



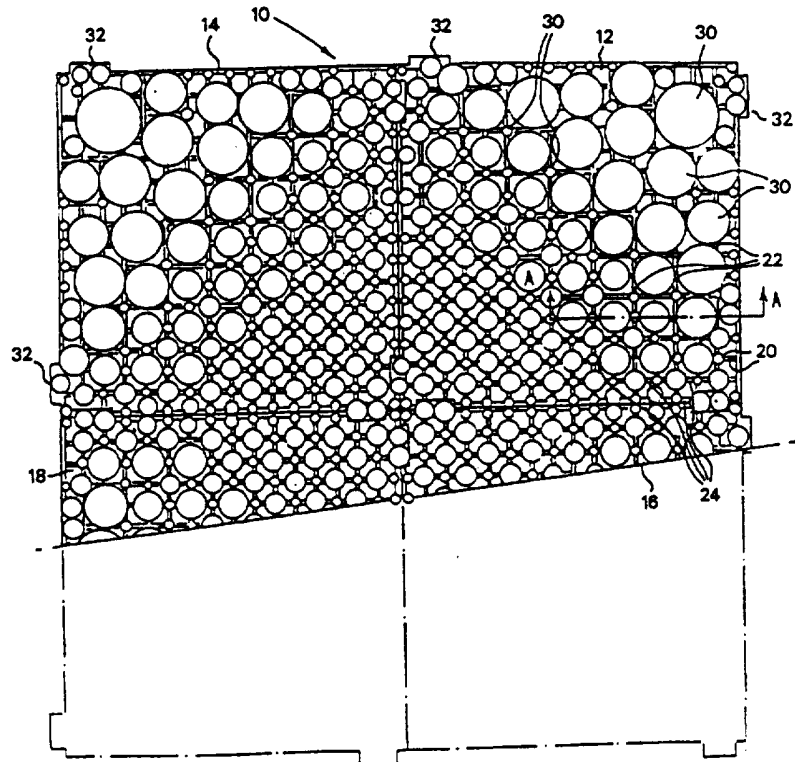
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/GB95/02020  (22) International Filing Date: 25 August 1995 (25.08.95)  (30) Priority Data: 94/6512 26 August 1994 (26.08.94) ZA  (71) Applicant (for all designated States except MW US): REFLEXO CC [ZA/ZA]; 3 Du Preez Road, Newlands, Johannesburg 2092 (ZA).  (71) Applicant (for MW only): DYER, Alison, Margaret [GB/ZA]; 22 North Road, Morningside, Sandton 2057 (ZA).  (72) Inventors; and (75) Inventors/Applicants (for US only): COETZEE, Pieter, Jacobus [ZA/ZA]; 11 Roma Avenue, Honeyhills 1725 (ZA). KHOURY, Edward, Joseph [ZA/ZA]; 75 5th Avenue, Alberton 1449 (ZA). RABIE, Quinton [ZA/ZA]; 9 Fernhoff, Hendrik Verwoerd Drive, Ferndale, Randburg 2194 (ZA).  (74) Agent: GILL JENNINGS &amp; EVERY; Broadgate House, 7 Eldon Street, London EC2M 7LH (GB).</p>		<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, SD, SZ, UG).</p> <p><b>Published</b> With international search report.</p>

(54) Title: MASSAGE MAT

(57) Abstract

A mat (10) is formed from four tiles (12, 14, 16, 18). Each tile (12, 14, 16, 18) consists of a grid (20) formed from a first set of parallel bars (22) and a second set of parallel bars (24). The grid (20) defines a plurality of square apertures (28) between the bars (22, 24). On the upper surface of the grid (20) are located a plurality of convex protrusions (30). The protrusions (30) are arranged in an ordered pattern to provide a massage to a body part of the user pressed against the protrusions. The mat (10) is of particular use as a bath or shower mat.



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**MESSAGE MAT****BACKGROUND OF THE INVENTION**

This invention relates to a mat, particularly for use as a floor covering for a shower or as a bath mat, or as a floor covering around spas, jacuzzis and swimming pools and the like.

