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(71) Applicant and

(72) Inventor: GALLO, Steven William [CA/CA]; 1533
Curé-Labelle, Laval, Québec H7V 2W4 (CA).

(74) Agent: RIDOUT & MAYBEE LLP; 100 Murray Street,
4th Floor, Ottawa, Ontario K1N 0A1 (CA).

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(54) Title: COVER FOR PLANT GROWING MEDIUM

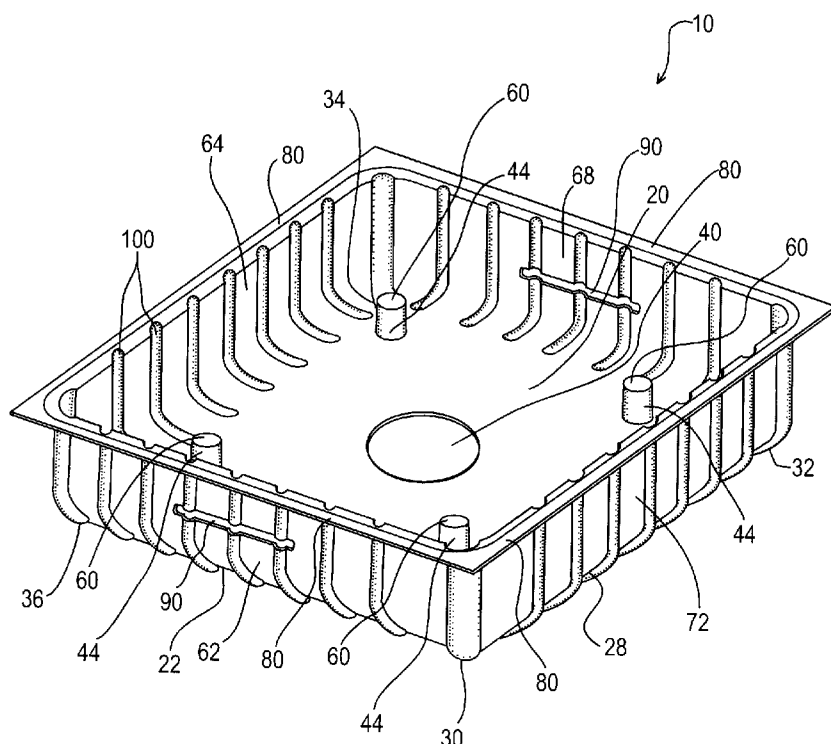


Fig. 1

(57) Abstract: The present invention relates to a device for covering a plant growing medium. The device includes a sheet that defines an aperture. One or more protrusions extends from the sheet to engage a top surface of the plant growing medium. A wall is integrally attached to each edge of the sheet. Each wall has a series of ridges.

TITLE OF INVENTION**COVER FOR PLANT GROWING MEDIUM****FIELD OF INVENTION**

[0001] The present invention relates to a device for covering a plant growing medium.

BACKGROUND OF INVENTION

[0002] There are a number of situations in which it may be desirable to cultivate plants without having to use soil. For example, during the colder months of the year, some gardeners begin growing seedlings indoors in anticipation of spring. This process is more simple and sanitary when soil is not used.

[0003] Growing mediums other than soil may be used to germinate seeds. One popular growing medium is rockwool. Rockwool is used extensively for hydroponic growing systems. Rockwool is made by melting a combination of rock and sand and spinning the mixture. This results in fibres that may be formed into different shapes and sizes.

[0004] Rockwool absorbs and maintains water. Further, rockwool is porous and thus retains oxygen. As a result, plants that grow in rockwool have healthy root systems. Finally, rockwool can be formed into a number of shapes and sizes. Frequently, rockwool fibres are compressed into cubes.

[0005] Before using a rockwool cube, the cube must be treated by soaking it in a nutrient solution to adjust its pH level. Further, once seeds or seedlings are placed in rockwool, the rockwool is periodically watered. Therefore, rockwool is moist when in use.

[0006] The moisture of rockwool cubes creates some difficulties for gardeners. Specifically, when rockwool is exposed to the light that is normally used for indoor germination and cultivation of plants, algae forms on the

surface of the moist rockwool cubes. Such algae attracts insects such as fungus gnats and shoreflies. Further, when algae decays and dies, it can become detrimental to plants since it may invite bacteria and viruses. Algae can even compete with the plants being grown for oxygen, which is necessary for nutrient uptake.

