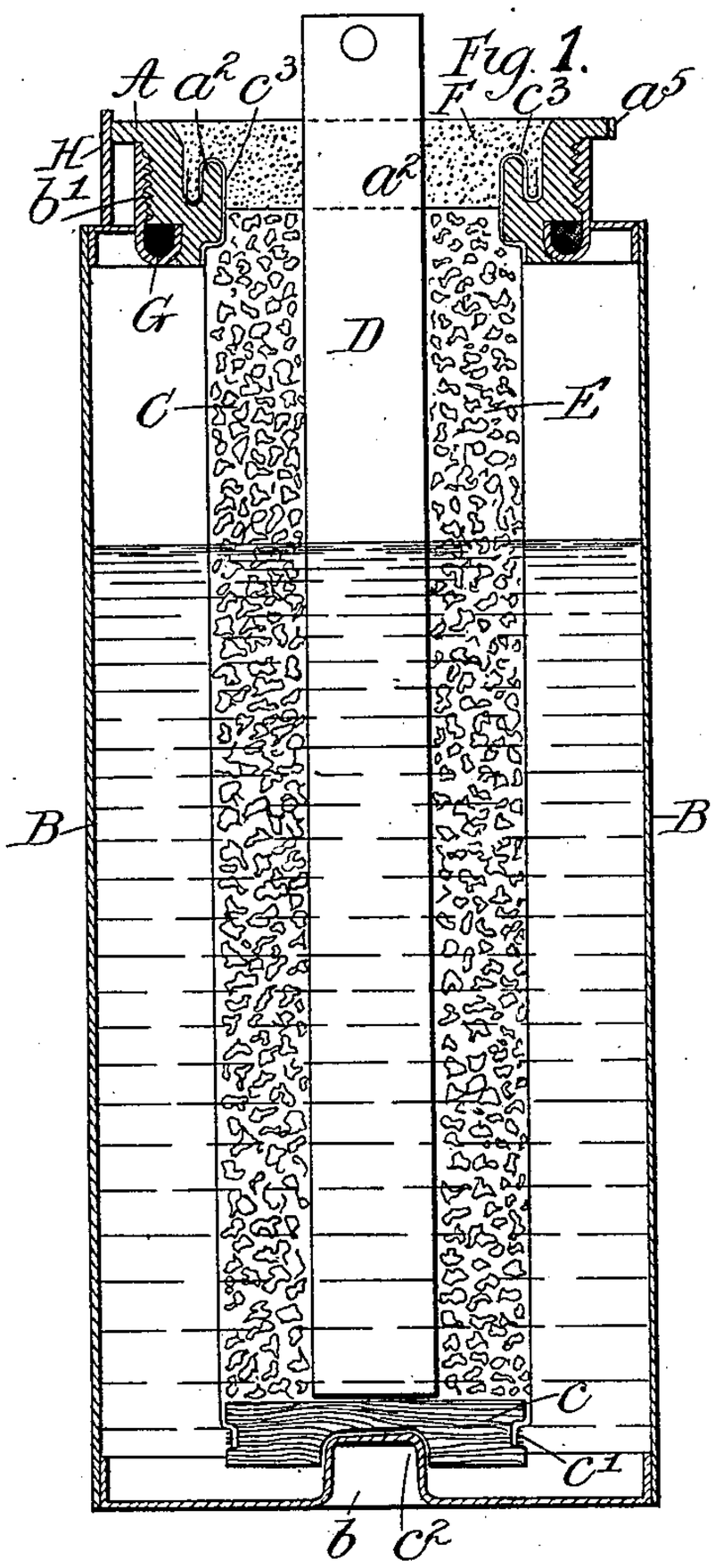
