No. 675,292. Patented May 28, 1901.

E. E. PHINNEY.

VOLTAIC SHOE.

(Application filed Nov. 3, 1900.)

(No Model.)

Fig. 1.

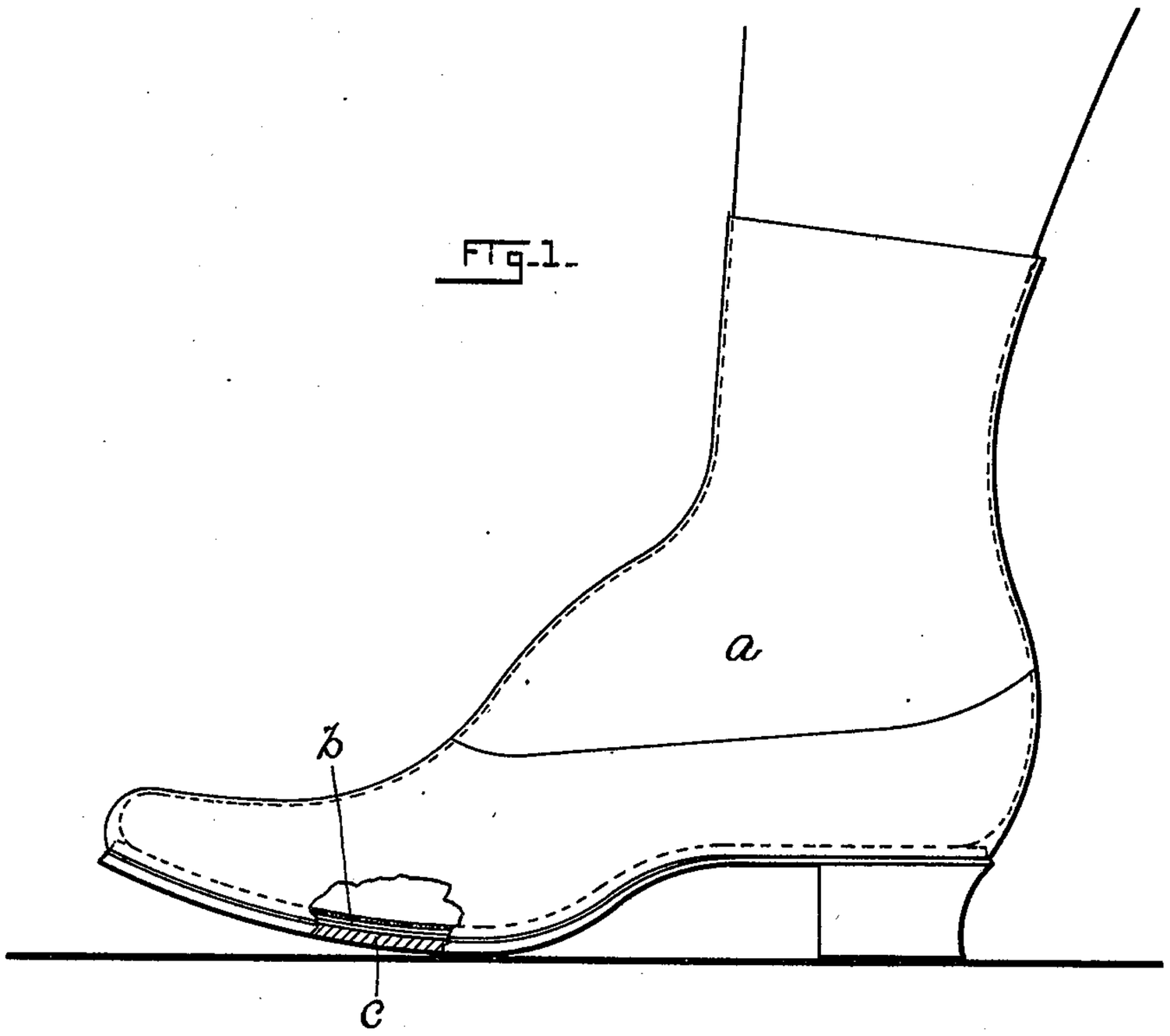


Fig. 2.

