June 3, 1930. J. GOULDBOURN 1,761,119

NAIL

Filed Feb. 28, 1925

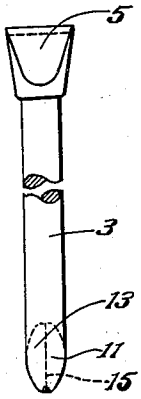


Fig. 1.

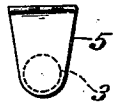


Fig. 3.

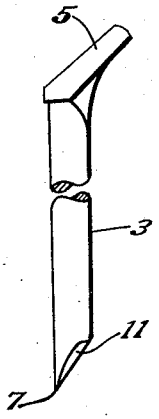


Fig. 2.

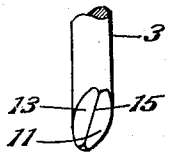


Fig. 4.

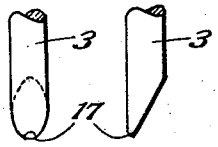


Fig. 5. Fig 6.

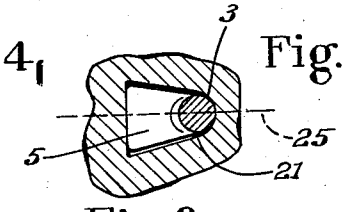


Fig. 9.

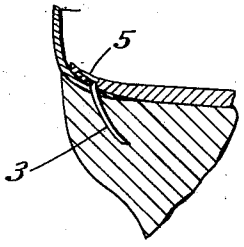


Fig. 7.

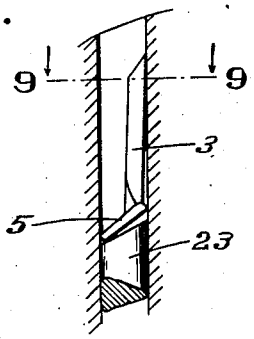


Fig. 8.

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By his Attorney,

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UNITED STATES PATENT OFFICE

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NAIL

Application filed February 28, 1925, Serial No. 12,428, and in Great Britain March 28, 1924.

This invention relates to nails and is illustrated herein as embodied in a nail particularly adapted to the attachment of heels to boots and shoes by inside nailing.

In attaching heels to shoes by inside nailing, it is often difficult to drive the nails as close to the margin of the heel seat as is desirable. When attaching Louis heels or other heels the cross section of which rapidly decreases in passing from the attaching face toward the tread face, great difficulty has been encountered in positioning the nails with their heads as close to the margin of the heel seat as is necessary to maintain the tight joint between the shoe upper and the margin of the heel required in shoes having wood heels. If the nails are as long as they should be to attach the heels securely the difficulties are increased by the danger of driving the nails so that their points emerge through the lateral surfaces of the heels.

It is an object of the present invention to provide improved nails particularly adapted to this class of work which may be inserted with their heads sufficiently close to the margin of the heel seat portion of the sole of a shoe to provide a permanently tight joint between the shoe upper and the edge of the heel and at the same time will insure a secure attachment of the heel to the shoe and will obviate all possibility of the point of the nail emerging through the lateral surface of the heel. The herein disclosed nail has an offset head illustrated as inclined relatively to its shank and formed to engage the sole member through which it is inserted at a point substantially outside of that at which the nail enters so as to clamp the sole member and the shoe upper securely to the heel. The entering end of the illustrated nail is shaped to cause the nail to curve or "run," as it is inserted, in a direction away from the margin of the work. The curving or "running" of such a nail is accomplished, as herein disclosed, by forming its point unsymmetrically relative to the axis of its shank. As illustrated, the entering end of the nail is beveled on one side so that its point lies approximately on the circumference of the shank. Under these circumstances the nails can be driven very close to the edge of the heel seat of the sole of a shoe and will clamp the shoe parts securely together substantially at the edge of the heel seat without danger of the points of the nails emerging through the lateral surface of the heel.

With the above and other objects and features in view, the invention will now be described with reference to the accompanying drawings and pointed out in the claims.

In the drawings,

Figs. 1 and 2 are elevational views at right angles to each other of a nail embodying the present invention;

Fig. 3 is a plan view showing the formation of the head of this nail;

Fig. 4 is an elevation of the entering end of the nail taken from a viewpoint between those of Figs. 1 and 2;

Figs. 5 and 6 are elevational views at right angles to each other of the entering end of a nail having a different form of point;

Fig. 7 is a sectional view of a portion of a shoe having its heel attached by the herein disclosed nail;

Fig. 8 is a sectional view through a portion of a nailing die of a heeling machine with one of the nails of the present invention in a driver passage of said die; and

Fig. 9 is a horizontal cross section on the line 9—9 of Fig. 8.

