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(51) INT CL<sup>7</sup>  
**G10K 5/00**

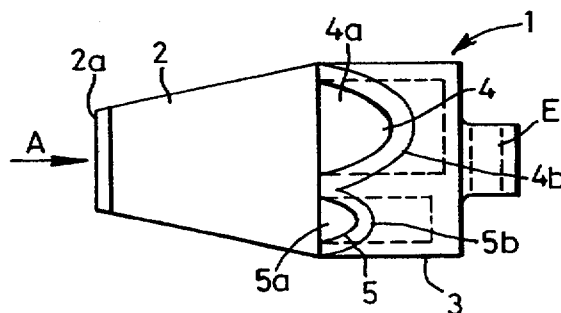
(52) UK CL (Edition S )  
**G5J JCBA JCBX**

(56) Documents Cited  
**US 5546887 A US 4709651 A**

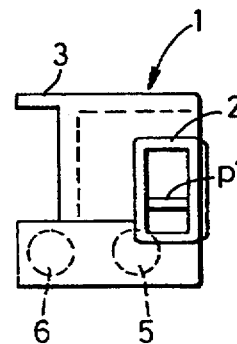
(58) Field of Search  
UK CL (Edition R ) **G5J JCBA JCBX**  
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(54) Abstract Title  
**A whistle**

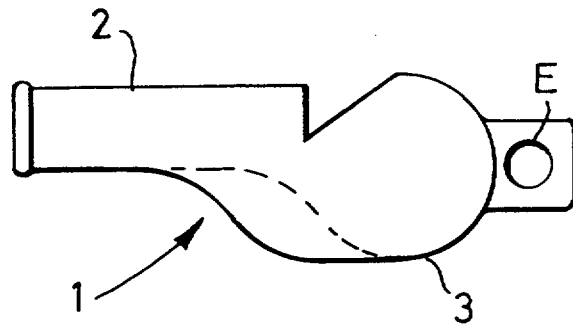
(57) A combination whistle 1 having a mouthpiece 2 leading to bulbous whistle portion 3 which is gripped by hand when blowing into the mouthpiece. Mouthpiece 2 is common to trill chamber 4 and two pea-less chambers 5 and 6, chamber 6 being located under chamber 5.