Various types of floor coverings for showers and various types of bath mats are known. Canadian Patent No 1205339 discloses a foot massage plate which comprises a plate having raised portions that extend as close, irregularly arranged hollow protuberances covering substantially the whole of the central portion of the plate. The raised portions extending as hollow protuberances from the plate serve as massagers for foot reflex-zone massage. The raised portions are shaped in the form of partially protruding river-gravel pebbles that have a mixed range in size and which protrude at different heights from the plane of the plate. In addition the plate has drain holes arranged therein. The plate may be placed in the base of a shower stall. The underside of the plate may have suction caps arranged thereon to hold the plate in position. The plate, of hard plastic or stainless steel, may comprise two halves that are hinged so that the plate may be folded.

There is always a need for a new type of mat like which has additional benefits for a user.

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### SUMMARY OF THE INVENTION

According to a first aspect of the invention there is provided a mat which comprises:

a grid having an upper surface and a lower surface; and  
a plurality of convex protrusions of at least two types attached to the upper surface of the grid, the protrusions being arranged in an ordered pattern with spaces between at least some of the protrusions.

The protrusions on the grid are convex, i.e. the upper surface of each protrusion must be rounded.

The protrusions are preferably all of substantially the same height, preferably about 5mm or less, more preferably about 3mm.

The protrusions must be of at least two different types, differing in shape, circumference or surface texture or two or more thereof.

Preferably, the protrusions are all substantially circular or oval, with two or more, preferably four or five, more preferably up to eleven different circumferences or dimensions, and with the same heights and the same or different surface textures, for example rough and smooth. The circumferences of the protrusions may range from 4mm to 32mm inclusive.

The protrusions are arranged in an ordered pattern preferably to provide a massage to a body part such as a foot of a user pressed against the protrusions.

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In one version the mat may be formed from a plurality of tiles, each tile comprising a grid having an upper surface and a lower surface with a plurality of convex protrusions of at least two types attached to the upper surface of the grid, the protrusions being arranged in an ordered pattern with spaces between at least some of the protrusions.

In this case each tile may have the protrusions arranged in a pattern to provide a massage or a group of tiles may be designed so that when they are placed side by side the protrusions form a pattern to provide a massage.

Each tile may include a formation for connecting the tile to an adjacent tile so that the tiles interlink. Preferably each edge of each tile includes a clip formation and a receiving formation, the clip formation on a first tile being adapted to connect to the receiving formation on a second tile to connect the two tiles to each other.

Preferably each tile is square and each tile includes a clip formation and a receiving formation on each of its four sides.

Alternatively, when the tiles are square or rectangular, two edges of each tile may each include a clip formation and the other two edges of each tile may each include a receiving formation, the clip formation on a first tile being adapted to connect to the receiving formation on a second tile to connect the two tiles to each other. Preferably the two edges of the tile bearing the clip formations are adjacent each other.

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In a second version the mat may be formed in one piece or may be cut from a length of material comprising a grid and a plurality of convex protrusions of at least two types attached to the upper surface of the grid, the protrusions being arranged in an ordered pattern with spaces between at least some of the protrusions.

In both versions of the invention, the grid is preferably composed of a first set of parallel bars and a second set of parallel bars transverse to and preferably at right angles to the first set of parallel bars. In this case the apertures in the grid may be square, rectangular or diamond shaped. The edges around the apertures are preferably rounded.

Alternatively, the grid may be composed of a plurality of round, oval or hexagonal hollow cells joined together to form the grid. In this case the apertures in the grid are round, oval or hexagonal in shape. Again, the edges around the apertures are preferably rounded.

The lower surface of the grid preferably includes a series of channels through which gases and liquids may flow. Alternatively the grid may include a series of openings through which gases and liquids may flow.

The grid and convex protrusions may be rigid or flexible, but is preferably flexible and resilient.

There must be spaces between the protrusions so that there are holes in the mat defined by the spaces between the protrusions and the apertures in the grid.

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The mat is of particular use as a floor covering for a shower or as a bath mat, or as a floor covering around spas, jacuzzis and swimming pools or the like.

The mat is preferably made of a suitable plastics material, such as PVC.

According to a second aspect of the invention there is provided a combination of a mat as described above and a tray therefor, the mat being designed to be laid out in the tray in use.

