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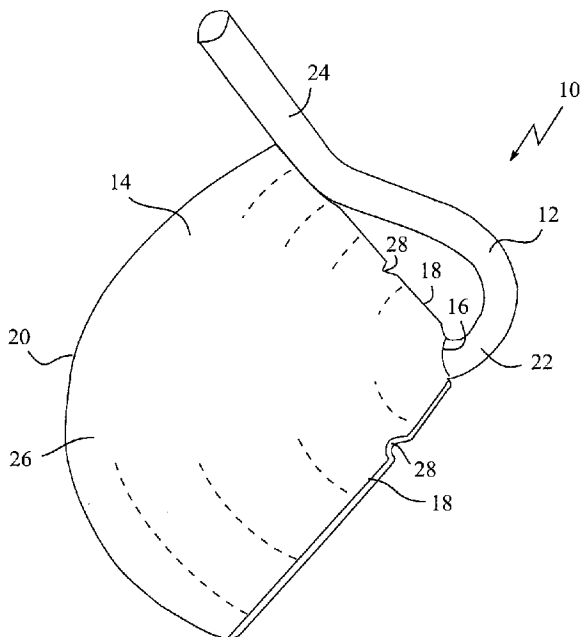
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(57) **Abrégé/Abstract:**

There is provided a hoe having a handle portion and a blade having a base, lateral edges and a leading edge. The lateral edges meet at the base, the leading edge meets each of the lateral edges, and the blade is attached to the handle portion at the base. The leading edge is rounded to form a convex portion of the blade and the surface of the blade is curved. The blade may be shaped like a portion of a spherical cap.

ABSTRACT OF THE DISCLOSURE

There is provided a hoe having a handle portion and a blade having a base, lateral edges and a leading edge. The lateral edges meet at the base, the leading edge meets each of the lateral edges, and the blade is attached to the handle portion at the base. The leading edge is rounded to form a convex portion of the blade and the surface of the blade is curved. The blade may be shaped like a portion of a spherical cap.

HOES

TECHNICAL FIELD

[0001] Hoes.

BACKGROUND

[0002] Hoes are used in agriculture to shape soil, control weeds, clear soil and harvest roots crops. There many hoes, which typically have flat blades with flat leading edges.

SUMMARY

[0003] In an embodiment, there is provided a hoe, comprising a handle portion and a blade having a base, lateral edges and a leading edge, the lateral edges meeting at the base, the leading edge meeting each of the lateral edges, and the blade being attached to the handle portion at the base, wherein the leading edge is rounded to form a convex portion of the blade. In an embodiment, the surface of the blade has the curvature of the surface of a sphere.

[0004] In an embodiment, there is provided a hoe, comprising a blade having a surface and a handle portion attached to the blade, wherein the surface of the blade has the shape of a portion of a spherical cap, the spherical cap having an apex, and the blade is defined by the part of the spherical cap which lies between two longitudinal lines.

[0005] In various embodiments, there may be included any one or more of the following features: the handle portion has a first part and a second part, the first part connecting to the blade and the angle between the first part of the handle portion and the second part of the handle portion is less than 90 degrees; at least one lateral edge lies on the intersection of a plane with the blade; the blade has at least one lateral edge defined by a longitudinal line along the spherical cap; and the blade has a base adjacent to the apex of the spherical cap and the handle portion is attached to the blade at the base of the blade.

[0006] The rounded leading edge enables making a shallow trough, while the sharper points formed where the rounded leading edge meets the lateral edges of the hoe blade allow making holes or a deeper trough.

BRIEF DESCRIPTION OF THE FIGURES

[0007] Embodiments will now be described with reference to the figures, in which like reference characters denote like elements, by way of example, and in which:

[0008] Fig. 1 is an angled top perspective view of an embodiment of a hoe;

[0009] Fig. 2 is a rear elevation view of the embodiment of Fig. 1;

[0010] Fig. 3 is an angled rear perspective view of the embodiment of Fig. 1;

[0011] Fig. 4 is a side perspective view of the embodiment of Fig. 1; and

[0012] Fig. 5 is a front elevation view of the embodiment of Fig. 1.

[0013] Fig. 6 is a front view of a sphere and spherical cap.

[0014] Fig. 7 is the angled rear perspective view of the embodiment of Fig. 3 additionally showing a spherical cap.

DETAILED DESCRIPTION

[0015] Immaterial modifications may be made to the embodiments described here without departing from what is covered by the claims. In the claims, the word “comprising” is used in its inclusive sense and does not exclude other elements being present. The indefinite articles “a” and “an” before a claim feature do not exclude more than one of the feature being present. Each one of the individual features described here may be used in one or more embodiments and is not, by virtue only of being described here, to be construed as essential to all embodiments as defined by the claims.

