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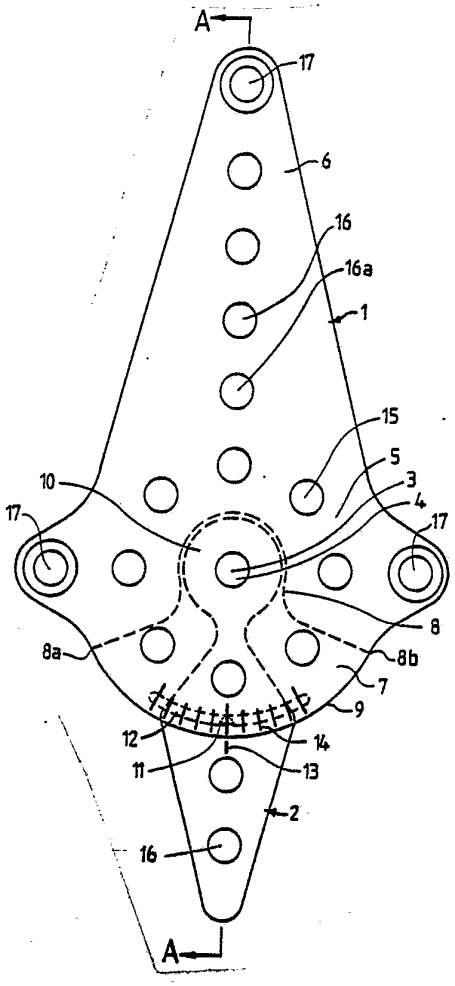
(57) Abstract

A golding aid to assist in co-ordination between a golfer's brain and a vision perceived by his eye. The aid comprises two direction indicating members pivotal relative to each other about a pivot point. One of the members (1) includes a plurality of apertures (16) arranged longitudinally thereof and the other member includes a similar linear array of apertures (16). Member (1) also includes a plurality of apertures (15) spaced radially from aperture (4) which is located at the pivot point (3) between the members and indicia (13, 14) are provided to adjust the angular relationship between members (1, 2) to a predetermined angle. Mounting apertures (17) are provided on member (1) to fix it to a ground surface and permit member (2) to pivot relative thereto within recess (7). Apertures (4, 15, 16) are so dimensioned to receivably locate a golf tee.



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"GOLFING AID"

This invention is concerned with an aid for golfers.

The game of golf is a particularly demanding game in that to achieve any reasonable level of skill, a player must develop extremely precise muscle co-ordination as well as accurate visual judgement of distances, angles and the like. Generally speaking, a novice golfer must spend many hours at practice even to develop rudimentary skills. Further skill development is achieved with constant practice and usually the guidance of a skilled professional golf teacher.

Over the years many golfing aids have been proposed to assist in the acquisition of skills. Most of these aids have comprised mechanical devices designed to control the body motions during various strokes such as tee driving, fairway driving and approach strokes. One such device comprises an arcuate frame with a sliding traveller adapted for attachment to a golf club shaft. Swinging of a golf club connected to the traveller causes the club to be guided through a "perfect" arc suited to the particular golfer. Repeated use of such a device develops co-ordination between all of the various muscles within the body such that after a period of time, the muscle co-ordination becomes "imprinted" in the golfer's brain.

Mechanical devices of the abovementioned type are quite satisfactory in achieving their intended purpose but are nevertheless limited in their ability to assist in training of a golfer. The main deficiency of such devices (and indeed the main deficiency of most golfers) is that visual judgement and co-ordination is not developed. A further problem is that such devices are designed to create muscle/brain co-ordination for a club stroke permitting straight flight between the point of impact between club-face and ball and a remote target .