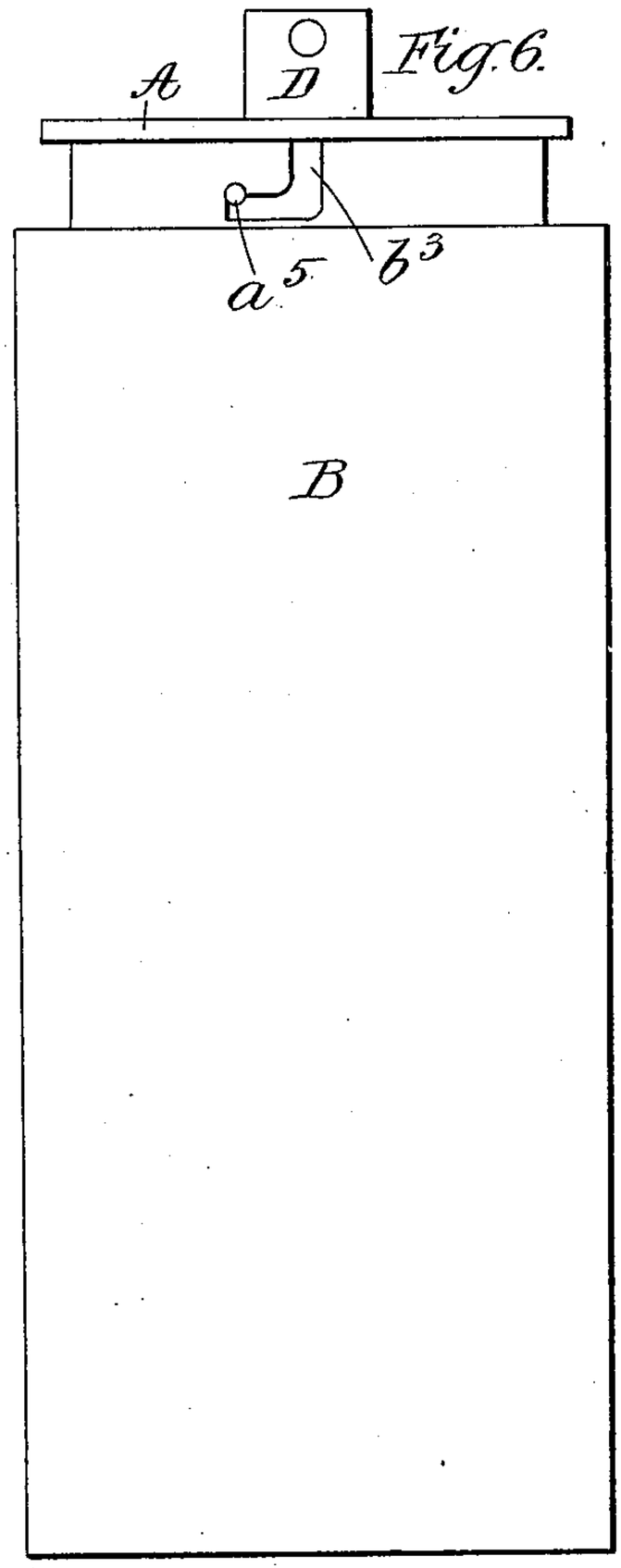


