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(71) Applicant(s):
Christopher James Chapman
3 Hafren Cottages, Frankwell Street, Newtown, POWYS, SY16 2BU, United Kingdom

(72) Inventor(s):
Christopher James Chapman

(74) Agent and/or Address for Service:
Christopher James Chapman
3 Hafren Cottages, Frankwell Street, Newtown, POWYS, SY16 2BU, United Kingdom

(51) INT CL:
A01C 1/04 (2006.01)

(56) Documents Cited:
GB 2328600 A
GB 0605799 A
DE 006925976 U
US 2309702 A
GB 0944597 A
WO 1997/000003 A1
JP 2007222034 A

(58) Field of Search:
INT CL **A01C**
Other: **WPI & EPODOC**

(54) Title of the Invention: **Porous growing mat with nutritional properties**
Abstract Title: **A growing mat having seed containing pockets**

(57) A growing mat comprises body of biodegradable porous material having a plurality of apertures 3A. A plurality of seed containing pockets 1C are positioned over the apertures 3A of the mat. The biodegradable material of the body may be treated with fertilizers, pesticides and/or fungicides. The seed pockets 1C may also be biodegradable and porous. The positioning of the apertures 2A can be varied to allow accurate seed spacing for a variety of seeds, The pockets 1C allow the seeds to be maintained in a dry, sterile environment during the production, storage and transit of the mats. The pockets 1C also prevent the seed coming into contact with the fertilizer, pesticide or fungicide contained within the mat. The mat may have perforations so that strips containing seed pockets 1C can be removed from the mat.

Figure 3

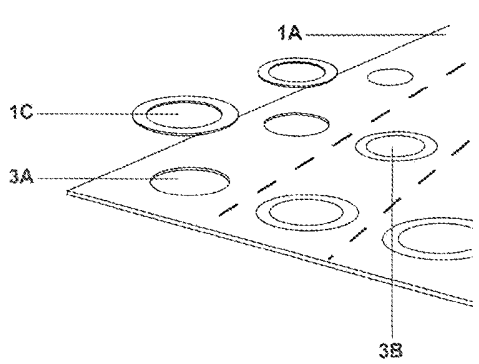

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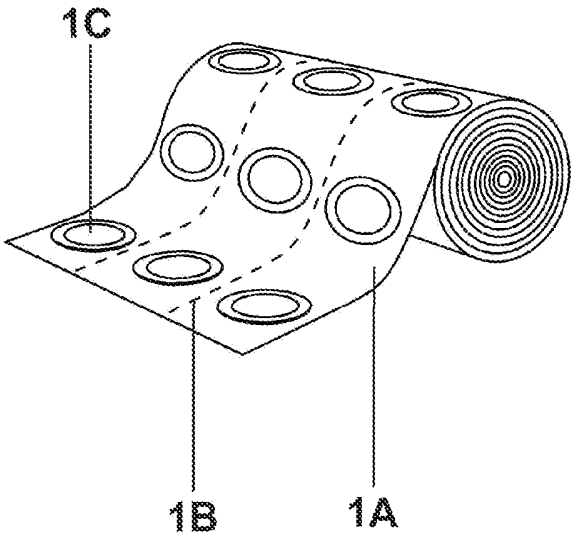
Figure 1



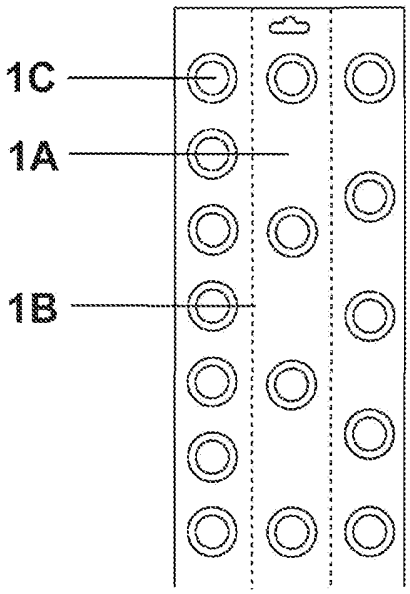
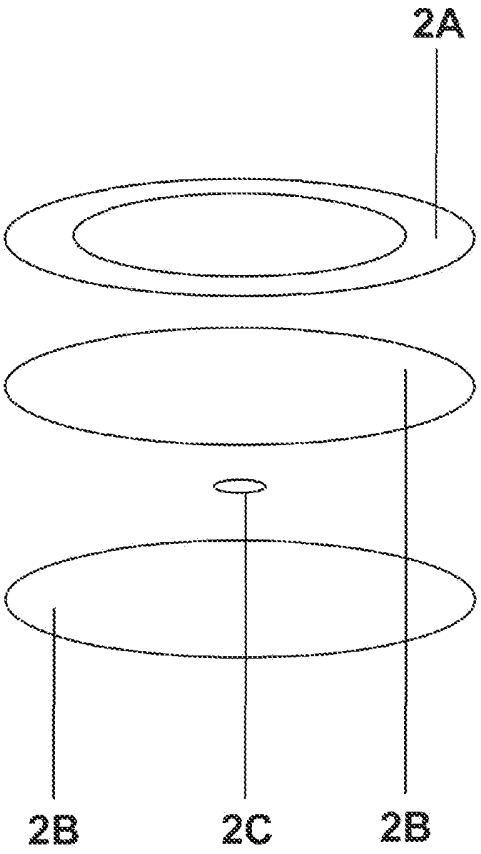


