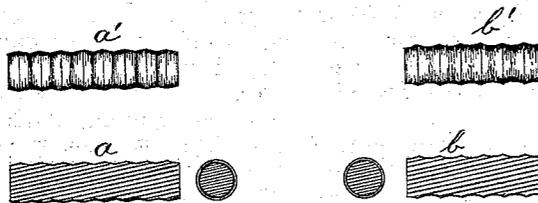


W. WICKERSHAM.

Nails for Attaching Soles to Boots and Shoes.

No. 136,014.

Patented Feb. 18, 1873.



Witness  
A. D. Parker  
J. S. Barnister.

Inventor  
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# UNITED STATES PATENT OFFICE.

WILLIAM WICKERSHAM, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN NAILS FOR ATTACHING SOLES TO BOOTS AND SHOES.

Specification forming part of Letters Patent No. 136,014, dated February 18, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM WICKERSHAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the Manufacture of Wire for the Attachment of Soles to Boots and Shoes, of which the following is a specification:

The nature of my invention consists in a manufacture of wire in such form and with such indentations in its sides as will not interfere with its ready passage into the leather through two or more soles, and yet indentations so formed as will admit of the leather when damp and in a partially plastic state to pass through them in such manner that when said leather becomes dry the sole will adhere firmly and strongly by means of said indentations.

Referring to my drawing, *a* is a longitudinal section of one form of my wire, and *b* is a section of the other form, and *a'* and *b'* are side views of the two forms of my wire, all on a large scale.

As will be seen by an examination of my drawing at *a*, the indentations are angular, but the angles are so large or wide as to make a long taper to the sides of the wire as it passes into the leather, and the external angle on the prominent portion of the wire (or around its largest diameter) is not sharp enough to cut or mangle the fibers of the leather into saw-dust, but by reason of the smallness of the incline of the surface of the wire to its axis it will pass easily and smoothly into the leather, allowing the leather (after the wire is in) to contract onto its smaller diameter, as well as all other parts.

In my drawing, at *b* and *b'* is shown a variation having the bottom of the indentation rounded, instead of being angular, as at *a*.

I am aware that others have made wires with angles; but the external angles have been so sharp that they would cut and mangle the fibers of the leather, thereby filling the

indentations or spaces about the smaller diameter with sawdust, and thereby giving the prominent portions but little hold on the leather; besides the wires as just described, and as heretofore made, having their prominent portions angular, the indentations have been so deep that the leather could not contract onto their smaller portions if the sawdust was not in the way, so that the distinctive feature of my wire, and that which makes it practically useful, is having the angle so wide, and consequently having the incline of the surface so small, that the prominent angular portion can pass smoothly into the leather without cutting or mangling its fibers, and the inclination so gradual from the largest to the smallest diameter, and the indentation so slight or shallow, that the leather can readily contract onto the smaller portion or into the bottom of the indentation, by which it will have a strong and firm hold on the leather after it has contracted onto all parts of the wire, and has become rigid and hard by drying.

I do not have the inclination on one side of the prominent part very steep, and on the other side very gradual; but I have them alike, or as near as may be, and when bottom of the indentation is rounded, and the angle of the prominent part is the same, the indentation will not be so deep.

Having thus described my invention, I will state my claim to be—

A wire for attaching soles of boots and shoes, having indentations and prominent portions around it, making a succession of larger and smaller diameters, having its larger diameters terminate in definite angles, as described, and its indentations either rounded or terminate in an angle, all substantially as described, and for the purpose set forth.

WILLIAM WICKERSHAM.

Witnesses:

A. D. PARKER,  
F. S. EDMINSTER.