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US 5421572 A US 5188358 A US 4951948 A
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(54) Abstract Title
A bat

(57) A bat has a grip portion 10 and an elongate, rotationally symmetric playing surface 12. The playing surface continuously increases in diameter towards its outer end 16, and the outer end is the widest part of the bat. The surface can be covered with a friction-enhancing material 18. The bat may have an end cap 20 which permits access to a central hollow area which may contain ballast. The bat can be used, together with a conventional soccer ball, as a soccer practice aid for dribbling skills.

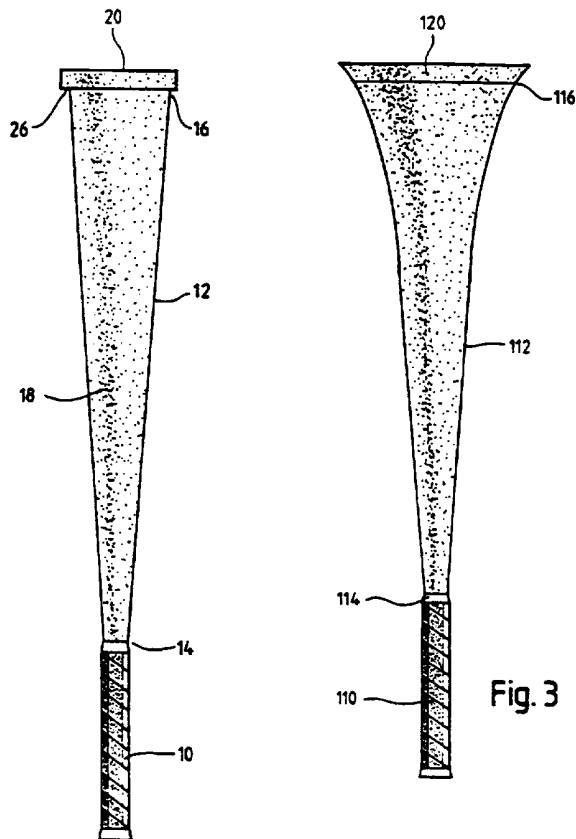


Fig.1

Fig. 3

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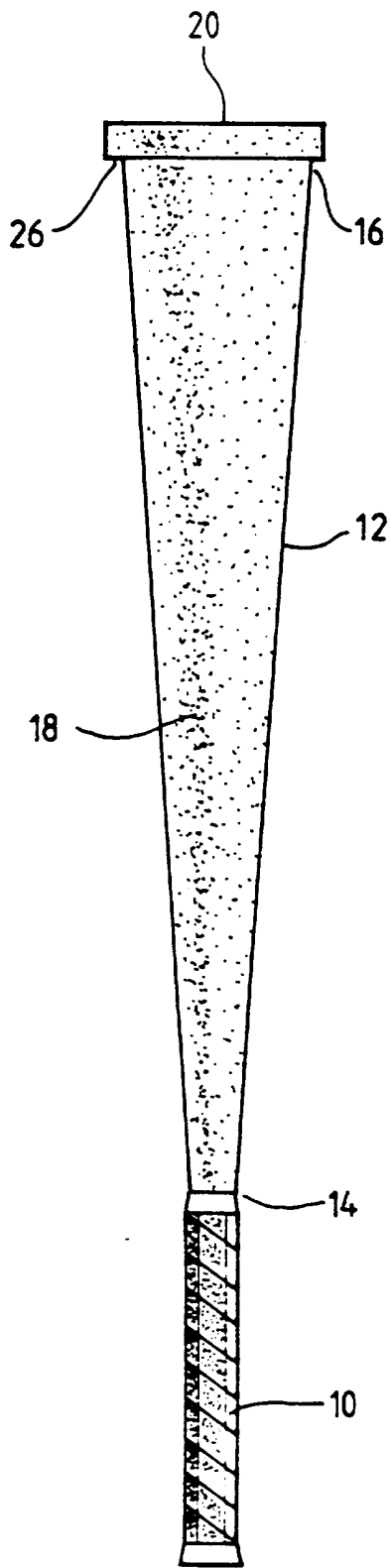


