(No Model.)

H. K. JONES.

MANUFACTURE OF DRIVE SCREWS.

No. 335,132. Patented Feb. 2, 1886.

Fig. 1.

Fig. 2.

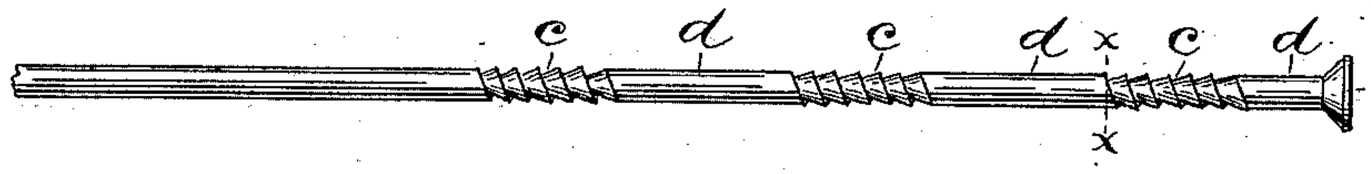


Fig. 3.

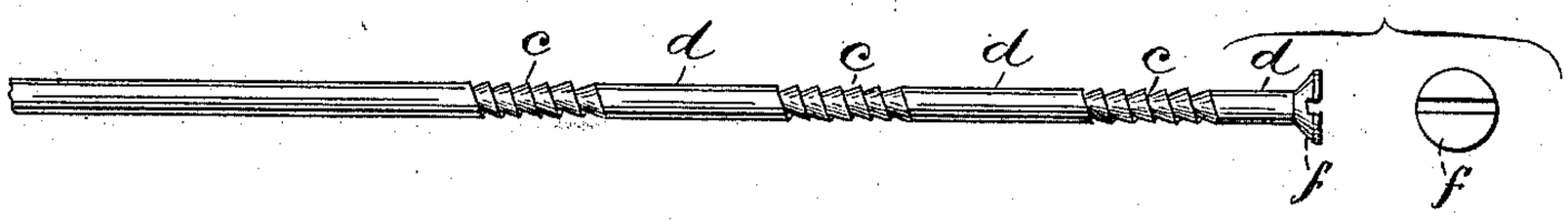
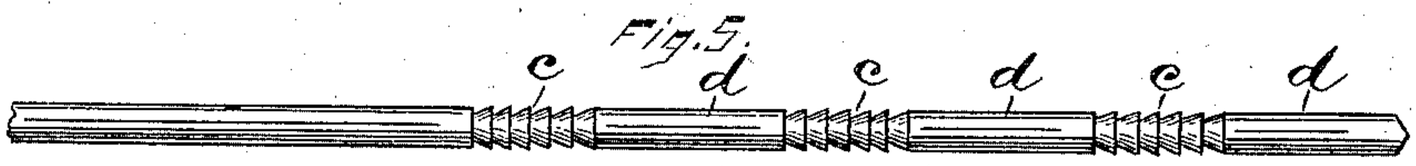


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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MANUFACTURE OF DRIVE-SCREWS.

SPECIFICATION forming part of Letters Patent No. 335,132, dated February 2, 1886.

Application filed August 4, 1885. Serial No. 173,498. (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 the Manufacture of Drive Screws or Nails, of which the following is a specification.

My invention relates to improvements in making drive screws or nails from wire; and the objects of my improvement are to produce a better drive screw or nail than heretofore and to produce the same at a small cost.

In the accompanying drawings, Figure 1 represents in side elevation a piece of wire having formed thereon three portions containing each a spiral rib or barb, the formation of said barbed portions of the proper length for one nail being the first step in the manufacture of nails by my process. Fig. 2 represents a like piece of wire having a head formed thereon, the forming of which head is the second step in my process. Fig. 3 represents in side elevation and end view a like piece of headed wire having its head slotted, the slotting of the head being the third step of my process in the preferred order, provided nails with slotted heads are desired. Fig. 4 represents a finished nail as cut from the headed end of a wire, like Fig. 2 or 3, and pointed, cutting off the wire and pointing it being the last step in my process; and Fig. 5 represents a wire similar to Fig. 1, but having a different form of barb.

Nails or screws, whichever they may be called, may be made by my process and have the barbed portion of either of the forms shown, or of any desired form, when the article is designed in use to be driven fully home by a hammer. If, however, the article is designed to be driven home by a screw-driver, after being started by a hammer, it is essential that the barbed portion be in the form of a screw-thread.

