

A. C. GARRATT,  
Galvanic Battery.

No. 79,567.

Patented July 7, 1868,

Fig. 1.

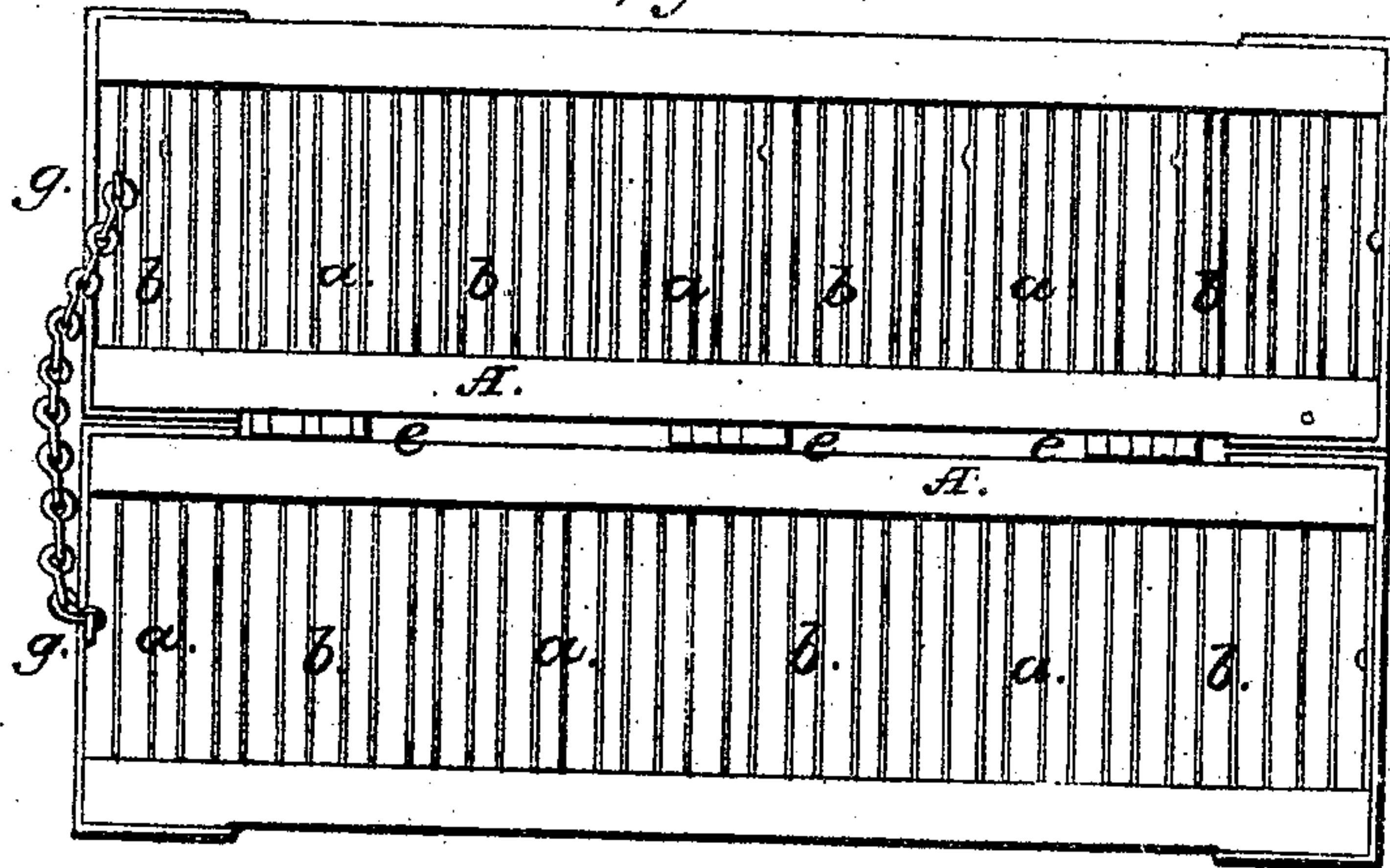


Fig. 2.



Fig. 3.

