

S. NOWLAN.
Galvanic Shoe Sole.

No. 32,603.

Patented June 18, 1861.

Fig. 1

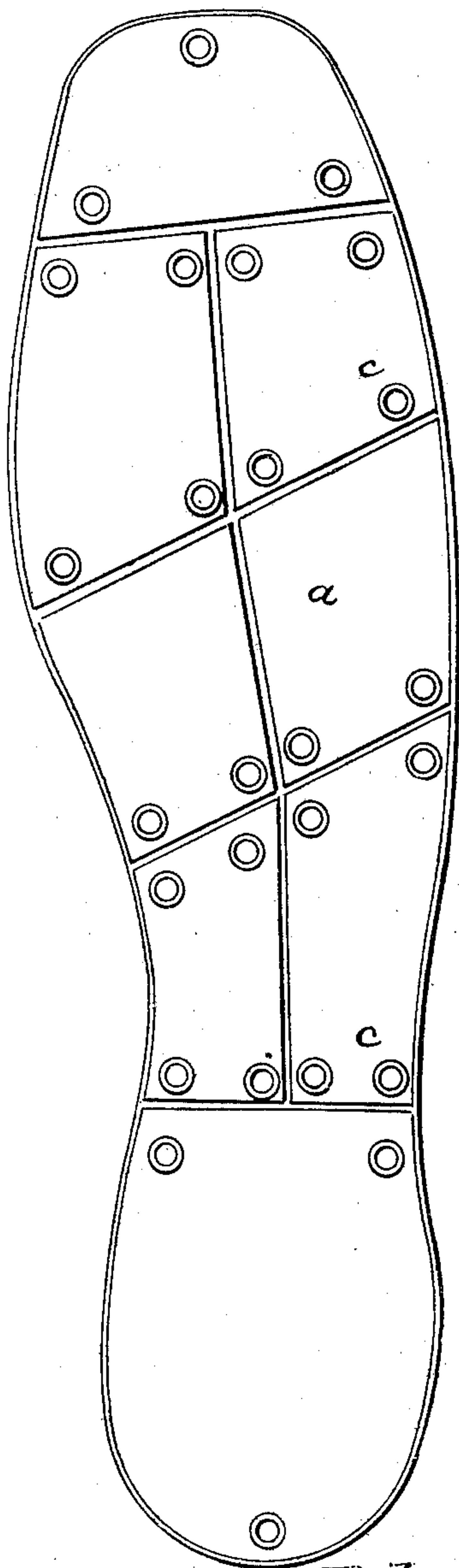
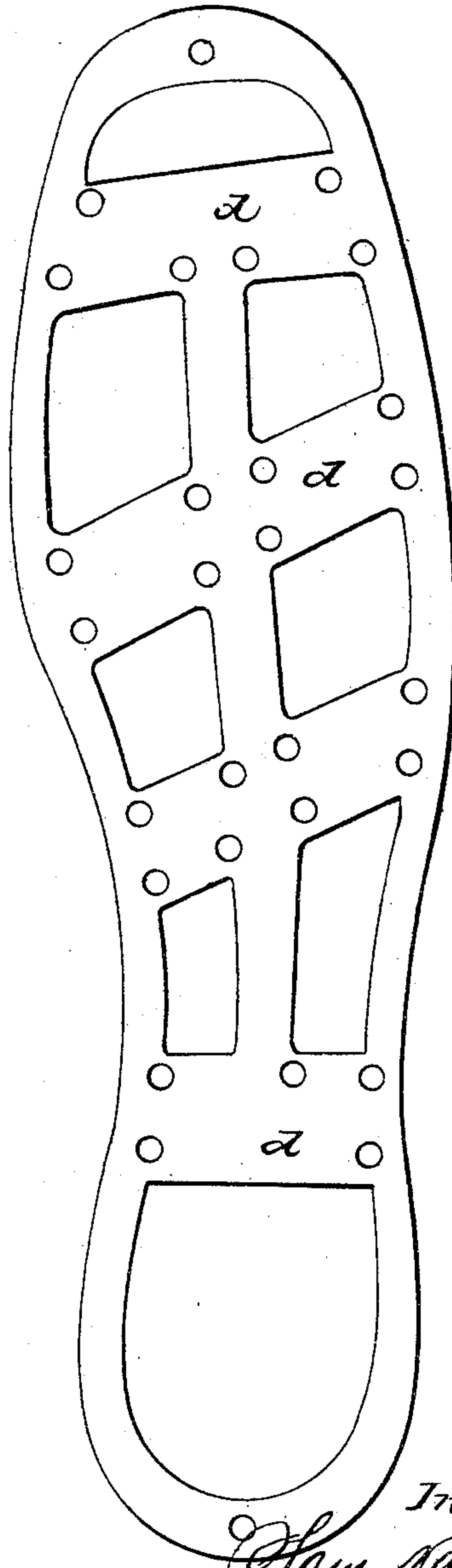


Fig. 2



Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL NOWLAN, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES METTAM & CO., OF SAME PLACE.

