

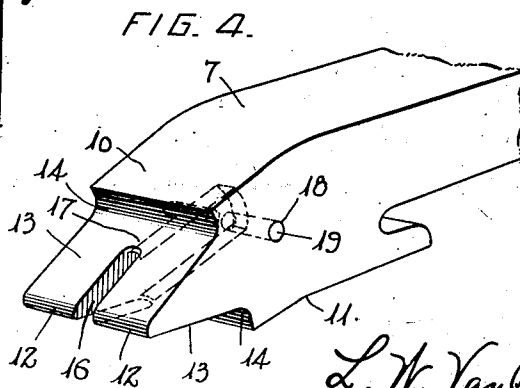
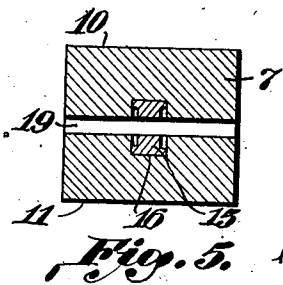
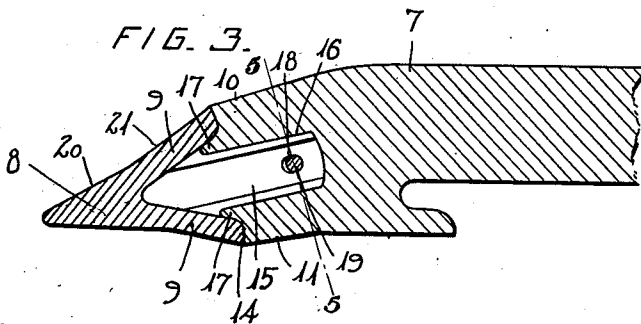
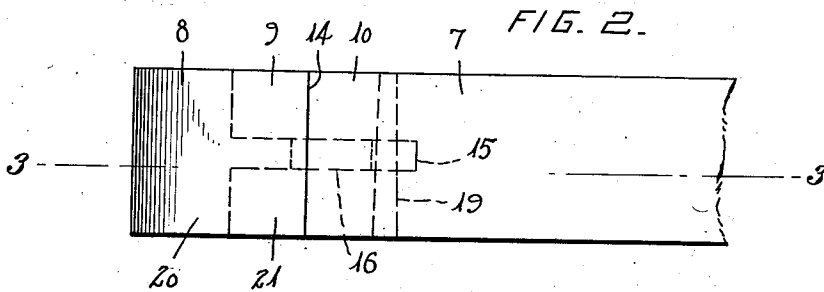
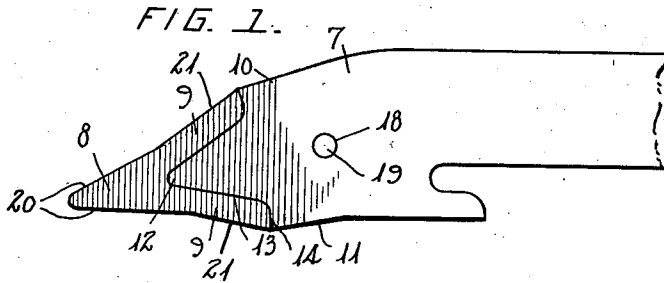
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EXCAVATING TOOTH

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EXCAVATING TOOTH

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The present invention relates to the teeth of excavating or digging dippers, and aims to provide an excavating tooth comprising a base and removable tip assembled in a novel manner to resist stresses and strains and to provide for greater efficiency as compared with excavating teeth heretofore in use.

Another object of the invention is to form the base and tip of the tooth with novel inter-engaging and interfitting portions and with provision for attaching the base and tip together, so as to rigidly and firmly hold the tip in place on the base.

A further object is to provide a tip of such form that will in actual digging present a sharp cutting surface and at the same time lift and deflect the dug or loosened material away from the forward end of the base so as to increase the life of the base.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation of the improved tooth, the rear terminal of the base being broken away.

Fig. 2 is a plan view of the tooth.

Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the base of the tooth.

The tooth comprises the base 7 and tip 8 composed of suitable metal, and the base 7 is secured in the usual manner to the bottom of the dipper (not shown).

