

A. O. CRANE.

Improvement in Heels of Boots and Shoes.

Patented June 6, 1871.

No. 115,581.

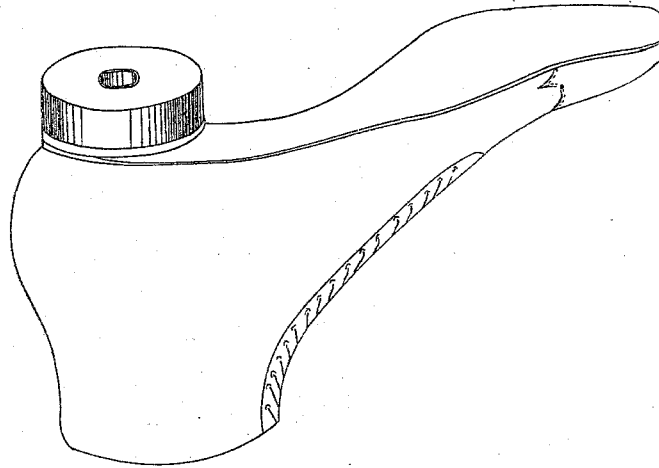


Fig. 1.

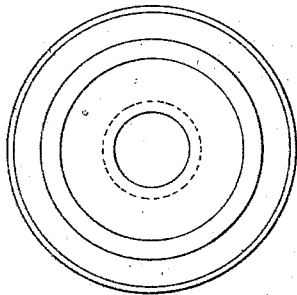


Fig. 2.

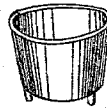


Fig. 4.

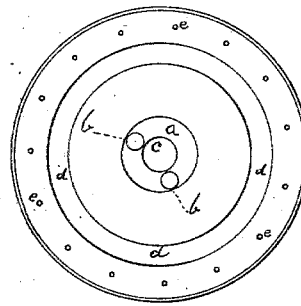


Fig. 3.

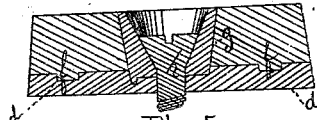


Fig. 5.

Witnesses *E. J. Hodges*

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UNITED STATES PATENT OFFICE.

ALBERT O. CRANE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HEELS OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. 115,581, dated June 6, 1871.

Be it known that I, ALBERT O. CRANE, of Boston, in the Commonwealth of Massachusetts, have invented a new and useful Improvement in the Construction of Heels for Boots and Shoes; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings.

My invention consists in making, as a new article of manufacture, an improved lift or riser, by which the tread of heel and the toe part of the sole are upon the same plane, and which in other respects, hereinafter described, is peculiarly adapted to a rotating heel.

In the drawing hereto annexed, Figure 1 represents my improvement with a rotating heel upon it, and both fixed upon a boot. Fig. 2 represents the lift of a circular shape, and adapted to any heels of that form. The circular lines drawn in it show the guides for center and peg lines. Fig. 3 represents the lift fitted for the rotating heel. Fig. 4 represents the metallic stud upon which the rotating heel revolves. Fig. 5 represents a section vertical of the said lift with a rotating heel upon it.

In Fig. 3, *a* represents the central excavation extending part way through the lift to receive the stud of the revolving heel. *b b* represent the excavations to receive the points of the stud. *c* represents the hole for the fastening-screw. *d d d* represent the groove made to receive the ridge or tongue on the revolving heel. *e e e* represent the holes for the fastening-nails.

In Fig. 5, *f* represents the tongue or ridge fitted into the groove *d* in the lift. *g* represents the stud and holding point as they are fixed in the heel and lift when on the shoe. *h* represents the fastening-screw.

I make the lift or riser of any suitable material and of any desired shape for the heel form, but of a wedge-shape—*i. e.*, thicker at the rear than at the front—in order that the top lift or tread of the heel shall, when in use, be on the same plane with the sole at the ball of the foot. The difference in thickness at the rear and front varies with the size of the heel. In men's shoes above No. 5½ and

women's above No. 5 the rear part should be about three thirty-seconds of an inch thicker than the front. In shoes of sizes smaller than those above named one-sixteenth of an inch will suffice. A lift or riser thus shaped serves as a sufficient foundation for the subsequent lifts, and insures in any heels made after any model or in any manner the proper relation and level between the tread of the heel and the toe or ball part of the sole.

I consider my improvement of most value when used in connection with the rotating heel for which Letters Patent were issued to me dated December 15, A. D. 1868, and numbered 84,861; but it is of great value in the construction of any heels.

When used in connection with said rotating heels I make it of a composition of rubber with other materials, such as heels and soles called "rubber heels" and "rubber soles" are usually made of; but any material sufficiently tenacious and enduring will answer.

Before vulcanizing I give to the heel the following peculiar features by means of a mold—that is to say: First, its wedge-shape. Second, an excavation in the center, of the size and shape fitted to receive the stud upon which said heel rotates, to about half the depth of the lift, and having a hole or holes within it still deeper to receive the holding points of said stud; by which it (the stud) is held from revolving with the heel, and having also a hole through the center to receive the fastening-screw. Third, about midway between said central excavation and the circumference a shallow groove to receive a tongue or ridge molded on said heel, to give firmness to the whole structure. Fourth, holes for the fastening-nails around and near the periphery of the lift. Of these features I regard the central excavation as the most important; but any or all may be dispensed with. I prefer to use all.

In case of ordinary heels this lift affords to the user the advantage of securing the proper plane on which subsequent lifts can be placed, and, in case the heel is worn down, it is a sufficient foundation for a new one. If

used with the rotating heel it furnishes the central point for the stud punctures for the holding points, and a foundation on which any person can, by a screw, fix a new rotating heel.

I claim—

A lift inserted between the sole of the boot or shoe and the heel, and matched to said heel

by a tongue and groove, substantially as and for the purposes described.

ALBERT O. CRANE.

Witnesses:

E. F. HODGES,

WILLIAM STANDISH.