

[54] **DIGGER TOOTH AND MOUNTING THEREFOR**

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[51] Int. Cl. **E02f 9/28**
[58] Field of Search **37/141 T, 142 R, 37/142 A; 172/713, 719, 732, 733, 751**

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[57] **ABSTRACT**

A digger tooth is held by a bolt against a beveled mounting that prevents relative rotation. The tooth is reversible end-for-end and has triangular holes there-through such that when new, the tooth is well adapted for loose dirt; when worn down part way, the tooth is useful for hard dirt; and when worn down still more, the tooth is useful in rocky soil.

5 Claims, 7 Drawing Figures

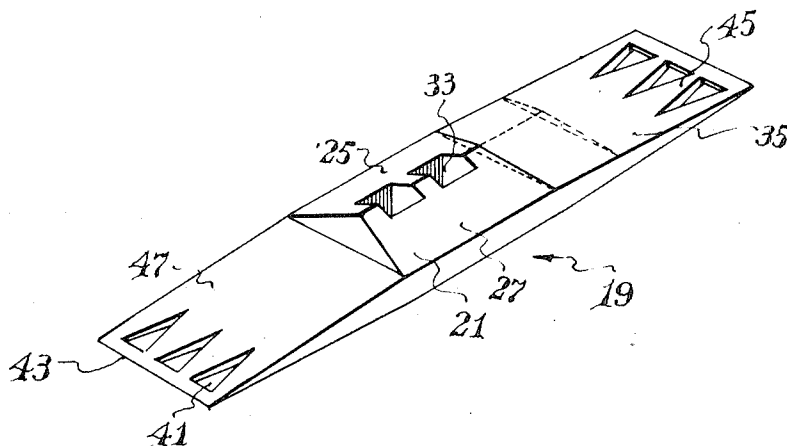


Fig. 1

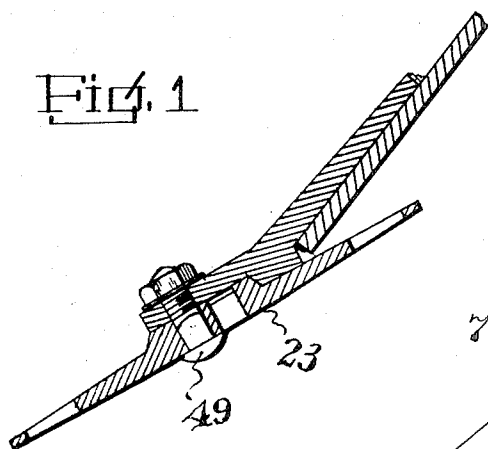


Fig. 2

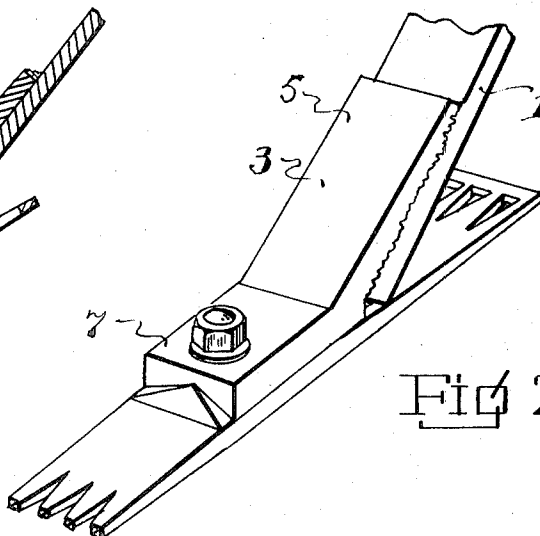


Fig. 3

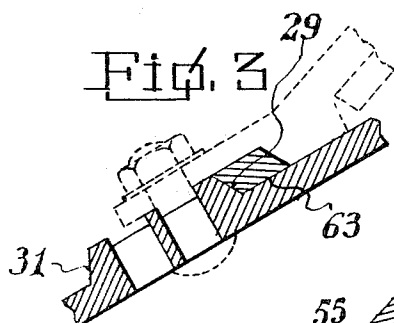


Fig. 4

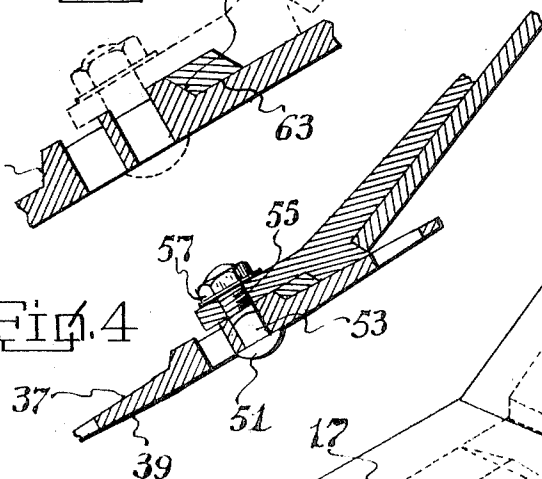


Fig. 6

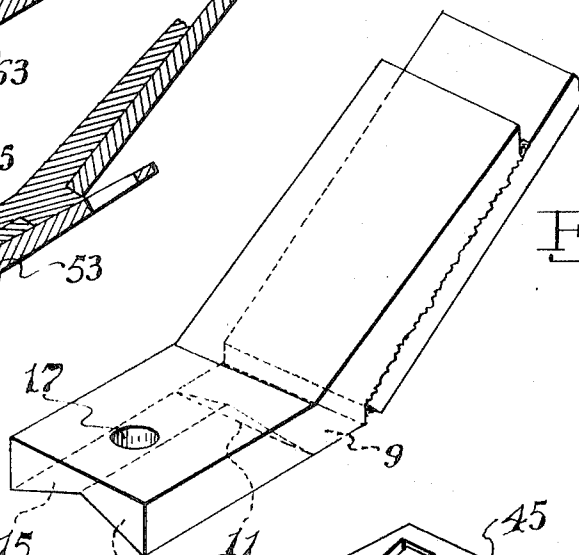


Fig. 5

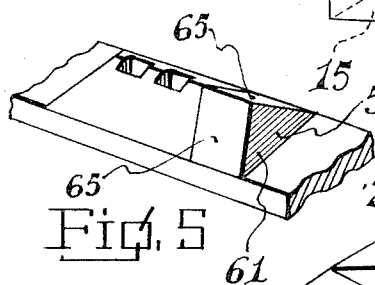
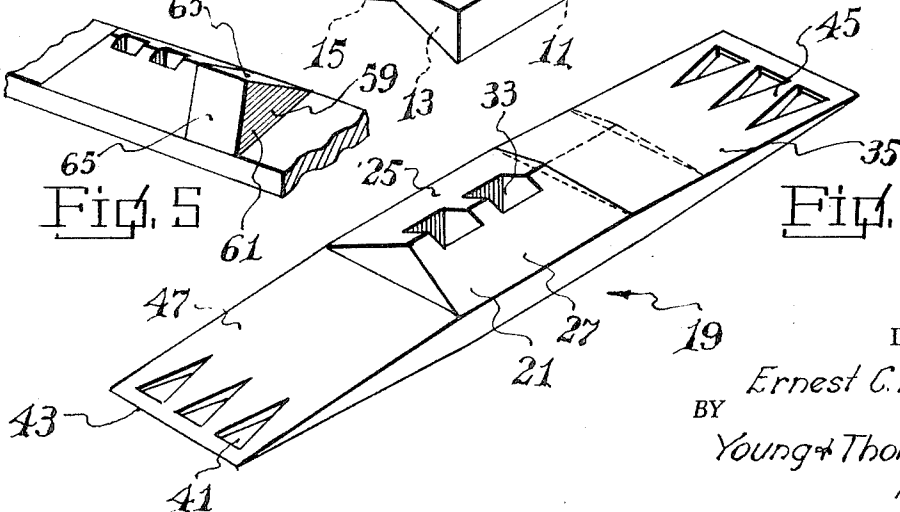


Fig. 7



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DIGGER TOOTH AND MOUNTING THEREFOR

The present invention relates to digger teeth and mountings therefor.