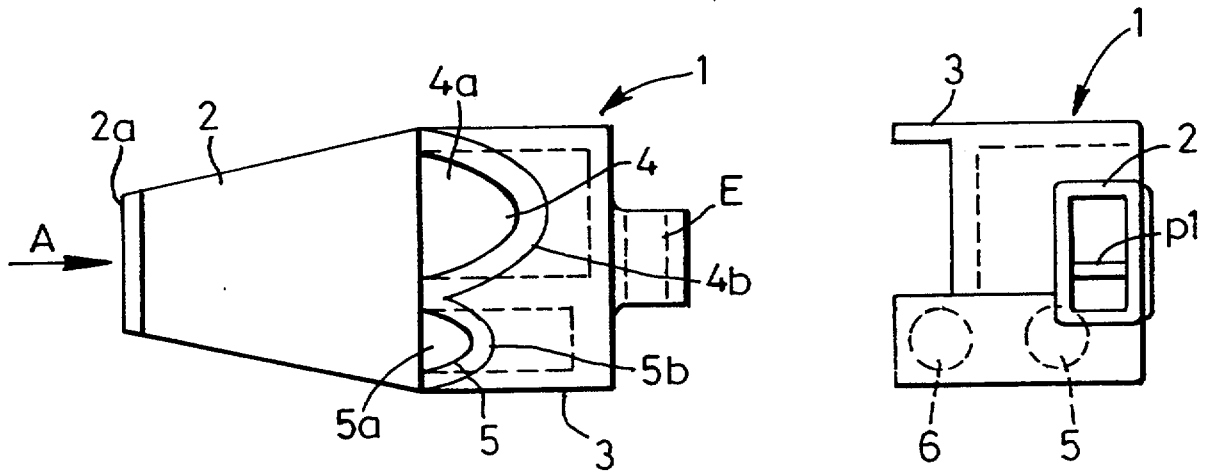
**Fig. 2**



**Fig. 3**

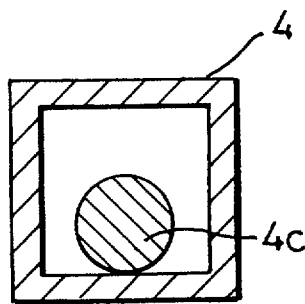


**Fig. 1**

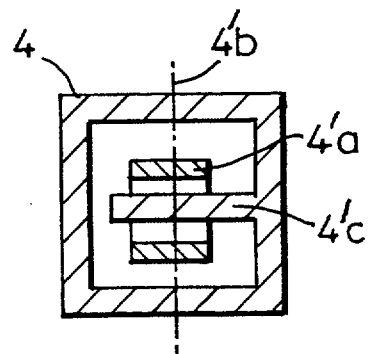


**Fig. 2**

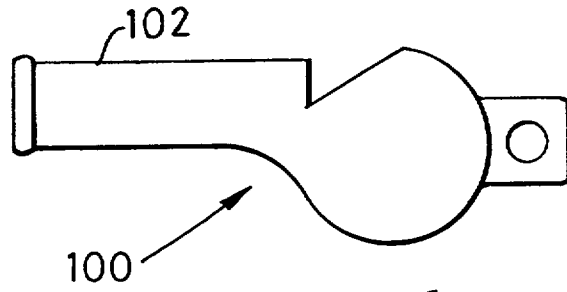
**Fig. 3**



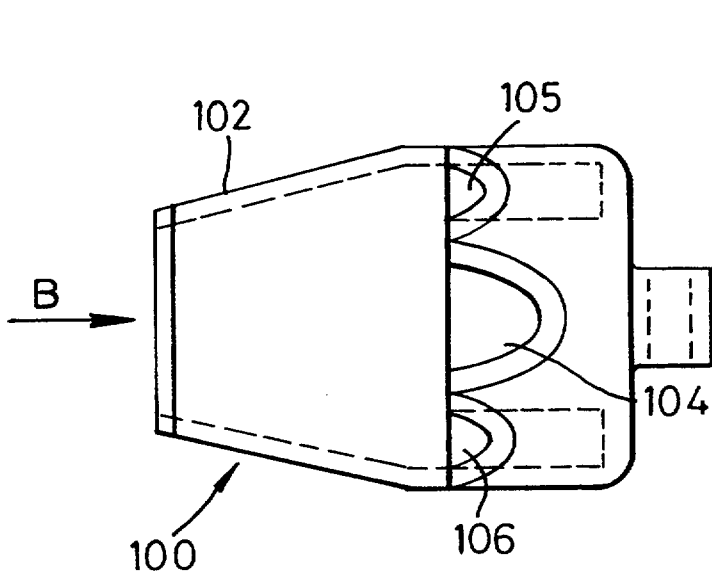
**Fig. 4**



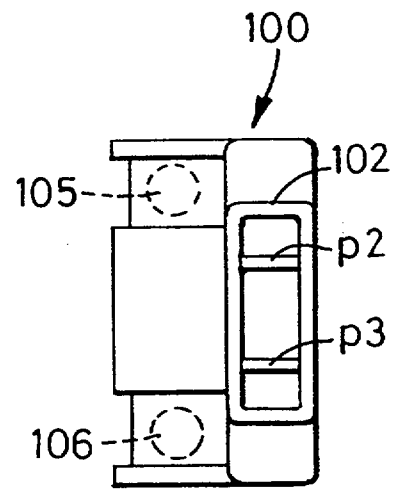
**Fig. 5**



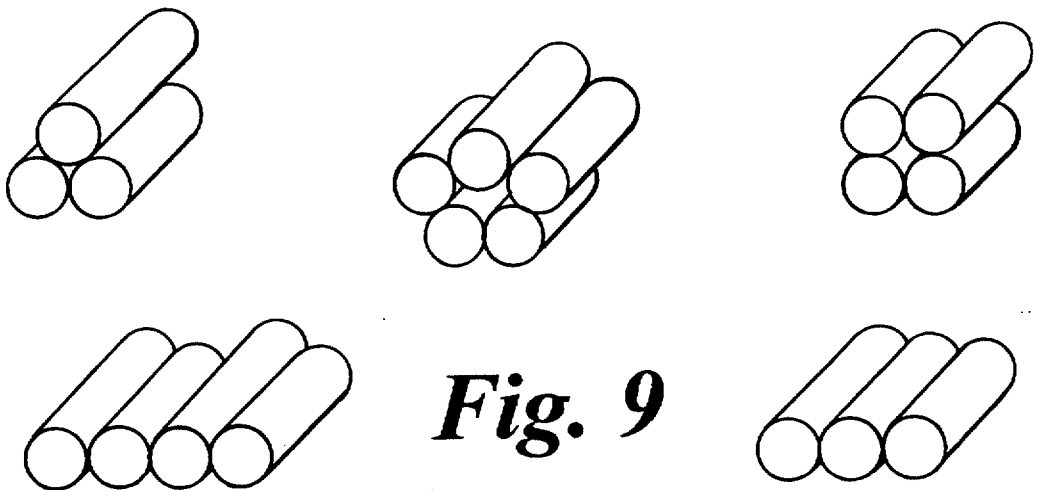
**Fig. 6**



**Fig. 7**



**Fig. 8**



**Fig. 9**

WHISTLE

This invention relates to a whistle and is more particularly concerned with a combination whistle.

Whistles have been in existence for quite some time and it is known for a combination whistle to be produced having a pea-less chamber associated with a mouthpiece at one end of the whistle and a chamber containing a pea or the like associated with a mouthpiece at the other end of the whistle. The disadvantages and advantages associated with pea or pea-less whistle chambers are quite well known, some of which are related in other patent specifications of the Applicant, and are particularly important with regard to referees sports whistles. A referee sports whistle needs to be versatile and needs to offer the referee the facility of being able to indicate the level of seriousness of an infringement or offence, in the sound produced by the whistle or to use a certain sound to indicate that a particular action needs to be taken, for example, to indicate the end of a match or half time. In this respect, it is important that the sound to be produced is sufficient and will carry a sufficient distance without a breath pressure being required from the referee which is too exacting, uncomfortable or exhausting bearing in mind the number of times the whistle must be blown during a match. Thus, to this end, combination whistles have been produced allowing the referee to choose the type of trill sound characteristic of a pea whistle, by blowing into a mouthpiece at one end of the whistle, which effectively offers the referee the facility to "talk" in such a way as to more easily indicate the level of infringement that may have occurred during play and without requiring high breath pressure. However, if a louder and more high pitched sound is required the whistle can be turned around

