

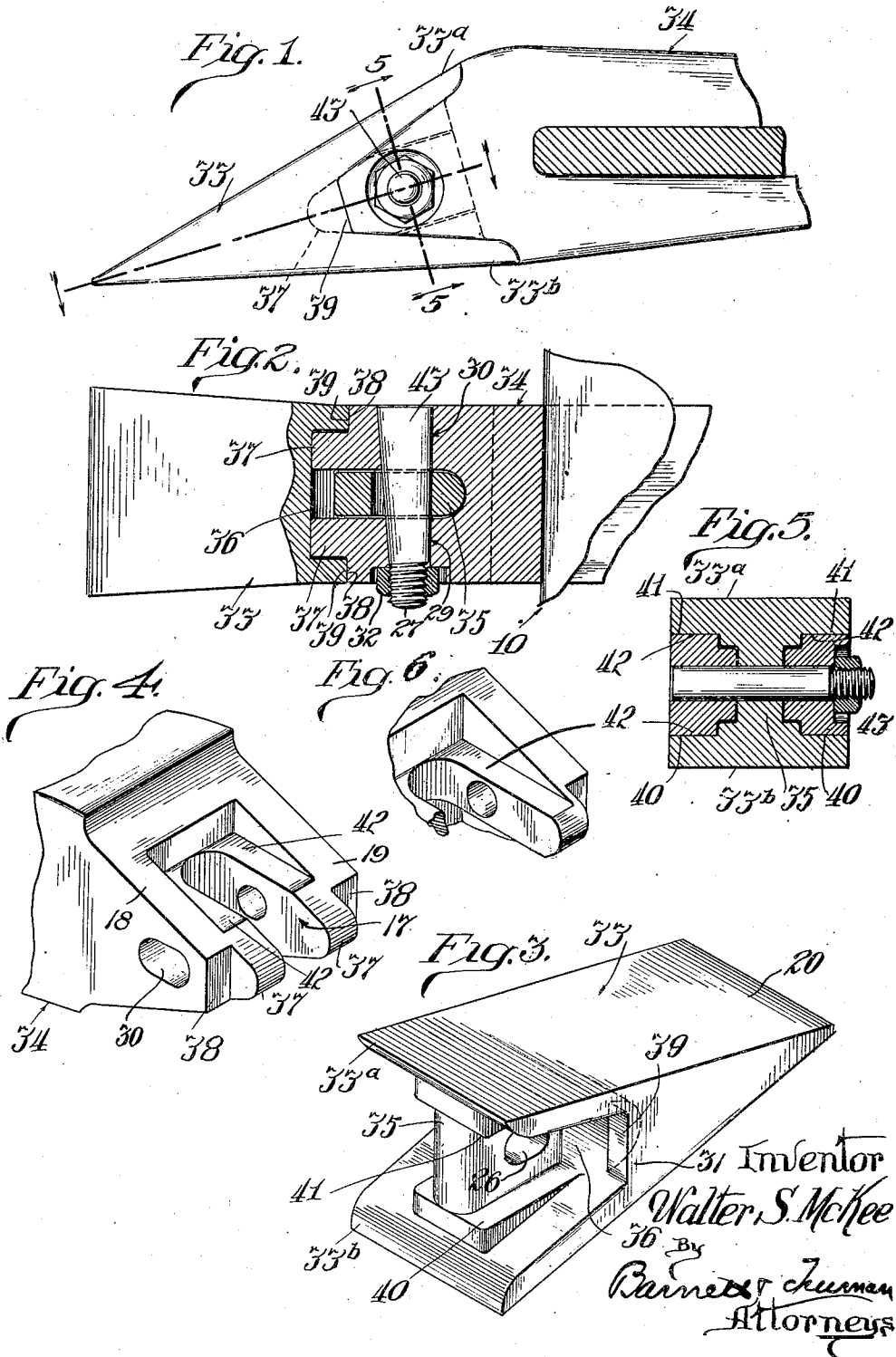
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DIPPER TOOTH

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DIPPER TOOTH

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My invention relates to dipper teeth for excavating buckets and the like and has particular reference to a two-part tooth including a base and a removable point therefor, in which the base has a bifurcated end or nose, the parts being provided with engaging portions so designed and constructed as to prevent lateral motion of the point on the base, to prevent spreading of the bifurcated ends of the nose, to hold the point rigidly in position on the nose at all times, and to relieve the attaching bolt from strain during digging.

The nose of the base of this invention is bifurcated while the rearwardly extending jaws of the point are connected by a vertically disposed web which extends substantially the whole length of the jaws. A recess is formed in the point forwardly of the front edge of the web and between integral portions or sides of the point for the reception of the front end of the nose. This recess is open in but one direction, i. e., rearwardly. The ends of the base nose enter this recess when the parts are assembled in operative relation. A wedge bolt is passed through suitably disposed openings in the sides of the nose and the web of the point for retaining the point in place.