The combination is particularly designed to be used as a bath or shower drying mat.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a plan view of a mat of the invention formed from four tiles;  
Figure 2 is a cross sectional view along the line A-A in Figure 1;  
Figure 3 is a perspective view of a connecting formation between two adjacent tiles of the mat of Figure 1 in their unconnected condition;  
Figure 4 is a side view of the clip formation of Figure 3 in its connected position;  
Figure 5 is a perspective view of a portion of the lower surface of one of the tiles of the mat of figure 1;  
Figure 6 is a plan view of a combination of the massage mat of Figure 1 and a tray therefor;  
Figure 7 is a cross sectional view along the line B-B in Figure 6; and  
Figure 8 is a perspective view of a portion of the lower surface of a further mat of the invention.

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### DESCRIPTION OF EMBODIMENTS

Referring to the drawings there is shown a mat 10 which is formed from four tiles 12, 14, 16, 18, each tile being identical.

Each tile consists of a grid 20 formed from a first set of parallel bars 22 and a second set of parallel bars 24 at right angles to the first set of parallel bars 22. The bars 22, 24 may be shaped as illustrated in Figure 5 with a plurality of cut-outs 25 so that the grid has a plurality of cross shaped "feet" 26 on which the mat 10 rests in use. These feet 26 may have a textured lower surface to provide additional non-slip properties. Each tile includes 280 feet 26 to provide for even weight distribution. The cut-outs 25 interact with one another to form a plurality of channels in the lower surface of the grid 20 through which gases or liquids may flow. In other words, the channels provide a pathway for the flow of air or for the flow of a liquid such as water when the mat 10 is used as a bath or shower mat.

The grid 20 defines a plurality of square apertures 28 between the bars 22, 24.

On the upper surface of the grid 20 are located a plurality of convex protrusions 30. Each protrusion 30 is circular and has a convex or rounded upper surface as is illustrated clearly in Figure 2. The protrusions 30 are all of the same height, being a height of approximately 3mm. The protrusions 30 are of several different types, differing in circumference. The circumferences range from 4mm to 32mm inclusive. The protrusions 30 are arranged on the upper surface of the grid 20 such that there are spaces between the protrusions 30 and such that the protrusions 30 are

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arranged in a pattern to provide a massage to a body part of a user pressed against the protrusions.

It can be seen that the mat 10 includes a plurality of holes therethrough defined by the spaces between the protrusions 30 and the apertures 28 in the grid 20. This permits the passage of water through the mat 10 when the mat 10 is used as a floor covering in a shower or as a bath mat or the like. Preferably at least about 20%, more preferably about 40% of the total surface area of the upper surface of the grid 20 is open, i.e. consists of the holes defined by the spaces between the protrusions 30 and the apertures 28.

Each tile 12, 14, 16, 18 includes along each of its four sides a clip formation 32 and a receiving formation 34 as illustrated particularly in Figures 3 and 4. Each clip formation 32 protrudes from the edge of the tile 12, 14, 16, 18 and is designed to be located over an adjacent edge of an adjacent tile and to be located in the receiving formation 34 to connect adjacent tiles 12, 14, 16, 18 to each other.

The clip formation 32 preferably includes one or more protrusions 30 thereon to hide the clip formation 32 when the two tiles 12, 14, 16, 18 are connected to each other.

It can be seen from Figure 1 that the tiles 12, 14, 16, 18 include clip formations 32 on their outer edges. If desired, these clip formations may be cut off from the tiles 12, 14, 16, 18 before use of the mat 10.

The mat 10 as illustrated in Figure 1 may be located in a tray 36 therefor as illustrated in Figure 6 and 7. The tray 36 includes a base 38, a

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surrounding wall 40 and an outer wall 42. A strip 44 of a suitable non-slip material may be inserted between the walls 40, 42 to provide the combination of the mat 10 and tray 36 with non-slip properties. The mat 10 is designed to be a fit in the tray 36. If necessary, the mat 10 may be suitably cut to fit into the tray 36. The tray 36 is designed to receive and retain any moisture or dirt which may flow through the holes in the mat 10 in use. The inner surface of the base 38 may be textured to provide additional non-slip properties.

Although the tray 36 as illustrated is square, other shapes, including curved shapes, may be utilised.