The herein disclosed nail is provided with a cylindrical shank 3 several times as long as its head 5, its head being offset or unsymmetrical and inclined at about 135° to the shank of the nail, and flaring so that the portion of the head remote from the shank is of a greater width than the portion adjacent to the shank. The point 7 of the nail is offset relatively to the axis of the shank and lies approximately on the circumference of the shank. In the case of a wire nail having its point formed by nipping the nail from the wire nail stock the beveled point will have an appearance substantially as in Figs. 1, 2 and 4 with two facets 11 and 13 mutually inclined toward a ridge or slight fin 15. If desired, however, the point of the

nail may be beveled by a single plane inclined relatively to the shank of the nail, as illustrated in Figs. 5 and 6, but, if of such a formation, the extreme point should be removed, as indicated at 17. Otherwise, being very sharp, it is likely to be accidentally deformed and may then interfere with the proper driving of the nail. In either case, the general direction of the bevel of the point (as illustrated in Figs. 2 and 8) is approximately parallel to the top surface of the head of the nail.

When nails of the character illustrated in Figs. 1 to 6 are used for inside nailing to attach heels to shoes, they should be positioned, as indicated in Fig. 7, with the offset head of the nail pointing toward the margin of the heel seat. Under these circumstances the bevel of the entering end or point of the nail will cause the nail to "run" or curve away from the margin of the work so that there will be no danger of the nail breaking through the contour surface of the heel. The head of the nail, because of the inclination of its top surface relatively to the shank, will conform to the curvature of the marginal portion of the heel seat of the sole, and will clamp the sole and the upper securely to the edge of the heel so as to produce a tight joint between the shoe upper and the heel.

To control the position of the heads and points of the nails relatively to the work, the driver passages of the nailing die of the heeling machine are shaped to conform to the heads of the nails, as illustrated at 21 in Fig. 9, and the drivers 23 are of a similar cross section. The different driver passages are positioned with their major axes 25 (Fig. 9) arranged at right angles to the periphery of the heel seat of the shoe to be operated upon and with the smaller ends of the driver passages and drivers nearest the center of the heel seat. The upper ends of the drivers should be beveled (as shown in Fig. 8) at an inclination such that when fully advanced they will be flush with and form continuations of the smooth convex upper surface of the nailing die. With the top surfaces of the heads of the nails, as illustrated in Fig. 8, at a slightly greater inclination than the end of the drivers, the heads of the nails will be bent down on the heel seat of the shoe by the drivers at the conclusion of the stroke of the latter so that the shoe stock will be somewhat compressed beneath the heads of the nails and the exposed surfaces of the heads of the nails will be substantially flush with the inner surface of the sole member of the shoe. While the head of the nail illustrated herein is inclined approximately at 135 degrees to the shank, it should be understood that other inclinations may be used in accordance with the conformation of the work part in which the nail is to be inserted.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A heel nail having its head offset relatively to its shank and its point beveled toward the side of the shank remote from the offset head so that when the nail is driven its point will be deflected in a direction opposite to the direction of the offset of its head, the top surface of the head of the nail being inclined relatively to the shank of the nail in a direction substantially parallel to the bevel of the point.

2. A nail having a cylindrical shank with a point offset relatively to the axis of the shank of the nail, and a head with a flat top surface, the portion of which remote from the shank is substantially wider than the diameter of the shank, the head being inclined relatively to the axis of the shank and offset on the side of the axis opposite to the point.

3. A nail having a shank several times as long as its head, the entire top surface of its head lying substantially in a single plane and being offset and inclined relatively to its shank with the portion of the head remote from the shank of greater width than the portion of the head adjacent to the shank.

4. A nail for attaching heels to shoes by inside nailing having a flat head inclined relatively to the shank of the nail to conform to the transverse curvature of the marginal portion of the heel seat of the sole of a shoe, the point of the nail being beveled in a direction to cause the nail to run toward the center of the heel as it is driven.

In testimony whereof I have signed my name to this specification.

JOSEPH GOULDBOURN.