

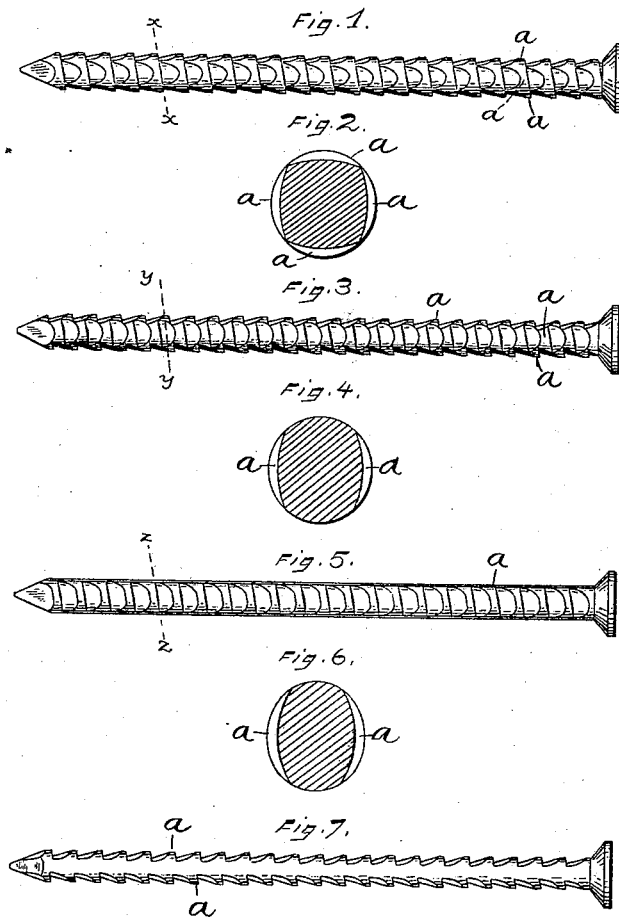
(No Model.)

H. K. JONES.

WIRE NAIL.

No. 348,126.

Patented Aug. 24, 1886.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## WIRE NAIL.

SPECIFICATION forming part of Letters Patent No. 348,126, dated August 24, 1886.

Application filed April 20, 1886. Serial No. 199,473. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE K. JONES, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Wire Nails, of which the following is a specification.

My invention relates to improvements in wire nails, and the objects of my improvement are to produce a better nail and one that can be made at a small cost.

In the accompanying drawings, Figure 1 is a side elevation of one style of my nail. Fig. 2 is an enlarged sectional view thereof on line *x x* of Fig. 1. Fig. 3 is a side elevation of another style of my nail. Fig. 4 is an enlarged sectional view thereof on line *y y* of Fig. 3. Fig. 5 is a side elevation of another style of my nail. Fig. 6 is an enlarged sectional view thereof on line *z z* of Fig. 5; and Fig. 7 is a side elevation of said nail as turned one-quarter round on its axis from the position shown in Fig. 5.

Heretofore wire nails have been formed with a continuous ratchet-thread or spiral barb, with a series of concentric barbs like a connected series of cone-frustums, and with barbs like those produced by a chisel, in which the face of the spaces or grooves under the teeth or barbs extended in a straight line across the body of the wire. A prior patent also shows a nail formed of flattened or oval wire with the barbs on the edges, the spaces between the barbs having a concentric surface.

In all forms of the nail herein illustrated the face of the grooves or space is curved or convex, as in the screw-thread or cone-frustums when viewed in transverse section, as in Figs. 2, 4, and 6; but, instead of continuing wholly around the wire, each space or groove vanishes at each end at the surface of the wire, and is therefore eccentric.

In Figs. 1 and 2 the teeth or barbs *a a* are formed in four longitudinal series, so disposed that when followed from one barb in one series to the next succeeding barb in the next series, and so on, they are in a spiral line, like a screw-thread, except that the groove or grooves are broken and not continuous. In Figs. 3 and 4 there are also four longitudinal series of barbs; but the barbs in one series are each about

midway between the two adjacent barbs of the adjoining series, so as to break the spiral arrangement shown in Figs. 1 and 2. In Figs. 5, 6, and 7 only two series of longitudinal barbs are formed, and these extend farther around the wire than in the nails having four series of barbs.

The best means known to me at present to form these nails consists of roller-dies having teeth which are concavely curved on their edges and located in a properly-formed groove in the die. These concavely-curved teeth form the convex surface of the spaces just under the barbs. When four series of barbs are to be formed, I run the wire first through one pair of roller-dies to barb two opposite sides of said wire, and then through another pair of roller-dies whose axes stand at right angles to the first pair, to form the remaining two series of barbs on that surface of the wire which was not barbed by the first pair of roller-dies.

For forming a nail with only two longitudinal series of barbs, I use only one pair of roller-dies, and I prefer to make the teeth extend over a greater portion of the circumference of the wire than when four longitudinal series of barbs are to be formed. In fact, in forming only two series of barbs on a wire the teeth might embrace nearly half the circumference of the wire.

For convenience I have illustrated all of the nails as of large-size; but they may be as small as desired. The styles shown in Figs. 5, 6, and 7 is the best adapted for small nails, and if the teeth are correspondingly finer the wire will not be flattened into quite as much of an oval form as I have represented in Fig. 6. By making the barbs upon nails of the form herein shown, they can be formed very rapidly and cheaply, and by making the spaces under the barbs vanish or run out at the surface of the wire the nail is stronger, because the wire is not so nearly cut in two in forming the barbs. By making the space under the teeth with a convex surface, I obtain a long tooth in the transverse direction of the wire without cutting the wire so deeply as when the space has a face extending in a right line across the wire.

When the barbs are formed as shown in Figs. 1 and 2, the nail can, if desired, be un-

screwed from the wood, although there is no continuous spiral groove on the nail.

I claim as my invention—

The herein-described nail, consisting of  
5 round wire with barbs formed in two or more longitudinal series, with a space or groove under the barbs, having a convex and eccentric

surface as viewed in transverse section, substantially as described, and for the purpose specified.

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