The combination of the mat 10 and tray 36 is particularly designed to be used as a bath or shower drying mat.

The mat 10 may be made of any suitable material, preferably a plastics material, more preferably a thermoplastics material. When the mat is made of a thermoplastics material, it may be made for example by injection moulding. In this case the grid and the protrusions and preferably the clips are moulded as a unitary entity.

The mat may be designed to be flexible or rigid.

The tray 36 for the mat 10 may also be made of any suitable thermoplastics material, for example by vacuum forming.

The mat of the invention is of particular use as a floor covering for a shower or as a bath mat, or as a floor covering around spas, jacuzzis,

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swimming pools and the like. In this case, when a user steps onto the mat 10, the sole of the foot receives a massage from the protrusions 30 on the mat 10. In addition, the mat 10 is preferably non-slip.

As an alternative, a mat 10 may be attached to a wall of a shower or a bath, or may be laid on a horizontal edge of a bath, and a user may press a limb such as a thigh against the mat 10 and thus obtain a massage from the protrusions 30 on the mat 10.

The mat may also be used between a mattress and an undersheet in a bed. In this case the mat is preferably softer and more flexible than a mat designed as a floor covering. The advantages of the mat are that it provides for a much reduced area of skin contact with the mat, a subtle massage, and air flow, which may prevent bed sores for bed ridden persons.

A section of a mat 100 for use in such an application is illustrated in Figure 8. The mat 100 is similar to the mat 10 except that the grid includes openings 102 rather than channels, through which gas or liquids may flow.

The mat may be marketed as a length of material, or as a number of loose tiles to be interconnected by the purchaser, or as a pre-assembled unit formed from a number of tiles.

A major advantage of the mat of the invention is that it provides a massage while it performs some other function, such as a drying mat.

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## CLAIMS

- 1 A mat comprising a grid having an upper surface and a lower surface, and a plurality of convex protrusions of at least two types attached to the upper surface of the grid, the protrusions being arranged in an ordered pattern with spaces between at least some of the protrusions.
- 2 A mat according to claim 1 wherein the protrusions are all of substantially the same height.
- 3 A mat according to claim 2 wherein the protrusions are all of a height of about 5mm or less.
- 4 A mat according to claim 3 wherein the protrusions are all of a height of about 3mm.
- 5 A mat according to any one of claims 1 to 4 wherein the protrusions are of at least two different types, differing in shape, circumference or surface texture or two or more thereof.
- 6 A mat according to claim 5 wherein the protrusions are all substantially circular or oval, with two or more different circumferences ranging from 4mm to 32mm inclusive and with the same or different surface textures.

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- 7 A mat according to any one of claims 1 to 6 wherein the protrusions are arranged in an ordered pattern to provide a massage to a body part of a user pressed against the protrusions.
- 8 A mat according to any one of claims 1 to 7 wherein the mat is formed from a plurality of tiles, each tile comprising a grid having an upper surface and a lower surface with a plurality of convex protrusions of at least two types attached to the upper surface of the grid, the protrusions being arranged in an ordered pattern with spaces between at least some of the protrusions.
- 9 A mat according to claim 8 wherein each tile includes a formation for connecting the tile to an adjacent tile.
- 10 A mat according to claim 9 wherein each edge of each tile includes a clip formation and a receiving formation, the clip formation on a first tile being adapted to connect to the receiving formation on a second adjacent tile to connect the two tiles to each other.
- 11 A mat according to claim 10 wherein each tile is square and each tile includes a clip formation and a receiving formation on each of its four sides.
- 12 A mat according to claim 9 wherein each tile is square or rectangular, two edges of each tile each including a clip formation and the other two edges of each tile each including a receiving formation, the clip formation on a first tile being adapted to connect to the receiving formation on a second tile to connect the two tiles to each other.

