(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 342 287 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **88304580.9**

(51) Int. Cl.[4]: **A63B 37/00 , A63B 39/00**

(22) Date of filing: **20.05.88**

(43) Date of publication of application:
23.11.89 Bulletin 89/47

(84) Designated Contracting States:
GB

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(54) Aerodynamic ball.

(57) A spherical ball (1) having a plurality of dimples (11, 13) on the surface thereof characterised in that the surface is divided into six identical areas (5a-f) by means of six equators (7a-f) each area accommodates an identical number of dimples and each dimple is wholly contained within a single area.

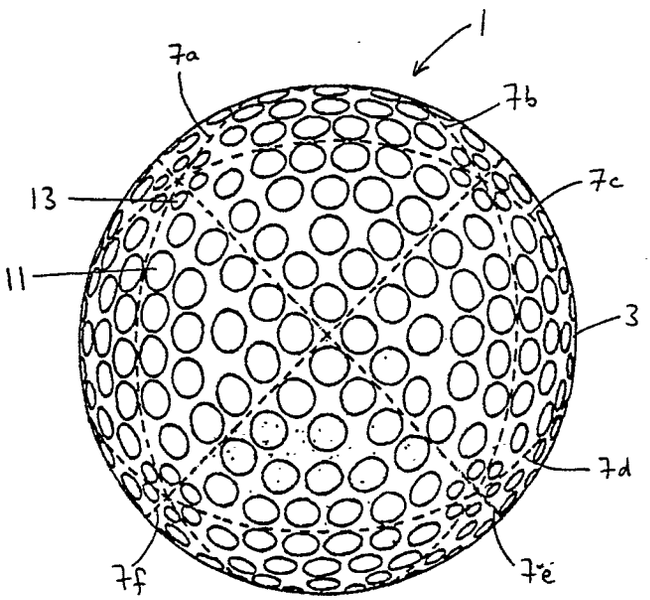

FIGURE 3

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AERODYNAMIC BALL

This invention relates to an aerodynamic spherical ball and in particular to a golf ball having a novel dimple configuration.

According to the present invention there is provided a spherical ball having a plurality of dimples on the surface thereof characterised in that the surface is divided into six identical areas by means of six equators, each area accommodates an identical number of dimples and each dimple is wholly contained within a single area.

Preferably the six equators further divide each area into four identical sub-areas, and each sub-area accommodates an identical number of dimples.

Preferably each dimple is wholly contained within a sub-area.

It is preferable that the dimples form a pattern which is repeated four times within a single area, the pattern being substantially triangular.

Preferably each area accommodates 76 dimples; it is preferred that these dimples should be made up from 68 large dimples and 8 small dimples.

It is also preferable that the pattern comprises a triangle formed by 13 large dimples, 4 large dimples within the triangle and 1 small dimple at each of the apexes at either end of the longest side of the triangle.

Further, preferably the four large dimples within the triangle are positioned such that three of the dimples form a line parallel to the longest side of the triangle and the fourth dimple is equidistant from the ends of the line.

The large dimples preferably have a diameter of between 3mm and 4mm, most preferably 3.4mm, and the small dimples preferably have a diameter of between 1.5mm and 2.5mm, most preferably 2.0mm.

Preferably each dimple has a maximum depth which is approximately 5.4% of its diameter.

Furthermore, it is preferable that the surface area of the ball covered by dimples is maximised.

If the ball is formed by joining two hemispheres together, it is preferable that the joint between the hemispheres is one of the equators.

In a preferred embodiment of the present invention the ball is a golf ball.

A specific embodiment of the present invention is now described purely by way of example with reference to the accompanying drawings, in which:

Figure 1 is a diagramatic drawing showing the six equators which divide up the surface of the ball;

Figure 2 is a diagramatic drawing of the pattern of dimples within a single sub-area;

Figure 3 is a diagramatic view of a golf ball according to the present invention; and

Figure 4 shows a cross-section of the surface of a golf ball enlarged to show one dimple having sloped sides.

