(No Model.)

F. PHILIPS.

WIRE NAIL.

No. 353,427. Patented Nov. 30, 1886.

Fig. 1.

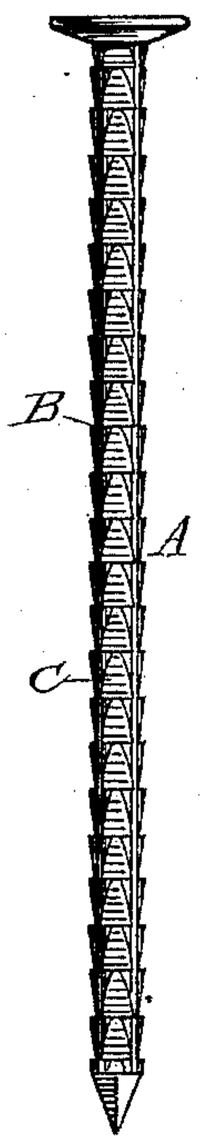

Fig. 2.

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FERDINAND PHILIPS, OF PHILADELPHIA, PENNSYLVANIA.

WIRE NAIL.

SPECIFICATION forming part of Letters Patent No. 353,427, dated November 30, 1886.

Application filed September 25, 1885.. Renewed October 26, 1886. Serial No. 217,256. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND PHILIPS, a subject of the Emperor of Germany, but residing in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Wire Nails, of which the following is a description, reference being had to the accompanying drawings.

My invention relates to that class of nails known commercially as "barbed wire nails;" and it consists of a wire having indentation of a novel form and arrangement, whereby the holding power of the nail is increased without the loss of the advantages of a smooth nail.

Previous to my invention attempts have been made to manufacture barbed nails by cutting gashes upon the surface of the round wire in an oblique direction with the axis of the nail. This does not necessarily produce a good barb, but does make a rough surface. Such a nail is considerably weakened and in many cases totally unfit for use. No other reasons exist for cutting the gashes oblique except that in this way the strength of the nail against transverse strain is somewhat greater than it would be if the gashes were exactly opposite each other on opposite sides of the nail and vertical to its axis; but the obliquity adds nothing to the efficiency of the barb. Aside from the fact that such barbs are not very effective, they are difficult to produce successfully, and when produced with sufficient accuracy and sharpness they have a serious fault, due to their tendency to tear the fibers of the wood in which the nail is driven, and thus really destroy the very means by which the barbs can act effectively. This would be the case with a good barb; but all nails are considerably scoured after they leave the nail-machine, whereby a real barb is almost entirely destroyed. Such a nail, then, is objectionable because, first, the barb is difficult to make; second, when successfully made the barb is of little avail and weakens the nail; third, the barb is practically destroyed during the process of scouring, leaving a slight indenture of such form and depth as to weaken the nail without materially increasing its grip.

Instead of cutting a barb from the surface of the wire, I indent the wire at suitable intervals by pressure or otherwise, so that each indentation or depression shall be at its base or deepest part, which is in the direction of the point of the nail in a plane substantially at right angles to the axis, thus forming a square shoulder, from which it tapers gradually upward to the surface in the direction of the head. Both the shoulder and tapering side of the indentation are substantially plain surfaces, as shown in the drawings.

Reference being now had to the drawings, Figure 1 is a side view of the nail; Fig. 2, a cross-section.

A is the nail, shown as made from a round wire. B is the shoulder, and C the tapering side of the indentation.

As illustrated, four indentations are shown with their shoulders in practically the same transverse plane; but, if desired, the indentations may be arranged spirally or otherwise around the nail.

As will be seen, the smooth configuration of the wire, as viewed in the direction of its length, is not materially altered by the indentations, and the nail will enter the wood with practically as much ease as if left perfectly smooth, and will neither cut nor tear the fiber. The long tapering indentations permit the wood to expand and press into them without distortion or abrupt bending of fiber, while the square shoulders, acting against the unbroken and unweakened fiber, gives a better and firmer grip to the nail than can be obtained by any of the barbs heretofore used. It is evident that the number of rows of indentures thus produced upon the surface of a wire nail may be considerably varied. One or two rows may suffice for small wire, while the number should increase as the diameter of the wire increases. I prefer four rows on the surface of a nail, on account of their efficiency, two of them acting as ratchets against the length fibers of the wood, and two of them, at right angles to the others, as ratchets against the end wood. In both cases the wood will most effectually act in the manner of a ratchet-pawl, offering great resistance to the withdrawal of the nail.

Having now described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture, a nail having one or more series of indentations impressed into it, said indentations forming square shoulders situated in a plane at right angles to the axis of the nail and tapering upward gradually in the direction of the head, substantially as shown and described.

In testimony whereof I have put my hand.
Philadelphia, September 24, A. D. 1885.

FERDINAND PHILIPS.

Witnesses:
CARL FINGER,
DAVID MACCARTHY.