[0016] Referring to Figs. 1 – 5, there is disclosed an embodiment of a hoe 10 which has a handle portion 12 and a blade 14. The blade 14 has a base 16, lateral edges 18, which may be straight edges, and a leading edge 20. The lateral edges 18 meet at the base 16 and the blade 14 attaches to the handle 12 at the base 16. The leading edge 20 meets each of the lateral edges 18 and may for example come to a point where each edge meets. A relatively sharp point of the blade 14 is formed where the rounded leading edge 20 meets the lateral edges 18. Here the points are created by the edges 18, 20 meeting at an angle of 90 degrees, as a radius intersects a circle, but this angle could be less, for example 60-90 degrees, or slightly more. The points enable a relatively deep hole or trench to be made with the working of the blade with the points pointing downward into the earth. The leading edge 20 is

rounded to form a convex portion of the blade 14 and the surface of the blade 14 may be flat or may have the curvature of the surface of a sphere or spherical shell that has an apex, where the apex corresponds to the base. At least one lateral edge 18 may be defined by a longitudinal line passing through the apex of the spherical shell.

[0017] The handle portion 12 may have a first part 22 and a second part 24, the first part 22 connecting to the blade 14 and the angle between the first part of the handle portion 12 and the second part 24 of the handle portion 12 is less than 90°. The first part 22 of the handle portion 12 may for example extend along the back 25 of the blade 14.

[0018] The surface 26 of the blade 14 may have the shape of a portion of the surface of a spherical cap. The spherical cap has an apex, and the portion may be defined by the part of the spherical cap which lies between two longitudinal lines that intersect at the apex of the spherical cap. A spherical cap herein is the region of a sphere which lies above a given plane, and is smaller than a hemisphere. Fig. 6 shows an example of a spherical cap 40 having an apex 42. A portion 44 of the spherical cap 40 is defined by two longitudinal lines 46 intersecting at the apex 42. Referring to Figs.6 and 7, the apex 42 corresponds to the base 16, and the lines 46 to the edges 18. The portion of the spherical cap is then a segment defined by the lateral edges 18 extending from an apex of the spherical cap to the circumference of the spherical cap (that is, the leading edge), with the segment corresponding to a fraction of the spherical cap, for example a quarter to a third of the spherical cap.

[0019] The shape of the blade 14, when flattened or seen in plan view, may thus be wedge-shaped or the shape of a sector of a circle.

[0020] The blade 14 may have at least one lateral edge 18 defined by a plane passing through the apex 27 of the spherical cap and through the surface of the blade 14. The blade 14 may have a base 16 adjacent to the apex of the spherical cap, and the handle portion 12 may be attached to the blade 14 at the base of the blade.

[0021] The blade 14 may have a fixed thickness or variable thickness across its length, and may be sharpened along the leading edge 20.

