

*W. Wickersham,*

*Shoe Wire.*

*No. 106241.*

*Patented Aug. 9. 1870.*



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# United States Patent Office.

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Letters Patent No. 106,241, dated August 9, 1870.

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

The Schedule referred to in these Letters Patent and making part of the same

I, WILLIAM WICKERSHAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Wire for Attaching the Soles of Boots and Shoes to their Vamps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawing and to the letters of reference marked thereon.

My invention consists in a wire having a screw-thread around it, of so short a twist that, when it is driven by a hammer or other means into the leather, it will not be caused to revolve, as it passes in, by the screw-form of its surface.

My invention further consists in so rounding the prominent portion of these screw-threads around the wire that it can be driven easily and smoothly into the leather, having no angles, corners or edges presented to the leather, thereby giving the least possible disturbance to its fibers, so that, when the wire is driven into the leather while in a damp and partially plastic state, it will yield sufficiently to admit the prominent portions of the screw-threads, yet contract onto the smaller portions of the wire between the screw-threads after the wire is in, and it is clear that, when the portions of leather which have contracted onto the wire between the screw-threads have dried, and are consequently hard and rigid, the wire must have a very great holding power, and an experiment which I tried proves this to be the fact.

I took an eighteen gauge wire which had alternate larger and smaller diameters, the larger portions being rounded, and drove it into a damp piece of sole leather of less than average thickness, and, when the leather was dry, it required a weight of over fifty pounds to withdraw this wire from the leather.

The screw as I have described it with so short a twist that it will not revolve by being driven into the leather by a hammer, punch, &c., and which has its prominent portions rounded, is substantially the same in its results as the wire having alternate larger and smaller diameters with the larger portions rounded.

In my drawing—

*a* is an enlarged view of my wire, showing the rounded screw-threads as seen from one side of it, which threads extend entirely around it.

*b* is a cross-section of the same.

The principal advantage of this wire over the one having alternate larger and smaller diameters is to be

found in the lower cost of its manufacture, as a simple screw-die, with means for revolving it, will be sufficient for its complete manufacture.

There have been several angular forms of wire, (three-sided, plain, or having the sides concave, flat, &c.,) having their prominent portions twisted into a spiral or screw-form, but all of them, as I believe, have a thread of sufficiently long twist as to cause the wire to revolve as it passes into the leather, following in its rotation the twist of its screw-thread, and, at the same time, cutting or forming a female screw in the leather corresponding in the length of its twist to that of the screw-thread on the wire, while my wire is purposely formed with a screw-thread of too short a twist to produce the result of revolving by direct pressure against its outer end.

This long twist which enables the wire to revolve by following the twist of its thread, as it passes into the leather, may seem on first view to be an advantage, yet it is a serious disadvantage, for, if the twist is long enough for the wire to follow its thread when driven into the leather, it is long enough to screw up against the foot while in use, as every step taken on the pavement is equivalent to a stroke of a hammer on the outer end of the wire, and this is in accordance with my experience; but when the thread around the wire has a twist too short to admit of its turning when driven in, the wire will always be secure in its position while in use.

The value of the smooth and nicely rounded form of the screw-threads of my wire is very great, as this form allows the wire to pass into the leather with the smallest possible disturbance of its fibers, thereby making the condition for the greatest holding power, while all wires, which have angles, edges, or points, mangle and grind the fibers of the leather into powder, thereby diminishing greatly their holding power.

Thus specifying, I will state my claim to be—

A wire for attaching the soles of boots and shoes to their vamps, having a screw-thread around it with a short twist, as described, and having the outer portions of said screw-thread rounded, substantially as and for the purpose set forth.

WILLIAM WICKERSHAM.

Witnesses:

J. G. PARKINSON,  
C. H. KELLEE.