

# UNITED STATES PATENT OFFICE.

DAN READ, OF NEW YORK, N. Y.

## IMPROVEMENT IN THE MANUFACTURE OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. 50,163, dated September 26, 1865.

*To all whom it may concern:*

Be it known that I, DAN READ, of the city and State of New York, have invented a new and useful Improvement in Manufacturing Boots and Shoes, and in rendering them impervious to water, &c.

My invention consists in attaching the soles to boots and shoes without sewing, pegging, or nailing, and also in rendering the outer surface of the uppers impervious to water, &c.

To enable others skilled in the art to practice my invention, I will proceed to describe it.

The boot or shoe is made or prepared of leather or other suitable materials in the ordinary manner, and fitted to the last with the inner sole in place ready to receive the outer sole. A sole composed of gutta-percha, india-rubber, or other vulcanizable gums, mixed with the usual ingredients and compounded and prepared in the manner well known to persons skilled in the art of preparing such gums for vulcanization, is molded or cut to the desired shape to fit the boot or shoe to be soled. Then dissolve the same or similar compound of gutta-percha, india-rubber, or other vulcanizable gums, prepared in the same or a similar manner, in benzole or naphtha until a thin paste is produced, and cover the inner sole and the parts of the uppers which will come in contact with the outer sole, and place the outer sole in position on the bottom of the boot or shoe, and submit it to the usual vulcanizing process by placing the boot or shoe in the ordinary steam-heaters used for that purpose.

When it is desired to make the uppers impervious to water, a thin coat of the paste prepared as above stated is put upon the uppers and vulcanized in the same manner.

It will be readily seen that the sole and the cover on the uppers can be put on and vulcanized at the same time or by a separate operation, and that either can be accomplished without the other.

The compound which I have found to produce the best results contained about eighty per cent. of the gum, the sulphur and other ingredients being varied according to the desired quality of the compound; but as I do not desire to be understood as limiting myself to any quality of the compound, the percentage

of the gum may also be varied. The degree of heat to be applied in vulcanizing will also vary according to the changes in the proportions of the gum and other ingredients in the compound. In that used by me, as above stated, I have found a temperature of about 240° of heat, Fahrenheit's scale, for about the space of five hours will produce a satisfactory result, vulcanizing, the sole and covering on the uppers sufficiently without injury to the leather.

The principal advantages of my invention is that the outer sole is secured firmly and permanently to the leather in such a manner that no water or moisture can penetrate between the inner and outer soles, the action of the paste being such as to securely cement them together in all parts and to cement the outer sole to so much of the upper-leather of the boot or shoe as comes in contact with it; and the advantage of my invention in coating the uppers consists, among other things, in allowing any desired portion to be so covered, leaving the remainder of the leather in the natural condition.

I do not wish to be understood as confining myself to the manner described for putting the outer sole on the boot or shoe, as it will at once be apparent that as benzole or naphtha act as the dissolvents of the compounds in preparing the paste, the sole of the same compound may be so saturated with these dissolvents as to cause it to adhere to the leather without the intervention of the paste.

Having thus described my invention, and the manner of applying it, what I claim as new, and desire to secure by Letters Patent, is—

1. Securing soles made or formed of gutta-percha, india-rubber, or other vulcanizable gums, compounded and prepared for vulcanization, to boots or shoes made of leather, and vulcanizing the same on, in the manner and for the purposes specified.

2. Covering the uppers of boots and shoes made of leather with the compound above referred to, and vulcanizing it on the leather, in the manner and for the purpose specified.

DAN READ.

Witnesses:

A. R. CUSHMAN,  
A. A. TAYLOR.