May 11, 1926. 1,584,052

L. W. VAN BUSKIRK

DIPPER TOOTH

Filed August 9, 1924

Fig. 1.

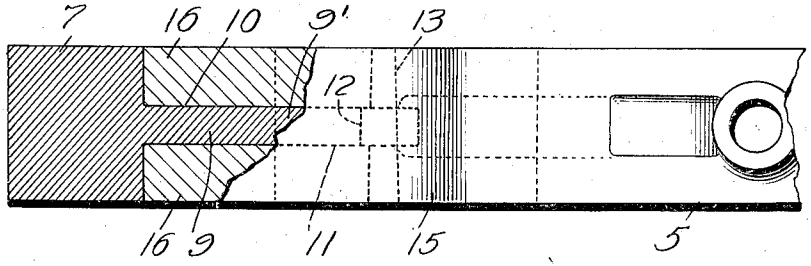


Fig. 2.

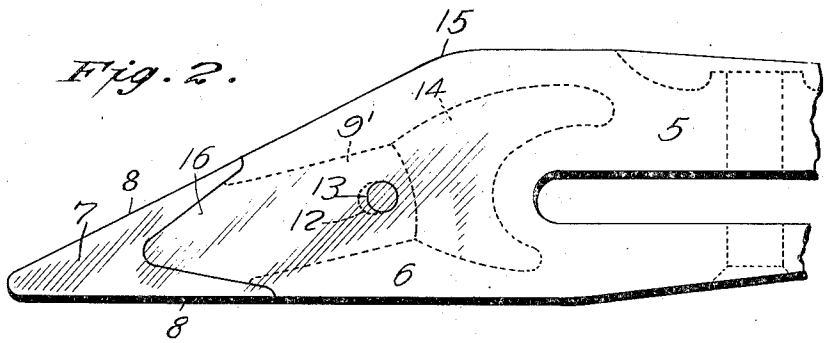


Fig. 4.

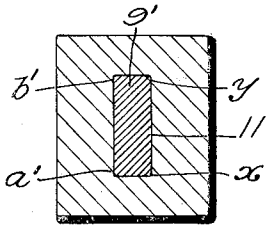


Fig. 5.

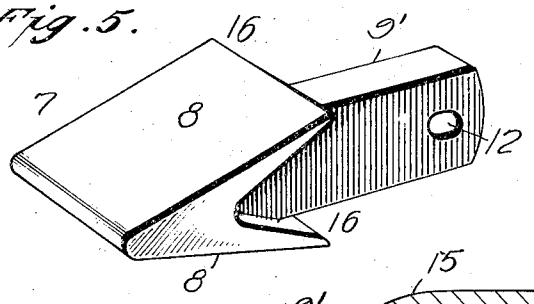
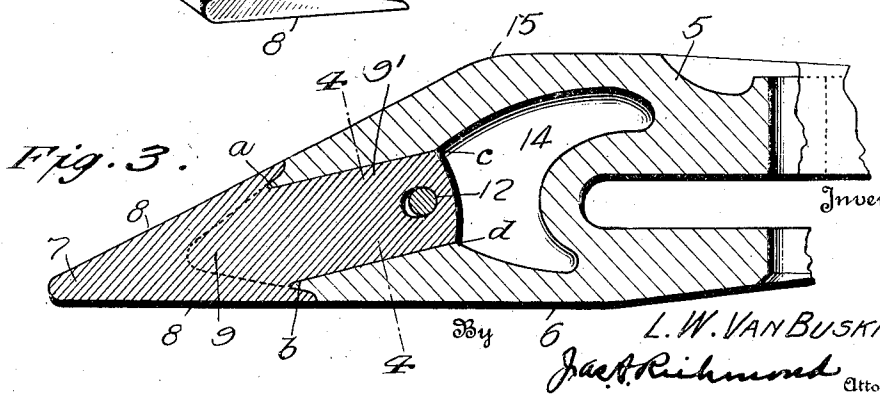


Fig. 3.



Inventor

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UNITED STATES PATENT OFFICE.

LESHER W. VAN BUSKIRK, OF CLINTON, NEW JERSEY.

DIPPER TOOTH.

Application filed August 9, 1924. Serial No. 731,090.