[0007] To prevent the growth of algae on rockwool, it is necessary to deprive the algae of light. Algae flourishes in wet, well lit locations and depriving it of light prevents photosynthesis.

[0008] Various solutions have been proposed for covering rockwool cubes to prevent the growth of algae. However, previously disclosed rockwool cube covers suffer from a number of disadvantages. First, such covers limit the circulation of oxygen, thus creating an anaerobic environment. This inhibits nutrient uptake by the plant. Further, some previously disclosed cube covers are simply sheets of plastic that are placed above the cube and frequently engage the surface of the cube, thus further inhibiting the circulation of oxygen. Finally, previously disclosed cube covers are not durable.

SUMMARY OF INVENTION

[0009] An object of the invention is to provide an improved cube cover for use with plant growing mediums.

[0010] Accordingly, the invention herein comprises a device for covering a plant growing medium comprising a sheet. The sheet defines an aperture. Further, the sheet has at least one protrusion projecting from the sheet for engaging a top surface of the plant growing medium.

[0011] Descriptive references herein such as "planar", "parallel", "perpendicular", "normal", "straight", "horizontal" or "vertical" are for convenience of description only. It will be appreciated by one skilled in the art

that the placement of elements may depart moderately from a planar, parallel, perpendicular, normal, straight, horizontal or vertical configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] In drawings which illustrate by way of example only a preferred embodiment of the invention:

[0013] Figure 1 is a perspective view of a bottom surface of the cube cover;

[0014] Figure 2 is a perspective view of a top surface of the cube cover; and

[0015] Figure 3 is a sectional view of the cube cover along line 3-3 of Figure 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] A cover 10 for a plant growing medium is shown in Figures 1 and 2. The cover 10 is constructed from a suitably rigid material such as plastic.

[0017] The cover 10 has a sheet 20. The sheet 20 may be of any shape or size so as to cover the surface or surfaces of a plant growing medium that are directly exposed to light sources of the type frequently used for indoor growing. In the embodiment shown in Figures 1 and 2, the sheet 20 is square. Preferably, the sheet is substantially planar. Further, the sheet 20 has four edges 22, 24, 26 and 28. The four edges 22, 24, 26 and 28 meet at four corners 30, 32, 34 and 36.

[0018] The sheet 20 defines an aperture 40. The aperture 40 may have any shape or size. In the embodiment shown in Figures 1 and 2, the aperture 40 is circular. The aperture 40 shown in Figures 1 and 2 is orientated at the centre of the sheet 20. It will be apparent to a person skilled in the art that it

is not necessary for the aperture 40 to be orientated at the centre of the sheet 20. The aperture 40 may also be in a different position in the sheet 20 such as near one of the edges 22, 24, 26 or 28 of the sheet 20 or near one of the corners 30, 32, 34 or 36 of the sheet 20.

[0019] At least one protrusion projects from the sheet 20. In the embodiment shown in Figures 1 to 3, there are four protrusions 44 projecting from the sheet 20. It will be apparent to a person skilled in the art that the objects of the invention may be satisfied by any number of protrusions projecting from the sheet 20 and embodiments incorporating one or more protrusions are contemplated.

[0020] As seen in Figure 1, each protrusion is barrel-shaped with bevelled walls. The bevelled walls of the protrusion may meet at a point (not shown). In the embodiment shown in Figures 1 and 2, each protrusion has a surface 60. Preferably, each of the surfaces 60 is parallel to the plane of the sheet 20. The protrusions are each orientated proximate to a separate corner of the sheet 20.

[0021] A preferred embodiment of the protrusions 44 is shown in Figures 1 and 2. Protrusions having other shapes and orientations are contemplated.

[0022] As seen in Figure 2, each of the protrusions 44 is hollow. It will be apparent to a person skilled in the art that the objects of the invention may be achieved if the protrusions are solid and this is contemplated.

[0023] As seen in Figures 1 and 2, in a preferred embodiment of the cover, four walls 62, 64, 68 and 72 are integrally attached to edges 22, 24, 26 and 28, respectively. In the embodiment shown in Figures 1 to 3, each of the walls 62, 64, 68 and 72 is in a plane perpendicular to the plane of the sheet 20. Each of the walls 62, 64, 68 and 72 has a flange 80 at an end of the wall opposite to the end of the wall that is integrally attached to the sheet 20.