Fig. 1

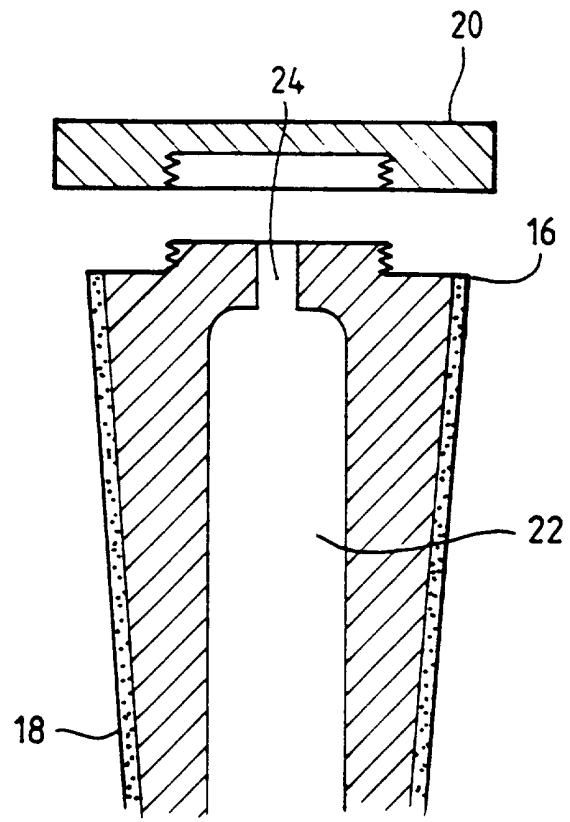


Fig. 2

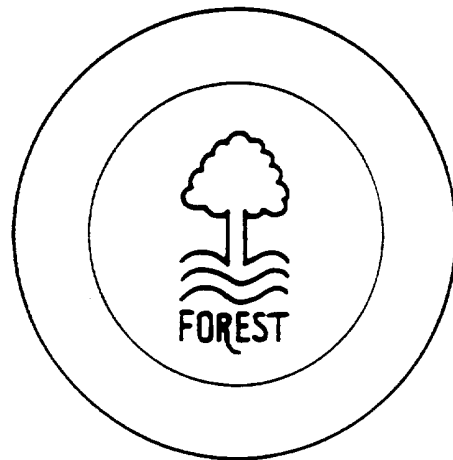


Fig. 4

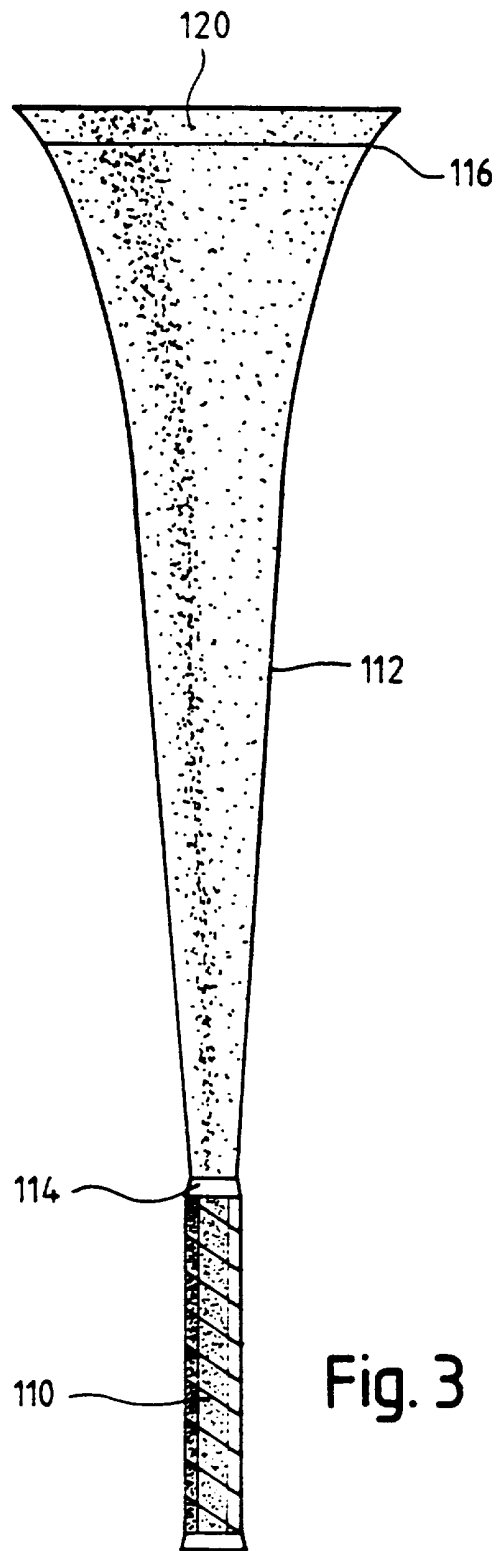


Fig. 3

A BAT

This invention relates to a bat, for use as a training aid for ball games, in particular for soccer (Association
5 Football).

The main type of soccer training which can be carried out by a person practising on their own relates to ball control skills, where the ball is kept under close control with the
10 feet and/or the head, and it is widely acknowledged that this type of training is very useful in developing soccer skills.

Carrying out such practice on one's own can however be
15 frustrating, particularly for those less skilled because if the ball is not properly controlled, it will roll or bounce away from the player who will have to spend time retrieving it before the exercise can be started again.

20 Recognising this problem, several soccer training devices have been designed to assist in this type of soccer practice. These devices all work by attaching a line to the ball, and either attaching the other end to the player (for example by a belt) or having the player hold the other end
25 of the line whilst he or she is practising. In some of these training devices, the line is attached to the ball by placing the ball in a string bag attached to the end of the line.

30 Although such devices are commercially successful, they have significant disadvantages. Firstly, because the ball is tethered, it is not free to move in entirely the same way as an untethered ball. Secondly, the presence of a string bag around the ball means that the contact between the player's
35 foot and the ball is distorted. Thirdly, there is a danger that the tether line may become caught around the player's

legs or entangled with itself or with other objects. Fourthly, if the ball is kicked hard, it can rebound and strike the player which is not always desirable.

