(No Model.)

F. F. RAYMOND, 2d.

HEEL NAIL.

No. 410,675. Patented Sept. 10, 1889.

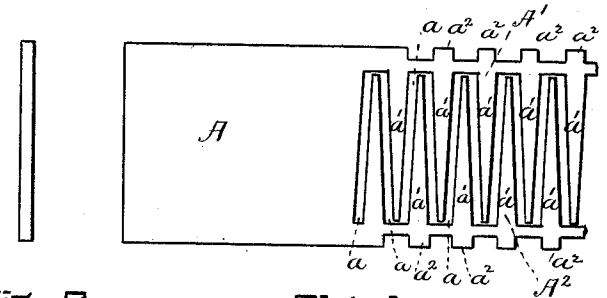


Fig. 2. Fig. 1.

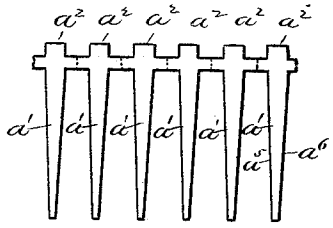


Fig. 3.

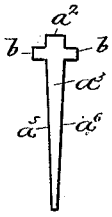


Fig. 4.

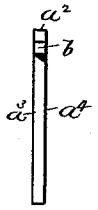


Fig. 5.

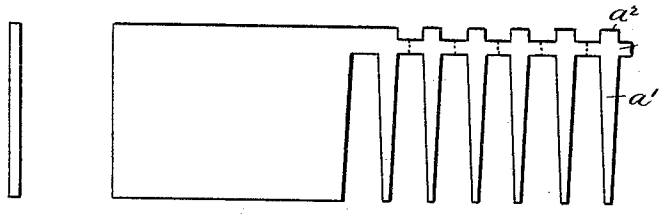


Fig. 7. Fig. 6.

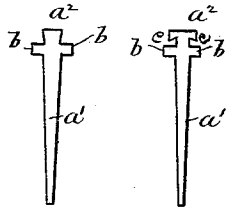


Fig. 8. Fig. 9.

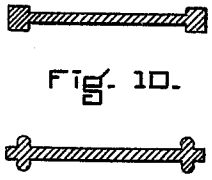


Fig. 10. Fig. 11.

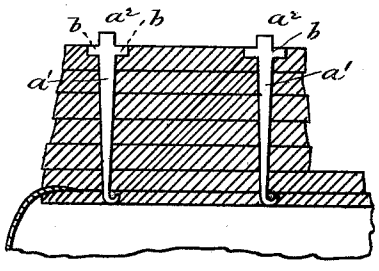


Fig. 12.

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UNITED STATES PATENT OFFICE.

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HEEL-NAIL.

SPECIFICATION forming part of Letters Patent No. 410,675, dated September 10, 1889.

Application filed March 19, 1886. Serial No. 159,378. (No model.)

To all whom it may concern:

Be it known that I, FREEBORN F. RAYMOND, 2d, of Newton, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Heel-Nails, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a heel nail or fastening, hereinafter set forth.

In formation the nail is cut or punched from a sheet-metal plate, and comprises a shank provided with flat parallel sides, tapering edges, and shoulders or projections which are homogeneous with and extend laterally from the shank near the upper end thereof to form a head or butt.

In the drawings I have illustrated the nail and the manner of making the same, and therein—

Figure 1 is a plan view of a sheet-metal plate representing the manner of forming my improved nails into two comb-strips, from which the nails are individually severed. Fig. 2 is an end elevation of the said sheet-metal plate. Fig. 3 is a detail view of one of the combs before the nails are severed. Fig. 4 is a detail view, in side elevation, of a complete nail. Fig. 5 is an edge elevation of the nail. Fig. 6 represents the nails as being formed in a single comb-strip. Fig. 7 is an end elevation of the plate shown in Fig. 6. Figs. 8 and 9 show nails with butts of modified construction. Figs. 10 and 11 are cross-sections of metal plates from which the nails shown in Figs. 8 and 9 are formed. Fig. 12 is a vertical section of a heel-blank to represent the application or use of the nails.

The nail is constructed from a strip or plate of sheet metal either by punching with dies or otherwise cutting a double or single comb or series of attached nails therefrom, as shown in Figs. 1, 3, and 6, and also by punching or removing from the edges or edge of the strip sections to provide butts or ends to the nails of the character hereinafter specified.

In Fig. 1, A represents a metal plate of a width sufficient to form two comb-strips A' A^2, and at one end thereof is shown the shape these strips bear in relation to each other after the plate has been submitted to the operation of the punching-machine, which removes from the plate the sections a, extending diagonally across the plate, as shown, to form the shanks a', and to remove the sections to form the butts, heads, or ends a^2 of the nails. In Fig. 3 a part of one comb is shown removed and ready to form the completed nails, as shown in Figs. 4 and 5, and in Fig. 6 a single comb is shown in course of construction. Figs. 10 and 11 also show other forms of plates from which the nail may be formed and still preserve the leading feature of the invention.

Having thus described the manner of producing my invention, aside from the various forms of plates from which it may be constructed, the said nail consists, essentially, of a shank or body having parallel flat sides a^3 and a^4 and tapering edges a^5 and a^6. At the upper part of the shank are lateral projections or wings b, which provide for the formation of a projecting head or butt a^2. The wings or projections b are integrally formed with the edges of the shank at the same time that it is cut from the metal plate, as hereinbefore referred to. As shown in Fig. 5, a uniform thickness of metal is preserved throughout the entire nail, being the exact thickness of the sheet-metal plate from which it is formed. This uniformity of thickness of the nail could not conveniently and with utility be accomplished by means other than those hereinbefore referred to, and the parallel surfaces a^3 and a^4 are devoid of projections.

In Figs. 8 and 9 the said butt or head is shown slightly modified in construction. In Fig. 8 the butt is formed with inclined edges extending down and slightly inward toward each other to the lateral wings or projections b, and in Fig. 9 the said head or butt is shown with overhanging shoulders c, adapted to sink into the material of the top lift of a heel. While these variations may be conveniently employed, I prefer to use the form of nail hereinbefore set forth as being formed from a flat sheet of metal.

In use the severed nail is driven with such force that the head is very largely or wholly embedded in the upper lift of the heel-blank, as shown. When driven, the butt or head of

the nail is left projecting from the surface of the top lift for an obvious purpose.

I am aware that attempts have heretofore been made to produce a nail of this character. In the nails heretofore constructed either a collar was mounted on and surrounded the nail-blank or else shoulders were swaged from the metal of the blank. Where a collar was used, it was liable to displacement and fracture in driving the nail, and formed a projection extending entirely around the nail. Aside from the inherent disadvantages and weaknesses of the collar, it could not be readily embedded in the top lift. In forming swaged projections the nail-blank was necessarily unequal in thickness to provide for swaging the metal down, and the time and labor employed in providing such projections by swaging would necessarily increase the cost of manufacture.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

As an improved article of manufacture, a shoe-heel nail consisting of a shank of uniform thickness having parallel sides and tapering edges provided with homogeneous shoulders of the same thickness as the shank and in the same horizontal plane as the sides thereof, projecting at right angles from the edges below the upper end of the shank to form a short head which is of greater width at its upper end than the remainder of the shank, the said nails being formed from sheet metal, as described.

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Witnesses:

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