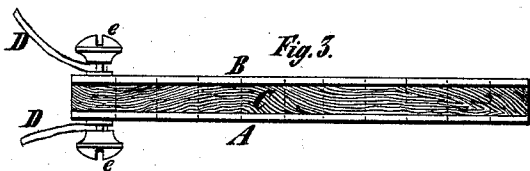
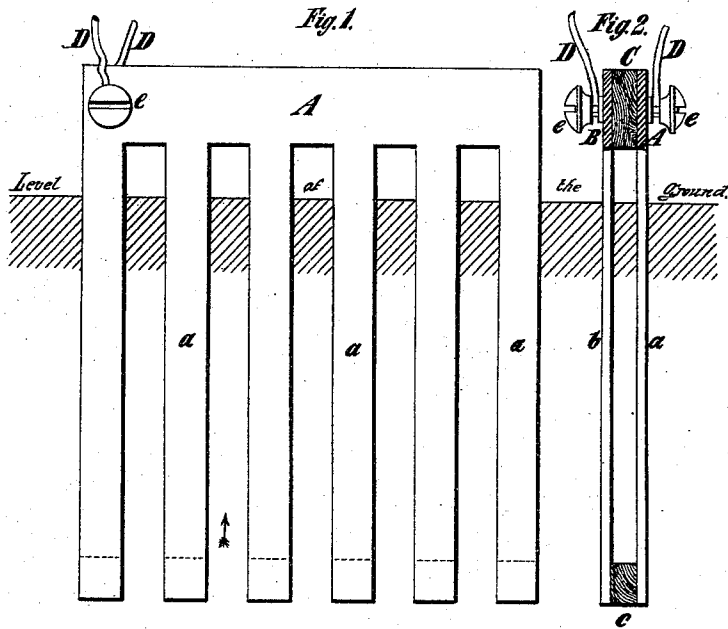


J. CERPAUX.
ELECTRIC-PILES.

No. 182,802.

Patented Oct. 3, 1876.



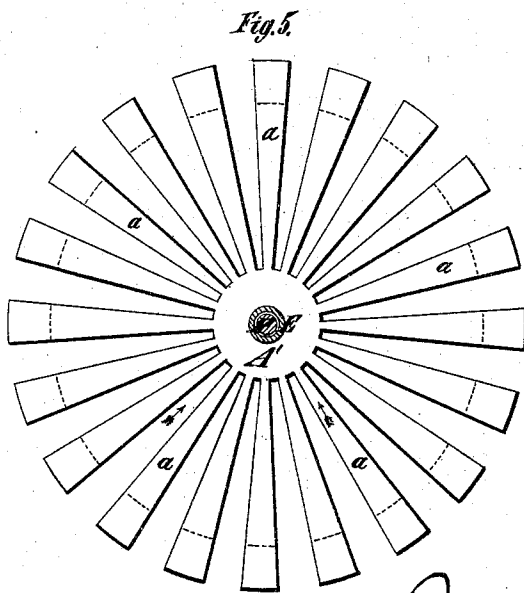
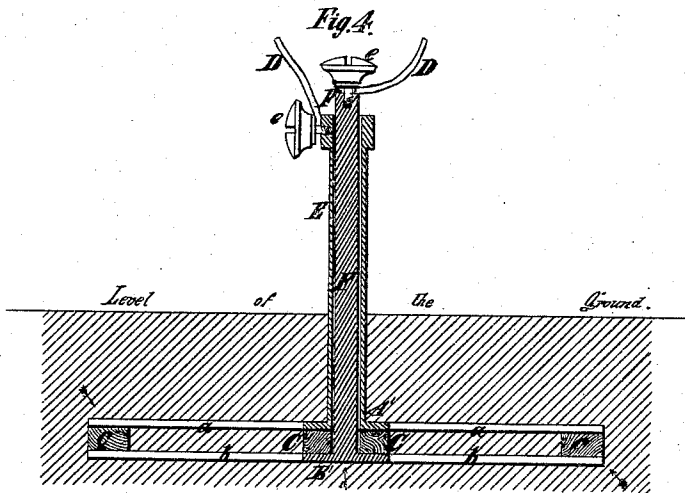
Witnesses:
 Thomas E. Birch
 Henry A. Chapin

Jules Cerpaux
 by his Attorneys,
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Fig. 6.

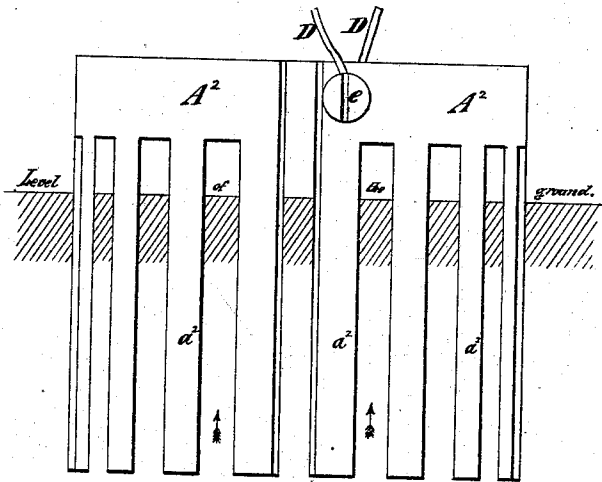
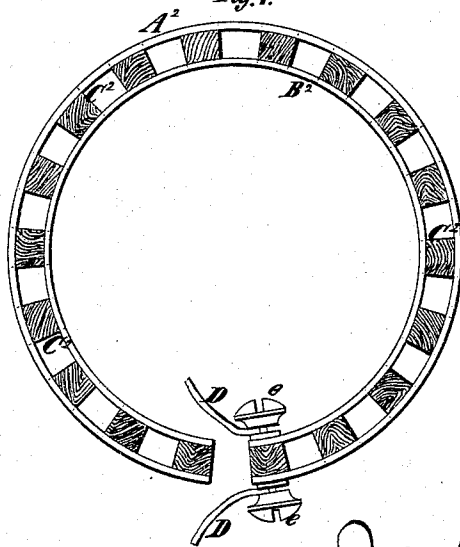


Fig. 1.