Once a golfer has developed a consistent stroke for "straight" drives or approaches, the golfer must then be taught how to control, draw and fade (i.e. "hook" and "slice") to further develop golfing skills. The techniques involved in teaching controlled draw and fade involve body motions which are inconsistent with the muscle/brain co-ordination already achieved and, thus, after prolonged practice at fade or draw shots, the initially obtained muscle/brain co-ordination may become impaired. Possibly the most difficult task in acquisition of golfing skills is in accurately visually assessing angular relationships between the golfer's stance and the intended flight path. The ability to judge such angular relationships varies widely between persons and such ability is believed to stem partly from eyesight deficiencies of various kinds but mostly from the lack of co-ordination between the brain and a vision as perceived by the eye. This lack of co-ordination gives rise to relatively small errors of judgement in angular relationships when an object such as a golf ball or the golfer's feet are viewed at a short distance. This error is greatly magnified when the golfer views a remote object such as a target area or the pin at the green. The error is manifested by the golf ball being placed many yards off target in say a 150 yard drive eventhough the length of the drive may have been relatively accurate.

It is an aim of the present invention to overcome or alleviate certain of the disadvantages of prior art golfing aids and to provide a simple and inexpensive yet effective aid to development of visual judgement and co-ordination.

According to one aspect of the invention there is provided an aid for golfers comprising:-

a device having at least two direction indicating members pivotable relative to each other about a pivot point, one of said members including a plurality of

apertures, at least one of said apertures being coincident with said pivot point and two or more apertures being linearly spaced therefrom.

Preferably said one of said members includes a plurality of apertures spaced radially about said pivot point.

Preferably another of said members includes two or more linearly spaced apertures.

Preferably at least one of said members includes graduated indicia to permit displacement to a predetermined angular position of one member relative to another.

Preferably one of said members includes an edge having a radiused curve, said curve having its origin at the pivot point of said members.

Preferably said device is adapted to permit fixing to a support surface.

Preferably said device includes means to align in use on a support surface at right angles, datum lines to align the device with a target and to align the device with a user's feet.

According to another aspect of the invention there is provided a method of enhancing visual co-ordination in golfers substantially as herein described utilizing the device according to the invention.

A preferred embodiment of the invention will now be described according to the accompanying drawings in which:-

FIG. 1 illustrates a golf aid device.

FIG. 2 is a cross-section through A-A of FIG. 1, and

FIG. 3 illustrates schematically the manner of use of the invention.

In FIGS. 1 and 2, the device comprises a first member 1, and a second member 2, pivotally associated therewith about a pivotal axis 3 located centrally of aperture 4.

Member 1 comprises a body portion 5 and an arm portion 6 extending therefrom. A hollow recess 7 is formed in body portion 5, the rear wall of the recess being bounded by broken line 8 and the recess being open along the arcuate wall 9 of body portion 5 between 8a and 8b.

Member 2 is pivotably located within recess 7 for limited pivotal movement. One end 10 of member 2 is formed with a substantially circular shape to enable at least partial rotation within the innermost part of recess 7 having a substantially complementary cavity shape. The end 10 of member 2 is held captive within recess 7 by engagement between an upstanding projection 11 on member 2 and an arcuate slotted recess 12 in the upper wall of recess 7. If required, an additional projection and slotted recess could be provided at the opposite sides of member 2 and lower wall of recess 7 respectively.

Preferably slotted recess 12 includes projections and/or cavities to locate projection 11 such that reference point 13 may be positively located adjacent graduated indicia markings 14 representing units of angular relationship between members 1 and 2. In the embodiment shown, the graduations represent units of approximately 6^{o} although this could be varied depending upon the degree of accuracy required to be acquired by a golfer.

Body portion 5 includes a number of circular apertures 15 spaced radially from central aperture 4 at the same radial distance. Members 1 and 2 each include a linear array of substantially equidistantly spaced apertures 16 and which in the non-angled configuration shown are linearly aligned along a central axis with central aperture 4. The radially spaced apertures, central aperture 4 and the linear array of apertures are of a dimension to permit the shank of a golf tee to be inserted therethrough into a ground surface below. If required, the apertures may be tapered inwardly and downwardly to limit

the penetration of the golf tee to a predetermined limit. These apertures are preferably numbered for reference.