[0024] In a preferred embodiment, each of the walls 62, 64, 68 and 72 opposes one of the other walls.

[0025] As seen in Figure 1, two of the opposing walls 62 and 68 define a slit 90. In a preferred embodiment, each of the slits 90 is elongated and positioned in the centre of the wall. Each of the slits 90 enhance the circulation of air proximate to the plant growing medium.

[0026] Each of the walls 62, 64, 68 and 72 has a number of ridges 100. Each of the ridges 100 extend from a point at which the flange 80 meets the walls 62, 64, 68 and 72 beyond a point at which the edges 22, 24, 26 and 28 of the sheet 20 meet the walls 62, 64, 68 and 72.

[0027] From the inside of the cover 10, each of the ridges 100 is convex or bowed outward. Further, the ridges 100 are parallel to one another and the ridges 100 other than the ridges 100 orientated where the walls 62, 64, 68 and 72 meet are equidistant from one another. Each of the slits 90 bisect one or more of the ridges 100.

[0028] As seen in Figure 3, in operation, the cover 10 is placed upon a plant growing medium 110. The plant growing medium 130 can be any suitable medium for growing plants including soil and rockwool. The shape and dimensions of the cover 10 must be such that the cover 10 fits on the plant growing medium 110. Specifically, the distance between opposing walls 60 and 68 of the cover 10 must be greater than the distance between opposing walls 112 and 114 of the plant growing medium.

[0029] When the cover 10 is placed on the plant growing medium 110, the surface 60 of each protrusion engages a top surface 116 of the plant growing medium 110. For optimal performance, when the cover 10 is placed on the plant growing medium, none of the walls 62, 64, 68 or 72 of the cover 10 should engage the plant growing medium. In a preferred embodiment, each of the walls 62, 64, 68 and 72 is positioned in a plane parallel to a plane of the

walls of the plant growing medium 110 upon placement of the cover 10 on the plant growing medium 110.

[0030] Numerous modifications may be made to the embodiment described above without departing from the scope of the invention which is defined by the claims.

CLAIMS:

1. A device for covering a plant growing medium comprising:

a sheet;

an aperture defined by the sheet; and

at least one protrusion projecting from the sheet for engaging a top surface of the plant growing medium.
2. The device of claim 1 wherein the sheet is substantially planar and has four edges.
3. The device of claim 2 wherein the sheet is square.
4. The device of claim 2 wherein there are four protrusions.
5. The device of claim 4 wherein each of the protrusions is proximate to a separate corner of the sheet.
6. The device of claim 2 wherein the at least one protrusion has a surface for engaging the top surface of the plant growing medium.
7. The device of claim 6 wherein the surface of the protrusion is parallel to the plane of the sheet.
8. The device of claim 2 further comprising four walls wherein each wall is integrally attached to a separate edge of the sheet and wherein each wall is in a plane parallel to an edge of the plant growing medium.

9. The device of claim 8 wherein two of the walls are opposing and the two opposing walls each define a slit so as to enhance the circulation of air proximate to the plant growing medium.
10. The device of claim 9 wherein each of the four walls has a plurality of ridges and at least one of the ridges on each of the two opposing walls is bisected by the slit.
11. The device of claim 10 wherein the plurality of ridges on each of the four walls extends such that a portion of each ridge is on the sheet.

AMENDED CLAIMS

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CLAIMS:

1. A device for covering a plant growing medium comprising:

a sheet;

an aperture defined by said sheet; and

at least one protrusion projecting in a first direction from said sheet for engaging a top surface of the plant growing medium, wherein said sheet has at least one sheet edge, and at least one of said at least one sheet edge has a cover wall connected thereto and projecting therefrom, wherein said at least one cover wall projects further into said first direction than said at least one protrusion.
2. The device of claim 1, wherein said sheet is substantially planar and has four sheet edges.
3. The device of claim 2, wherein said sheet is square.
4. The device of claim 2, wherein said at least one protrusion consists of four protrusions.
5. The device of claim 4, wherein each of said protrusions is proximate to a separate corner of said sheet.
6. The device of claim 2, wherein said at least one protrusion has a lower surface for engaging the top surface of the plant growing medium.
7. The device of claim 6, wherein said lower surface of said at least one protrusion is parallel to the plane of said sheet.

