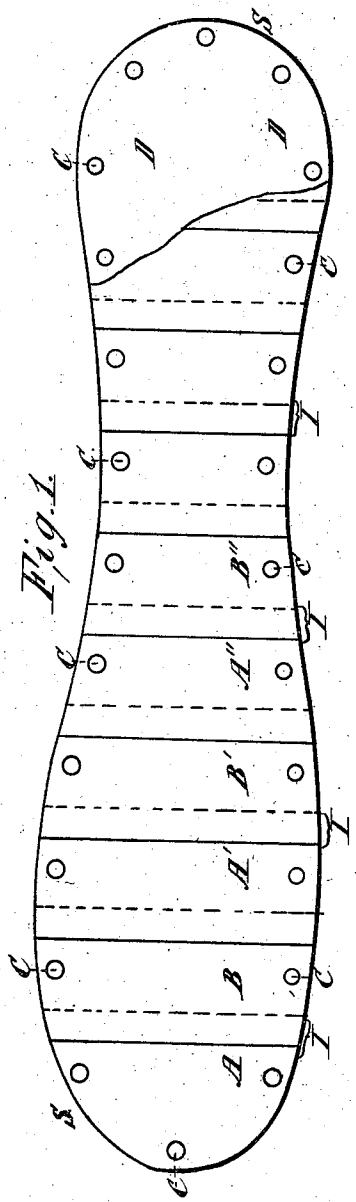
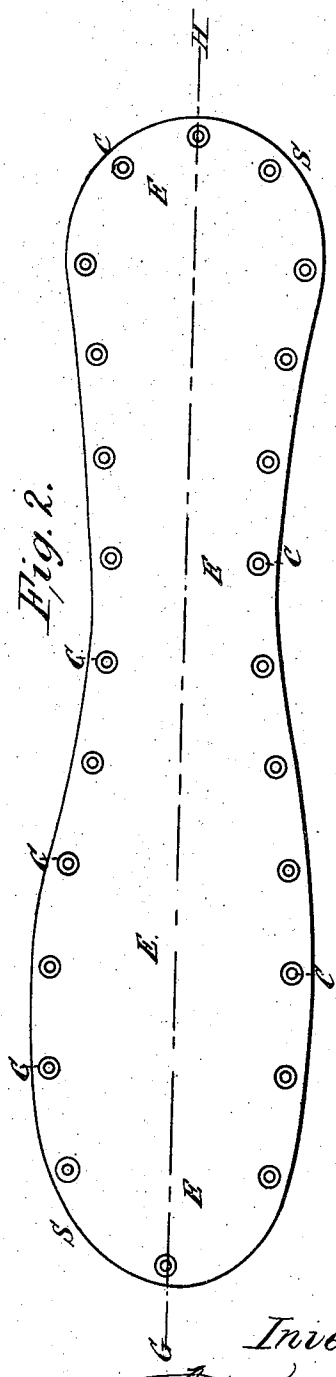
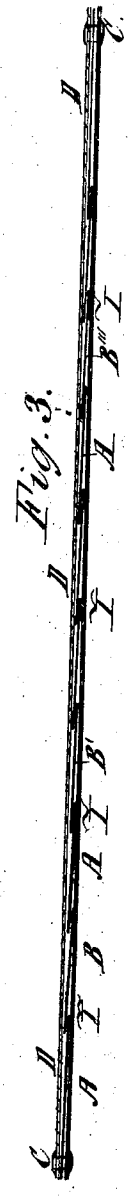
T. Hall.

Voltaic Shoe Sole.

No. 46,234. Patented Feb. 7, 1865.







Witnesses
Frank C Dodge
John M. Batchelder.

Inventor.
Thomas Hall

UNITED STATES PATENT OFFICE.

THOMAS HALL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VOLTAIC SHOE-SOLES.

Specification forming part of Letters Patent No. 46,234, dated February 7, 1865.

To all whom it may concern:

Be it known that I, THOMAS HALL, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Voltaic Shoe-Soles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

Figure I, top view of the sole; Fig. II, bottom view; Fig. III, vertical section on line G H, Fig. II.

My improvement is designed to produce a current of voltaic or galvanic electricity in or upon the upper sole of a boot or shoe, or upon a movable or inner sole, the several parts of which the sole is composed being so combined or arranged as to cause the moisture of the foot to excite or generate a current of electricity, which produces certain medical effects upon the system and communicates warmth and a healthful glow to the feet.

The sole and the attachments herein described may be made in various forms, while the main features of my invention are retained—viz., the contact or union of any two opposite metals, as zinc and copper or zinc and silver, so placed upon each other as to cause their points of contact to be kept bright and clean, and united to a sole either affixed to the boot or shoe or in the form of an inner sole that can be inserted, when required, within the shoe, and removed when it is not wanted, the foundation or flexible part of the sole being made of cork, leather, felt, cloth, or any other suitable substance.

The ordinary form of the sole is represented at S S, Figs. I and II, and a vertical section (on the line G H, Fig. II,) is shown in Fig. III.

Upon the non-conducting sole or bottom piece, E, is placed a series of metallic plates, A B, A′ B′, &c., and above these plates one or more thicknesses of cloth, D, the bottom sole, the plates, and the cloth being securely held together by the rivets C C.

The metallic plates A and B above referred to are made of two opposite metals, as zinc and copper or zinc and silver, alternating with each other, and the edge of one plate lapping over and in contact with the adjoining plate, as at I I. This lap may be about one-third of the breadth of the plate, leaving two-thirds of its breadth exposed upon the upper surface, upon which the foot rests.

It is obvious that the alternate plates of dissimilar metal (A representing the zinc and B the copper plates) thus resting upon each other form a voltaic pile, the generation of electricity depending upon the application of moisture at the junctions I I of the plates.

I find by actual experiment that the ordinary moisture or perspiration of the foot causes too violent electrical action and rapid corrosion of the plates. I therefore cover them with a thin strip of cloth, D, several layers of which are used in cases where the perspiration is profuse.

My object in placing the metallic plates in the position herein described is to insure the contact of the two metals without the intervention of oxide, a bright surface at the points of contact of the plates being constantly produced by the their motion and friction upon each other as the sole bends with the rocking movement of the foot. Each set of rivets touch but one metal, the only contact or electrical connection of the dissimilar metals being at the laps of the plates, at which point, also, the moisture is most directly applied, as before mentioned.

This differs entirely from the invention of Nowlan and others, in which the copper plates are placed upon one side of the sole and the zinc plates upon the opposite side and joined or connected to each other by a metallic conductor in the form of rivets or eyelets, the application of moisture being upon one plate only.

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

The combination of the non-conducting sole or base with a series of alternate plates of dissimilar metal lapping upon each other, so that their points of contact may be kept bright by the friction caused by the motion of the foot, and allowing the moisture or perspiration of the foot to act upon both metals at the junction of the plates.

THOMAS HALL. [L. S.]

In presence of—

FRANK C. DODGE.

JOHN M. BATCHELDER.