The invention is an improvement on the invention of my U. S. Pat. No. 3,576,082, issued Apr. 27, 1971.

It is an object of the present invention to provide a digger tooth and a mounting therefor such that the tooth will be firmly locked against the mounting when in use.

Another object of the present invention is the provision of a digger tooth having a mounting therefor, in which the tooth is double-ended and readily reversible.

Still another object of the present invention is the provision of a digger tooth of such configuration that it will have various uses when new and when worn down by various amounts.

Finally, it is an object of the present invention to provide a digger tooth and a mounting therefor which will be relatively simple and inexpensive to manufacture, easy to install, replace, maintain and repair, and rugged and durable in use.

Other objects and advantages of the present invention will become apparent from a consideration of the following description, taken in connection with the accompanying drawing, in which:

FIG. 1 is a cross-sectional view of the invention in one position of use;

FIG. 2 is a perspective view of a digger tooth and mounting therefor according to the invention;

FIG. 3 is an enlarged fragmentary side cross-sectional view of a digger tooth and a positioning wedge according to the present invention, with the mounting shown in phantom lines;

FIG. 4 is a view similar to FIG. 1 but showing the wedge inserted;

FIG. 5 is a fragmentary perspective view of the central portion of the digger tooth with the wedge in place;

FIG. 6 is an enlarged perspective view of the mounting; and

FIG. 7 is a perspective view of the tooth, showing its orientation when it is juxtaposed to a mounting positioned as in FIG. 6.

Referring now to the drawing in greater detail, there is shown a digging tooth and mounting therefor according to the present invention, useful for example in the environment of a trench digger which is not shown in the drawing but may be comprised as in my above-mentioned patent. Such a digger would have a digger wheel carrying a plurality of digging buckets 1 each of which carries a plurality of brackets 3.

Each bracket 3 comprises a base portion 5 by which the bracket is welded to the digging edge of the bucket 1 and a forwardly extending support portion 7 at an oblique angle thereto. Support portion 7 has a flat upper surface and flat side and front surfaces perpendicular to the flat upper surface and to each other, and a flat rear under surface 9 generally parallel to the flat upper surface of support portion 7. Support portion 7 of bracket 3 also has a plurality of inclined surfaces 11, 13 and 15, which pairwise define a plurality of dihedral angles that bound a generally downwardly opening recess on the under side of support portion 7. A hole 17 extends through support portion 7 generally perpendicular to the flat upper surface thereof.

A tooth 19 is removably carried by support portion 7 of bracket 3, and comprises a relatively thick central portion 21 having a flat under surface 23 and a projec-

tion on its upper surface which is bounded by inclined upper surfaces 25 and 27 that terminate endwise in inclined surfaces 29 and 31. A pair of polygonal holes 33 extend through central portion 21 of tooth 19.

Tooth 19 also has a pair of end portions 35 having upper and lower surfaces 37 and 39 that converge endwise toward each other. Each end portion 35 is traversed by a plurality of triangular holes 41 whose apices are directed toward central portion 21. Triangular holes 41 are spaced from the ends of end portions 35 by bridges 43. The holes 41 are thus separated by tapered teeth 45, which terminate in the direction of central portion 21 in bases 47 of the end portions 35.

A bolt 49 passes through hole 17 in bracket 3 and through one of the polygonal holes 33 in tooth 19. Bolt 49 has a head 51 that rests flat against flat surface 23, and a polygonal shank portion 53 complementary to the polygonal hole 33 that it occupies. Bolt 49 also has a threaded shank portion 55 toward the end thereof, on which is received a nut 57.