With reference to the drawing, the surface 3 of a golf ball 1 is divided into six identical areas 5a-5f by means of six equators 7a-7f. Each of the areas 5a-5f is identical in both shape and size, and is divided into four identical sub-areas 9a-9d.

Each of the sub-areas 9a-9d has 19 dimples arranged in a predetermined pattern, as shown in Fig. 2. The nineteen dimples are made up of seventeen large dimples 11 and two small dimples 13. The large dimples 11 each have a diameter of substantially 3.43mm and the two small dimples 13 each have a diameter of substantially 2.03mm. All nineteen dimples are enclosed within the boundary of the sub-area 9 without any overlap into another sub-area.

The dimple configuration in each sub-area 9 comprises thirteen large dimples 11 formed into a triangle, four large dimples 11 within the triangle and one small dimple 13 at each of the apexes at either end of the longest side of the triangle. The four large dimples 11 within the triangle are positioned such that three of the dimples 11 form a line parallel to the longest side of the triangle and the fourth dimple is equidistant from the ends of the line, as shown in Fig. 2. This pattern is repeated in each of the sub-areas 9 over the complete golf ball, resulting in a golf ball having improved aerodynamics.

The depth of each dimple is approximately 5.4% of its diameter.

The golf ball is formed from two hemispheres joined together and the joint between the hemispheres coincides with one of the equators 7a-7f.

It will of course be understood that the present invention has been described above purely by way of example and that modifications can be made within the scope of the invention. For example, other embodiments of the invention may have more or less than 456 dimples, such as 384, 408, 430, 480, 504 or 528 dimples per ball. In these embodiments, the total number of dimples varies by 24 (i.e. one dimple per sub-area) or a multiple of 24.

Claims

1. A spherical ball (1) having a plurality of dimples (11, 13) on the surface (3) thereof characterised in that the surface (3) is divided into six identical areas (5) by means of six equators (7), each area accommodates an identical number of dimples and each dimple is wholly contained within a single area.

2. A ball according to claim 1 wherein the six equators (7) further divide each area (7) into four identical sub-areas (9), and wherein each sub-area (9) accommodates an identical number of dimples (11, 13).

3. A ball according to claim 2 wherein each dimple is wholly contained within a single sub-area (9).

4. A ball according to any preceding claim wherein each area accommodates 76 dimples.

5. A ball according to any preceding claim wherein the dimples form a pattern which is repeated four times within a single area, the pattern being substantially triangular.

6. A ball according to claim 5 wherein each area accommodates 68 large dimples and 8 small dimples.

7. A ball according to claim 6 wherein the pattern comprises a triangle formed by 13 large dimples, 4 large dimples within the triangle and one small dimple at each of the apexes at either end of the longest side of the triangle.

8. A ball according to claim 7 wherein the four large dimples within the triangle are positioned such that three of the dimples form a line parallel to the longest side of the triangle and the fourth dimple is equidistant from the ends of the line.

9. A ball according to any one of claims 6 to 8 wherein the large dimples have a diameter of between 3mm and 4mm.

10. A ball according to any of claims 6 to 9 wherein the small dimples have a diameter of between 1.5mm and 2.5mm.

11. A ball according to any preceding claim wherein each dimple has a maximum depth which is approximately 5.4% of its diameter.

12 A ball according to any preceding claim wherein the surface area of the ball covered by dimples is maximised.

13. A ball according to any preceding claim which is formed by joining two hemispheres together wherein the joint between the hemispheres is one equator.