Fig. 6.



Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

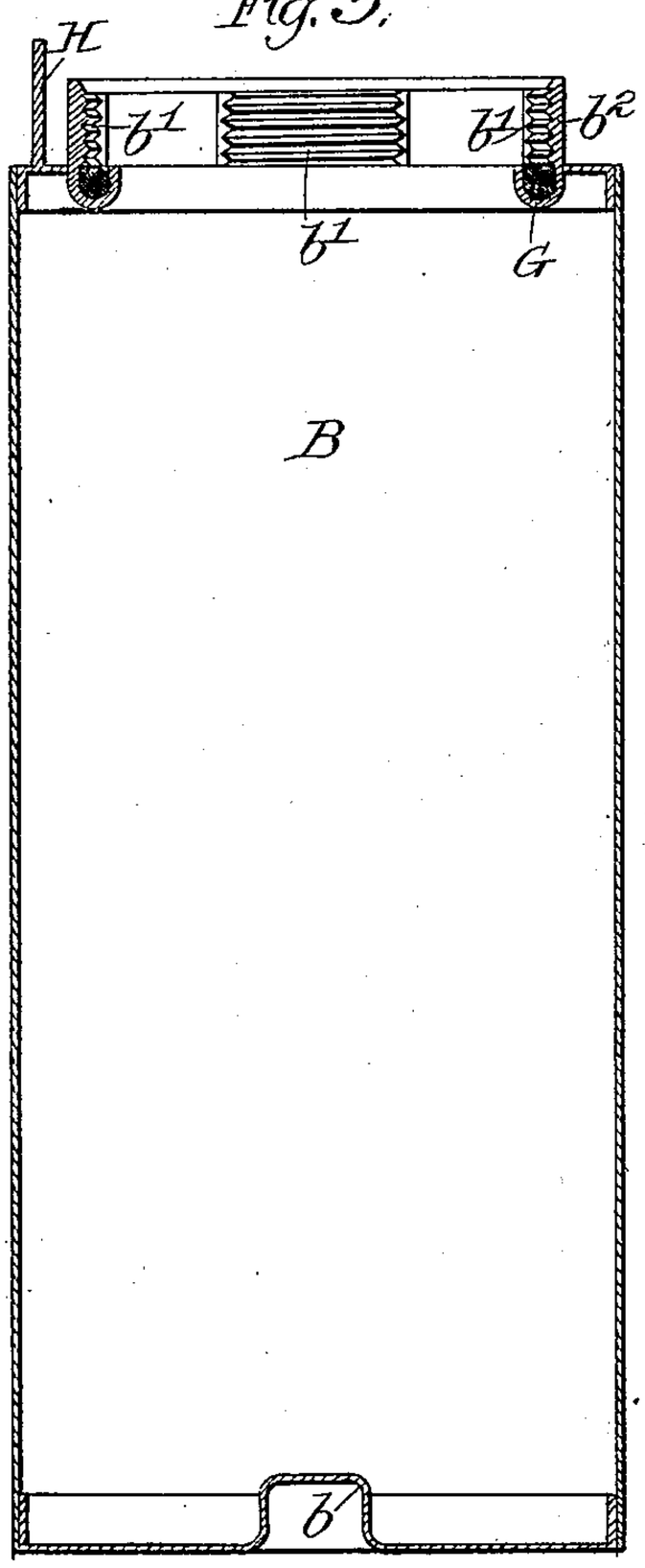


Fig. 4.

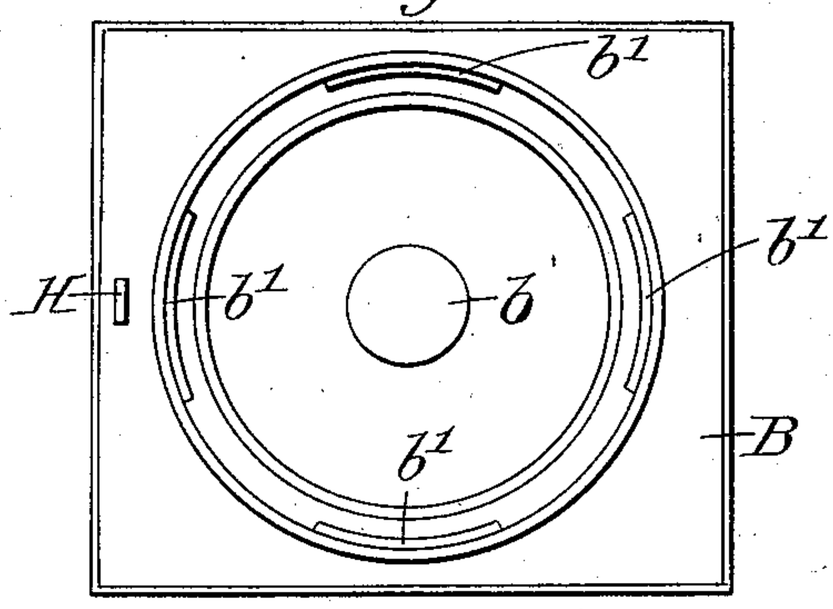


Fig. 5.