The tip 8 is V-shaped in side elevation, and has the rearwardly diverging wings 9 which extend to the upper and lower surfaces 10 and 11, respectively, of the base 7. The wings 9 fit astride the nose 12 of the base 7 which is V-shaped in side elevation, and the sides of the base and tip are flush, as seen in Fig. 2. The nose portion of the base has the upper and lower seating surfaces 13 against which

the wings 9 of the tip bear, and the base has the shoulders 14 at the rear ends of the surfaces 13 against which the rear ends of the wings 9 contact, so that the surfaces 13 and shoulders 14 take up the stresses and strains from the tip 8 under compression. The forward end portion of the base 7 is bifurcated, being provided with a slot 16 between the opposite sides of the base and extending from the nose 12 rearwardly and upwardly so as to substantially bisect the angle between the surfaces 13. The bifurcation of teeth bases heretofore used has been a source of annoyance, due to the weakening of the bases, resulting in breakage. In order to overcome such defect, and strengthen the base, the tip is provided with the webs 17 above and below the slot 16 extending forwardly from the shoulders 14 and flush with the surfaces 13, so that the wings 9 seat against the webs 17. The webs 17 thus unite the opposite side portions or wings of the nose of the base, making the nose portion of the base stronger at its point of greatest stress and resisting the tendency for the side portions of the base nose to separate or break off sidewise.

The inner construction of the tip has a web 15 in the angle between and connecting the wings 9 and extended rearwardly to provide a shank or stem. Said shank is of I-cross section to provide for maximum strength with minimum cross-sectional area, with the shank thickest at its upper and lower edges where the strength is most needed. The shank 15 extends rearwardly within the slot 16 between the webs 17, thereby providing a strong construction, and the shank fitting in the slot 16 with the wings 9 bearing against the surfaces 13 will enable the point to take up the stresses and strains with minimum possibility of breakage or displacement of the tip. The flanges of the shank provide contacting portions at the upper and lower edges of the sides of shank to contact with the sides of the slot 16, and it will be noted that these flanges or contacting portions terminate short of or are spaced from the juncture of the wings 9. Therefore, the shank only contacts with the base at points spaced from the nose of the base, thereby decreasing

the bending strain on the nose portion of the base due to side pressure on the tip.

In the outer construction of the tip on which comes the wear due to digging, the tip is V-shaped in side elevation starting from the apex to a point adjacent to or slightly rearwardly beyond the tip of the nose 12 of the base, to provide the flat upper and lower surfaces 20. From the rear ends of the surfaces 20 extend the surfaces 21 to the ends of the wings 9, and the surfaces 21 are at a greater angle to the bisector of the angle of the tip than are the surfaces 20. The surfaces 20 and 21 are arranged at obtuse angles relatively to one another, and the angle between the surfaces 21 is substantially the same as the angle between the surfaces 13 or the inner surfaces of the wings 9, and is greater than the angle between the surfaces 20. As a result the surfaces 21 are arranged at angles with the surfaces 10 and 11 of the base greater than 180 degrees, so that said surfaces are not flush, and the surfaces 21, in the actual digging action, will deflect the material away from the surfaces 10 and 11, so as to increase the life of the base, and prevent the gouging out of the surfaces 10 and 11. The shoulders 14 are relatively deep and the rear ends of the wings 9 are relatively thick, whereby the surfaces 10, 11 and 21 converge together to said shoulders outwardly beyond the planes of the tip surfaces 20 so that the tooth is of increased thickness at said shoulders.

The base 7 and shank 15 have apertures 18 adapted to register when the tip is moved home, and adapted to receive a pin or bolt 19, to secure the tip to the base. The pin or securing element 19 being located rearwardly beyond the wings 9 will eliminate the tendency for the tip to rotate around the securing element, such as when the securing element is located further forward or between the wings of the tip.

The webs 17 are located in rear of the open portion of the slot 16, so that the seating or bearing surfaces 13 of the nose extend completely across the width of the base, and the rear portions of the wings 9 thus seat on the surface 13 for the full width of the base and tip. Not only do the wings 9 bear against the surfaces 13, but the shank 15 bearing against the upper and lower walls of the slot 16 will enable the tooth to resist the stresses due to the excavating or digging action.

Having thus described the invention, what is claimed as new is:—

1. An excavating tooth tip having diverging wings and a rearwardly extending shank between the wings provided with contacting portions at its opposite sides to contact with the sides of a slot in a tooth base, said contacting portions terminating short of the juncture of said wings.

2. An excavating tooth tip having diverg-

ing wings and a rearwardly extending shank between the wings of I-shaped cross section with the flanges at the opposite sides of the shank to contact with the sides of a slot in a tooth base, said flanges terminating short of the juncture of said wings.

3. An excavating tooth comprising a base having a nose, upper and lower surfaces in rear of the nose, relatively deep shoulders between said nose and surfaces, and a slot in the nose and entering the base beyond said shoulders, and a tip having diverging wings fitted over said nose, the rear ends of the wings being relatively thick and abutting said shoulders, the outer surfaces of the wings being at an obtuse angle with the surfaces of the tip, said base and wing surfaces converging together to said shoulders outwardly beyond the planes of said tip surfaces so that the tooth is of increased thickness at said shoulders, the tip having a shank between and projecting beyond said wings and entering said slot.

In testimony whereof I hereunto affix my signature.

LESHER W. VAN BUSKIRK.