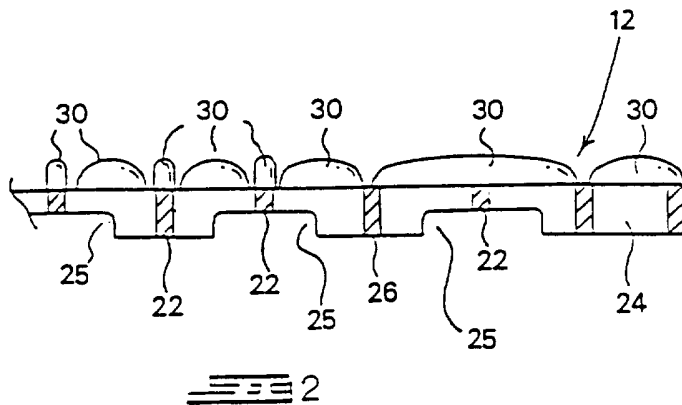
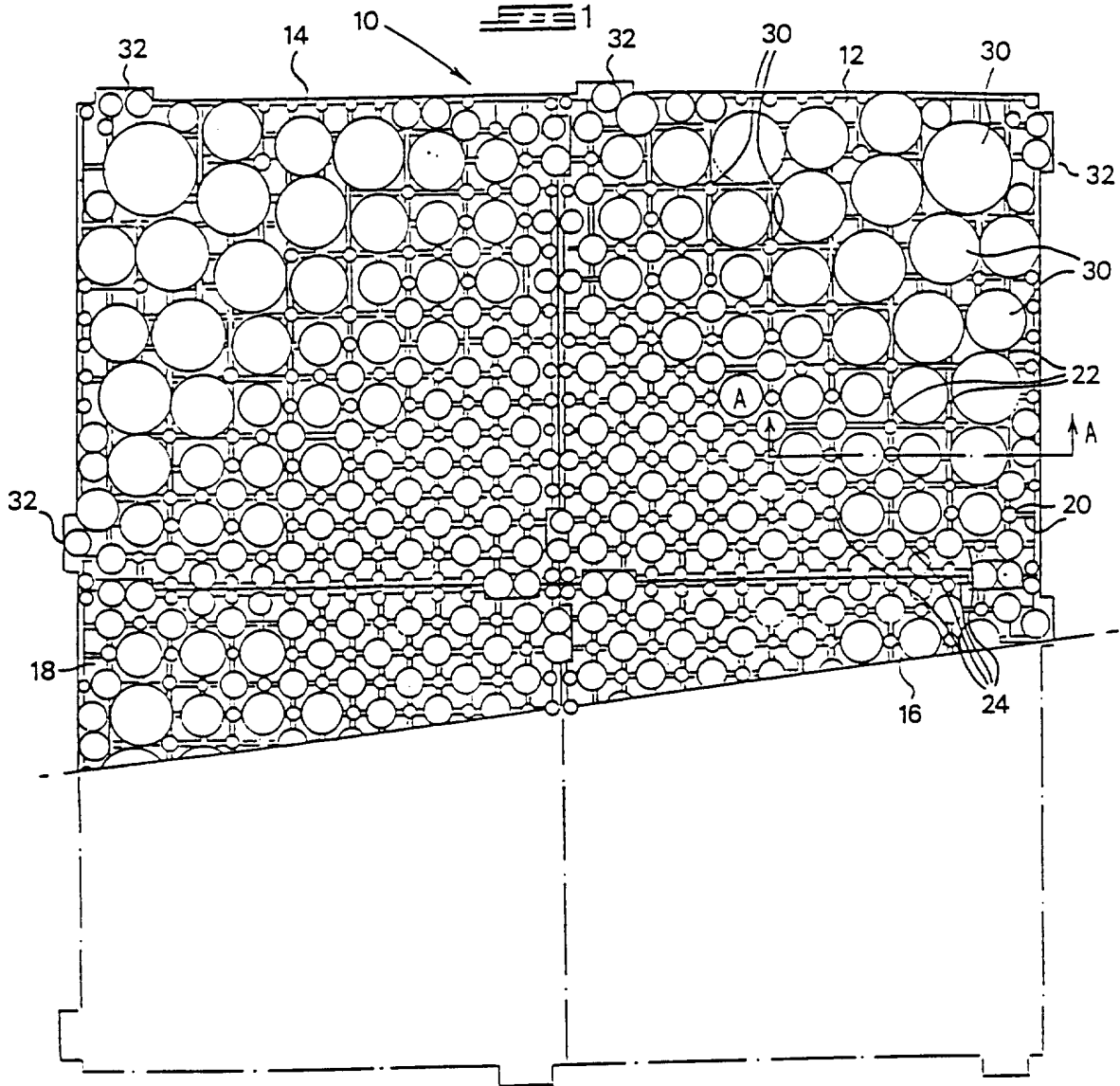
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- 13 A mat according to any one of claims 1 to 7 wherein the mat is formed in one piece.
- 14 A mat according to any one of claims 1 to 7 wherein the mat is cut from a length of material comprising a grid and a plurality of convex protrusions of at least two types attached to the upper surface of the grid, the protrusions being arranged in an ordered pattern with spaces between at least some of the protrusions.
- 15 A mat according to any one of claims 1 to 14 wherein the grid is composed of a first set of parallel bars and a second set of parallel bars transverse to the first set of parallel bars, the first and second sets of parallel bars defining between them a plurality of apertures.
- 16 A mat according to claim 15 wherein the second set of parallel bars is at right angles to the first set of parallel bars.
- 17 A mat according to claim 15 or claim 16 wherein the edges of the bars around the apertures are rounded.
- 18 A mat according to any one of claims 1 to 17 wherein the lower surface of the grid includes a series of channels through which gases and liquids may flow.
- 19 A mat according to any one of claims 1 to 18 wherein the mat is made of a plastics material.