The assembly of the present invention also comprises a wedge 59, which may be identical to that of my patent identified above and which is used for the same purpose. Thus wedge 59 has inclined surfaces 61 that are complementary to the inclined surfaces 11, 29 and 31, and a flat undersurface 63 that rests flat against the surfaces 37 of end portions 35 of tooth 19, as well as dihedrally arranged surfaces 65 that are complementary to the dihedral undersurfaces 13, 15 of the bracket 3. Thus, when the wedge 59 is disposed between the tooth and bracket as shown in FIGS. 3 and 4, it is in substantial area contact with the tooth and the bracket and the tooth is extended forwardly to a deeper digging position suitable for soft dirt and the like. In this deeper digging position, the bolt 49 will be disposed in one of the holes 33; while in the shallower digging position, in which wedge 59 is omitted and the parts have the relationship shown in FIG. 1, the bolt 49 will be disposed in the other of the holes 33.

It will also be appreciated that when the parts are assembled as best seen in FIG. 2, the interaction of the surfaces 11, 13 and 15, with the complementary surfaces 21, 25, 29 and 31 of tooth 19, with or without the wedge 59 between them, will prevent rotation or misalignment of the tooth 19 relative to bracket 3.

Furthermore, it will be appreciated that, when the tooth is new and the bridge 43 is still present, the tooth is ideally adapted for digging in soft dirt. After a certain amount of use, bridge 43 will wear away, leaving the teeth 45 exposed as indicated in FIG. 2, for digging in hard dirt. Finally, when the teeth 45 are worn away, the base 47 will be useful for digging in rocky soil.

Opposite ends of the same tooth may accordingly be in different conditions, so that different kinds of soil can be dug simply by reversing the same teeth. Alternatively, a supply of teeth in addition to those mounted on the digging bucket 1 can be maintained, in various conditions of wear, so that any type of soil can be successfully dug with only a quick adjustment or replacement of the teeth, it being also unnecessary to purchase and stock more than one type of tooth, because the same teeth progress from one utility to the next as they wear down.

In view of the foregoing disclosure, therefore, it will be evident that all of the initially recited objects of the present invention have been achieved.

Although the present invention has been described and illustrated in connection with a preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claims.

Having described my invention, I claim:

1. A digging tooth and a support therefor, means interconnecting said tooth and said support, said tooth and said support having interengaging wedge surfaces such that when digging force is applied to the tooth, the tooth and said interconnecting means are forced more strongly together, said interconnecting means comprising a bolt passing through said tooth and support, and means mounting said tooth on said support for reversal of the position of said tooth on said support end for end, said support having a forwardly opening recess on its under side defined by three inclined flat surfaces that intersect each other at oblique dihedral angles to form three apices that meet in a point, one of said three apices extending forward from said point parallel to and equally spaced from the sides of the tooth, the other two apices extending from said point downwardly rearwardly to said opposite sides of the tooth, said

tooth having a projection on its upper surface that is bounded by inclined surfaces that intersect each other at dihedral angles complementary to said dihedral angles of said support so that said projection nests in said recess with said surfaces in contact with each other.

2. Apparatus as claimed in claim 1, said projection being disposed centrally of said tooth and being bounded by four inclined surfaces such that said tooth is reversible end for end and nests in said recess in either of the two reversed positions thereof.

3. Apparatus as claimed in claim 2, said interconnecting means being a bolt, a bolt hole passing through said support for receiving said bolt, and two bolt holes passing through said projection for alternatively receiving said bolt.

4. Apparatus as claimed in claim 1, said tooth having triangular openings extending therethrough at opposite ends thereof, the apices of said triangular openings being disposed at the ends of said openings most closely adjacent the center of the tooth and farthest from the ends of the tooth.

5. Apparatus as claimed in claim 4, said holes being spaced from the ends of the tooth by a continuous bridge integral with said tooth and extending along the end of said tooth.

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