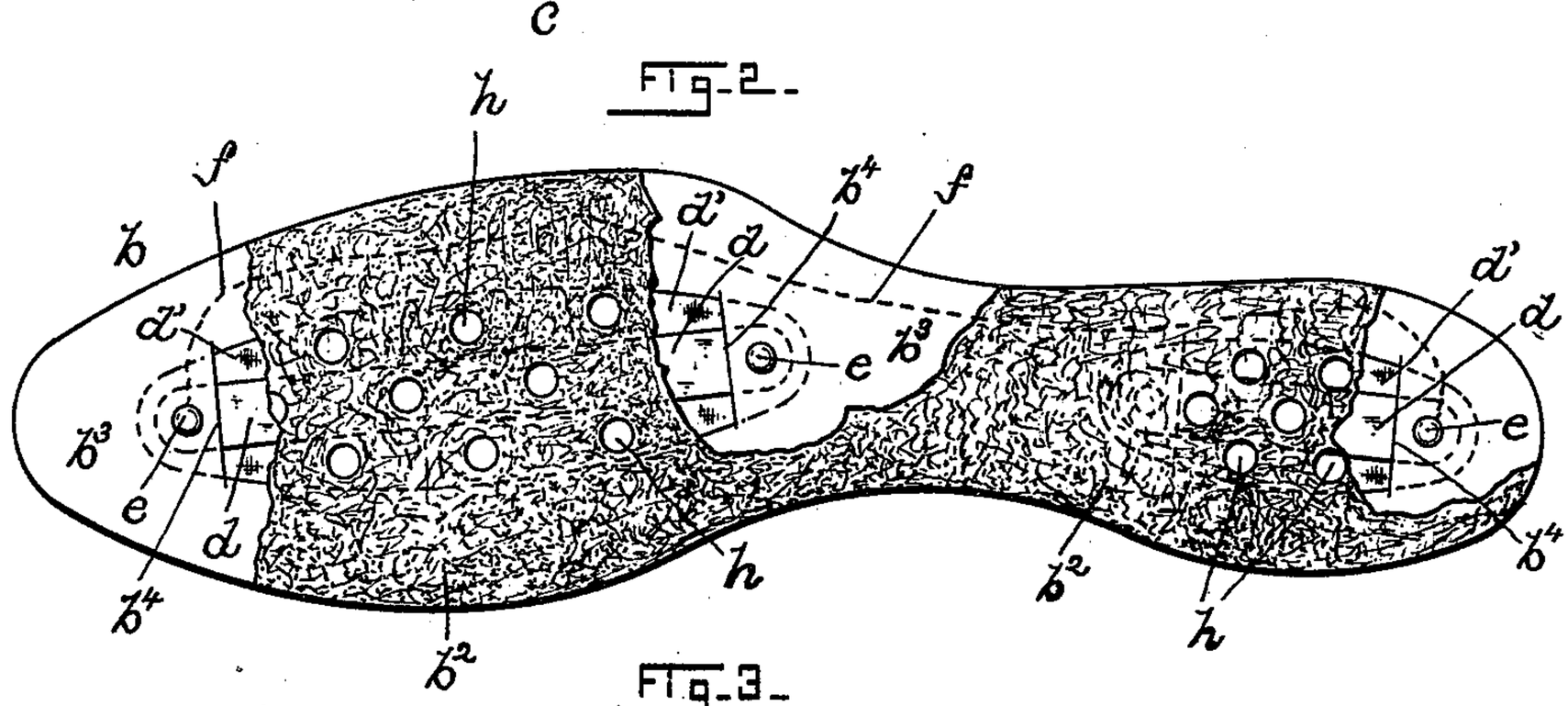
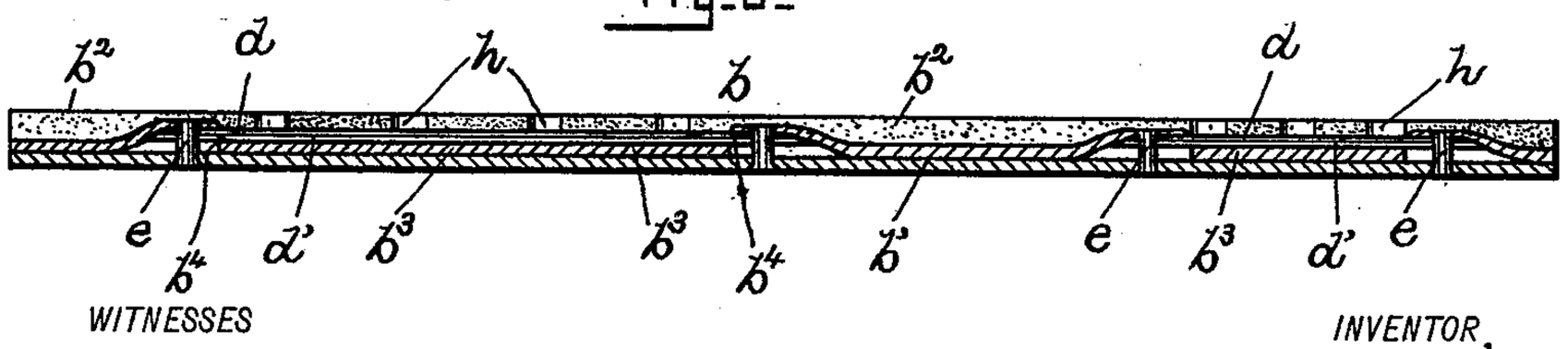