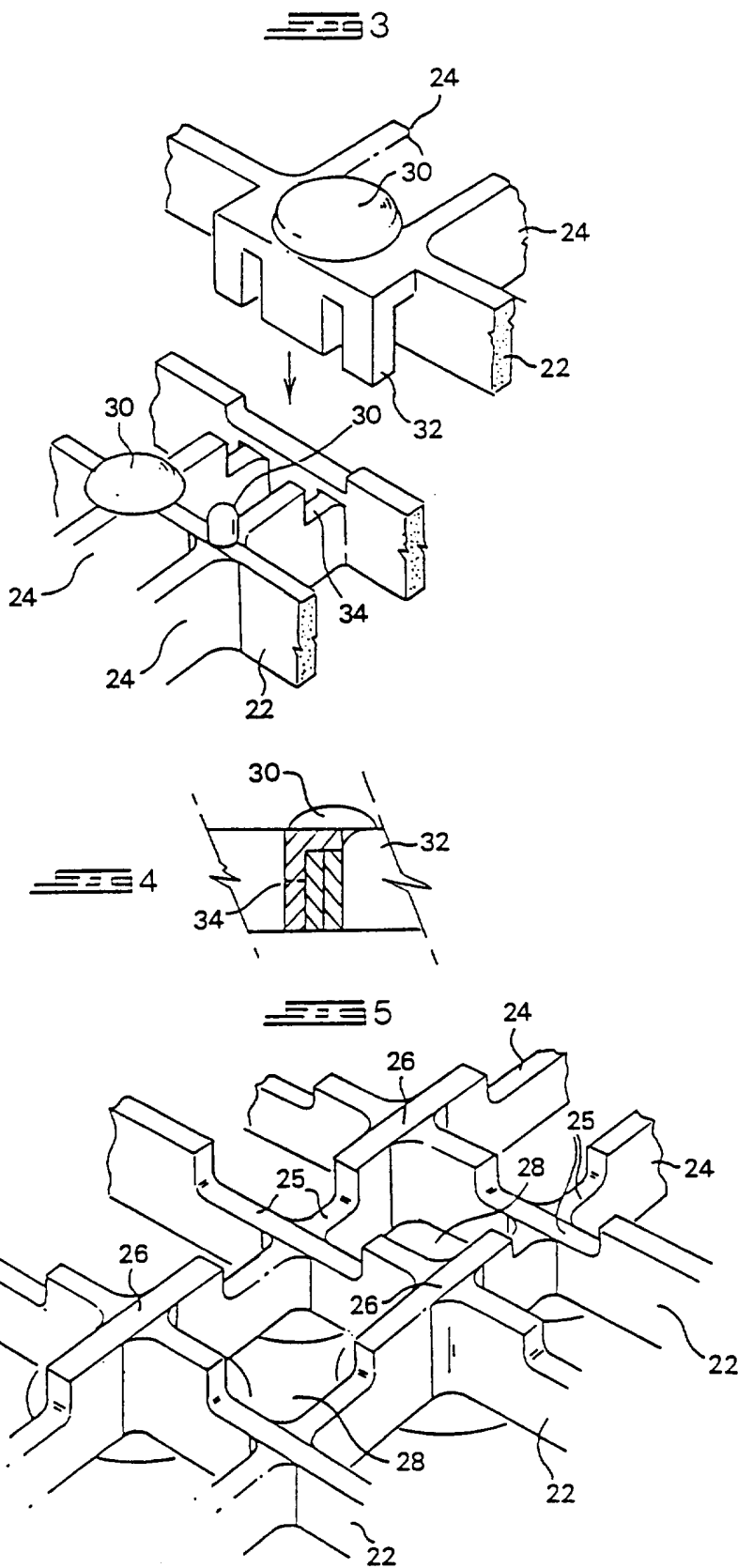
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- 20 A combination of a mat according to any one of claims 1 to 19 and a tray therefor, the mat being designed to be laid out in the tray in use.
- 21 A combination according to claim 20 wherein the tray comprises a base, a wall surrounding the base, and an outer wall depending from the surrounding wall.
- 22 A combination according to claim 21 wherein a strip of a non-slip material is inserted between the surrounding wall and the outer wall to provide the tray with non-slip properties.
- 23 A combination according to any one of claims 20 to 22 for use as a bath or shower drying mat.