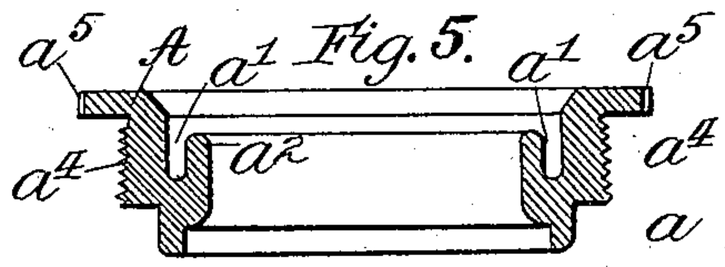
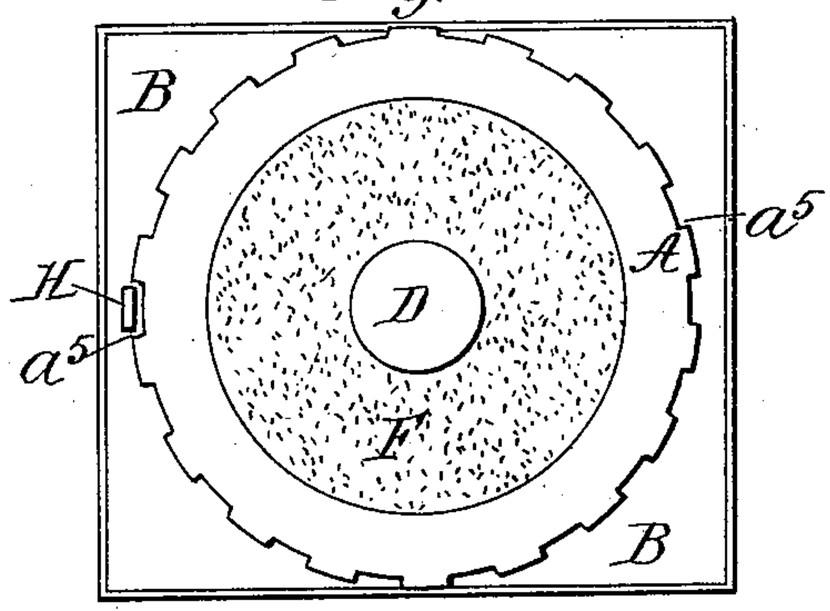


Fig. 2.



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UNITED STATES PATENT OFFICE.

MICHAEL MARTIN BAIR, OF LEVALLOIS-PERRET, FRANCE, ASSIGNOR TO SOCIÉTÉ ANONYME LE CARBONE, OF LEVALLOIS-PERRET, NEAR PARIS, FRANCE.

PRIMARY BATTERY.

SPECIFICATION forming part of Letters Patent No. 700,598, dated May 20, 1902.

Application filed March 21, 1901. Serial No. 52,199. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MARTIN BAIR, carbon-manufacturer, a subject of the German Emperor, residing at 33 Rue de Lorraine, Levallois-Perret, near Paris, in the Republic of France, have invented certain new and useful Improvements Relating to Galvanic Cells or Batteries, of which the following is a specification.

This invention relates to galvanic cells or batteries of the kind that are hermetically sealed and intended for use with motor-vehicles. Hitherto cells or batteries of this class have been so constructed that when once hermetically sealed they cannot be again conveniently opened to enable the constituent elements to be taken apart for the purpose of recharging the cells when they become exhausted and be hermetically sealed again.

It is the chief object of my invention to so construct the cells that they can be readily opened and the constituent elements taken apart and after recharging can be equally readily put together and closed again.

According to my invention I provide the cell with a detachable lid or cover, so arranged that it can be secured to the outer vessel of the cell or to the outer vessel and the porous chamber of the cell by any suitable connection, such as screw-threads, clamps, catches, or other means that will firmly maintain the said lid or cover hermetically in place and yet permit of its ready detachment.

Referring to the drawings, Figure 1 is a vertical section of a cell constructed according to my invention. Fig. 2 is a plan thereof. Fig. 3 is a vertical section of the outer vessel. Fig. 4 is a plan of said vessel. Fig. 5 is a sectional elevation of the lid or cover of the cell, and Fig. 6 is a side elevation of a modified construction of cell.