Additional apertures 17 at the opposed sides and remote end of body portion 5 are provided to receive a means for affixing the device to a ground surface. The fixing means may comprise a headed spike such as a nail, golf tee or the like and may also include a recessed shoulder 18 to enable the head of the spike or golf tee to be located therein at or below the upper surface of the device.

The operation of the device will now be described with reference to FIG. 3.

At a suitable location on a golf course or the like, a golfer determines a point 21 from which the golf ball is to be driven. A target line is then formed by laying a length of white (or coloured) cord 20 over point 21 directly in line with a target e.g. a flag pin 22 at the green. The end closest the target is then anchored to the ground by, for example, inserting a golf tee through a loop on the end of the cord. The other end of the cord is made taut, aligned directly with the target by sighting along the cord and the other end is then anchored to the ground. A second cord 23 is then aligned at right angles to target line 20 and anchored in a similar fashion. A relatively accurate angle between the cords is achieved by placing the device 24 on the target cord such that the cord 20 is visible through the longitudinal row of apertures 16, 4. The second cord 23 is then aligned such that it lies over or is visible at the centres of the transverse row of apertures 15, 4 and 17. A golfer is then able to align himself in a classic stance with each foot (shown at A) equidistantly spaced from cord 23 whereby a club face swung through a normal arc should not only pass over point 21 at the lowermost point in the arc but the club face should be square with the ball ensuring a straight flight along the target line 20 towards the target pin 22.

However as virtually all people suffer slight physical imperfections such as slightly unequal length in arms and legs, spinal curvatures etc. the "classic" stance described above is suitable for very few golfers. Accordingly by practising drives with the ball located on a tee in the central aperture 4, and then progressively moving the tee either forwards or backwards along the longitudinal array of apertures, the golfer soon ascertains the optimum "off centre" position at which the lowermost point of his club arc occurs. Consistent practice with the target and transverse lines thus imprints in the mind of the golfer the correct angular relationship between ball, target and feet in a similar manner that the mechanical devices described above imprint muscle/brain co-ordination. This imprinting process is believed to occur by constant mental comparison of the relative positions of ball, target and feet. Thus under normal golfing conditions the golfer is able to accurately visualize the target line from a position offset therefrom and simultaneously align his stance relative thereto.

In addition to achieving enchanced visual perception of angular relationships between say a ball and feet at close range and a target at a remote distance, the golfer is able to more accurately locate his stance relative to the ball. If, for example, the golfer (right handed) finds that his best and most consistent drives occur with the tee located in aperture 12, he is then able to quantify the distance to which he must place his feet offset to the imprinted transverse reference line. Thus when addressing a ball the golfer may place his feet in a "classic" position relative to the ball and target with the club face spaced from the ball an amount corresponding to the distance between aperture 12 and the central aperture 4. In practice it will be found that it is easier and far more accurate for a golfer to remember and visualize the offset distance from the classic stance rather than address

the ball with only approximate perceptions of offset and angular relationships.

Having acquired an enhanced co-ordination between the brain and the eye as described above, this may be further enhanced by use of the circular array of apertures 15. By shifting his stance through a circular pathway (shown in phantom) the golfer may squarely align himself with a golf ball on a tee in say the aperture with reference number 4 (in this case the golfer's feet would be positioned at B as shown in phantom with an imaginary target line 24). By practising driving at this position (and other positions around the circular array) the golfer is able to mentally co-ordinate an angle of 45° relative to target line 20 and transverse stance line 23. In this manner, the golfer commences the process of reducing dependency on the reference and target lines 23 and 20 respectively and develops a perception of the distance to which a ball will be displaced laterally from a target.