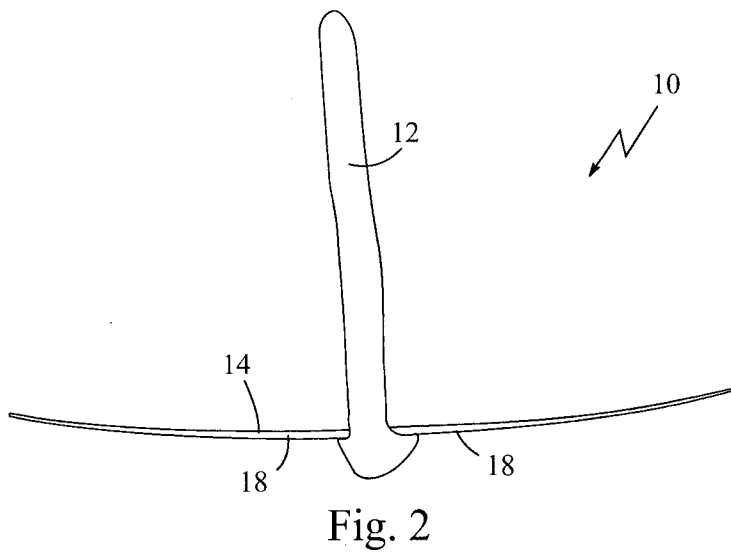
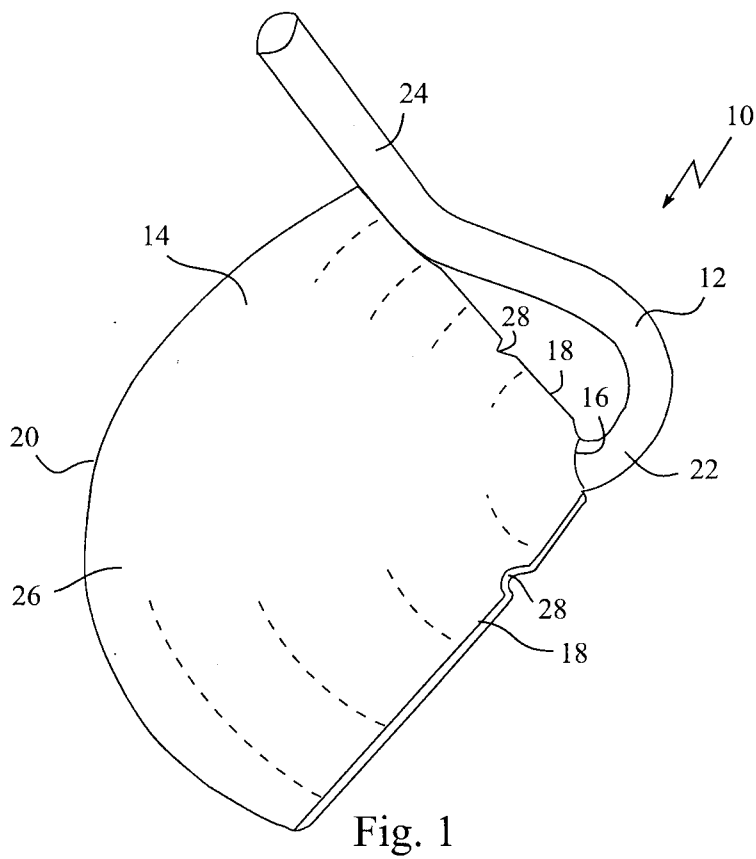
[0022] The lateral edges 18 may have notches 28, for example if the blade was cut from a plough disk and the cut passed through a hole used to secure the disk on the plough, but the

notches need not be present. The hoe 10 may be made from a segment cut from a disk of a plough. Such a disk then corresponds to the spherical shell. The handle portion 12 may be part of a handle having any suitable length and may be formed of a wooden handle (not shown, but conventional) that is secured by any suitable means to the handle portion 12.

[0023] The edges 18 may lie at an angle of 60-150 degrees to each other, for example 90-120 degrees inclusive of the end points, and may be at 120 degrees, the latter corresponding to one third of a circle (in plan view) or one third of a spherical cap, 90 degrees corresponding to a quarter of a spherical cap.

CLAIMS

1. A hoe, comprising:
 - a blade having a surface;
 - a handle portion attached to the blade,
 - wherein the surface of the blade has the shape of a portion of a spherical cap, the spherical cap having an apex, and the portion is defined by the part of the spherical cap which lies between longitudinal lines on the spherical cap, intersecting at the apex.
2. The hoe of claim 1 wherein the blade has a base adjacent to the apex of the spherical cap and the handle portion is attached to the blade at the base of the blade.
3. The hoe of claim 1 or 2 wherein the handle portion has a first part and a second part, the first part connecting to the blade and the angle between the first part of the handle portion and the second part of the handle portion is less than 90 degrees.
4. The hoe of any one of claims 1, 2 or 3 in which the portion of the spherical cap comprises one quarter to one third of a spherical cap.