5 The present invention seeks to overcome some or all of these difficulties, and provides a bat for use as a training aid for ball games, the bat being generally elongate in form, with a grip portion at one end and a rotationally symmetric elongate playing surface extending from the grip portion to
10 the opposite end, the playing surface increasing in diameter as it extends from the grip portion to the opposite end, with the point of greatest diameter being at the opposite end.

15 With such a bat, a player wishing to practice soccer skills alone can use an untethered ball and will hold the bat in one hand, whilst kicking or heading the ball. If the ball goes out of control, it can be tapped back towards the player by hitting it with the bat, the playing or hitting
20 surface of which is designed so that a ball which is hit by the bat will tend to be diverted towards the player. The player could use two bats, one in each hand.

In one embodiment, the playing surface is in the form of a
25 right circular cone, with a cone angle of between 5° and 15° . However the playing surface may alternatively be in the form of a trumpet shape so that, when seen in cross section, the sides of the playing surface are concave.

30 The playing surface is preferably covered with a high friction coating, such as a rubber coating, so that when a ball is hit the ball does not slide on the surface. This will make it easier for the player to ensure that when he hits the ball, the ball is directed back towards himself.
35 This surface should preferably be non-absorbent.

The opposite end of the bat may have a removable end cap, the cap forming the point of largest diameter of the bat. The cap may screw onto a threaded boss on the end of the bat, and the peripheral walls of the cap may be parallel sided, or tapering to merge with the tapered playing surface of the bat.

The bat may have an interior cavity, and access to this cavity can be had by removing the end cap. If desired, the cavity can be filled with a weighting material (such as water or sand) to achieve a desired balance for the player.