and a second mouth piece used to convey air to a pea-less whistle chamber which lacks the characteristic trill sound and which does not give the referee the facility to “talk” indicating the level of the infringement or type of offence that may have taken place. Equally, in using the second mouthpiece, a much greater breath pressure is required to “blow” the whistle to create the sound required. Even so the combination pea/pea-less whistle does give the referee a choice and is, therefore, much more versatile than providing the referee with either a pea whistle or pea-less whistle. Once again, it is known for the “pea” in the whistle to be replaced by an alternative form of moveable element such as a cylindrical roller element.

Additionally, it is known for whistles to be produced with one or more sound chambers connected to a common mouthpiece in a pea-less whistle. Thus, although it is believed combination pea and pea-less whistles provide the referee with a more versatile whistle it is believed that such whistles tend to be disadvantageous in that a different mouthpiece has to be selected in order to obtain the trill sound characteristic of a pea whistle or the higher loud pitched sound characteristic of a pea-less whistle and, of course, there exists the possibility that the referee may inadvertently blow into the wrong mouthpiece and not be able to produce the correct sound required. Still further, the type of sound or range of sound offered by such combination whistles may not be capable of producing all the sounds or range of sounds that may be desired. Further disadvantages may exist with such combination whistles that may be related to ease of use, bulk, or method of manufacture.

It is an object of the present invention to at least alleviate one or more of the aforementioned, or other, disadvantages associated with combination whistles or whistles including more than one sound element or sound chamber.

According to the present invention there is provided a whistle having a pea-less chamber and a chamber including a moveable element associated therewith, such as a pea or rotatable member, said chambers having a common mouthpiece or being positioned so as to be able to be blown into substantially simultaneously by a user.

Usually, the pea or rotatable member will be positioned inside the associated chamber and, in any event, will usually be able to repeatedly partially block and open a vent or opening of the associated chamber which will usually have a splitter edge which will, again usually, be of a curved shape. However, the shape of the splitter edge may be varied to suit and may be straight, rectangular, square, undulatory or mouth or top-lip shaped.

The chamber having a moveable element associated therewith will usually be a trill chamber (i.e. a chamber which will produce a trill sound when air is blown into it) and the whistle may be provided with one or more pea-less chambers.