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UNITED STATES PATENT OFFICE.

JULES CERPAUX, OF SAINT JOSSETEN NOODE, BELGIUM.

IMPROVEMENT IN ELECTRIC PILES.

Specification forming part of Letters Patent No. 182,802, dated October 3, 1876; application filed March 8, 1876.

To all whom it may concern:

Be it known that I, JULES CERPAUX, of the city of Saint Josseten Noode, in the Kingdom of Belgium, have invented a new and Improved Electric Pile, of which the following is a description:

My invention consists in the combination of plates of zinc and copper, or other metals having analogous qualities, and provided with a series of teeth or blades, said plates and their blades being separated by slats and blocks of wood, or other suitable insulating material, whereby I produce a very superior electric pile, which, when inserted in moist earth or sand, as hereinafter described, generates an electric current at but slight cost.

In the accompanying drawings, Figure 1 represents an electric pile, made according to my invention, and of flat form. Fig. 2 represents a transverse vertical section thereof. Fig. 3 is a top view of the same. Fig. 4 represents another form, in vertical section, of a circular plate with radial blades. Fig. 5 is a sectional plan thereof. Fig. 6 represents a side view of another style of electric pile of annular form; and Fig. 7 is a top view of the same.

Similar letters of reference designate corresponding parts in all the figures.

Referring first to Figs. 1, 2, and 3, A and B designate two plates, which are respectively made of copper and zinc, or other metals bearing the same electrical relations to each other. They consist of flat strips with teeth or blades *a b* projecting from the lower edge. These plates are separated from each other by strips of wood C, or other insulating material, and their teeth or blades *a b* are separated by blocks *c* of the same material. Wires D, or other electrical conductors, are fastened by screw-cups *e*, or other means, to the plates A B, and may be connected at pleasure to produce the electrical circuit.

Referring now to Figs. 4 and 5, A¹ B¹ designate two circular plates, from which extend a series of radial teeth or blades, *a¹ b¹*. Like the plates A B they may be made, respectively, of copper and zinc, or other suitable metals, and they are insulated by blocks of wood or other suitable material C¹. From the plate A¹ extends a tubular shank, E, and from

the plate B¹ a rod, F, extends through, and, preferably, beyond said shank, it being insulated therefrom in any suitable manner. In this case the wires or electrical conductors are connected, one with the shank E and the other with the rod F.

Referring now to Figs. 6 and 7, A² B² designate annular or ring-shaped plates of copper and zinc, or other suitable materials, and *a²* series of teeth or blades extending from them. These plates are separated by strips of wood C², or other insulating material. Wires or electrical conductors are connected with the plates A² B² as to the plates A B.

Although I have only shown these three distinct styles of carrying out my invention, I do not intend to confine myself to them, but may make electric piles of other forms embodying the same principle, namely, the plates and insulated teeth or blades, made of metals of different electric properties.

These electric piles are inserted in moist earth or sand, or in a gaseous place, and the consequent action upon the metals produces an electric current. If urine or liquid chloride of sodium, or an analogous substance, is poured on the earth or sand where the electric pile is inserted, the action upon the metals will be stimulated, and a very intense electric current be produced, and may be intensified at will.

A very good place to insert these piles is in a urinal, cess-pool, or privy, or dung-hill, as in such a place a strong current will be constantly produced, and the necessity for supplying liquid is obviated.

It is obvious that if the pile be inserted in earth contained in a receptacle of impervious material, any stimulating liquid poured upon the same will be confined to the receptacle, and its action on the pile be of longer duration. Of course other substances or liquids may be used to stimulate the electric action.

I have mentioned the above because they are inexpensive, and enable me to produce an electric current at little or no cost except that of the pile.

The two styles of pile that I have represented in Figs. 1, 2, and 3, and in Figs. 6 and 7, have only their blades *a b* and *a² b²*, inserted in the ground, and their plates proper, A B A²

B², remaining above ground, as represented in the drawings. The pile represented in Figs. 4 and 5 has the plates A¹ B¹ and teeth or blades a¹ b¹ inserted in the ground, and the tubular shank E and rod F project above ground, as shown in the drawing.

This pile is very superior to any of which I have knowledge. It embodies in its construction a smaller amount of metal, but a far greater extent of effective surface, to produce an electric current of a given strength than any other electric pile. The pairs of blades or teeth are so far separated that the moist earth or sand will more effectively come in contact with every part of that portion of the pile which is inserted in the earth than it could possibly do if the two plates of the pile were continuous. Therefore there is a larger effective surface than if the pile were otherwise constructed. This, however, is not the

only advantage due to this construction of pile, for the plates proper, or shank and rod E F, constitute a receiver or accumulator of the electricity generated on the teeth or blades.

What I claim as my invention is—

The electric pile, consisting of plates of copper and zinc or other metals, bearing similar electric relations to each other, provided with series of teeth or blades, and insulated by strips, slats, or blocks of wood, or other suitable material, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

JULES CERPAUX.

Witnesses:

FELIX DE KERT,
A. HAUSTZ.