An object of the invention is to provide a dipper tooth construction wherein the point is rigidly held in operative position on a bifurcated base in such manner as to prevent spreading of the nose of the base by means of the interfitting of the base and the point.

Another object of the invention is to provide a dipper tooth construction including a base and a removable point wherein the bifurcated nose of the base is prevented from spreading by means other than the attaching bolt employed to connect the point to the base.

A further object of the invention is to provide a construction of a dipper tooth wherein the base portion has a bifurcated nose with a removable point, the point being held against lateral motion by a web extending between the jaws of said point and received within the bifurcated end of the base; wherein the bifurcated portion of the nose is pre-

vented from spreading by side webs in the point embracing the ends of the bifurcated nose; and wherein a wedge bolt cooperates with the base and point for securing said point rigidly in position on the nose.

A still further object of the invention is to provide a dipper tooth construction wherein the ends of the bifurcated noses are braced laterally by side webs in the point, thus relieving the attaching bolt of strain in this regard.

Another and further object is to provide the base and point of a two-part dipper tooth with cooperating ledges and shoulders for engagement during digging for relieving the attaching bolt from the usual digging strains.

A yet further object of the invention is to improve dipper tooth construction whereby the bifurcated base and point may be manufactured readily so as to be well adapted to foundry practice, both as to manufacture and core making and also one that is easily ground and fitted.

The above recited and other objects will be apparent from the following specification and drawings, and will be particularly pointed out in the appended claims.

In the drawings:

Fig. 1 is a side elevation, showing the preferred form of my invention.

Fig. 2 is a top plan view, partially in section, of the structure shown in Fig. 1.

Fig. 3 is a perspective view of the point.

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

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1, and

Fig. 6 is a fragmentary perspective view of a modification.

The base of my invention as represented generally by the reference character 34 is formed with spaced upper and lower jaws adapted to be engaged in the usual manner with the edge portion of an excavating dipper. The front end of the base 34 is wedge-shaped, defining a nose which is bifurcated by slot 17, thus forming the two nose portions 18 and 19. This aperture 17 is for the reception of the web in the point as will more

fully hereinafter appear. The outer end portions of the nose members 18 and 19 have shoulders 38 defined by cutting away or otherwise shaping the front ends of the nose portions to provide said shoulders and reduced ends 37 as shown in Fig. 4 of the drawing.

The point of my invention shown in Fig. 3 in perspective, comprises a digging or cutting edge 20 and rearwardly extending and diverging jaws 33a and 33b. A vertically disposed web 35 extending lengthwise of the point connects the jaws 33a and 33b for strengthening purposes. This web extends from approximately the rear ends of the jaws forwardly terminating short of the recess or pocket 36 formed in the point. The inner surfaces of the jaws 33a and 33b converge and meet a vertically disposed surface 39 which forms an abutment substantially at right angles to the longitudinal axis of the point member. The web 35 is provided with an elongated opening 26 for the reception of a bolt to fasten the point in position on the base.

In Fig. 2 there is shown in plan the bolt which I prefer to employ in securing the point to the base of my invention. The bolt comprises a circular threaded end 27 and its body is flattened and provides a wide end 43. This end is substantially elliptical in shape.

In the member 18 of the nose of the base an aperture 30 is provided which has one surface perpendicular and the other surface inclined to the plane of the side of the nose. Similarly the member 19 is provided with an aperture 29 having one perpendicular side in alignment with the perpendicular side of the aperture 29 and with its other side inclined coincident with the inclination of the aperture in the side 18.

The sides of the point immediately forwardly of the abutment 39, as indicated at 31, form the ends of the pocket or recess 36 therein.

In assembling the point on the base the web 35 is received in the aperture between the members 18 and 19 of the nose with the abutments 39 of the point against the shoulders 38 of the base. The bolt is inserted with the nut off through the larger opening in the side 18 passing through the opening 26 in the web of the point and through the opening 29 in the side member 19 of the nose. The nut 32 is then applied and tightened as desired. It will be noted from Fig. 2 that the rear surface defining the aperture 26 in the web 23 is forwardly of the rear walls of the openings 29 and 30 in the nose members 18 and 19. Consequently, as the nut 32 is tightened on the bolt the point will be drawn inwardly to tightly fit the base.

It will be observed that lateral motion of the point on the base is prevented by reason of the web 35 being included between the

members 18 and 19 of the nose and because also of the side members 31 of the point overlapping the outer ends 37 of the bifurcated portions of the base. All digging strains therefore will be transmitted from the point to the base through the jaws 33a and 33b, the abutting surfaces 39 and 38 and the contacts between the meeting surfaces of the ends 37 of the base with the corresponding surfaces or ends of the recess 36 in the point.

The ends 37 are curved in plan, to correspond substantially to the curvature of the inner wall of the recess 36.

It will be noted that the abutting shoulders 37 and 38 are perpendicular to the center line of the point, that is, the line of movement in digging.