14. A ball according to any preceding claim which is a golf ball.

15. A ball substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

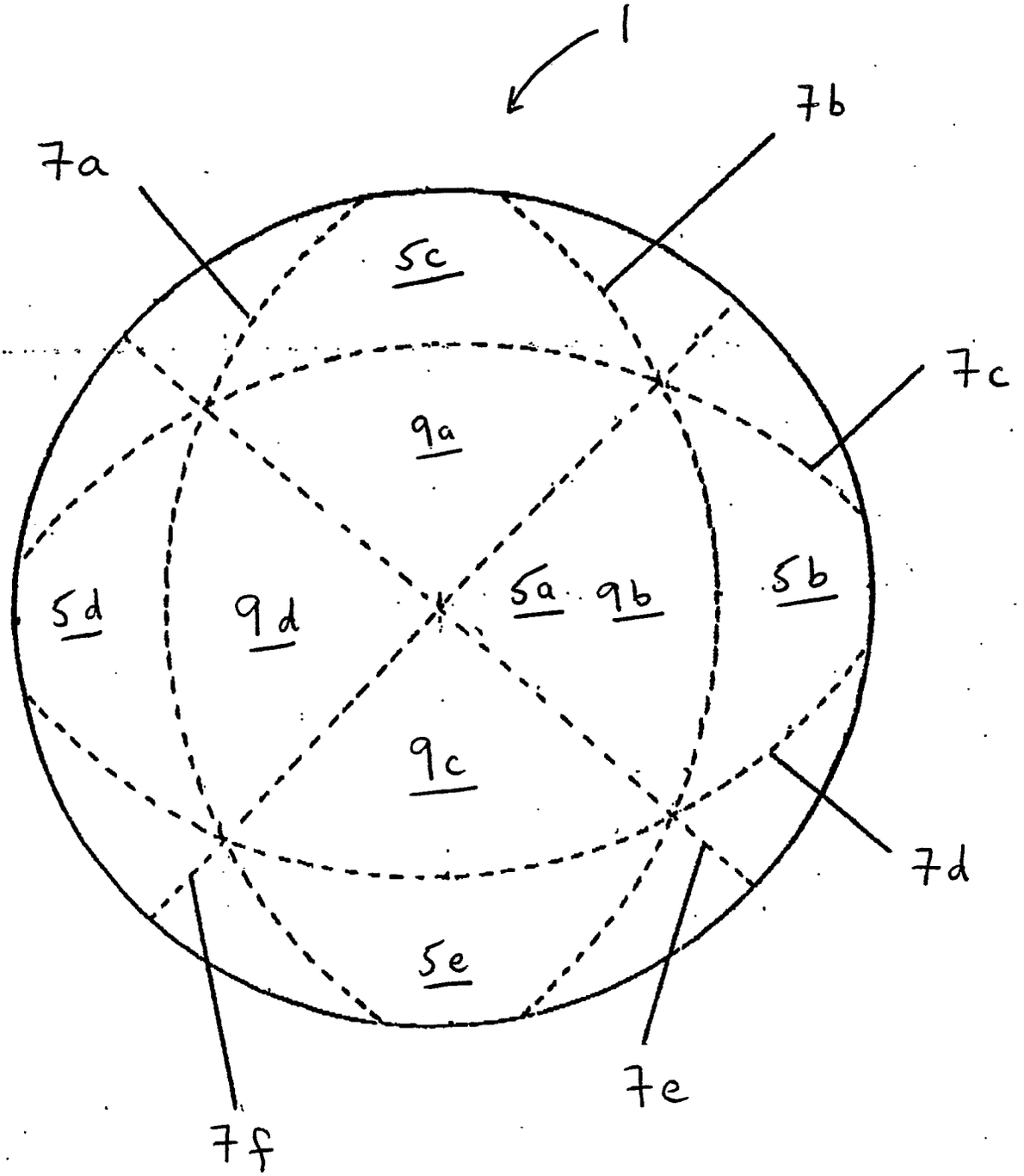

FIGURE 1

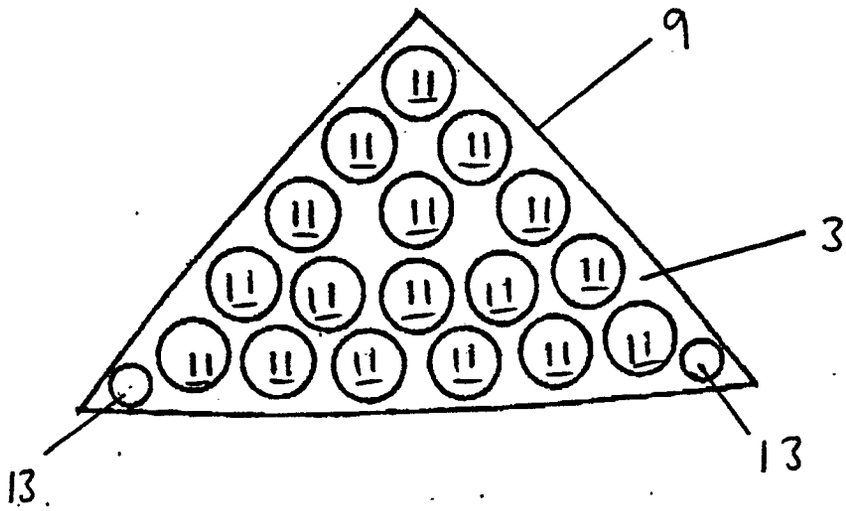

FIGURE 2

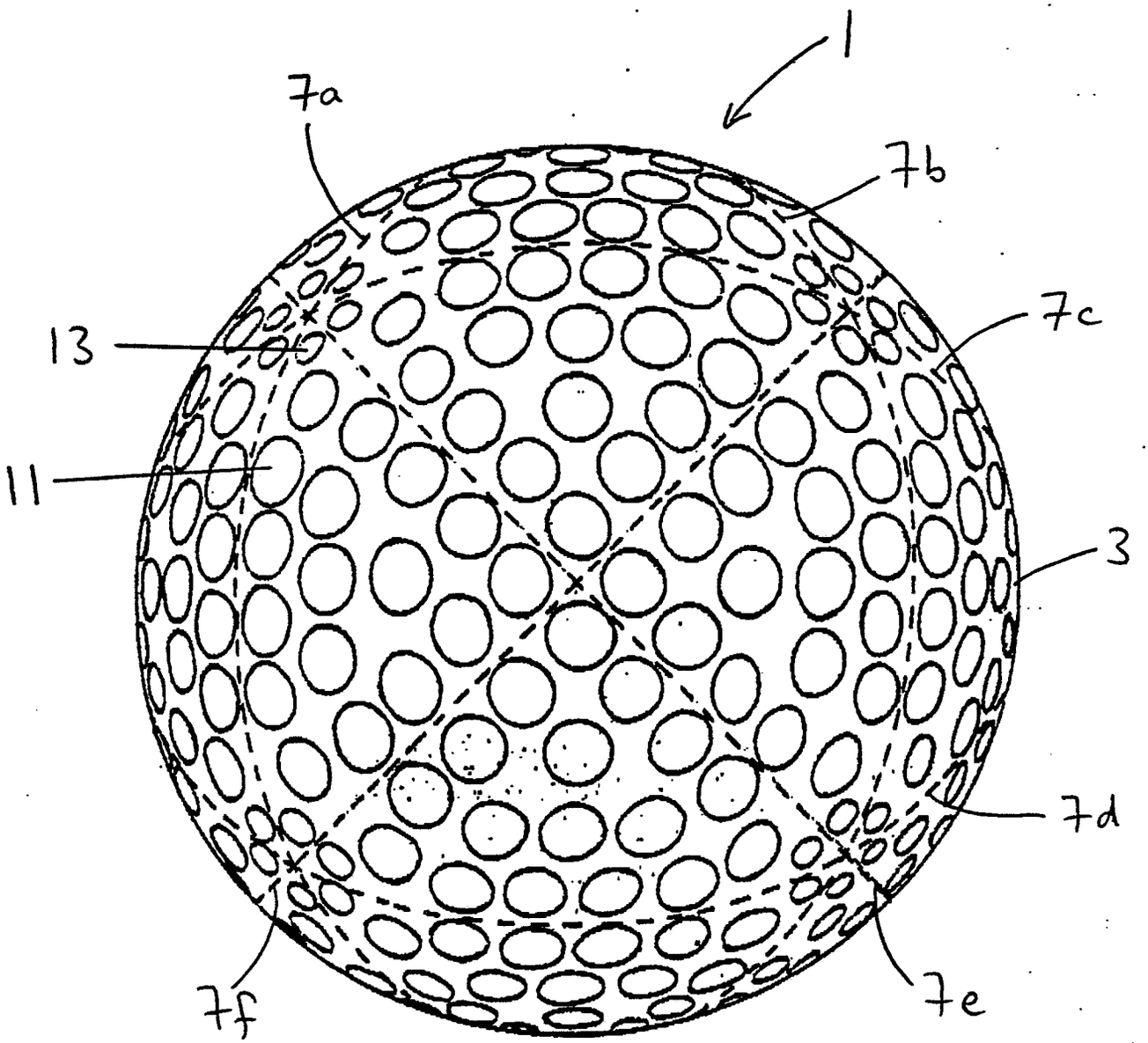

FIGURE 3

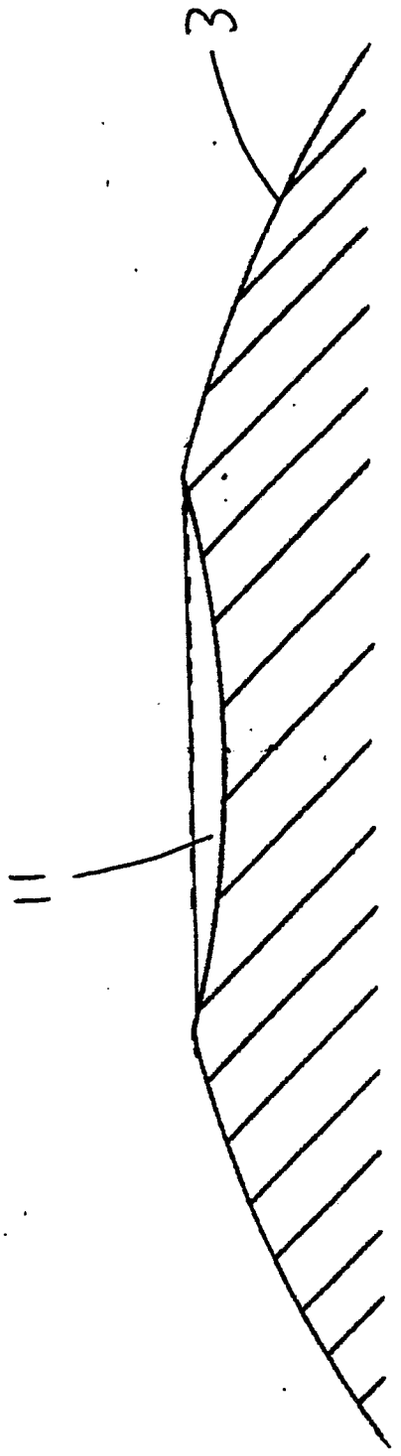

FIG. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 30 4580

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	FR-A-2 555 061 (SUMITOMO RUBBER INDUSTRIES LTD.) * abstract, page 1, line 26 - page 2, line 5, page 8, lines 13-14, claim 1; figures 1-3 * ---	1,2,4, 14	A 63 B 37/00 A 63 B 39/00
A	EP-A-0 217 483 (SUMITO RUBBER INDUSTRIES LTD.) * column 6, lines 10-13, claims 1-3, 5-8; figures 1, 2, 11, 12 * ---	1,2,4-10,14	
A	EP-A-0 159 550 (WILSON SPORTING GOODS CO.) * abstract, claims 1, 7, 15, 16, 24; figures 1, 2, 7a, 8a, b, 11b, 13b, 15 * -----	1-5,11	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

A 63 B 37/00
A 63 B 39/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	22-11-1988	MICHELS N.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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