Standard types of dipper teeth are generally constructed of expensive alloy steel, such as manganese steel, and the usual practice is to construct the teeth in sectional form consisting of a point and a base. Certain foundry and heat treatment problems peculiar to manganese steel, as well as the peculiarities of this metal in service, have brought about more or less complicated systems of interlocking connection between the point and base. Under this practice the base has its maximum cross-sectional dimension at the nose which is bifurcated to receive the web of the point and is otherwise weakened due to the necessity of providing substantially uniform metal sections to meet the exigencies of heat treatment. The metal removed from the nose is put in the point, but however in its digging portion. Such points, therefore, suffer the disadvantage of comparatively short life and the scrapping of a large amount of valuable metal.

One object of my invention is to reduce the amount of scrap metal by a substantial reversal of former conditions, that it to say, by eliminating metal in the point and restoring metal to the base, this being sound practice since a base ordinarily will outlive a great many points. A further object of the invention is to provide a base the nose of which is constructed as actually to be capable of performing some of the functions of the usual points, thus necessitating only the addition of a comparatively small impact element or digging tip. Another object is to provide for building up or strengthening the crown of the nose of the base, with due regard to coring so as to provide for uniform heat treatment. Another object is to provide for effectively securing the tip to the base and for establishing a symmetrical relationship thereof.

Other objects, as well as the nature, characteristic features, and scope of the invention will appear and will be more readily understood from the following description, taken in connection with the accompanying drawings, forming a part hereof, wherein,

Figure 1 is a plan view of a sectional dipper tooth embodying features of my invention,

Figure 2 is an elevational view thereof,

Figure 3 is a longitudinal sectional view,

Figure 4 is a section on line 4—4 of Figure 3, and

Figure 5 is a perspective view of the tip.

According to my invention, the base 5, which otherwise may be as usual, is formed with a nose 6 of considerable length and constructed on point lines so as to actually bear some of the brunt of digging. The digging nose 6 is complete and ready for service upon the application of a comparatively small impact element or digging tip 7. The latter is of edge form and has jaws 8 joined by a web 9. The latter is extended to form a shank 9′, whose longitudinal edges are substantially parallel although they may taper rearwardly.

The point body or nose 6 is vertically split or bifurcated, as at 10, just enough to take the web 9 and is thence continued in the form of a box section cavity 11 which provides a snug housing for the shank 9′. This construction and arrangement is important for the reason that without the bifurcated area, the box section in service is liable to be distorted and to be opened up. The presence of the short bifurcated area removes this liability in that it takes the greater part of the digging strain both laterally and longitudinally.

Provision is made, as at 12 and 13, for the reception of the usual taper 10 to tighten the tip on the point base.

Immediately in back of the box section cavity 11 and which may in fact open thereinto is a cored area 14 of substantially crescent form, the horns of the crescent being directed axially of the upper and lower arms of the base. The purpose of the cored area 14 is to provide for uniform heat treatment of the increase of metal afforded by this construction and to provide for reinforcing the crown region 15 of the base which ordinarily is inherently weak.

The point body or wedge shape nose 6, working in conjunction with the two parallel surfaces on a plane with lines *a*—*c* and *b*—*d* secure the tip or impact element against vertical movement ordinarily due to stresses and strains encountered in straight digging, while the surface along the lines *a′ b′* and *x y* in conjunction with the bifurcated portion 10 secure the tip against lateral movement. Hence, there will be no spreading of the wings 16, which are of small extent anyhow, and are further insured against spreading by the great depth of the shank 9 and its nice fit in the rectangular pocket or cavity 11.

The surfaces *a*—*c* and *b*—*d* should be

substantially parallel to the axis of the point as otherwise it would be necessary to reduce the shank 9′ as it approaches the line *c*—*d*; and a corresponding condition must exist with regard to the box section cavity 11. Otherwise stated, I provide an equal distribution of metal in the shank with respect to the axial line of the point.

It will be manifest to those skilled in the art that I have effectively solved the problem of digging teeth, by building up the nose of the base so that it will carry most of the burden of digging and by providing an impact element or tip, which will effectively arm the base, and the discarding of which when worn will entail very little scrapping. The fact that the tip is reversible in the same manner as the ordinary point means that it will wear practically down to the web.

Having this described my invention, what I claim as new, is:

A dipper tooth embodying a base for application to a dipper and whereof the portion which normally extends beyond the dipper is of box section with a cross slot at the front and with a branched core in the maximum development of the structure, and a reversible cutting bit having V clefts to fit the end walls of the cross slot and having a deep anchoring portion to prevent spreading on the walls under changing direction of digging stress.

In testimony whereof I affix my signature.

LESHER W. VAN BUSKIRK.