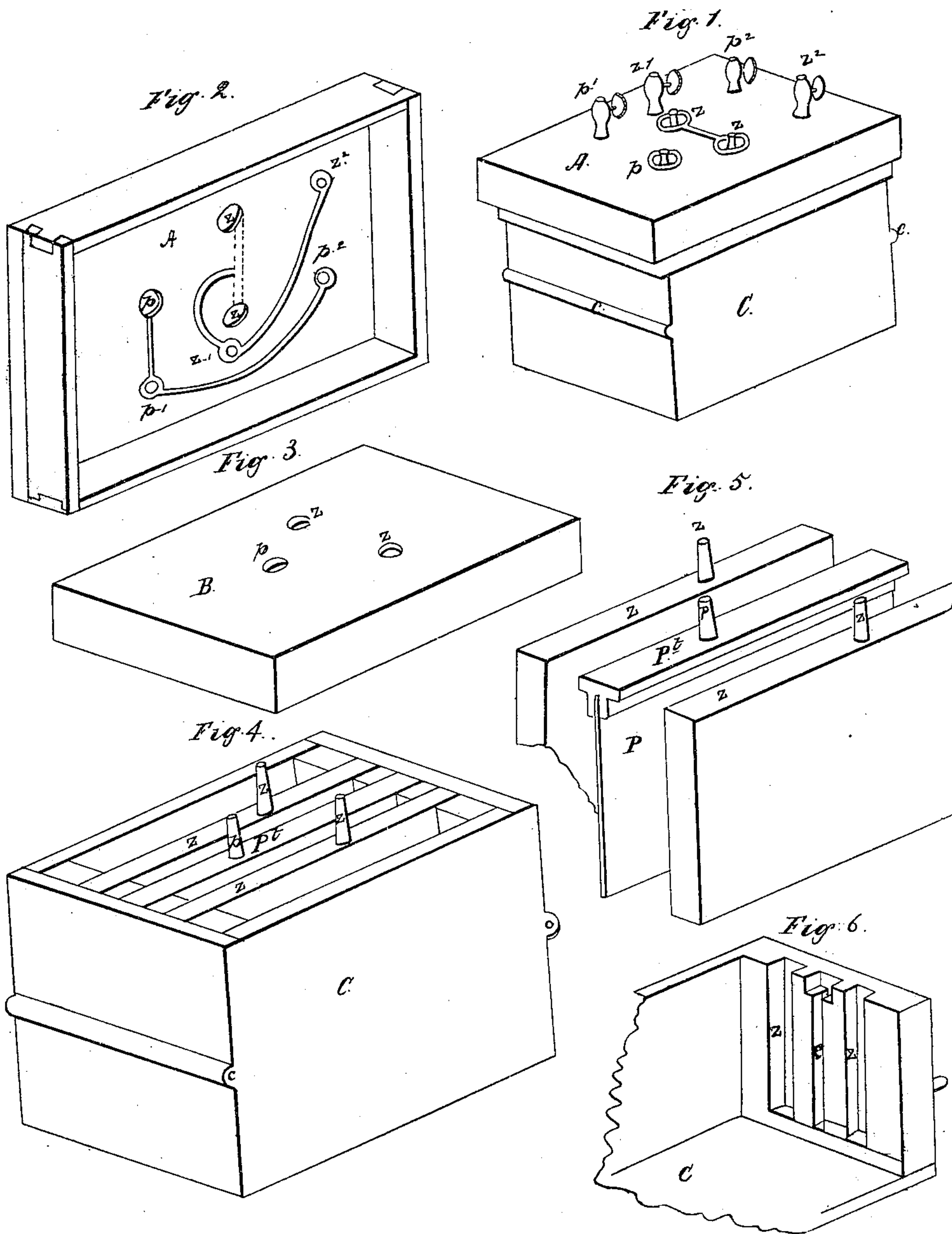


G. W. FREED.
GALVANIC BATTERY.

No. 43,014.

Patented June 7, 1864.



Witnesses:
J. B. Wiley
Jacob Stauffer

Inventor:
George W. Freed

UNITED STATES PATENT OFFICE.

GEORGE W. FREED, OF LANCASTER, PENNSYLVANIA.

IMPROVEMENT IN GALVANIC BATTERIES.

Specification forming part of Letters Patent No. 43,014, dated June 7, 1864.