It will be noted that with my invention the side walls 31 of the point overlap the ends 37 of the nose of the base much nearer the digging edge 20 of the point than is possible with other types of construction.

For relieving the attaching bolt from digging strains, that is strains in a substantially vertical direction, I provide the jaw 33b of point 33 with substantially horizontally disposed ledges 40 alongside of the web 35, there being similar ledges 41 on the upper jaw 33a. The ledges 40 and 41 are disposed on both sides of the web 35. For cooperating with these ledges 40 and 41 of the point 33 I form shoulders 42 in the nose portion of the base. In Fig. 5 the engagement between the ledges 40 and 41 with the shoulders 42 is shown. It will be noted from this drawing that the vertical digging strains transmitted to the point 33 of the dipper tooth are taken by engagement with these ledges and shoulders and thus removed from the attaching bolt 43.

It will be noted that with the improvements of my invention, spreading of the end 37 of the nose 34 is prevented by reason of the engagement with the recess 36 of the point and that the vertical digging strains are taken by engagement of the shoulders and ledges 40, 41 and 42 and that the horizontal strains imposed on the point 33 are transmitted to the nose through the web 35 engaging with the sides of the bifurcated end members of the base. In this manner all strain such as digging and those necessary to prevent spreading are taken by the means disclosed above, thus relieving the attaching bolt from all strains except that necessarily imposed by keeping the nut thereon tight to maintain the point in operative position on the base at all times.

I have found that by making the base and point in the manner above described, a benefit is derived therefrom in the foundry, both as to manufacturing the parts and also as to core making. Furthermore, it is easier to grind and fit these parts together than it is

in the case of bases and points constructed according to the present practice.

While I have described more or less precisely the details of construction of my invention, yet I do not wish to be understood as limiting myself thereto as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient, without departing from the spirit or scope of my invention.

I claim:

1. A dipper tooth including a base and a removable point, said base having a bifurcated nose providing two nose portions, the end of each nose portion being formed with a shoulder, said point having diverging jaws and a centrally disposed pocket forwardly of the jaws, the sides of the point forming end members for said pocket and for lateral engagement with the ends of the nose portions to prevent spreading of the same when in assembled position, a web connecting said jaws and adapted to enter the space between said nose portions, said point having inwardly projecting substantially parallel ledges underneath the jaws and adjacent the web, and the nose portions being recessed to receive the ledges, and means cooperating with said nose portions and said web for attaching said point to said base.

2. A dipper tooth including a base and a removable point, said base having a bifurcated nose providing two nose portions, the end of each nose portion being formed with a shoulder, said point having a solid end and diverging jaws with a pocket in said end forwardly of said jaws, said pocket having a curved front wall and flat ends, said ends being integral parts of said point and terminating in abutments, said pocket adapted to receive the extremities of said nose portions with the shoulders of said nose portions against the abutments of said point, the sides of the nose portions forwardly of said shoulders bearing against the inner surfaces of said pocket ends, said point having a web between the jaws adapted to be received between the two nose portions of the base, and means for securing said point to said nose, including a wedge bolt passing through suitably disposed openings in the nose portions, and substantially parallel interengaging ledges and shoulders formed interiorly on the nose and point for accepting lateral strains.

3. A dipper tooth comprising a base and a point, said base being bifurcated to form spaced side portions, said point having a web adapted to enter the space between said side portions, said point also having a pocket forwardly of the web for receiving the ends of said side portions and engaging the sides and ends of the same, said point having in-

wardly projecting ledges underneath the jaws and beside the web thereof, the side portions of said base being recessed to receive the ledges thus forming shoulders for contacting with said ledges when in assembled relation, whereby strains imparted to said point are resisted by said engaging shoulders and ledges, the pocket in said point serving to prevent spreading of said side portions of the base, and a bolt for retaining said point on said base.

4. A dipper tooth comprising a base having a tapered nose, and a wedge shaped point, the nose being vertically bifurcated to form two similar side nose portions, the outer sides of the tapered ends of the side nose portions being recessed to provide forwardly facing shoulders and inner forwardly projecting tapered ends, the top and bottom diverging faces of the tapered nose being centrally recessed rearwardly of the tapered ends and shoulders to form similar recesses at either side of the bifurcation, the bottom faces of these recesses in the upper and lower faces of the nose being substantially parallel with one another, the larger rear end portion of the point being recessed to form upper and lower diverging jaws adapted to overlie the upper and lower faces of the nose, there being a web centrally connecting the jaws and received in the bifurcation between the side portions of the nose, the forward end portion of the point being centrally recessed to receive the projecting tapered ends of the nose portions, the base portions of the jaws being connected by vertically extending side walls adapted to engage the outer faces of the tapered ends of the nose and the shoulders at the base of these tapered ends, there being opposed ledge portions formed on the inner faces of the jaws and at the sides of the web and adapted to fit within the upper and lower recesses in the nose of the base, and removable means for securing the point to the base.

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