The term "pea-less" chamber is meant to indicate that there is no pea (or like element) provided in the chamber or indeed any other moveable or rotatable element being associated therewith i.e. a chamber which is not a trill chamber..

In one embodiment of the present invention, the whistle is provided with a trill chamber to one side of the mouthpiece and at least one pea-less chamber to the other side of the mouthpiece. In such an arrangement, two pea-less chambers may be provided one above the other to one side of the trill chamber.

In an alternative embodiment, the whistle includes one trill chamber located in between two pea-less chambers, said trill chamber, preferably, being located centrally of the mouthpiece with a pea-less chamber on each side of the trill chamber, preferably, arranged symmetrically thereof.

The width of the trill chamber is, preferably, about twice the width of the, or one of the, pea-less chambers.

Where two pea-less chambers are provided in the whistle, said chambers, preferably, have discorded frequencies and/or one of the pea-less chambers may be arranged to exhaust upwardly of the whistle with the other being arranged to exhaust downwardly of the whistle (more particularly where two pea-less chambers are provided to one side of the mouthpiece with a trill chamber being provided to the other side of the mouthpiece).

Where the whistle is provided with a moveable element in the form of a rotatable member, rather than a pea, said member may be a roller or sleeve (preferably mounted on a central web inside the chamber) and said moveable element may be of plastics. The moveable element could be of any suitable form such as a flap (e.g. hinged flap)

or membrane or a curled member which uncurls under air pressure and curls up on release of air pressure.

Advantageously, embodiments of the whistle will be able to produce a loud versatile multi-frequency sound. Preferably, where the whistle includes one trill chamber in between two pea-less chambers, all chambers will vent upwardly of the whistle.

Many advantageous features of the present invention will be evident from the following description and drawings.

Embodiments of a whistle in accordance with the present invention, will now be described, by way of example only, with reference to the FIGURES of the accompanying drawings drawn to scale in which:

FIGURE 1 shows a side view of the whistle;

FIGURE 2 shows a plan view of the whistle shown in FIGURE 1;

FIGURE 3 shows a view of the whistle looking in the direction of Arrow A of FIGURE 2;

FIGURES 4 and 5 show detail cross sections through two alternative sound chamber elements of the whistle;



FIGURE 6 shows a side view of a second embodiment of the whistle which is similar to FIGURE 1;

FIGURE 7 shows a plan view of the whistle of FIGURE 6 ,and

FIGURE 8 shows an end view of the whistle of FIGURE 6 looking in the direction of arrow B of FIGURE 6

FIGURE 9 shows schematically possible sound chamber arrangements for the whistle.

Referring to FIGURES 1 to 5 of the accompanying drawings, a combination whistle 1 includes a mouthpiece 2 leading to a generally bulbous whistle portion 3 which is usually gripped by hand when blowing into the mouthpiece in a generally known manner. An eye E is provided for a lanyard (not shown).

Mouthpiece 2 is tapered towards the air inlet end 2a (more particularly shown in FIGURE 2) and the mouthpiece 2 is common to trill chamber 4 and two pea-less chambers 5 and 6. A partition wall p1 (see FIGURE 3) guides air blown in the inlet 2a to the respective sound chambers 4, 5, 6. Trill chamber 4 has an upwardly facing sound window or vent 4a defined in part by curved splitter edge 4b and may be of the generally square cross section as shown in FIGURE 4 which includes a pea or ball (usually of cork) 4c that can reverberate around the chamber 4 when air is blown through the mouthpiece 2 into the trill chamber 4 through the inlet end 2a. Reverberation of the ball 4a on the inner walls of the trill chamber 4 and across the

vent v brings about the characteristic trill sound in a generally known manner. As an alternative to providing the cork ball 4a in trill chamber 4, FIGURE 5 shows that a moveable element may be provided in the form of a generally cylindrical sleeve or roller 4'a (usually of plastics) mounted to rotate about its own axis 4'b and mounted on integral web 4'c which extends in the longitudinal direction of the whistle 1. Thus, the roller 4'a extends transversely of the trill chamber 4.

In the arrangement as shown in FIGURES 1 to 3, whistle 1 is provided with one relatively large trill chamber 4 on the left hand side of the mouthpiece 2 and two (upper and lower) pea-less whistle chambers 5 and 6 which are arranged to vent upwardly and downwardly respectively. Pea-less whistle chamber 5 has a vent 5a partly defined by curved splitter edge 5b in a way which should be evident from the FIGURE 2 of the drawings. Pea-less chamber 6 is provided with a similar vent and splitter edge (not shown for ease of illustration) which vent downwardly.

