J. F. STANDISH.

AWL.

APPLICATION FILED JAN. 12, 1914.

1,198,486.

Patented Sept. 19, 1916.

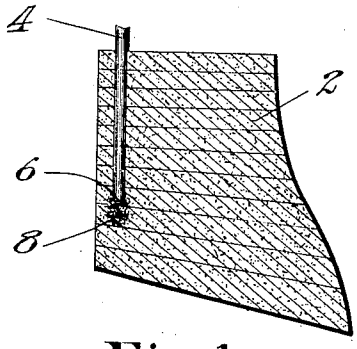


Fig.1.

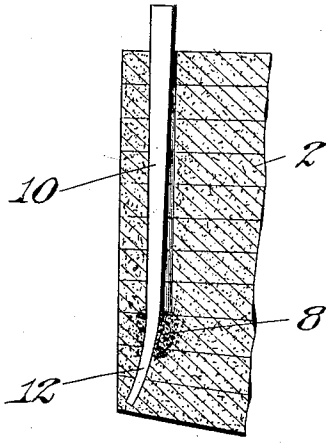


Fig.2.

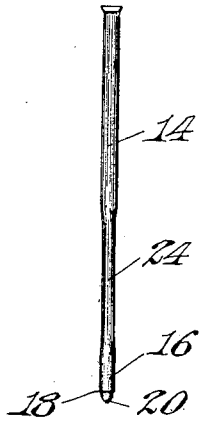


Fig.3.

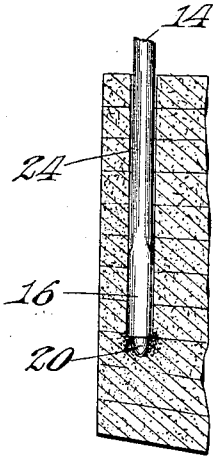


Fig.4.

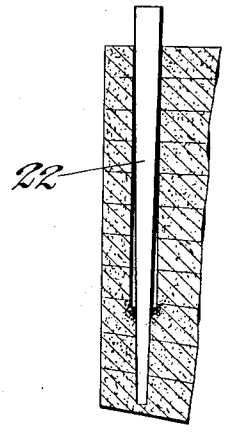


Fig.5.

WITNESSES.

Elizabeth C. Coop.

Edith C. Holbrook

INVENTOR.

John F. Standish

By his Attorney

Nelson Howard

UNITED STATES PATENT OFFICE.

JOHN F. STANDISH, OF WINTHROP, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

AWL.

1,198,486. Specification of Letters Patent. **Patented Sept. 19, 1916.**

Application filed January 12, 1914. Serial No. 811,687.

To all whom it may concern:

Be it known that I, JOHN F. STANDISH, a citizen of the United States, residing at Winthrop, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Awls, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to awls, such as are used in heel pricking, heel attaching, and like machines, for pricking holes in heels to receive the heel attaching nails.

For performing the operation mentioned it is customary to employ an awl having a flat end at right angles to the axis of the awl. Such an awl will make a smooth, clean, straight hole, but it is hard to drive and the flat end compresses and drives a pellet of material ahead of it which interferes with the driving of the nail. It is difficult to drive the soft point of the nail through this hardened pellet of material, which has a very great tendency to deflect the nail out of a straight path. Awls having conical or pointed ends have also been used and have the advantages of being easier to drive and of leaving the bottom of the hole of a form suitable for centering and guiding the nail, but when driven in to any considerable depth, as is necessary in pricking high heels, it has been found that there is a considerable tendency for pointed awls to be deflected out of a straight path, with the result that when the heel attaching nails are driven they are likely to emerge from the side of the heel, or be driven so close to the side of the heel that they will be struck by the heel trimming or heel breasting knives. This not only spoils the heel, but damages or breaks the knife.

It is the object of the present invention to produce an awl which shall be free from those objections and which, therefore, will insure the production in the heel of a straight hole, properly formed to center and guide the point of the nail; and which may be driven into, and withdrawn from, the heel with a minimum of power.

With these ends in view, the invention comprises an awl for heel machines having a penetrating portion with a substantially flat end, thus providing a square cutting edge, and having upon the flat end a rounded or pointed protuberance which penetrates or makes an indentation in the hardened material ahead of the awl. The protuberance is not long enough to cause the awl to be deflected from a straight path, but it gives to the bottom of the awl hole a proper formation for centering and guiding the nail point and penetrates the hardened stock sufficiently to make the driving of the nail easy. The protuberance is preferably somewhat pointed and of a height not greater than the diameter of the penetrating portion of the body of the awl.

A further feature of the invention consists in a pricking awl formed in such a way as to reduce to a minimum the frictional resistance to inserting the awl into and withdrawing it from the work. This result is secured by reducing somewhat the diameter of the greater part of that portion of the awl which enters the heel, to provide relief or clearance, so that there is a minimum amount of awl surface in frictional contact with the sides of the hole. The difficulty thus overcome is particularly noticeable when ordinary cylindrical awls are being withdrawn from a heel, as the leather clings so tenaciously to the awls that a great deal of force is required to draw them out, the smaller sizes sometimes even being pulled in two in the attempt to pull them out of the heel.

In the following specification and accompanying drawings a selected embodiment of the invention is described and illustrated, but it should be understood that the invention may be embodied in other forms and is limited only as defined in the annexed claims.