To all whom it may concern:

Be it known that I, GEORGE W. FREED, medical electrician, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement on a Portable Combined Galvanic and Electro-Magnetic Battery; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the battery, showing the top A with its two pairs of connecting screw-taps, and pair of connected perforations for the zinc points and single one for the platina, having metallic linings around them, which come in contact with the several points on their respective plates of zinc and platina. Fig 2 shows the under side of the lid or top A and manner of the connections between the lined perforations and screw-taps on top by means of copper wires. Fig. 3 is a cap, B, of gutta-percha or its equivalent, fitting over the box or vessel C, Fig. 4; having perforations, as shown; Fig. 4, the box or vessel C, with the several plates in the end grooves resting on the lower ledge of said vessel. Fig. 5 shows the two zinc plates Z, with their points z , and the platina plate P, with its point p and metallic top P^t , detached from the box. Fig. 6 shows one end of the vessel C inside, (on a reduced scale, as Fig. 1,) with its grooves and lower resting-ledge for the reception of the plates Z and plate P, with its projecting top P^t .

The vessel C may be made of well-seasoned wood coated with japan or varnish, or of gutta-percha or other material, with its end grooves and bottom ledge, for the purpose specified.

The construction of the vessel C, with its end grooves and outer flanges, c , which latter are to aid in holding while removing the top, is readily understood by the drawings as already explained, as well as the manner of inserting the plates and filling in the diluted sulphuric acid in the ordinary manner, along with free quicksilver kept in the vessel to promote the uniformity of its action, requires no further explanation. The level ground top of the vessel C, with the inserted plates and projecting tips and dilute acid in place, is now

covered with the gutta-percha cap B, fitting tightly on the box and over its sides and ends and around the projecting plate-points, preventing all possibility of spilling the acid or its evaporation. The top A, with its several parts, as described, is then pressed down over the cap B and box or vessel C. The intervening cap B also prevents all contact between its wires (or their connections with the taps and metallic rings) and acid or vessel C.

The advantages obtained by this arrangement are important. It is truly a portable battery, which can be handled in any manner whatever without spilling the acid or dribbling from the plates in removing the acid into a bottle and replacing it again when required, to the great injury of the clothing, carpets, &c. The physician can arrange his battery in the morning and treat his patients all the day, and readily take his battery to the patient in cases of apoplexy, spasmodic affections, &c. The ledge in the grooves keeps the plates from the bottom of the vessel, thereby affording a free circulation from the zinc to the platina, and being equidistant in their fixed position in the grooves, the current is more uniform. As the zinc plates are more rapidly decomposed on that side facing the platina, causing an irregular surface in the plates, as also irregularity in currents produced, the ease with which the change of the plates can be made by reversing them so as to restore their equal action is of great advantage. The charged battery is more durable in its action, as no waste arises from evaporation, no oxidation of the wires or taps from its fumes by the intervention of the air-tight cap saving the labor of constant cleaning, in addition to its other numerous advantages, and is easily cleaned, when absolutely necessary from a long-continued use, by each plate being separate and easily lifted from its groove, in which it fits closely.

To obtain a purely galvanic current the end screw-taps, p^2 and z^2 , are used for attaching the wires for an electro-magnetic current. The side screw-taps, p' and k' , are connected with any helix now in use for such or similar purposes.

This battery may be in closed in a box containing a helix in a separate compartment as some glass vessels, with the plates fastened to a

top cross-piece and suspended in the acid contained in the vessel, are in use in connection with a helix in the same box, but exceedingly objectionable, as they are only portable by first removing the acid, to say nothing of the consequences resulting by such waste and spilling of the acid even with care. This battery can be used singly, or any number of them connected together, so as to obtain a galvanic current of any strength, quantity, or intensity desired, and would thus form a desirable arrangement for telegraph-operators, especially when operating between stations or in camps, on the field or march.

I am aware that the plates employed, acid, wires, and connections, with or without a helix are not new, nor do I claim such as any part of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The vessel C, with its grooves $Z p z$ in each end, bottom ledge, and end hold, c , when

constructed in the manner and for the purpose specified.

2. The projecting points $z p z$ on the plates, each plate set separately in its groove, in combination with the cap B, made of gutta-percha or its equivalent, applied in the manner and for the purpose specified.

3. The cover or lid A, with its one or two pairs of screw-taps, $p' z'$ and $p^2 z^2$, and perforations for the plate-points p and $z z$, the latter pair connected by a band above and wire beneath, which points come in contact with the metallic rings, and connected with their respective screw-taps, as shown, all arranged substantially in the manner specified.

4. The covering or cap B, made of gutta-percha or its equivalent, substantially in the manner and for the purpose specified.

GEORGE W. FREED.

Witnesses:

WM. B. WILEY,
JACOB STAUFFER.