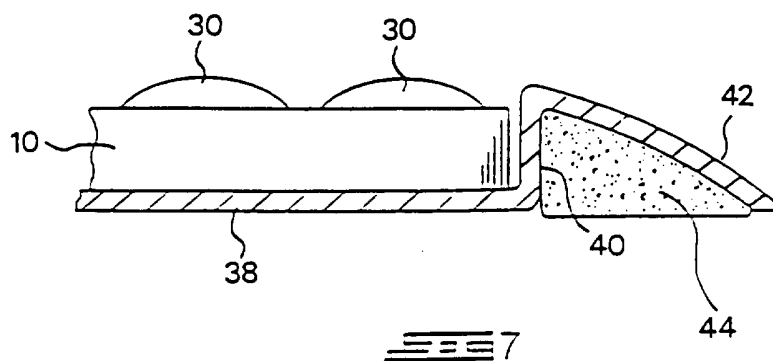
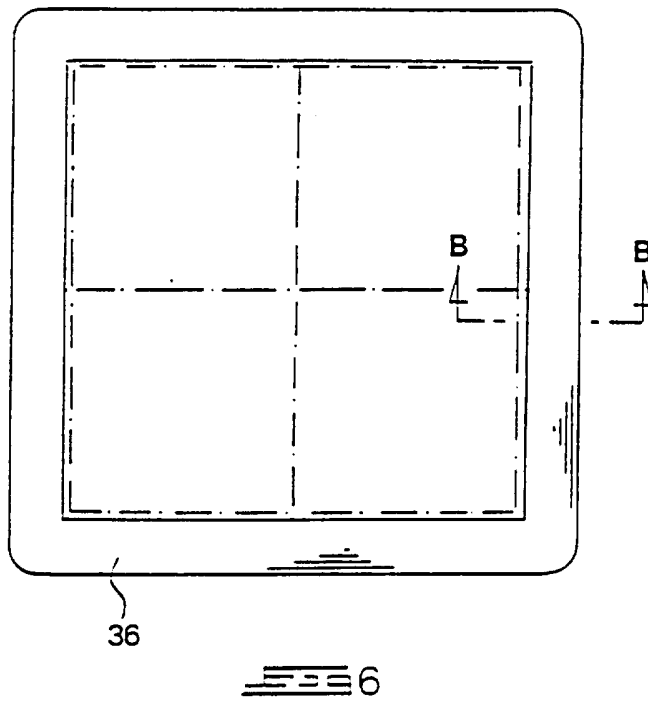
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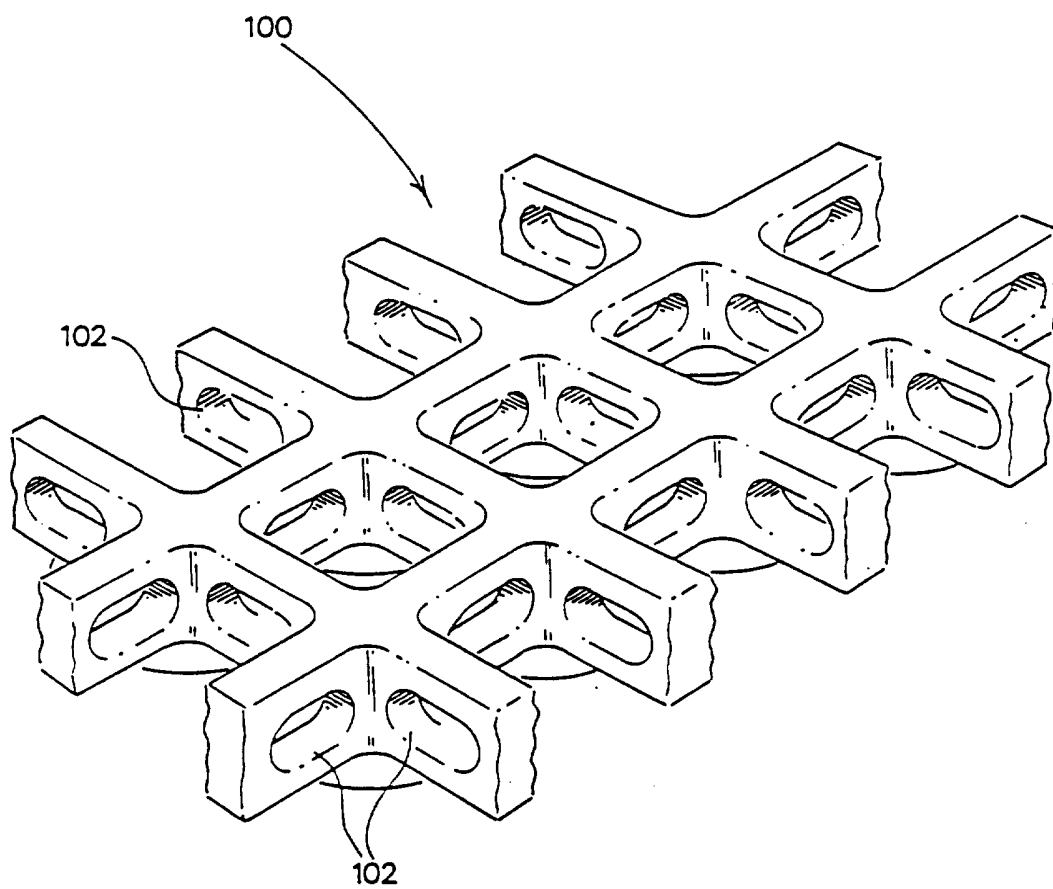