In the drawings: Figure 1 is a vertical, longitudinal section of an ordinary heel with the usual square ended awl in it; Fig. 2 is a fragmentary enlarged view of a section of the heel shown in Fig. 1, with a heel attaching nail partly driven; Fig. 3 is a view in elevation of an awl constructed in accordance with the present invention; Fig. 4 is an enlarged sectional view of a portion of a heel with the awl in it; and Fig. 5 is a view of the portion of the heel shown in Fig. 4, with a heel attaching nail partly driven.

Referring to Fig. 1, 2 indicates an ordinary shoe heel which has been penetrated by an awl 4 having the customary flat end

6. As this awl is driven into the heel, a pellet 8 of the heel stock is formed in advance of the point of the awl and becomes progressively larger and harder the more deeply the awl is driven. When a heel attaching nail 10 is started in the hole, its point encounters the hardened pellet of material 8. Heel nails are soft and easily bent, in order that their points may be clenched properly, and when the point of the nail strikes the hardened material at 8 it encounters such resistance that there is a great tendency for the nail to be deflected from its path, as shown at 12, into a portion of the heel stock which offers less resistance. Such nails are liable not so to enter the shoe as to effect firm attachment of the heel and are likely to be struck by the heel trimming cutter or the heel breasting knife, even if they do not actually emerge from the sides of the heel at first.

The awl 14, shown in Figs. 3 and 4, which is constructed in accordance with the present invention, has a penetrating portion 16 which is flat ended to form a square cutting edge or shoulder 18 around its periphery. A protuberance 20 is centrally formed upon the flat end of the penetrating portion 16 of the awl and is preferably somewhat pointed, although it is not essential that it should be of the exact form illustrated in the drawings. It must, however, not be so long, or high, as to have enough guiding action upon the awl to make it liable to deflect the awl from the straight path which it otherwise would follow by reason of the flat end and square cutting edge 18. It has been found by experiment that, when the protuberance 20 is not greater in height than the diameter of the portion 16 of the awl, there is no tendency to deflect the awl from a straight path and it may be less in height than the said diameter and the hardened material ahead of the awl will still be penetrated sufficiently to make the driving of the nail easy. In order to avoid the formation of a substantial shoulder near the bottom of the hole, upon which the point of a nail would be liable to catch, with the result that it would not be properly centered, the diameter of the protuberance at its base is preferably only slightly less than that of the portion 16, it only being necessary to have a well defined cutting edge at 18 in order to cause the awl to travel in a straight path. The protuberance 20, as shown, being short and having a relatively large diameter, forms a depression in the bottom of the hole having such a shape as automatically to center the nail point with certainty and precision.

In Fig. 5 a nail 22 is shown which is driven nearly through a heel pricked as illustrated in Fig. 4. It will be apparent that there is no tendency for the point of the nail to be deflected laterally and, therefore, no danger of insecure attachment of the heel from this cause nor of the nail being struck by the breasting knife or trimming cutter. Such an awl as is shown in Figs. 3 and 4 has the further advantage that it can be driven with less expenditure of power than is necessary in the case of the ordinary flat ended awl.

The friction between the surface of a cylindrical awl and the sides of the hole formed by it is very great and offers great resistance both to the driving and the withdrawal of the awl. In the embodiment of the present invention herein illustrated the shank portion of the awl is reduced somewhat in diameter, as shown at 24, so that there is a minimum amount of surface in frictional contact with the sides of the awl. This reduces the amount of power necessary to drive the awl and also greatly reduces the resistance to the withdrawal of the awl from the heel. The latter point is one of importance inasmuch as the frictional resistance to the withdrawal of a cylindrical awl from a deeply pricked heel often causes breakage of awls and checking of the heel.

Having described the invention, what is claimed as new and desired to be secured by Letters Patent is:—

1. An awl for pricking heels comprising a penetrating portion having a flat end with a square cutting edge, and a pointed, penetrating protuberance, of slightly less diameter, on the flat end, the height of the protuberance being not greater than the diameter of the said penetrating portion.

2. An awl for pricking heels comprising a penetrating portion having a flat end with a square cutting edge, and a pointed, penetrating protuberance, of slightly less diameter, on the flat end, the height of the protuberance being less than the diameter of the said penetrating portion.

3. An awl for pricking heels comprising a penetrating portion having upon its end a tapered protuberance of slightly less diameter, the height of which is so proportioned with relation to the diameter of the said penetrating portion as to permit the awl to be driven without substantial deflection from a straight path.

4. An awl for pricking heels comprising a penetrating portion having upon its end a tapered protuberance of relatively large diameter, the height of which is less than the diameter of the said penetrating portion.

5. An awl for pricking heels having a short, cylindrical, penetrating portion, and a shank portion adapted to enter the heel and of less diameter than the said penetrating portion.

6. An awl for pricking heels having a short, cylindrical, cutting and penetrating portion constructed to make a hole larger

in diameter than the following portion of the awl.

7. An awl for pricking heels having a short, cylindrical, penetrating portion, a reduced heel entering shank portion, and a protuberance upon the advance end of the penetrating portion.

8. An awl for pricking heels comprising a cylindrical heel penetrating portion 16 having a square cutting edge 18 for insuring straight driving of the awl, and a short, pointed protuberance 20 the diameter of which is nearly equal to that of the cylindrical portion, the protuberance being so formed as to make in the bottom of the awl hole a depression shaped to insure the proper centering of the point of a heel nail.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN F. STANDISH.

Witnesses:
JAMES O. WRIGHT,
HARLOW M. DAVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."