Fig. 3.



WITNESSES

Abbozott P. Luther.

Mary F. Ritchie.

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UNITED STATES PATENT OFFICE.

ELMER E. PHINNEY, OF NIANTIC, CONNECTICUT.

VOLTAIC SHOE.

SPECIFICATION forming part of Letters Patent No. 675,292, dated May 28, 1901.

Application filed November 3, 1900. Serial No. 35,359. (No model.)

To all whom it may concern:

Be it known that I, ELMER E. PHINNEY, a citizen of the United States, residing at Niantic, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Voltaic Shoes, of which the following is a full, clear, and exact description.

This invention has for its object the production of a shoe having an "electric" inner sole in which special provision is made for a more effective circulation of the electric current through the foot than has been possible in the devices used heretofore, so far as I am familiar with them, and I have also so arranged the voltaic batteries that the counter of the sole is left flexible. Heretofore it has been most common in this class of devices to provide a single voltaic pile, located in the sole and adapted to be engaged by the foot, galvanic action in a very limited degree being generated by the engagement of the warm moist foot with the said pile. In contradistinction to such an arrangement I provide two or more independent voltaic piles that are connected by a flexible wire in such manner that the foot of the wearer of the shoe completes a circuit and causes the electric current to pass through the foot from heel to toes.

To explain my invention more clearly, I have provided the annexed sheet of drawings, in which—

Figure 1 is a side elevation of a shoe provided with a sole embodying my invention. Fig. 2 is a top or plan view of said sole, a portion of its felt covering being cut away to expose the voltaic batteries; and Fig. 3 is a longitudinal central sectional view of said sole.

Referring to the drawings, *a* denotes a shoe, *b* the inner sole as a whole, and *c* the outer sole. The inner sole (in which the batteries are located) is formed of three superimposed layers—to wit, a bottom layer b' of leather, a top layer b^2 of felt or the like material, and an intermediate layer b^3 of leather.

Each voltaic pile or battery is composed of a sheet of copper *d* and of zinc d', one of said piles being located where the ball of the foot rests and another in the heel portion of the sole, and the said piles are secured in their operative positions by rivets *e*, that bind the piles and the layers of leather b' b^3 securely together, as is best seen in Fig. 3 of the drawings. The copper and zinc plates are mounted in the leather b^3 in a peculiar manner in order that the rough ends of said plates shall be kept from contact with the felt and also to prevent the accidental displacement of the plates if the rivets become loosened. The leather b^3 is slitted transversely, as at b^4, near the points where the plate ends are to be located, and the plates are then inserted in the said slits, and it will be understood that when thus tucked into the slits and confined between the felt and leather layers there is very little danger of the plates working loose; but in order to be doubly certain I prefer to provide the rivets, as above described.

The two voltaic batteries are connected by a flexible wire *f*, that lies, preferably, between the two leather layers b' b^3. The felt is perforated, as at *h*, so that an effective contact of the foot with the batteries may be obtained.

When my described shoe is being worn, the ball and heel of the foot contact with the described voltaic batteries and chemical action immediately takes place, inducing a mild current of electricity, that has to pass through the foot from the heel to the ball of the same in order to provide and maintain a complete circuit, the result being more effective and satisfactory than when a single battery only is provided.

Having thus described my invention, I claim—

In combination, a sole consisting of superimposed layers of leather and felt, transverse slits in said leather as set forth, voltaic batteries consisting of metallic plates whose opposite ends are inserted in said slits, and a flexible metallic connection between the said batteries.

Signed at New London, Connecticut, this 22d day of October, 1900.

ELMER E. PHINNEY.

Witnesses:
H. D. BARROWS,
HENRY D. STANTON.