

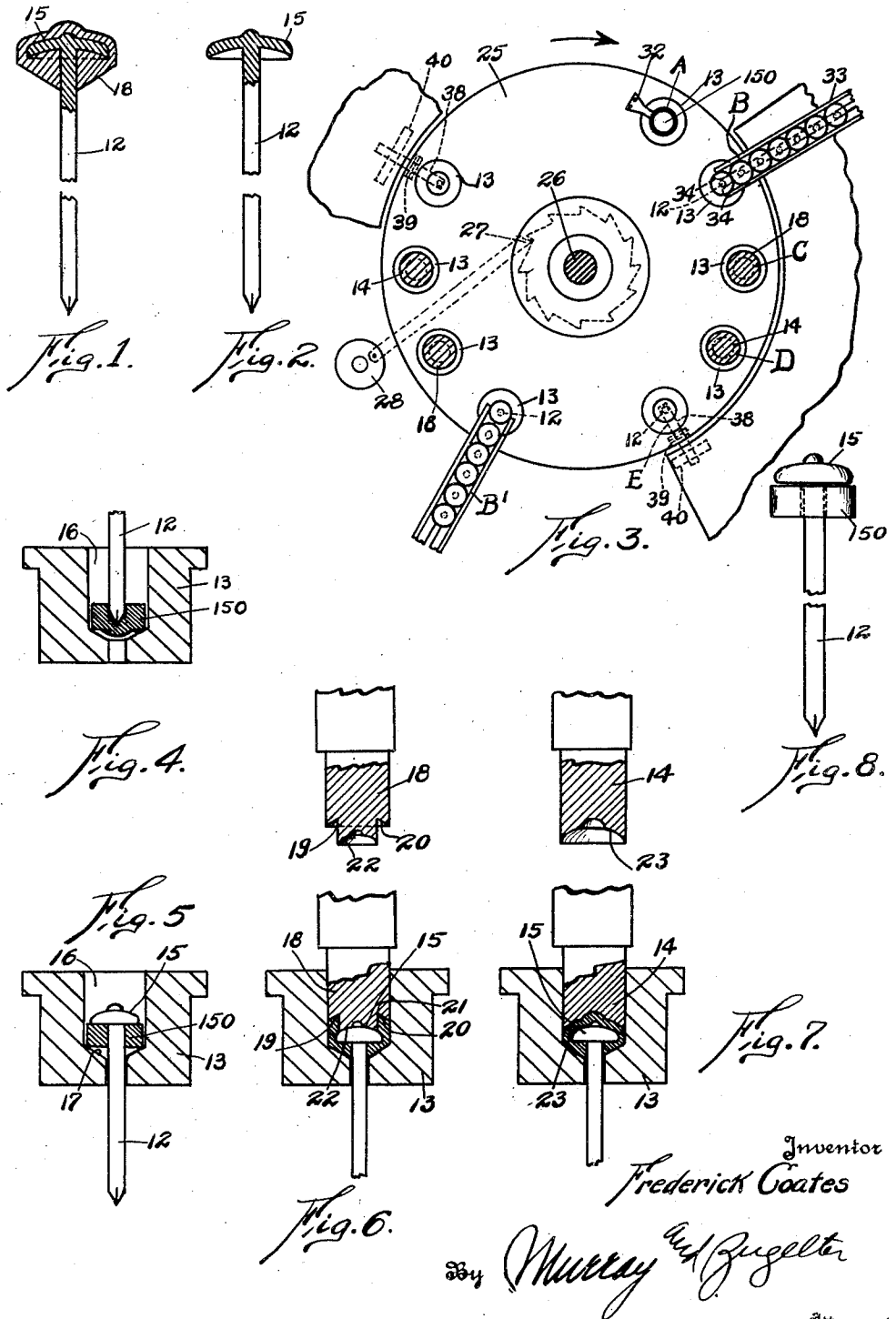
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METHOD FOR THE MANUFACTURE OF LEAD HEADED NAILS

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UNITED STATES PATENT OFFICE

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METHOD FOR THE MANUFACTURE OF LEAD HEADED NAILS

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This invention relates to a method or process for the manufacture of nails having a head covered with lead or other plastic material.

5 An object of the invention is to simplify the process of fabricating nails of the above character. Another object is to provide a method for the manufacture of nails of the above character, whereby the manufacturing
10 cost thereof may be materially reduced.

These and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

15 Fig. 1 is a view partly in cross section, showing a finished nail made in accordance with the invention.

Fig. 2 is a view partly in cross section showing a nail prior to the heading operation.

20 Fig. 3 is a top plane view partly in cross section, showing one type of means whereby the process may be automatically executed.

Figs. 4, 5, 6 and 7 are views partly in cross section showing the successive operations in the process of covering the nail head.

25 Fig. 8 is an elevational view of a nail having a washer or disc of plastic material attached thereto, which may be inserted into the die, thereby eliminating the step shown in Fig. 4.

30 The process of the present invention consists, briefly, in disposing a washer or disc 150 of lead or other plastic material about a nail shank 12, either within or without a die as indicated in Figs. 4 and 8, respectively,
35 then applying such force to the nail head (Fig. 6) as will extrude the plastic material about and above the periphery of the nail head while positioned in the die 13, and then subjecting the extruded material to a shaping tool or punch 14, which forms or shapes
40 the extruded material upon the top of the nail head 15.