8. The device of claim 2, further comprising four cover walls wherein each said cover wall is integrally attached to a separate edge of said sheet and wherein each said cover wall is in a plane parallel to and spaced from a plane that passes through an edge of the plant growing medium and through at least a portion of the medium wall connected at said edge of the plant growing medium.
9. The device of claim 8, wherein two of said cover walls are opposing and said two opposing walls each comprise a slit so as to enhance the circulation of air proximate to the plant growing medium.
10. The device of claim 9, wherein each of said four cover walls has a plurality of ridges and at least one of said ridges on each of said two opposing walls is bisected by a said slit.
11. The device of claim 10, wherein said plurality of ridges on each of said four walls extends such that a portion of each said ridge is on said sheet.
12. The device of claim 1, further comprising a plant growing medium, said growing medium having a growing medium top surface, said growing medium top surface comprising at least one growing medium edge and a growing medium side wall meets each of said at least one medium edge, wherein said growing medium top surface has dimensions smaller than the dimensions of said sheet, wherein said device for covering a plant growing medium can be placed over said growing medium so that when said at least one protrusion engages said growing medium top surface said at least one cover wall will extend below said medium top surface and at least one of said at least one cover wall is spaced from at least one of said at least one growing medium side.
13. The device of claim 12, wherein said growing medium top surface has the same shape as said sheet.

14. The device of claim 13, wherein said growing medium is in the shape of a cube and said sheet is substantially planar and square in shape, said sheet having four edges and four cover walls projecting said sheet edges.
15. The device of claim 12, wherein said growing medium is rockwool.
16. The device of claim 13, wherein said growing medium is rockwool.