It may be desirable for the contours of the end cap not to merge with the tapered shape of the playing surface, but to be slightly larger in diameter to form a shoulder which will enhance the likelihood of a ball being returned to the player when hit by the bat, when the point of contact with the ball takes place at the opposite end of the bat.

The bat may be made from wood, from a metal such as aluminium or, most probably, from a fibre reinforced composite.

The grip portion may be constructed in the same way as the grip portion of a tennis or squash racket.

The overall length of the bat is preferably between 400 and 1000 millimetres, with the most preferred length being between 500 and 800 millimetres. Different length bats may be sold, with shorter bats being appropriate for younger children. The diameter of the playing surface at its smallest diameter may be between 30 and 40 millimetres, and at its point of greatest diameter between 100 and 200 millimetres. The most preferred dimensions are in the centre of these ranges.

The invention will now be further described, by way of example, with reference to the accompanying drawings in which:

5 Figure 1 shows a first embodiment of a bat in accordance with the invention;

 Figure 2 is a partial cross section through the bat of Figure 1;

10

 Figure 3 shows a second embodiment of the bat in accordance with the invention; and

 Figure 4 is a top view of an end cap.

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The bat shown in Figure 1 has a grip portion 10 with generally parallel sides wound with a grip, in the manner conventional for, e.g., tennis and squash rackets. The grip probably only needs to be long enough to be held by one hand as it is unlikely that a player will want to hold it with two hands.

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The bat has a playing surface 12 which tapers from a small diameter end at 14 to a large diameter end at 16. In Figure 1, the playing surface 12 is straight sided and has a constant taper angle over its length.

25

Figure 3 shows an alternative embodiment where the playing surface 112 has concave sides and where the taper angle continually increases from the small diameter end 114 to the large diameter end 116.

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The playing surface 12 is covered with a thin layer 18 of a rubber or rubber-like material to give it high friction properties. This can be seen particularly in Figure 2. the surface may be a pimped rubber surface, with the pimples

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facing out, as used on table tennis bats.

At the large diameter end 16, the bat has a removable base cap 20. Figure 2 shows how this screws onto a thread at the far end of the bat. The bat may have a hollow interior at 22, with the hollow interior being accessible through an opening 24 after the cap 20 has been removed. The interior 22 can be used as a ballast chamber for containing the material which will add weight to the far end of the bat to vary its balance.

The end cap and the chamber 22 are however not essential. The bat may be a single unitary solid body.

Figure 1 shows an end cap 20 which is parallel sided and has a diameter slightly larger than that of the end 16 of the bat, so as to form a shoulder 26. The cap 120 in the embodiment of Figure 3 has a tapering circumference which merges into, and continues the taper of the shape of the playing surface 112.

Figure 4 shows that the large surface area of the base cap 20 can be printed with advertising material or a soccer club logo or any other graphic material.

The bat will be used in the following way.

When a player wants to practice his soccer skills alone, he will take an ordinary soccer and the bat. The bat will be held in one hand and will only be used if the ball goes out of control or threatens to go out of control. If this happens, the player will reach out with the bat and tap the ball to bring the ball back close to the player's body, so that it can be brought under control again. If the ball is travelling away from the player, he can simply reach out and tap it back to himself; if the ball is falling within the

vicinity of a foot momentarily being used for standing on, the player can bat it into the air rather than try to kick it. If the ball is out of control and bouncing away, a swift tap towards the ground will generally send it back in the player's direction.

One of the main advantages of this bat as a soccer practice aid, in comparison with the "ball on a string" aids hitherto used is that the ball itself is unrestrained. It therefore behaves in the same manner as a ball on a soccer pitch during a soccer game. Furthermore, if the player wants to vary his practice, for example, by kicking the ball against a wall, he is free to do so or if another person comes to join the practice, then the ball can be kicked between them. The bat can still be useful to recover a ball going out of control, as already described. Practice and/or play can therefore easily be arranged into activities with partners or in groups. The bat requires no setting up and is extremely flexible in the manner of its use. The user might choose to practice some particular skill alone, but then remains entirely free to pass to a partner or to try a shot or dribble, in order to introduce variety.

