

(No Model.)

G. F. BUTTERFIELD.

RUBBER SOLE AND HEEL.

No. 333,595.

Patented Jan. 5, 1886.

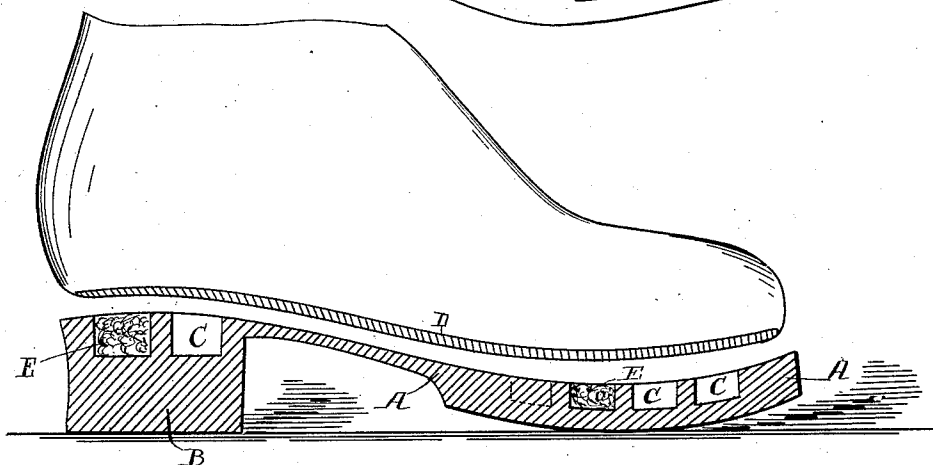
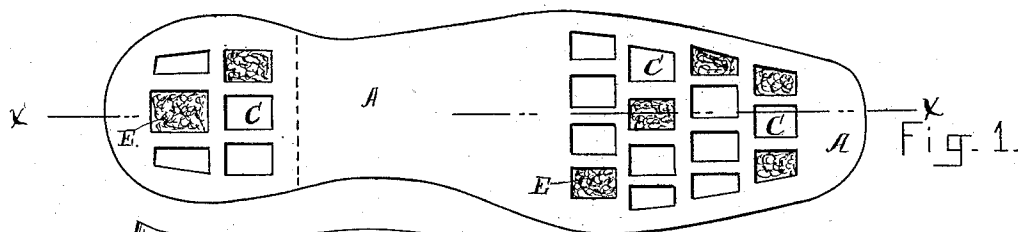


Fig. 2.

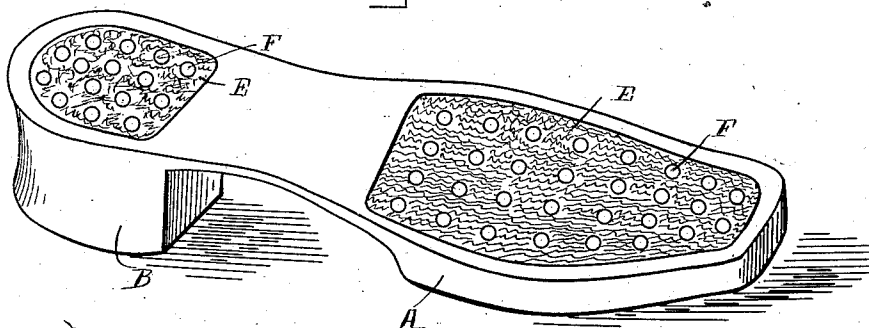


Fig. 3.

WITNESSES:
Chas. S. Gooding
E. A. Phelps

INVENTOR:
Geo. F. Butterfield
by A. S. Spencer his atty

UNITED STATES PATENT OFFICE.

GEORGE F. BUTTERFIELD, OF STONEHAM, MASSACHUSETTS.

RUBBER SOLE AND HEEL.

SPECIFICATION forming part of Letters Patent No. 333,595, dated January 5, 1886.

Application filed December 20, 1884. Serial No. 150,806. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. BUTTERFIELD, a citizen of the United States, residing at Stoneham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Boot and Shoe Soles and Heels; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention is in the nature of an improvement upon those set forth in the Letters Patent No. 259,092 and 302,190, granted to me June 6, 1882, and July 15, 1884. In the first of said patents I described a sole or heel provided with inclosed air-spaces, forming elastic cushions; and in the second patent I described the formation of ridges or protuberances subdividing the air-spaces, or the filling of said spaces in the sole or heel with sponge-rubber, bits of felt, or equivalent material, forming a yielding support. In both cases the openings in the sole or heel were shown in the drawings as closed on the upper side by a suitable thickness of rubber. By my present improvement the sole or heel is formed of vulcanized rubber, with one or more recesses open on the upper side, and designed to be loosely bridged over by the imperforate insole of the boot or shoe, or otherwise suitably covered; or such recesses may be filled wholly or partially with pieces of felt, wood fiber, cork, or other material suitable to give lightness, warmth, &c., and render the upper surface of the sole practically smooth and level. The recesses in the rubber will be generally formed by projections on the inside of the mold in which the soles or heels are vulcanized.

In the drawings, Figure 1 is a plan of the upper side of a sole and heel constructed according to my present invention, part of the recesses showing a fibrous filling. Fig. 2 is a longitudinal section thereof on the line *x x*, and Fig. 3 a view of a like sole with a perforated felt or fibrous filling in the recesses.

A is the sole, and B the heel. C C represent recesses or air-spaces therein, opening from the upper surface of the sole or heel downwardly, and adapted to be covered or bridged over loosely by the insole D at the bottom of the shoe to which the sole is applied, as in Fig. 2, in which, as in Fig. 1, part of the recesses are empty and part filled.

E represents a cellular or fibrous filling of some light and cheap material, which may be placed in the recesses C, partially or entirely filling them. Pieces of felt or cork are suitable for this purpose, or portions of wood fiber or other non-conducting material may be employed. They may be held in position by cement or otherwise.

I sometimes form a single large recess in the sole or heel and place therein a sheet of felt or equivalent material, perforated as at F. (See Fig. 3.) During vulcanization the pressure causes the rubber compound to enter and fill the perforations, and thus to unite the parts firmly.

I am aware that it has been proposed to form soles and heels with two or three perforated soles placed one above the other, such perforations communicating with each other and with the interior of the boot or shoe. This I disclaim; but

I claim as my invention—

1. A vulcanized rubber sole or heel molded with depressions or recesses in its upper surface, separated by partitions subdividing such surface, substantially as set forth.

2. A sole or heel having one or more recesses or open depressions in its upper surface, and provided with a fibrous or cellular filling suitably secured therein, substantially as set forth.

In testimony whereof I hereto affix my signature in presence of two witnesses.

GEORGE F. BUTTERFIELD.

Witnesses:

A. H. SPENCER,
E. A. PHELPS.