By keeping member 2 fixed relative to the target line and moving member 1 about pivot point 3 to a predetermined angular displacement indicated by the graduated indicia 14, the golfer may then develop a perception of fine angular relationships by driving the ball along a target line coincident with the longitudinal axis of member 1. In this manner, the golfer is able to mentally co-ordinate the angular relationship between his feet, the golf ball and a remote target and ultimately achieve precision placement of the golf ball during a drive or approach stroke.

Having developed the eye/brain co-ordination for straight line strokes the golfer may then wish to develop skills in controlled draw and fade strokes or indeed to correct any uncontrolled tendency to draw or fade. This is achieved by keeping member 1 fixed relative to a target line and moving member 2 to a predetermined angular relationship therewith.

The golfer then aligns his stance at 90° to the projected centreline 25 of member 2 by moving his left foot rearwardly as represented by position C shown in phantom. With the golf ball positioned on a tee in central aperture 4, the golfer then drives the ball along target line 20 which, due to the offset stance shown at C, causes the club to strike the ball with an open face, thus imparting a spin to the ball which in turn gives rise to an arcuate flight path 20a curving away from the straightline projection of target line 20. This is known as a "fade" stroke. By increasing the angle between members 1 and 2 and adjusting the stance accordingly, the amount of spin imparted to the ball and thus, the degree of fade is increased proportionally.

The development of a draw stroke is achieved by pivoting member 2 in the opposite direction and adopting a stance offset on the other side of line 23 whereby the club face strikes the ball with a closed face. In this case, the left foot remains stationary and the right foot is moved rearwardly to align the stance with the rearwardly projected centreline of member 2. The resultant arcuate flight path curving away from target line 20 on the opposite direction to the fade is known as a draw stroke.

Although the above description relates to the development of controlled draw and fade strokes it will be clear that the device according to the invention may be utilized to bring under the control of a golfer a previously uncontrolled fade or draw stroke common in many golfers.

The device according to the invention may be used in the development of visual/mental co-ordination for fairway strokes as well as tee strokes. By using a shortened tee to support the ball at substantially the plane of the upper surface of the device this closely approximates fairway conditions for both driving and approach strokes. It will be readily apparent to a skilled addressee that the

device according to the invention is most suitable in the training of novice golfers as well as in the enhancement of skills of experienced golfers and may be used by both tutor and pupil in the learning process.

The device may be manufactured from any suitable materials such as metal or plastics but is preferably manufactured from injection moulded plastics such as polypropylene or impact resistant plastics such as modified styrene polymers, ABS or reinforced materials such as glass filled nylon. For the sake of simplicity, the device is manufactured as two components as illustrated although it could be manufactured in two or more components pivotally connected by a hollow rivet or the like.

CLAIMS:

1. An aid for golfers comprising:-

a device having at least two direction indicating members pivotable relative to each other about a pivot point, one of said members including a plurality of apertures, at least one of said apertures being coincident with said pivot point and two or more apertures being linearly spaced therefrom.

2. A device as claimed in claim 1 wherein said one of said members includes a plurality of apertures spaced radially about said pivot point.

3. A device as claimed in claim 2 wherein another of said members includes two or more linearly spaced apertures.

4. A device as claimed in any one of claims 1-3 wherein at least one of said members includes graduated indicia to permit displacement to a predetermined angular position of one member relative to another.

5. A device as claimed in any of the preceding claims wherein one of said members includes an edge having a radiused curve, said curve having its origin at the pivot point of said members.

6. A device as claimed in any one of the preceding claims wherein said device is adapted to permit fixing to a support surface.

7. A device as claimed in any one of the preceding claims wherein said device includes means to align in use on a support surface at right angles datum lines to align the device with a target and to align the device with a user's feet.