Although whistle 1 is shown having a mouthpiece 2 common to trill chamber 4 and two pea-less chambers 5 and 6, in alternative arrangement, only one trill chamber and one pea-less chamber need be provided. Thus, pea-less chamber 6 could be omitted from the design completely.

It is to be noted that the width of the trill chamber 4 is about twice the width of each pea-less chamber 5, 6 and it is believed that the overall ratio of dimensions of the trill chamber 4 to the pea-less chambers 5, 6 is particularly advantageous in producing a unique characteristic sound for the whistle.

Two pea-less whistle chambers 5 and 6 are, preferably, provided and these chambers are arranged to emit discorded frequencies with one exhausting through a vent at the top of the whistle and one through a vent at the bottom of the whistle.

It is not essential that the pea-less chamber or chambers be provided to one side of the mouthpiece 2 and indeed FIGURES 6 to 8 show an alternative embodiment of the whistle 100 in which a trill chamber 104 is arranged in between two pea-less chambers 105, 106.

Referring to FIGURES 6 to 8 of the drawings, whistle 100 has a tapered mouthpiece 102 common to trill chamber 104 and pea-less chambers 105, 106. Partition walls p2, p3 guide air blown into mouthpiece 102 to respective sound chambers 104, 105, 106. The arrangement of pea-less chambers 105, 106 is symmetrical about the longitudinal axis of the whistle 100 and once again trill chamber 104 may include a pea or ball and be of the same general type that is shown in FIGURE 4 of the drawings or alternatively a roller can be provided of the same general form as shown in FIGURE 5 of the drawings.

FIGURE 9 shows examples of five possible chamber configurations for the combination whistle in accordance with the present invention. Any of the chambers may or may not include a moveable element to suit. Thus, the chambers need not be located substantially in the same plane, one or more chambers may be displaced out of the plane of the remaining, or some of the remaining, chambers. Additionally, one or more chambers may be located in the cusp of adjoining chambers.

In practice, whistle 1 or 100 proved to be a loud versatile multi-frequency sound whistle having the benefits of a pea or roller type whistle combined with the benefits of a pea-less whistle thus offering a referee a greater choice of sound commands.

Quite apart from these advantages it was found that the sound characteristics of whistle 1 or whistle 100 were quite unique and in fact quite different to, and a radical departure from, the sounds produced by either a pea-less or pea/roller type whistle. Such a whistle would be particularly important e.g. if used by a referee where a nearby match was in progress with the other referee using a known type of combination whistle; this would help to avoid confusion of the players in one match responding to commands of the referee of the other match.

It is believed that the unique sound produced by whistles in accordance with the present invention is itself advantageous and inventive at least when utilised in a referee or sports or arbitrating /control scenario such as a starting signal.

Overall, therefore it is believed that significant advantages are provided by whistle 1 or whistle 100 or any similar type of whistle and, whilst the various dimensions of the trill chamber and pea-less chamber/s are not critical to providing an improved or more unique whistle it is believed that the particular dimensions derivable from the FIGURES of the drawings are of particular advantage in providing good balanced sound quality.

It is to be appreciated that the present invention offers many improvements, at least some of which might be patentable individually or in combination. Any individual

feature as aforementioned or as shown or implicit herein or combinations thereof or functions or methods appertaining thereto, may be patentably inventive and any specific term as used herein should not be construed as unnecessarily or unduly limiting; the scope of such a term should extend to, or may be replaced or supplemented by, any equivalent or generic expression. The single may include the plural and vice versa.

Still further according to the present invention there is provided a whistle having a pea-less chamber and a chamber with a moveable element associated therewith, the arrangement being such that the chambers can be sounded substantially simultaneously by the user.

Further according to the present invention there is provided a sound produced or substantially producible by a whistle having at least one pea-less chamber and at least one chamber including a moveable element associated therewith, said sound being produced or substantially producible by blowing into said chambers simultaneously.

Thus, it is believed such a sound is itself inventive however produced (whether originating or being copied e.g. electronically).

Further according to the present invention there is provided a method of refereeing including blowing into a whistle as claimed in any one of the preceding statements of invention to the whistle or including utilising a sound, or sound capable of being, produced by such a whistle or sound substantially similar thereto.

