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EARTH WORKING TOOL POINT

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FIG. 1

FIG. 2

FIG. 3

FIG. 4

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This application is co-pending with my prior application, Serial No. 377,033, filed June 22, 1964, issued Jan. 25, 1966, Patent No. 3,231,026; which it was co-pending

This invention relates to earth working tools and more particularly to a tool point designed for deep penetration of heavily compacted earth.

The tool point herein disclosed is particularly adaptable to use on vibrating type earth working equipment designed for very deep penetration of heavily compacted earth materials. Machines of this kind generally use the common "bucket tooth" point which has design characteristics that give it a high angle of incidence and make it heavy of draft and subject to heavy abrasion, consequently of short life and expensive to use. These problems are overcome by use of a tool point embodying my invention.

An object of this invention is to provide a tool point for deep earth penetration having a low angle of incidence and consequently easy of draft.

Another object is to provide such a tool point of triangular design for easy penetration of heavily compacted earth materials.

Another object is to provide such a tool point with a triangular cross section which has different metallurgical characteristics at the three edges, giving it wearing characteristics that make it maintain a sharp point for easy penetration of the earth.

Another object is to provide a triangular chisel or spike-like point having a boot for mounting on a vibrating deep penetrating subsoil shank.

A further object is to provide such a point adaptable to forging and of rugged construction.

Still further objects are to achieve the above purposes with a device that is sturdy, compact, simple of design, durable, yet inexpensive and easy to manufacture and use.

The novel features of this invention as well as other objects and advantages will become apparent from the following description and from the accompanying drawings, in which:

FIGURE 1 is a side elevation showing my invention.
FIGURE 2 is a top view of FIGURE 1, taken on line 2-2 of FIGURE 1.
FIGURE 3 is a rearward elevation of FIGURE 1.
FIGURE 4 is a cross section on the lines 4-4 of FIGURE 2.

Referring to the drawings there is disclosed a deep tillage tool embodying my invention and comprising an elongated body 10 of generally triangular cross section as shown in FIGURE 4, comprising an upper straight segment 11 disposed downwardly and forwardly curving lower segment 12. The upper straight segment 11 fairs smoothly into the lower curved segment 12 to form an earth penetrating blade having a low angle of incidence for easy penetration of the earth. The tool blade is provided with two working faces 13 which form two sides of the triangular cross section. A flat surface back face 14 forms the base of the triangular cross section and extends along the back side of the blade. A boot 15 is attached to the back face 14 of the body 10 to provide means for attaching the tool to a tool carrying shank (not shown). The lower end of the tool carrying shank is designed to pass into the aperture 16 provided in the boot 15. A hole 17 is provided transversely through the boot and is adapted to register with a like hole in the tool carrying shank for insertion of a bolt to secure the tool point on the shank. A rib 18 is provided at each corner at the juncture of the working faces 13 with the back face 14, and a like rib 19 runs along the spine of the blade at the juncture of the two working faces 13.

In this invention I have provided a tool designed to be forged having a triangular cross section that will provide a maximum of strength against breaking or bending, and yet present a thin point for easy penetration of the earth. The angle of incidence has been reduced to a very low angle and the blade given a curved contour that allows for wear without greatly increasing the angle of penetration. A sharp frontal area is presented to the soil for easy penetration and movement through the earth. Also a heat treating process may be used by which the ribs 18 and 19 are hardened for wear and abrasion resistance while the inside body of the blade will be tough and resistant to breakage and bending. Also the ribs may provide a skeletal base for applying hard surface material by conventional hardening processes or by electro-plating. In use these ribs, being hardened, serve as a wear resistant skeleton on the corners of the blade so as to control the wear to cause the blade to maintain its triangular shape and sharpness.

This invention provides a deep earth tillage tool requiring a minimum of draft by penetrating the earth at a very low angle of incidence. It also provides a sharp penetrating blade and by reason of its curved contour and triangular shape maintains its sharpness as it wears. It is also long wearing by reason of its triangular shape and hard surfaced ribs at the corners.

The embodiment of this invention as herein disclosed is only exemplary and various modifications can be made in construction, materials and design within the scope of the invention as defined in the appended claims.

I claim as my invention:

1. A metal tillage tool for deep earth penetration comprising:
   (a) an elongated body
   (b) of basic triangular cross section,
   (c) an upper straight segment of the body fairs smoothly into
   (d) a lower curved segment of the body extending downwardly and forwardly to form an earth penetrating blade,
   (e) the body having a back face, straight in cross section, which forms the base of the triangular cross section, and
   (f) a boot fastened to the back face of the upper segment for mounting on a tool carrying shank.

2. The invention as defined in claim 1 wherein
   (g) a rib extends along the blade at each of the corners of the basic triangle, thereby altering the cross sectional shape so that it is not truly triangular.

3. The invention as defined in claim 2 wherein
   (h) the metal of the ribs is harder and more wear resistant than the metal of the remainder of the blade.

4. A metal earth working tool for deep earth penetration comprising:
   (a) a blade which is
   (b) basically triangular in cross section,
   (c) a rib at each of the corners of the triangle, thus modifying the triangular configuration,
   (d) the metal of each rib being harder and more wear resistant than the remainder of the metal,
   (e) a back face, straight in cross section, on the blade, and
   (f) means on the back face for mounting the blade on a tool carrying shank.
5. A metal tillage tool for deep earth penetration comprising:
(a) an elongated body, having
(b) an upper straight segment, and having
(c) a lower curved segment extending downwardly and forwardly to form an earth penetrating blade
(d) a plurality of ribs extending along the blade,
(e) the metal of each rib harder and more wear resistant than the metal of the remainder of the blade,
(f) a back face, straight in cross section, on the blade, and

4. (g) a boot attached to the back face for mounting the blade on a tool carrying shank.

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