45 It should be noted that the above operations may be performed in a single die 13, and that the step indicated in Fig. 4 may be eliminated by feeding the nail and washer to the die in the assembled condition indicated in Fig. 8. In practice, however, the disc 150 of plastic material is first inserted into the
50 die, and the nail is driven therethrough to

assume the position indicated in Fig. 5. The bore 16 of die 13, it will be noted, is considerably larger in diameter than the diameter of the nail head 15. The space about the nail head is provided so as to permit extrusion of the plastic material about the head as indicated in Fig. 5. The bottom wall 17 of the bore is made conical in shape to provide the conical plug 18 on the nail, as indicated in Fig. 1. This plug provides a seal for the hole made by the nail when passing through material to be secured in position by the nail.

The extrusion or setting punch 18 (Fig. 6) has a sliding fit in bore 16, and said punch is provided with an annular groove 19, concentric with the punch body, which provides an annular face 20 simulating a cone frustum. Face 20 is disposed at an acute angle to the longitudinal axis of the punch, and the purpose thereof is to form an inner annular thin edge 21 (Fig. 6) on the extended portion, which facilitates the turning over of said edge by the forming punch 14. The extrusion punch 18 preferably has a lower curved face 22 adapted to coincide with the curved top of the nail head, however, this curved face is unnecessary when the nails being covered have flat topped heads. It will be readily apparent that flat headed nails may be covered as well as those having curved heads. The invention
80 therefore is not to be restricted to the treatment of convex headed nails.

The shaping or forming punch 14 has a bottom face 23 which presses the extruded material upon the nail head top 15, and said face preferably is complementarily shaped with respect to the head of the nail being operated upon.

In Fig. 3 is disclosed an arrangement of means whereby the process may be carried out automatically. In Fig. 3, 25 represents a rotatable support or horizontal table fixed upon a central shaft 26 which may be intermittently moved by any suitable power means, for example, a pawl and ratchet wheel arrangement 27 operated by a power actuated eccentric 28. The dies 13 may be equally spaced from one another upon the support 25, whereby a continuously operating device is provided.

Attention is directed to the right hand half of support 25 wherein at A is represented a lead disc feeding mechanism, at B a nail feeding mechanism, at C an extruding or setting punch mechanism including the punch 18, at 5 D the forming punch mechanism including punch 14, and at E an ejector for the finished article. The group of mechanisms at the left hand side of the support 25 is substantially 10 the same, except for the omission of mechanism A for feeding the discs. Instead of preparing the nail for punching in two operations, the assembled nail and washer are fed by the mechanism B' (see Fig. 8) in a single 15 operation.

The lead disc feed A may comprise a stationary vertical tube in which the discs may be stacked. The lower end of the tube may be constructed to permit entry of a pusher 20 finger 32 which pushes a disc from the tube into the die 13 as the support is moved in the direction of the arrow. Member 32 may be fixed upon the table or support 25.

After receiving a disc 150, the die moves 25 with the support to a position beneath the nail feed B, which may comprise an inclined track 33 for the nails. The track may terminate in spring arms 34 from which the nails may be successively delivered to the dies by 30 means of a suitable punch or hammer, (not shown).

The punch 18 of device C may be actuated by any suitable means operating in synchronism with the disc and nail feeding devices.

35 The mechanism D may be identical with the mechanism C, wherefore no detailed disclosure thereof is necessary.

The ejector E may comprise a suitable hammer 38 pivoted at 39 upon the movable support 25, and adapted to be struck by an inclined stationary cam or lug 40 for ejecting 40 the finished nail upon completion of the shaping or forming operation by the punch 14.

It is to be understood that the various 45 mechanisms A to E inclusive may be replaced by other suitable mechanisms for performing the desired functions, and that various other modifications and changes in structural details may be made within the scope of the claims, without departing from the spirit of 50 the invention.

What is claimed is:

1. The process of fabricating plastic headed nails, comprising causing a nail shank to 55 enter a quantity of plastic material about a nail shank, forcing the head of the nail into the plastic material under conditions which cause the plastic material to be extruded outwardly and upwardly about the nail head, 60 then applying a forming tool to the extruded material for shaping the plastic head upon the top of the nail head.

2. The process of fabricating plastic headed nails, comprising causing a nail shank to 65 enter a quantity of plastic material about a

nail shank, confining the head and plastic material in a die having a bore larger than the nail head and forcing the nail head into the plastic material whereby to spread the plastic material in the die and cause a portion of it to be extruded about and above the nail head, then inserting into the bore of the die a forming tool for applying force to the extruded material and bending said material centerward for enveloping the nail head. 70 75

3. The process of fabricating plastic headed nails, comprising placing in a die a disc of plastic material, inserting a headed nail shank into the die and through the disc, forcing the head of the nail into the plastic material whereby to extrude a portion of the plastic material from beneath the nail head to a position above the nail head, then applying a forming tool to the extruded material for shaping the plastic head upon the top of 80 85 the nail head.

In testimony whereof I have hereunto subscribed my name this 20th day of June, 1930.

FREDERICK COATES.

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