A is the detachable lid or cover, B the outer vessel, and C the inner vessel. The inner vessel preferably comprises a canvas or other suitable porous bag or chamber C, containing one of the electrodes D of the cell and a polarizing mixture E, consisting, preferably, of manganese dioxid and carbon, (preferably granulated retort-carbon.) The said porous bag or chamber is placed in the outer vessel B, which is preferably formed of zinc and may or may not constitute the other electrode of the cell. The bottom of the porous chamber is formed of a piece of insulating material c, connected to the walls of the chamber by means of wires c' or otherwise and having on its under side a groove or recess c^2, that engages with a nipple or projection b on the bottom of the outer vessel, thus insuring that the said bag or porous chamber is always maintained central with respect to the outer vessel. The electrolyte employed consists, preferably, of ammonium chlorid. The outer frame of the lid or cover A comprises a ring a, of ebonite or other suitable insulating material, provided with an annular recess a', with which the upper edge c^3 of the porous chamber engages by being doubled over a lip a^2 of said recess and is secured in position by means of paraffin-wax and black wax or other suitable insulating material F. The said ring is provided on its outer circumference with an interrupted screw-thread a^4, which is adapted to engage with an interrupted female screw-thread b', formed in the upper part b^2 of the outer vessel.

To further insure a tight joint between the cover and the outer vessel, a collar b^2 on the said outer vessel is formed with a groove or recess, in which is placed a packing-ring G, of rubber or other suitable material, on which rests a shoulder or flange a^3 on the cover.

The cover or lid is retained in its engaged position with the outer vessel by means of a spring-clip H, that engages with notches a^5 on the outer periphery of the said lid or cover, or the said cover and the outer vessel may be hermetically sealed or joined together by any other suitable means which will permit them to be readily taken apart when required and the cell recharged without injury to any of the parts.

In the modified construction of cell shown in Fig. 6 the upper part of the outer vessel is provided with two or more angular slots b^3, with which pins or projections a^5 on the top or cover engage, forming a bayonet-joint, to retain the said lid and outer vessel in proper position.

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

1. In a galvanic cell, the combination with the inner vessel of a cover having an internal annular recess adapted to receive the edge of said inner vessel, said cover moreover comprising an external annular frame, having an internal lip thereon over which said edge can be folded, and insulating binding material for securing said inner vessel within said annular frame, substantially as described.

2. In a galvanic cell, the combination of a detachable cover, the inner porous vessel connected to said cell, of a collar on the upper part of the casing of the cell, of an interrupted screw-thread on said collar, of a ring on said cover, of an interrupted screw-thread on said ring adapted to engage with the aforesaid screw-thread on the collar, of a packing-ring carried by said collar, of a shoulder on said cover adapted to bear against said packing-ring, and of means for retaining the interrupted screw-threaded ring in its closed position, substantially as and for the purpose specified.

3. In a galvanic cell, the combination of a detachable cover, an internal lip thereon, an inner porous vessel or chamber in the form of a canvas sack or casing containing one of the electrodes, means for tightly securing the upper part of said sack or casing to the lip on the cover, a collar on the outer casing of the cell, of an interrupted screw-thread on said collar, a ring on said cover, an interrupted screw-thread on said ring, a packing-ring carried by said collar and a shoulder on said cover adapted to bear against said packing-ring, and of means for retaining the interrupted screw-threaded ring in its closed position, for the purpose specified.

4. In a galvanic cell, the combination of a detachable cover, an internal lip thereon, an inner porous vessel or chamber in the form of a canvas sack or casing containing one of the electrodes, means for tightly securing the upper part of said sack or casing to the lip on the cover, a collar on the outer casing of the cell of an interrupted screw-thread on said collar, a ring on said cover, an interrupted screw-thread on said ring, a packing-ring carried by said collar, a shoulder on said cover adapted to bear against said packing-ring, corrugations on said cover, and a clip on said outer casing of the cell adapted to engage with said corrugations, substantially as and for the purpose specified.

5. In a galvanic cell, the combination with the detachable cover, the inner porous vessel or chamber the means for securing the upper part of said porous vessel or chamber to the cover and the means for hermetically but detachably connecting the cover to the outer casing of the cell; of an internal projection on the bottom of said outer casing of the cell, and of a block of insulating material at the bottom of the inner porous vessel or chamber said block having a recess for the reception of said internal projection, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 11th day of March, 1901.

MICHAEL MARTIN BAIR.

Witnesses:

EDWARD P. MACLEAN,

ENRIQUE BAER.