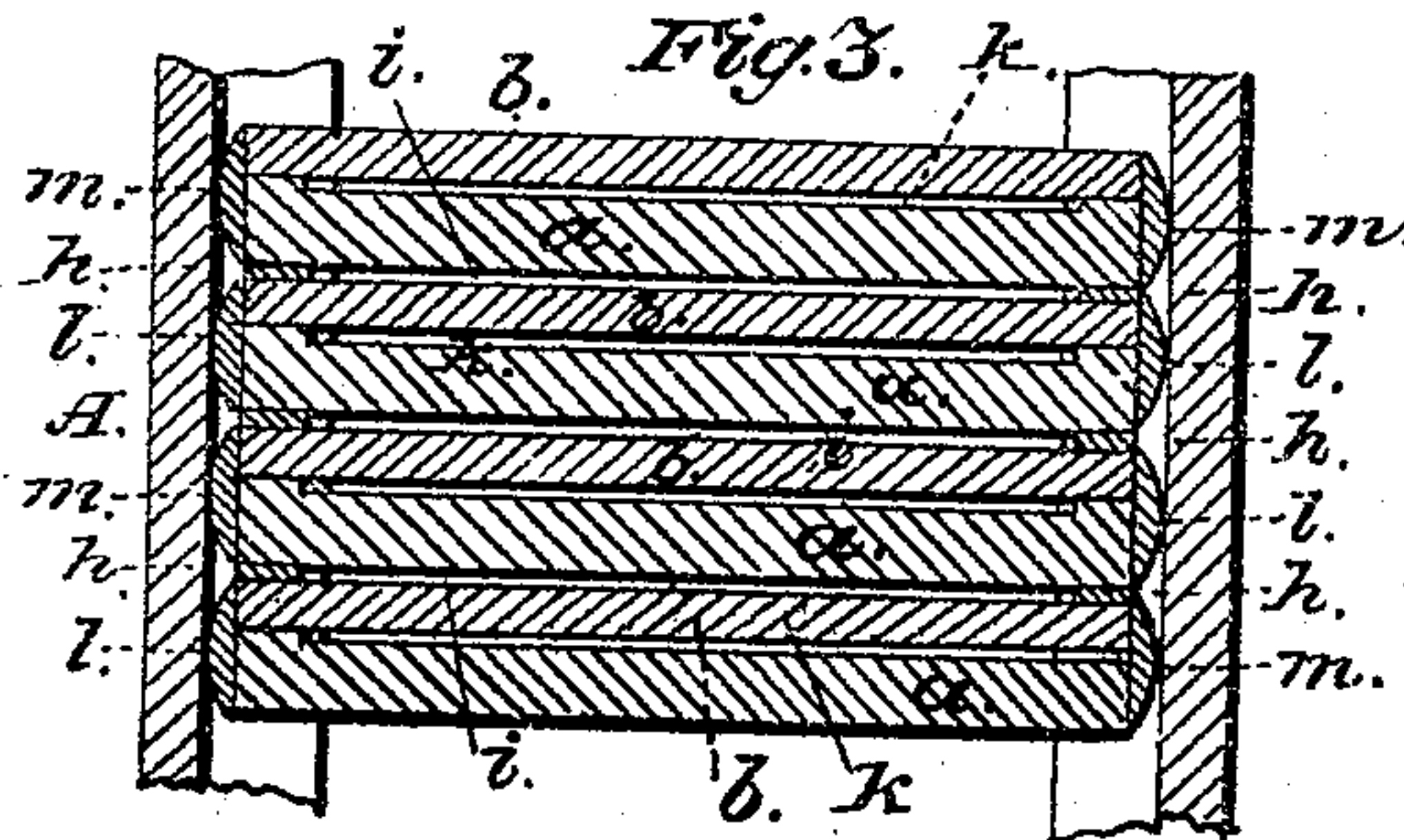


Fig. 4.



Fig. 5.



Witnesses:  
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Alfred C. Garratt  
by his attorney.  
R. H. Eddy.



# United States Patent Office.

ALFRED C. GARRATT, OF BOSTON, MASSACHUSETTS.

*Letters Patent No. 79,567, dated July 7, 1868.*

## IMPROVEMENT IN GALVANIC BATTERIES.

*The Schedule referred to in these Letters Patent and making part of the same.*

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, ALFRED C. GARRATT, of Boston, in the county of Suffolk, and State of Massachusetts, have made a new and useful Invention having Reference to Batteries for the Generation of Electricity through the action of an acid on two different metals; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is an elevation of one of my improved batteries as open.