8. A device according to any preceding claim wherein said apertures are adapted to receivably locate a golf tee.

9. A method of enhancing in a golfer the visual perception of angular relationships between a golfer's feet, a golf ball when addressed for striking and a remote target, said method comprising the steps of arranging on a ground

surface a first reference line aligned with said remote target;

arranging on said ground surface a second reference line intersecting said first reference line at 90^{o} thereto;

affixing the device of any one of claims 1-8 on said ground surface with the pivot point of said device the intersection of said lines and the linearly spaced apertures aligned with said target line; and,

with a golf ball resting on a golf tee in an aperture coincident with said pivot point angularly aligning the stance of said golfer relative to a target and to said second reference line by arranging the pivotal members of said device at a predetermined angular relationship with each other, whereby in use a golfer is able to perceive the angular relationship between his feet, a golf ball when being addressed before striking and a remote target, and after a struck golf ball has come to rest permit the golfer to angularly quantify a deviation between the target line and the golf ball at rest.

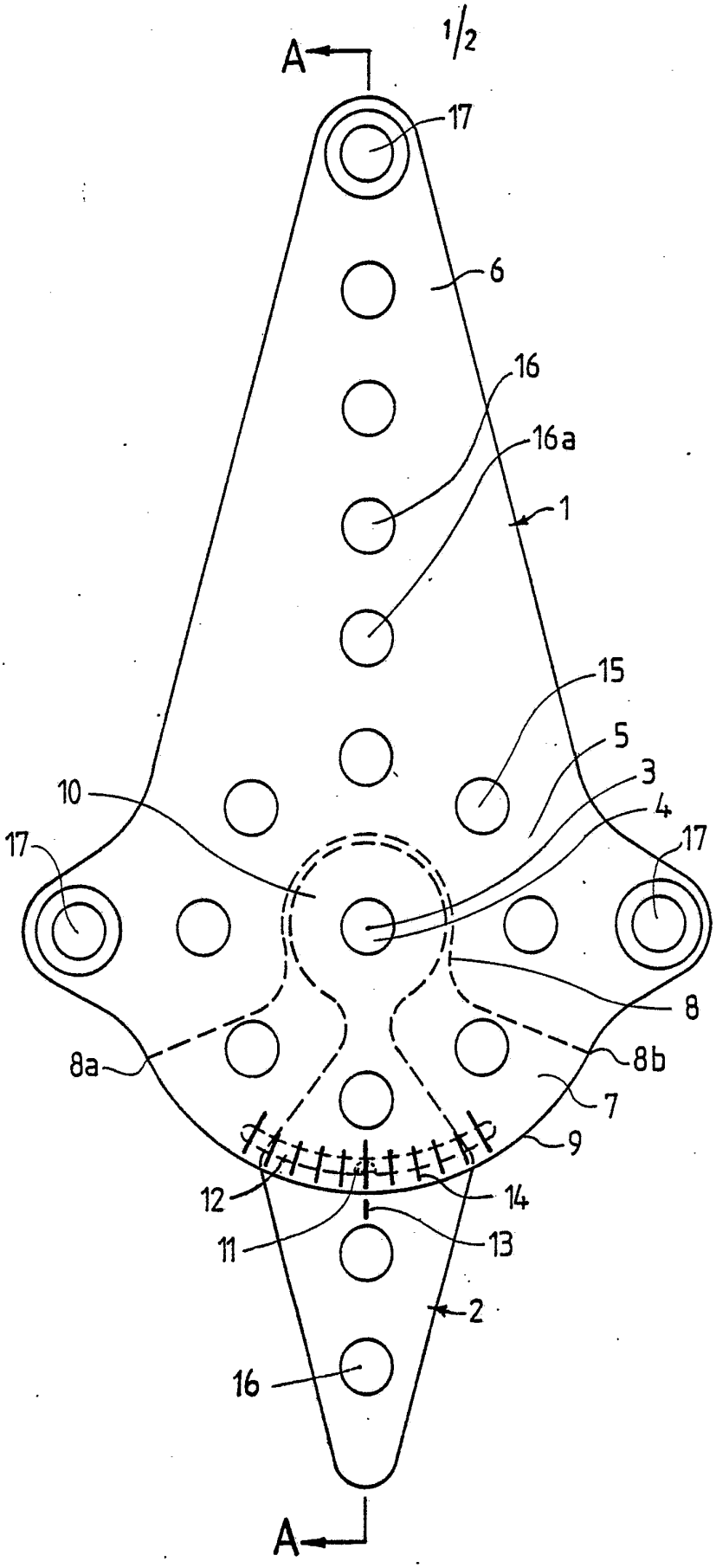
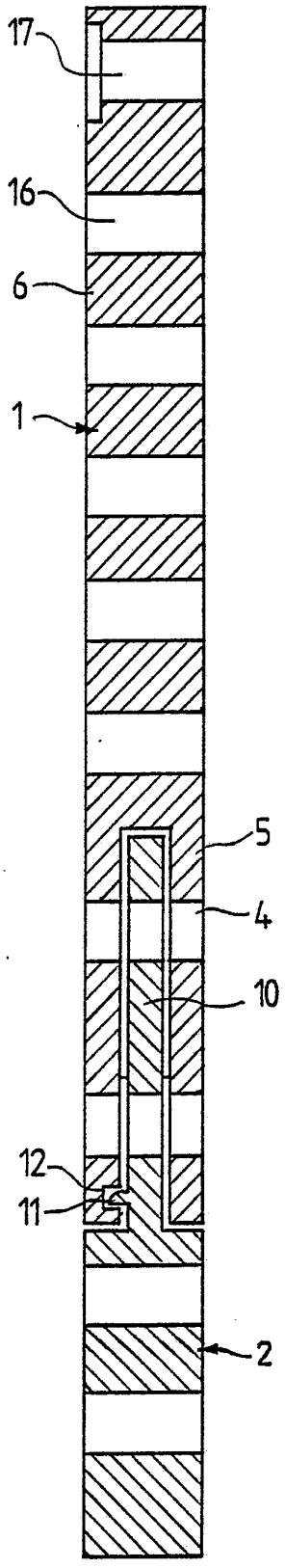