IMPROVEMENT IN GALVANIC SOLES.

Specification forming part of Letters Patent No. 32,603, dated June 18, 1861.

To all whom it may concern:

Be it known that I, SAMUEL NOWLAN, of New York, in the county of New York and State of New York, have invented a new and Improved Galvanic Sole for Medical Purposes, applicable as an interior fitting or lining to or of boots, shoes, and slippers; and I do hereby declare that the following, taken in connection with the accompanying drawings, that form part of this specification, is such a full and clear description thereof as to enable others skilled in contrivances to which this my improvement relates to make and use the same.

In the accompanying drawings, Figure 1 represents a plan view of the improved sole; Fig. 2, a longitudinal section thereof; and Fig. 3 a plan view of the skeleton-insulator belonging to the same detached.

One of the many applications of galvanic or voltaic electricity has been the formation of different articles of wear about the person in the shape of rings, chains, boot and shoe soles, &c., composed of copper and zinc, or their chemical equivalents or substitutes, and which, as positives and negatives in close contact or juxtaposition, develop a large or continuous amount of electricity of feeble intensity that, acting upon the nerves of the wearer, is found beneficial for various complaints or infirmities. That copper and zinc or their equivalents will, when brought in contact, establish voltaic electricity without the aid, as in the galvanic battery, of an acidulous exciting medium, is a fact beyond a doubt, and the only problem requiring solution, so far as the practicability of such to medical purposes is concerned, is, what is the best or cheapest and most efficient mode of developing or applying the same? Among the best applications of the kind have been loose or inner soles for boots and shoes, as before referred to, because these, acting on or against the feet, transmit the electricity developed by them upwardly through the body, and because the heat evolved by the contact of the positive and negative plates of said soles serves, in a gentle manner, to keep the feet warm, while the acid contained in the perspiration which exudes from the feet quickens or excites the electrical capacity of the plates; also, because positives and negatives, in the form of plates, are preferable to many or most

others, and for other reasons. To form an efficient voltaic pile, however, it is desirable to employ a multiplicity of plates or plate-sections separate at their edges from each other in preference to a single plate or plates of equal area and thickness. The galvanic soles heretofore used or proposed have been defective in this respect as well as in the binding rigidity of the same to the foot. They have, it is true, been made in two or three sections, hinged together at or near the front of the tread, to give certain pliability; but such is a very insignificant provision, or no provision at all, either as regards general pliability or multiplication and division of the plate-surfaces. This and other radical defects are obviated by my improvement, which largely enhances the value, in a working or medical capacity and in other respects, of such contrivances, as the following description will serve to explain.

Referring to the drawings, the sole is or may be made up of two negative tiers, in preference to one, with the positive in between them, or this order may be reversed. The negative or upper and lower tier of the pile is or may be formed of copper plates or sections *a a a a*, and the positive of zinc plates or sections *b b b b*, so divided and kept separate, preferably longitudinally as well as transversely of or to the sole, as to establish a multiplicity of negatives and positives with their contiguous edges exposed and breaking contact, whereby a more efficient sole-battery is produced, and so as to establish an articulated character to the sole of general pliability.

The several sections of the copper and zinc plates are or may be connected or hinged together by a flexible insulating strip or strips of, say, india-rubber or any other suitable material, united to the sectional plates by metallic or other eyelets, *c*. This makes a cheap, expeditious, and efficient mode of holding together the articulated sole formed of sections, as described; and in order to give a more united character to the whole, as well as to facilitate manufacture, I prefer to connect several or all of the sections, in the manner described, by a single insulating-strip or interposed medium, *d*, made with perforations in it, or of skeleton form or build, so as to admit of the copper and zinc plates, or rather those

sections of them which lie the one under the other, coming in contact to establish electrical action between or by said plates or plate-sections.

Having now described my improvement or improvements in galvanic boot and shoe soles, I claim—

As a new article of manufacture, the herein-described galvanic boot or shoe sole, the same consisting of copper and zinc plates united in separate relations to their contiguous sections

by means of a flexible insulating strip or strips and eyelet-fastening, substantially as described, and for the purpose set forth.

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

SAMUEL NOWLAN.

Witnesses:

A. POLLOK,
C. L. HUGHES.