Figure 2 is a transverse section of it.

Figure 3 is a section exhibiting the arrangement of its metallic bars and insulators.

Figure 4 is a side view of one of the zinc bars.

Figure 5 is a side view of one of the copper or yellow-metal bars of the series of bars in each of the frames.

The battery improved by me is designed chiefly for the convenience of medical practitioners in the production of electrical currents for curative or other purposes, it not, however, being limited thereto, as it often may be usefully employed in other duties.

In some respects it may be said to contain one or more improvements with reference to the battery on which Letters Patent, No. 72,628, were granted to me on December 24, A. D. 1867.

My present or improved battery is one of great durability and power, of little expense, and simple in its construction, is easily cleaned, and is ready for use with little preparation or delay, and when not in use is free from destructive acids. The ordinary combination and arrangement of sheets or disks of metals and cloths of the "voltaic pile" is well known. I therefore disclaim such.

The nature of my invention consists principally in a new arrangement of the metallic bars and their insulators; also, in the combination of two or more series of bars by hinging their frames together, and connecting the two series by a chain or flexible connection, the same being so as to enable the series, with its frames, to be folded upon one another in a convenient manner for package and transportation.

Each bar of the series may be rectangular, or it may have any other suitable form in its transverse section. Each series is composed of bars of zinc and copper, or yellow metal, arranged alternately, the same being as shown in the drawings, in which—

*a a a* denote the bars of zinc, and *b b b* those of copper or yellow metal.

Each series is placed within the grooves of two grooved bars, *c c*, of a frame, *A*, composed of two such bars, and metallic end connections *d d*.

The two frames *A A*, I connect by hinges, arranged as shown at *e e*, in order that one may be folded down upon the other, or both be unfolded, so as to be in one plane, and I connect, by means of a metallic chain, *f*, the terminal zinc bar of one frame with the next adjacent-terminal copper or yellow-metal bar of the other frame, which may be accomplished by means of small staples, *g g*, or their equivalents, connected with, inserted in, or confined against such terminal bars.

Furthermore, instead of placing between each pair of zinc and copper or zinc and yellow-metal bars a strip of cloth, I dispense with such altogether, and simply arrange the two bars parallel and at a short distance asunder, and place between them, at or near their ends, two small insulators or blocks, *h h*, of gutta percha, glass, vulcanite, or equivalent insulating-material, leaving between these blocks and the next adjacent side of the two bars *a*, an open space, *i*, the same being as shown in fig. 3.

Each pair of the bars so arranged and insulated has a similar narrow space, *k*, between it and the next pair, the next adjacent bars of the two pairs being kept apart by tacks or metallic blocks placed between them, or, what is better, by forming one of such bars with small metallic projections or abutments, *l l*, to extend from it in manner as shown in fig. 4.

Furthermore, each metallic bar so provided with abutments is to be connected by solder to the bar which rests against such abutments, the solder being applied or arranged at the ends of the two bars in manner as shown at *m m* in the drawings.



In the construction of this battery, each bar of zinc and each bar of other metal has metallic connections, as explained, and a very narrow space between the two bars. Each pair of the dissimilar bars so connected, besides being insulated from the next pair to it by insulating-media, as described, has a narrow space between it and the next pair.

In order to have the battery operate to advantage, each of these spaces must be so narrow as readily to catch and hold between them drops or portions of the exciting-liquid, when it may be spread or brushed over the series of bars, and when the bars are so arranged the battery is wonderfully increased in power, or is much more effective than a battery made with strips of cloth placed between the metallic bars in manner as represented in the specification and drawings of the patent hereinbefore mentioned. Besides this, my battery is simpler and more durable, as well as more easily cleansed. Not having the strips of cloth, it has nothing to absorb the acid, and thereby, when the battery is not wanted for use, hold it in contact with and in erosive action on the metallic bars.

I claim the said battery as constructed with the bars so arranged that there shall be a narrow open space, as described, on each side of every bar, and with the bars of each pair of dissimilar metals insulated by means as described, and the several pairs connected by metallic connections at their ends, the whole being substantially as hereinbefore explained.

I also claim the formation of one of the bars of each pair, with projections or abutments extended from it at or near its ends, such being substantially as and for the purpose described.

I also claim the combination of two batteries by hinges and a chain, or its equivalent, as described, the whole being as and for the purpose specified.

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Witnesses:

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