FIG. 1



SECTION A-A

FIG. 2

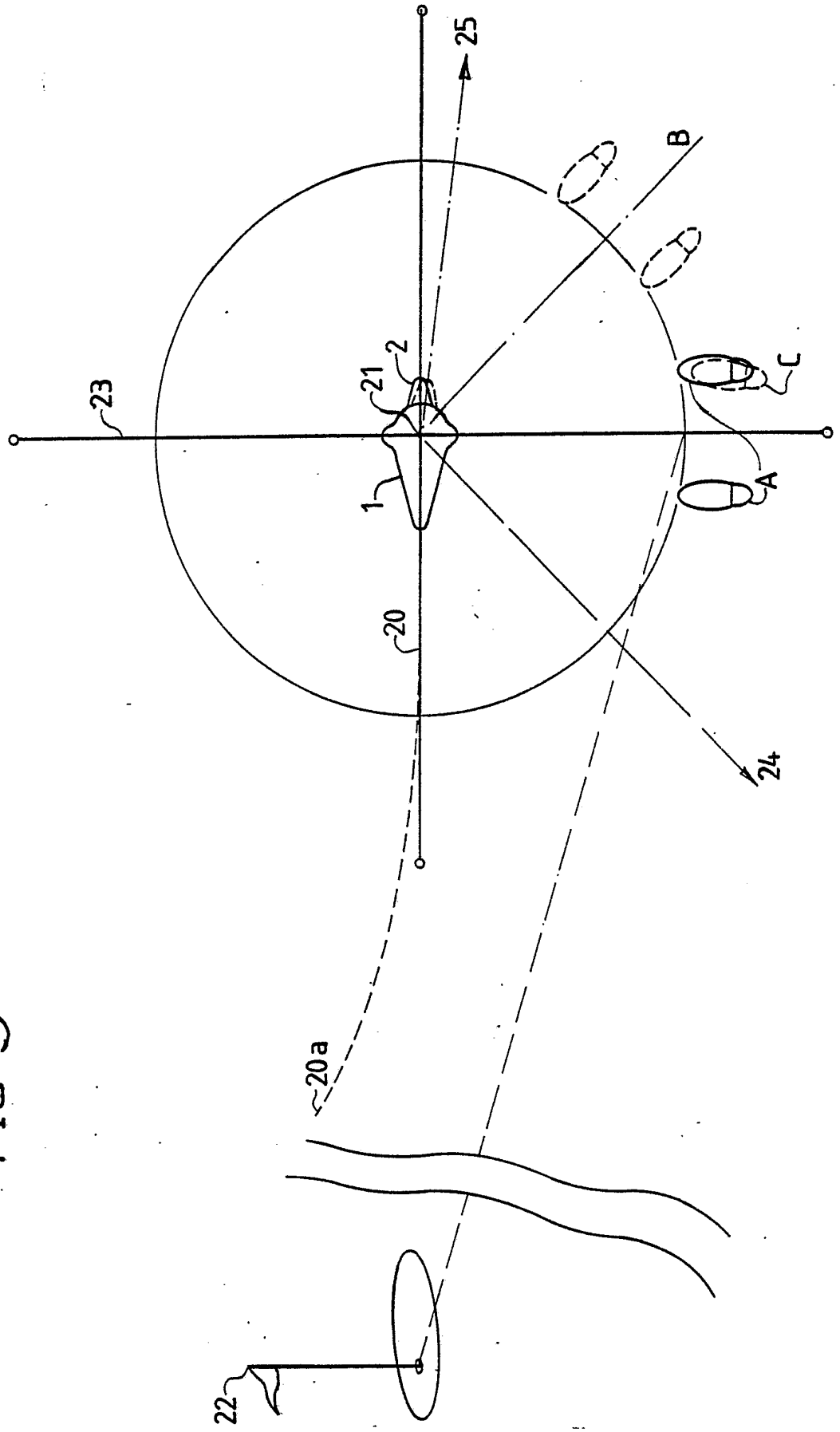


FIG 3

INTERNATIONAL SEARCH REPORT

International Application No PCT/AU 84/00110

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int. Cl.[3] A63B 69/36

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
IPC	A63B 69/36

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched [5]

AU : IPC as above.

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
X	US,A, 4384718 (CACHOLA) 24 May 1983 (24.05.83)	(1,4,6,7)
A	US,A, 3429577 (GODDEN) 25 February 1969 (25.02.69)	
X,Y	US,A, 3384377 (STIPP) 21 May 1966 (21.05.66)	(1,4,6)
Y	US,A, 2180170 (RICHARDS) 14 November 1939 (14.11.39)	(1,4,7)
A	GB,A, 2037589 (THEUNISSEN) 16 July 1980 (16.07.80)	
Y	GB,A, 1461508 (VASEY) 13 January 1977 (13.01.77)	(1,4)
X,Y	GB,A, 839283 (EVANS) 29 June 1960 (29.06.60)	(1,4,6)
A	AU,A, 11145/70 (CALDWELL) 12 August 1971 (12.08.71)	
Y	AU,B, 11028/61 (261328) (HUNTER) 9 May 1963 (09.05.63) See page 9 line 18 - page 10 line10	(1)
A	AU,B, 16765/34 (DAVIES) 2 May 1935 (02.05.35)	

* Special categories of cited documents: [15]

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
14 August 1984 (14.08.84)	17 August 1984
International Searching Authority [1]	**Signature of Authorized Officer [20]**
Australian Patent Office	O. HAGGAR

Form PCT/ISA/210 (second sheet) (October 1981)

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/AU 84/00110

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Members
US 4384718	JP 58116373
GB 2037589	JP 55113474