1/3

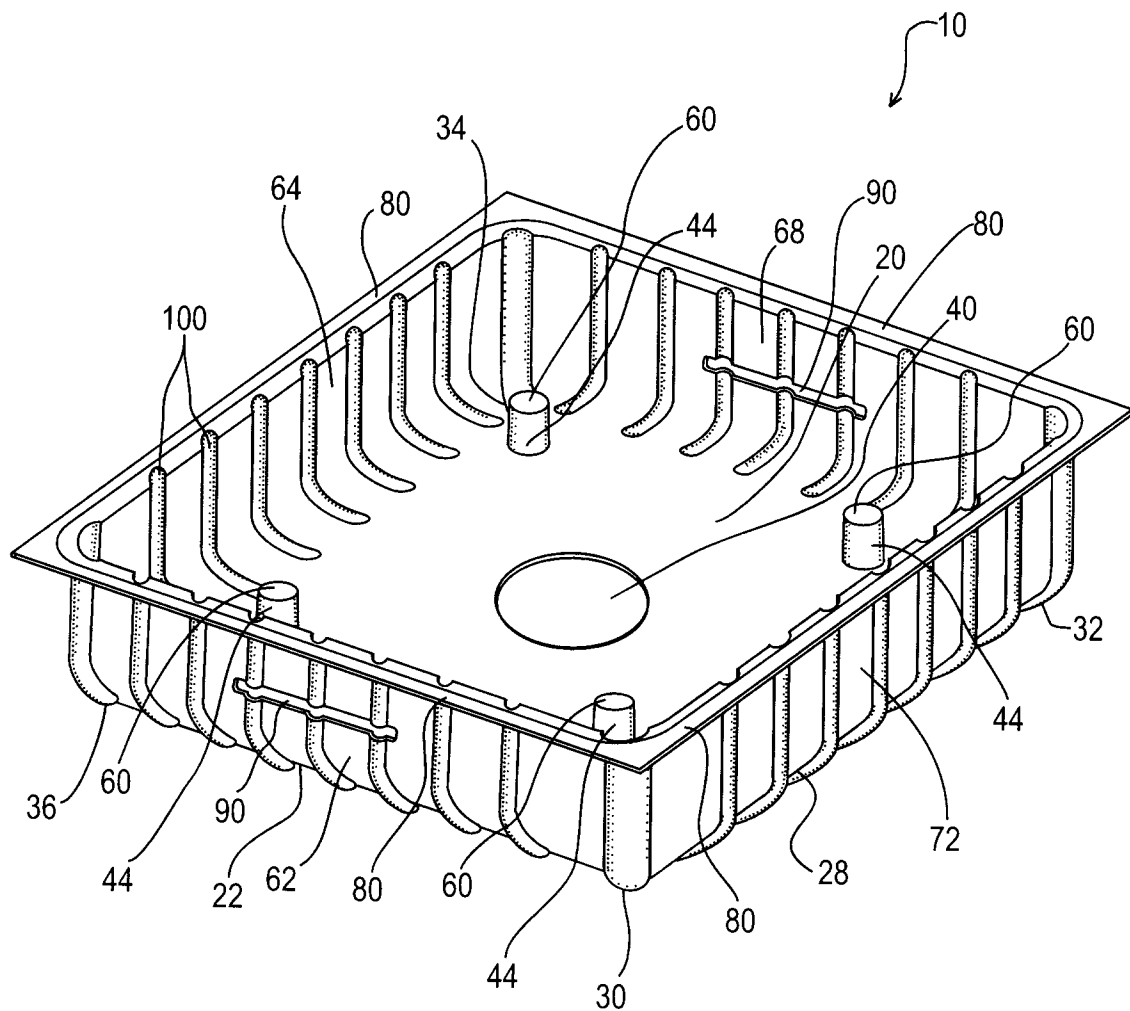


Fig. 1

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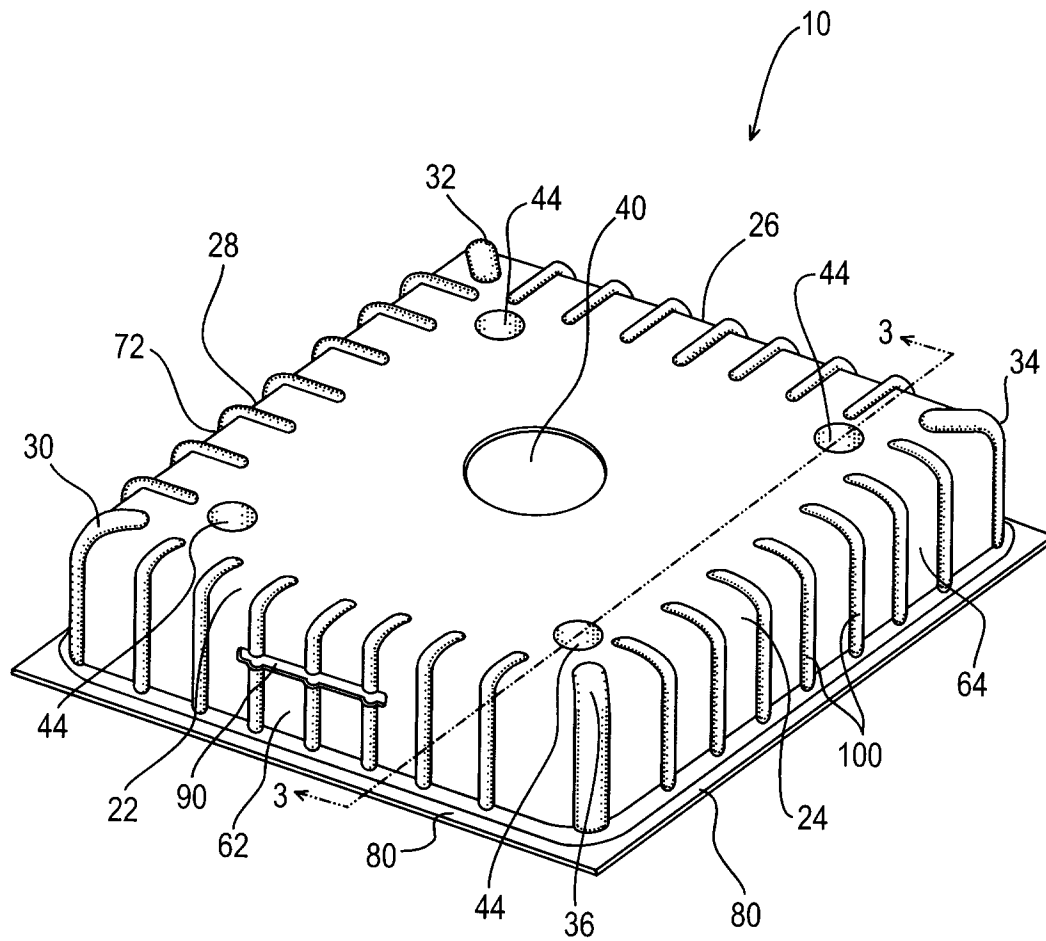