Some soccer skills may be practiced with this bat which cannot be practised in any other way (or at least not without assistance).

The foremost attributes of the bat are those related to maintaining control of the ball and of recovering the ball after control has been lost. However the bat can also enhance activity with a ball, in terms of the user's own enjoyment and in terms of a benefit in the skill acquisition process. Certain moves and ball drills become possible with a hand-held bat which are not possible without a bat.

In short, the bat is an extremely versatile and user-

friendly device whether used seriously to develop a particular soccer skill, or simply for the fun of it.

5 It allows the user to exert manual control over the ball, while providing a more suitable surface than his own arm or hand and avoiding any conceptual difficulties which he might have with "handling" the ball in a soccer setting.

Claims

1. A bat for use as a training aid for ball games, the bat being generally elongate in form, with a grip portion at one end and a rotationally symmetric elongate playing surface extending from the grip portion to the opposite end, the playing surface increasing in diameter as it extends from the grip portion to the opposite end, with the point of greatest diameter being at the opposite end.
2. A bat as claimed in Claim 1, wherein the playing surface is in the form of a right circular cone.
3. A bat as claimed in Claim 2, wherein the cone has a cone angle of between 5° and 15° .
4. A bat as claimed in Claim 1, wherein the playing surface is in the form of a trumpet shape so that, when seen in cross section, the sides of the playing surface are concave.
5. A bat as claimed in any preceding claim, wherein the playing surface is covered with a high friction coating.
6. A bat as claimed in Claim 5, wherein the coating is a rubber coating.
7. A bat as claimed in any preceding claim, wherein the surface of the bat is non-absorbent.
8. A bat as claimed in any preceding claim, wherein the opposite end of the bat has a removable end cap, the cap forming the point of largest diameter of the bat.
9. A bat as claimed in Claim 8, wherein the cap is adapted to be screwed onto a threaded boss on the end of the bat.

10. A bat as claimed in Claim 8 or Claim 9, wherein the peripheral walls of the cap are parallel sided.

5 11. A bat as claimed in Claim 8 or Claim 9, wherein the peripheral walls of the cap are tapering to merge with the tapered playing surface of the bat.

12. A bat as claimed in any preceding claim, wherein the bat has an interior cavity.

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13. A bat as claimed in Claim 12, when dependent on Claim 8 or Claim 9, wherein access to this cavity can be had by removing the end cap.

15 14. A bat as claimed in any one of Claims 8 to 11, wherein the contours of the end cap do not merge with the tapered shape of the playing surface; but are slightly larger in diameter to form a shoulder.

20 15. A bat as claimed in any preceding claim and which is made from a fibre reinforced composite.

25 16. A bat as claimed in any preceding claim, wherein the grip portion is constructed in the same way as the grip portion of a tennis or squash racket.

17. A bat as claimed in any preceding claim, and having an overall length of between 500 and 1000 millimetres.

30 18. A bat as claimed in any preceding claim, and having an overall length of between 500 and 800 millimetres.

35 19. A bat as claimed in any preceding claim, wherein the diameter of the playing surface at its smallest diameter is between 30 and 40 millimetres, and at its point of greatest diameter is between 100 and 200 millimetres.

20. A bat substantially as herein described with reference to the accompanying drawings.

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Claims searched: 1 to 20

Examiner: Alan Blunt
Date of search: 2 July 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): A6D (D12B, D13C, D22)

Int Cl (Ed.6): A63B 59/00, 59/06, 67/00, 69/00

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US5421572 (MACKAY) - whole document	8
X	US5188358 (GLASS) - whole document	1, 4, 7 and 12 at least
X	US4951948 (PENG) - whole document	1 to 3, 7, 8, 12, 13 at least
X	US4836541 (HENLEY) - whole document	1 to 3, and 7 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.