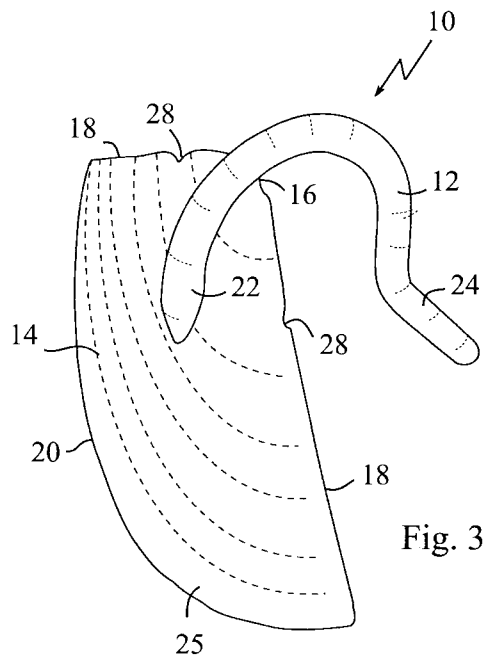


Fig. 3

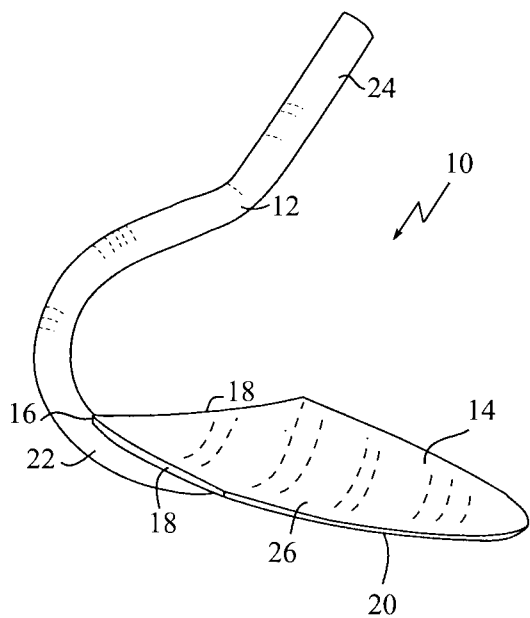


Fig. 4

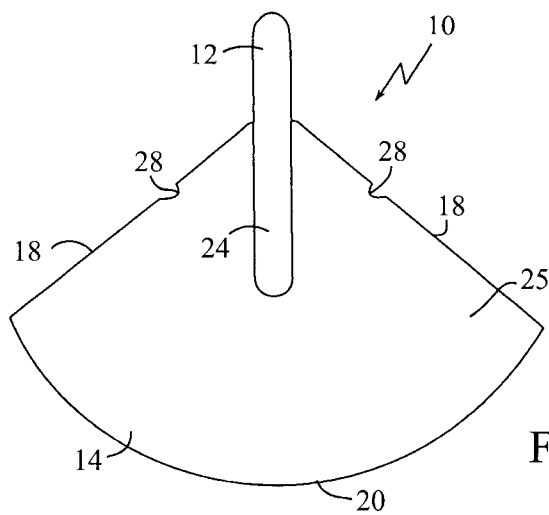


Fig. 5

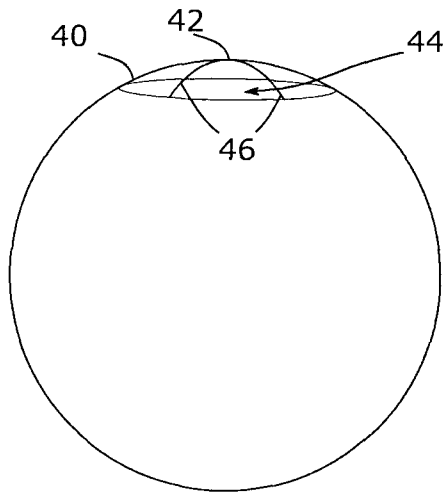


Fig. 6

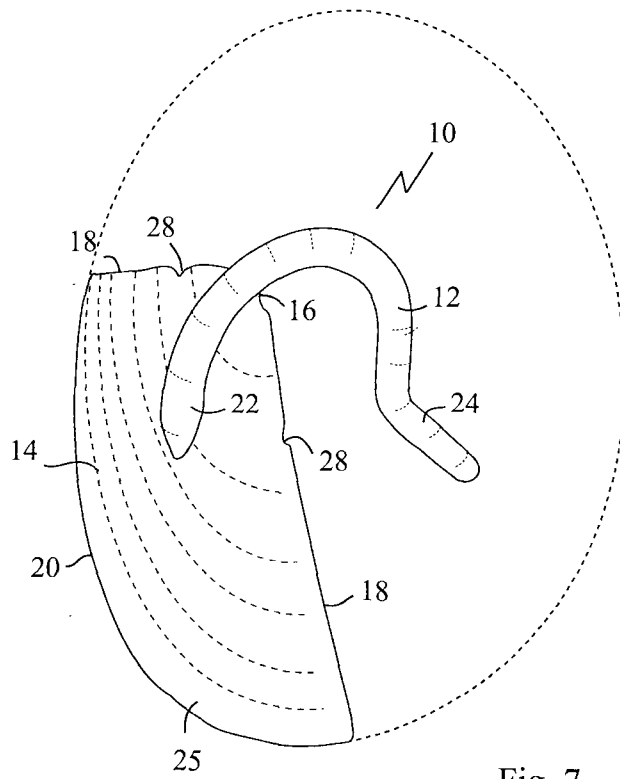


Fig. 7