Fig. 2

3/3

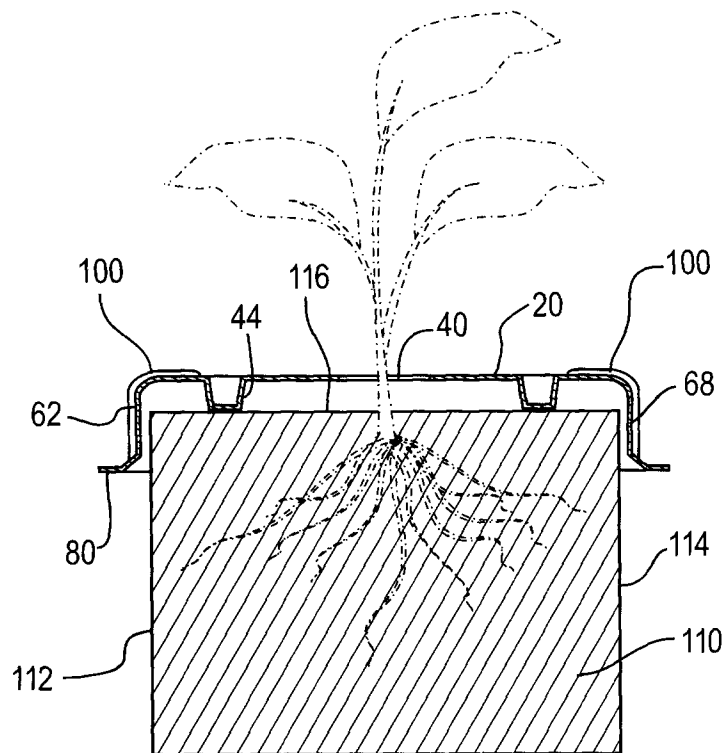


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER IPC: A01G 31/00 (2006.01) , A01G 13/10 (2006.01) , A01G 9/10 (2006.01) According to International Patent Classification (IPC) or to both national classification and IPC														
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(2006.01): A01G 31/00, A01G 13/00, A01G 13/02; CPC: 47; USPC: 47/29.1; 47/31.1 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched N/A Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used) Patent Abstracts of Japan, Canadian Patents Database, Delphion (Keywords: plastic, sheet, pot, cover, covering, aperture, opening, aeration, oxygen, protrusion, feet, walls, top, above, plant)														
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>US 4850134A (SNEKKENES, T. A.) 25 July 1989 (25-07-1989) *Col. 3, line 65 to Col. 4, 11)* *Fig. 3*</td> <td>1-11</td> </tr> <tr> <td>A</td> <td>US 4794728A (TSUKADA, K. et al) 3 January 1989 (03-01-1989) *Col. 1, line 55 to Col. 2, line 2* *Col. 2, lines 27-29* *Figs. 1-3*</td> <td>1-11</td> </tr> <tr> <td>A</td> <td>US 3678619A (CARLSON, W. C.) 25 July 1972 (25-07-1972) *Abstract* *Col. 2, lines 51-62* *Figs. 1-4*</td> <td>1-11</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	US 4850134A (SNEKKENES, T. A.) 25 July 1989 (25-07-1989) *Col. 3, line 65 to Col. 4, 11)* *Fig. 3*	1-11	A	US 4794728A (TSUKADA, K. et al) 3 January 1989 (03-01-1989) *Col. 1, line 55 to Col. 2, line 2* *Col. 2, lines 27-29* *Figs. 1-3*	1-11	A	US 3678619A (CARLSON, W. C.) 25 July 1972 (25-07-1972) *Abstract* *Col. 2, lines 51-62* *Figs. 1-4*	1-11
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☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex. <table border="1"> <tbody> <tr> <td>* Special categories of cited documents :</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td></td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </tbody> </table>			* Special categories of cited documents :	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family	"O" document referring to an oral disclosure, use, exhibition or other means		"P" document published prior to the international filing date but later than the priority date claimed	
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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