CLAIMS

1. A whistle having a pea-less chamber and a chamber including a moveable element associated therewith, such as a pea or rotatable member, said chambers  
5 having a common mouthpiece or being positioned so as to be able to be blown into substantially simultaneously by a user.
2. A whistle as claimed in claim 1 in which the pea or rotatable member is  
10 positioned inside the associated chamber.
3. A whistle as claimed in claim 1 or claim 2 in which the pea/rotatable member is  
able to repeatedly partially block and open a vent or opening of the associated  
chamber.
- 15 4. A whistle as claimed in claim 3 in which the vent/opening has a splitter edge of a curved, straight, rectangular or square shape or which is undulatory, mouth or top- lip shaped.
5. A whistle as claimed in any one of the preceding claims in which the chamber  
20 having a moveable element associated therewith is a trill chamber.
6. A whistle as claimed in any one of the preceding claims provided with a plurality of pea-less chambers.

7. A whistle as claimed in claim 5 or claim 6 when dependent therefrom in which the trill chamber is to one side of the mouthpiece and at least one pea-less chamber is provided to the other side of the mouthpiece.
- 5 8. A whistle as claimed in claim 7 in which two pea-less chambers are provided one above the other to one side of the trill chamber.
9. A whistle as claimed in claim 6 including one trill chamber located in between two pea-less chambers.
- 10 10. A whistle as claimed in claim 9 in which all the chambers will vent upwardly of the whistle.
11. A whistle as claimed in claim 9 or claim 10 in which said trill chamber is located centrally of the mouthpiece with a pea-less chamber on each side of the trill chamber.
- 15 12. A whistle as claimed in claim 11 in which the pea-less chambers are arranged symmetrically of the trill chamber.
- 20 13. A whistle as claimed in claim 5 or any claim dependent therefrom in which the width of the trill chamber is about twice the width of the pea-less chamber, or of one of the pea-less chambers.

14. A whistle as claimed in claim 6 or any claim dependent therefrom having two  
pea-less chambers provided in the whistle, said chambers having discorded  
frequencies and/or one of the pea-less chambers being arranged to exhaust  
upwardly of the whistle with the other being arranged to exhaust downwardly of  
5 the whistle.
15. A whistle as claimed in any one of the preceding claims provided with a  
moveable element in the form of a rotatable member, rather than a pea, said  
member being a roller or sleeve, or in which said moveable element comprises a  
10 flap or a membrane, which membrane may be curled.
16. A whistle as claimed in claim 15 in which the roller or sleeve is on a central web  
inside the associated chamber.
- 15 17. A whistle as claimed in any one of the preceding claims in which the moveable  
element is of plastics.
18. A whistle as claimed in any one of the preceding claims able to produce a loud  
versatile multi-frequency sound.
- 20 19. A whistle substantially as herein described with reference to FIGURES 1 to 3 of  
the accompanying drawings or when modified substantially in accordance with  
FIGURE 4 or FIGURE 5 of the accompanying drawings.



20. A whistle substantially as herein described with reference to FIGURES 6 to 8 of the accompanying drawings.
21. A whistle having a pea-less chamber and a chamber with a moveable element associated therewith, the arrangement being such that the chambers can be sounded substantially simultaneously by the user.
22. A sound produced or substantially producible by a whistle as claimed in any one of the preceding claims or substantially similar to said sound.
23. A sound produced or substantially producible by a whistle having at least one pea-less chamber and at least one chamber including a moveable element associated therewith, said sound being produced or substantially producible by blowing into said chambers simultaneously.
24. A method of refereeing including blowing into a whistle as claimed in any one of claims 1 to 21 or utilising a sound as claimed in claim 22 or claim 23 or a sound substantially similar thereto.
25. Use of a sound as claimed in claim 22 or claim 23 in a sports event or use of a whistle or apparatus capable of producing such a sound.



INVESTOR IN PEOPLE

Application No: GB 0015384.1  
Claims searched: 1-21

Examiner: David Summerhayes  
Date of search: 11 September 2000

**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.R): G5J (JCBA; JCBX)

Int Cl (Ed.7): G10K 5/00

Other: ONLINE: EPODOC; WPI; JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
Y	US 5546887 A (CAMERON) see col 2 lines 31-37	1
Y	US 4709651 A (LANCE)	1

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.