A. VAN WAGENEN.

Nails for Sole-Fastening.

No. 166,663. Patented Aug. 10, 1875

FIG B

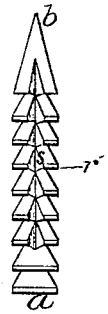


FIG F

FIG E

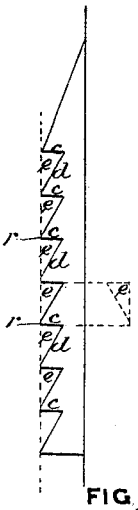


FIG A

FIG C

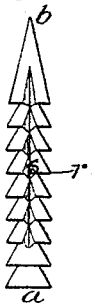
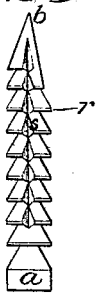


FIG D



WITNESSES

John E. Laing.

J. A. Rutherford

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UNITED STATES PATENT OFFICE.

ALBERT VAN WAGENEN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN NAILS FOR SOLE-FASTENINGS.

Specification forming part of Letters Patent No. **166,663**, dated August 10, 1875; application filed May 27, 1875.

CASE F.

To all whom it may concern:

Be it known that I, ALBERT VAN WAGENEN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Nail for Sole-Fastenings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My desire is to produce a better nail, as a sole-fastening for boots and shoes, than any which has, to my knowledge, been used in the trade.

In carrying out this object the nail is designed with a special view to have it enter the leather as easily as possible, to have it hold perfectly when in the leather, and to prevent it from turning, and thereby working loose—in a word, I want to give the trade a nail that will turn out the best work.

I prefer for this purpose a cylindrical nail, because it is easier made, and by my improvement I do not require a shouldered head to prevent the nail from working in under wearing action. I nevertheless form a symmetrical head and a clinching-point, which may be either flattened on two sides or conical, and between the line which bounds the point and the head I form the body of the nail into a series of truncated cones, and combine therewith opposite-side grooves, which terminate before reaching the head to leave the latter intact. The purpose of these grooves is to prevent the nail from turning, either in entering or during wear, by allowing the leather to sink easily into them, while at the same time they serve to guide the nail straight to its place. The series of short cones form a rack of horizontal circular fins to hold the nail from working out, as in such movement it would have to overcome so many cylindrical heads, while the sides allow the nail to enter as if it were a smooth surface, similar to a pawl passing over a ratchet, and form so many encircling spaces of greater width at the top than bottom, into which the leather embeds itself and is held, so that the sides of the opening made by the nail in driving it are not rendered ragged, but closely fill the racked sides of the nail, and thus form so many wedges, the action of which is to prevent the nail from working into the sole under wear.

The drawings show such a nail in elevation, A, and an enlarged view thereof, B. C shows a nail with a conical point, and D a nail with its point flattened. The head *a* may be either formed cylindrical or by one of the cones of the rack, while the clinching-point *b* is made longer than the sides of the cones. This point may be flattened on one instead of its two sides, but, however formed, its largest portion constitutes one of the rack-fins. The shortest sides of these fins are indicated by the letter *c*, and the longest side by the letter *d*, while the encircling space *e*, into which the leather embeds itself, is shown in vertical cross-section at E. I form, preferably on the opposite sides of this nail, longitudinal grooves *s*, or channels deep enough to intersect and separate the ridges *r* of the annular fins, and extending from near the point to near the head, to allow the leather to sink easily therein, and to act as guides to keep said nail straight while being driven in, serving at the same time the more important function of keeping the nail from turning, whether in driving or when driven, so that it could not thereby become loosened and liable to work in or out under the constant hammering action of a man's tread. It is important that the head should remain intact, and for this purpose these grooves *s* stop short thereof, because, if the head were intersected by these grooves, it would be weakened and liable to split off in driving, like the nicked head of a screw. As stated, the clinching-point may be flattened on one or both sides, or made conical.

The primary object of my improvement is to produce a nail which, while driving easily, on the principle of a smooth-sided pin, has all the advantages of an angular nail.

In my large experience in the trade I have hunted at such places where shoe-nails are manufactured and used for such an article as I have described, but have nowhere found it.

I know that a nail formed of conic sections, in which the point is one of such sections, is not new, and I do not claim such a nail. I have also seen a headed and pointed nail, in which the body is formed of a series of concentric ridges, but these enter hard and cut the leather in entering; nor do I claim flattening a nail-clinching point on one or both sides.

I have described my new nail with special references to sole-fastenings. It is, however, equally applicable for uniting different layers of leather, for hose, pouches, &c., and wooden, paper boxes, and the like.

These nails may be made from continuous lengths of wire, or in any suitable manner.

I claim as a new manufacture—

1. A shoe-nail, consisting of a head, a clinching-point, a rack of cones, and the side grooves, made substantially as described.

2. In a shoe-nail, the combination of side grooves or channels *s* with a rack of cones, said channels intersecting said cones in the manner and for the purpose described.

3. In a shoe-nail having the combination of side grooves or channels *s* with a rack of cones, as described, the said side grooves extending from near the clinching-point and terminating short of the head, to preserve the head intact for the important purposes stated.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

ALBERT VAN WAGENEN.

Witnesses:

A. W. ADAMS,
B. S. HENRY.