(No Model.)

J. M. RILEY.

ELECTRIC COMB.

No. 458,953. Patented Sept. 1, 1891.

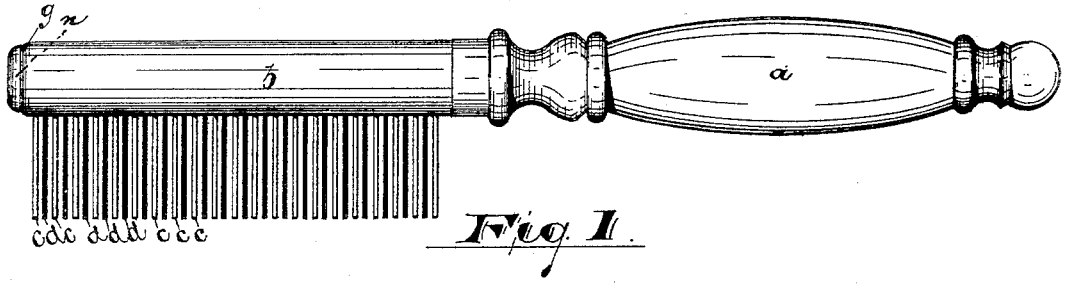

Fig. 1.

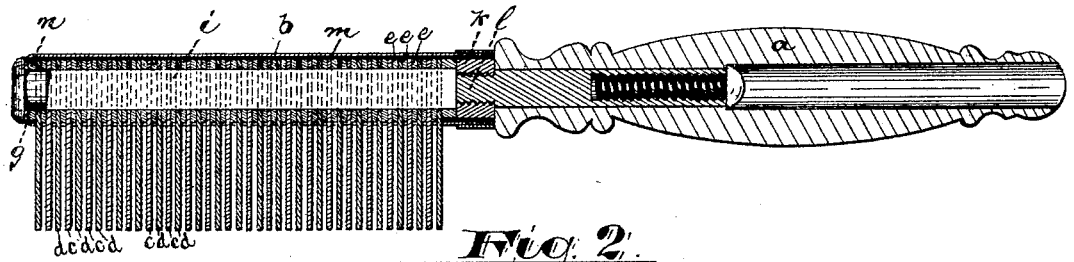

Fig. 2.

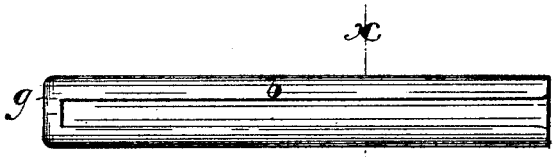

Fig. 3.

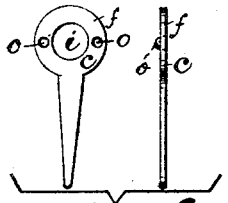

Fig. 5.

Fig. 4.

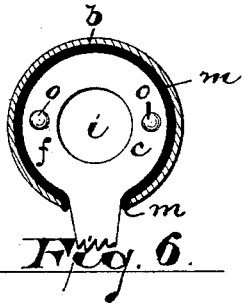

Fig. 6.

Witnesses

Oscar A. Michel.
James Wayland

Inventor:

John M. Riley,

By Drawer & Co Atty's.

UNITED STATES PATENT OFFICE.

JOHN M. RILEY, OF KEARNEY, NEW JERSEY, ASSIGNOR TO MARGARET A. RILEY, OF SAME PLACE.

ELECTRIC COMB.

SPECIFICATION forming part of Letters Patent No. 458,953, dated September 1, 1891.

Application filed June 22, 1891. Serial No. 397,063. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. RILEY, a citizen of the United States, residing at Kearney, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Electric Combs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of electric combs described and illustrated in a contemporaneous application filed May 1, 1891, Serial No. 391,289, the object of the present improvements being to render the comb less bulky and more convenient, to secure a larger chamber for the battery materials in proportion to the size of the backing, to facilitate the operation of manufacture, and reduce the cost of construction.

The invention consists in the improved electric comb and in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claims.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of the improved device. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a detail view of the tube or receptacle for the toothed plates forming the voltaic pile. Fig. 4 is a section of the same on line *x*. Fig. 5 is a detail view of said plates, and Fig. 6 shows the relation of said plates to said tube and the insulation therebetween.

In said drawings, *a* indicates the handle of the device, *b* a longitudinally-slotted tube forming a backing for the comb and providing a receptacle for the alternating copper and zinc plates *c d*, which are insulated from one another by washers *e*, of non-conducting material, and form a voltaic pile, and also the combing-teeth, all substantially as described in the contemporaneous application before referred to. In the prior device the pile of plates was held together by bolts which passed through perforations in the disk-like portions *f* of the voltaic plates. Such a construction rendered it necessary to enlarge the disks to allow for said bolts, as well as the chamber for the current-generating materials, so that the backing was rendered cumbersome in a degree. By the present improvements the bolts are dispensed with, so that the backing may be reduced in size or the chamber for the generating materials be made more capacious. To this end the tube at one extremity is turned, as at *g*, forming a centrally-open abutment or stay for the voltaic pile of plates at one end of the backing. The said plates are all centrally perforated to form the longitudinal chamber *i* for the current-generating material and are arranged within the tube, an insulating-film *m*, of celluloid, for example, being inserted between the peripheral edges of the disk-like parts and the interior walls or surfaces of the tube, so that there can be no metallic connection between the dissimilar plates of the voltaic pile. The pile is then subjected to end pressure, so that the parts are all brought into very intimate association, and are held in this relation by another abutment *k*, which is preferably formed by inserting a nut or threaded metallic piece into the end of said tube and firmly and securely fastening it there by solder or other suitable means. Into said threaded nut or piece *k* the threaded shank *l* of the handle may be screwed, and the device is then ready for the current-generating material, consisting of sal-ammoniac or other current generating material or excitant. This being introduced, the chamber is closed by a separable cap *n*, which is removable to allow the said materials within the chamber to be renewed from time to time should the same be deemed desirable.

To prevent the plates from turning in relation to one another, I prefer to indent the disk-like parts on one side thereof and form corresponding projections *o* on the opposite side, so that when pressure is brought to bear the said projections will be forced into the insulating-washers and the fiber of the latter be forced into the corresponding recesses, as will be understood.

Having thus described the invention, what I claim as new is—

1. The improved electric comb herein described, combining with a slotted tube furnishing rigid abutments at its opposite ends a series of insulated and alternating plates forming a voltaic pile, held rigidly within said tube by said abutments, substantially as and for the purposes set forth.

2. The improved electric comb herein described, combining therein a slotted tube having one end turned inward to form an abutment and a series of insulated plates pressed against said abutment and held by a co-operating abutment secured to the opposite end of the tube, the said plates being provided with combing-teeth and perforated to form a chamber for generating material, substantially as and for the purposes set forth.

3. The combination, with the slotted tube, of the dissimilar plates *c d*, having projections *o* and insulating-washers *e*, all arranged and combined substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of June, 1891.

JOHN M. RILEY.

Witnesses:
CHARLES H. PELL,
E. IGLER.