There are many ways of forming the barbed portions, and I intend to make my machinery for so doing the subject of Letters Patent. These barbs can be formed by intermittingly-acting edge-bearing rollers, by grooved rollers having alternate smooth and barbed portions, by reciprocating swaging-dies, and by other means. I take the wire in the coil or in rods and feed it to the mechanism for barbing it, forming one or more barbed portions, *c*, leaving a continuous plain portion, each of which barbed portions is as long lengthwise with the wire as is desired to have the barbed portion of one finished nail, while each contiguous plain portion is long enough so that the remainder of the nail may be formed therefrom. The whole wire may be thus barbed at regular intervals throughout its length before any subsequent operation is performed; but I prefer to so construct a machine that the subsequent operations will begin after two or three or other given number of barbed portions *c* have been formed, and then have all the operations go on simultaneously in regular order. I have referred to these barbed portions *c* as being formed at regular intervals on the wire. The intermediate portions constitute the smooth and plain portions *d*, from which the heads are formed, and a smooth body of any desired length under the head. If desired, the barbed portion may, however, extend well up to the head of the finished nail. The next step after forming the barbed portion *c* is to form the head *f* by upsetting in any ordinary manner, changing the stock from the form illustrated in Fig. 1 to that shown in Fig. 2. Sometimes the heads of barbed nails are not slotted, and if it is desired to produce such nails the next and final step in the process is to cut off the stock at the lower end of the barbed portion—for instance, on the line *x x* of Fig. 2—and form a point on the end of the barbed portion thus cut off. I prefer to cut off the stock and swage this point at one operation by means of a combined shearing or cutting die and a swaging-die, thereby forming what is known as the ordinary "cut-point" of wire nails, and changing the stock from the form illustrated in Fig. 2 to that shown in Fig. 4, in which it will be seen that the barbs or threads extend to the tapering portion which forms the point of the nail.

In case it is desired to provide the nail-head with a slot for turning the nail or screw axially with a screw-driver, I form the slot after the wire has been headed, as in Fig. 2, and before the nail is cut from the wire, thereby changing the stock from the form illustrated

in Fig. 2 to that shown in Fig. 3. After the head has been thus slotted the nail is cut off and pointed, as before described.

When the form of barbs shown in Fig. 5 is employed, there will be no need of slotting the head, as the nail having barbs of this form cannot be screwed either out or in; but aside from slotting the head the successive steps in the process are the same in producing nails with either form of barbs.

By my process the nail may be produced at a small cost, while the head is seamless and solid.

The machinery, dies, or tools referred to in this specification form no part of my process, and cannot properly be claimed in this application. For these reasons all right to patent the same is hereby reserved.

I am aware that a prior patent shows and describes a machine for making wire nails, into which the wire is fed, then gripped by holding-dies having a roughened surface, then headed while held in said dies, then cut off and pointed by a cut-point, and incidental to the roughened holding-dies the nails were slightly marked or roughened for a short distance under their head; and that another patent shows and describes a machine for making machine-screws in which a rod is grasped by holding-dies and fed forward a given distance; then reduced to form the body of the screw; then the thread was cut on the forward end of said reduced portion; then the partly-formed screw was severed from the rod by a parting-tool, leaving said screw in the thread-cutting die; then the head was formed by a proper-shaped tool; then the slot was cut by a saw, and finally the screw was unscrewed from the cutting-die by a screw-driver. All of said prior art is hereby disclaimed.

I claim as my invention—

1. That improvement in the art of forming drive-screws from a metal rod or wire which consists in first forming a screw-thread on a portion of the wire contiguous to the point designed for forming the small end of the nail upward toward the head end, leaving thereon a contiguous plain portion, then upsetting to form a head on the end of said plain portion, and finally cutting the wire and forming a point thereon at that end of the barbed portion which is farthest from the head, substantially as described, and for the purpose specified.

2. That improvement in the art of forming drive screws or nails from a metal rod or wire which consists in first barbing a portion of the wire contiguous to the point designed for forming the small end of the nail upward toward the head end and leaving thereon a contiguous plain portion, then upsetting to form a head on the end of said plain portion, then forming the slot in said head, and finally cutting the wire at that end of the barbed portion which is farthest from the head and forming a point thereon, substantially as described, and for the purpose specified.

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