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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 95/02020

## A. CLASSIFICATION OF SUBJECT MATTER

A 47 K 17/00

According to International Patent Classification (IPC) or to both national classification and IPC 6

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A 47 K, A 61 H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 5 080 090 (LIAU) 14 January 1992 (14.01.92), the whole document. --	1
A	US, A, 3 885 555 (NOBBS) 27 May 1975 (27.05.75), the whole document. --	1
A	US, A, 3 434 715 (BRANTINGHAM) 25 March 1969 (25.03.69), the whole document. ----	1

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Date of the actual completion of the international search

20 November 1995

Date of mailing of the international search report

14. 12. 95

Name and mailing address of the ISA

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**ANHANG**

zum internationalen Recherchen-  
bericht über die internationale  
Patentanmeldung Nr.

**ANNEX**

to the International Search  
Report to the International Patent  
Application No.

**ANNEXE**

au rapport de recherche inter-  
national relatif à la demande de brevet  
international n°

FCT/GB 95/02020 SAE 116261

In diesem Anhang sind die Mitglieder  
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angeführten Patentdokumente angegeben.  
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This Annex lists the patent family  
members relating to the patent documents  
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US A 5080090	14-01-92	keine - none - rien	
US A 3885553	27-05-75	keine - none - rien	
US A 3434715	25-03-69	BE A 728486	01-08-69