Figure 2



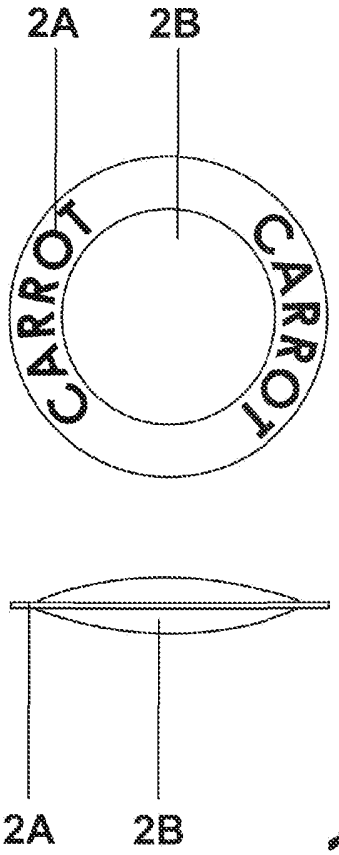


Figure 3

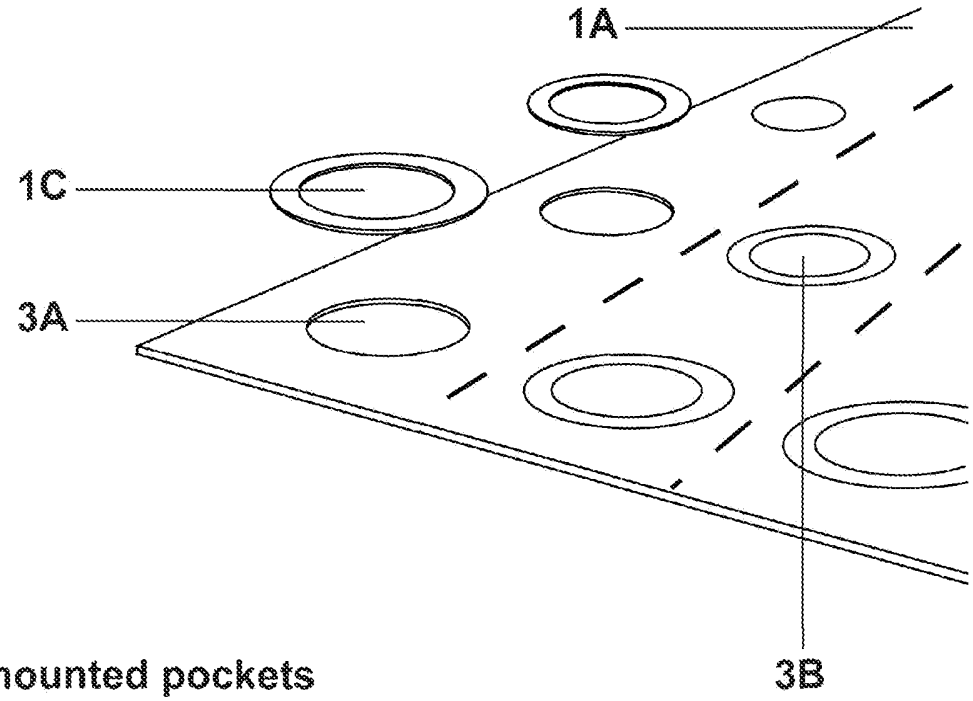
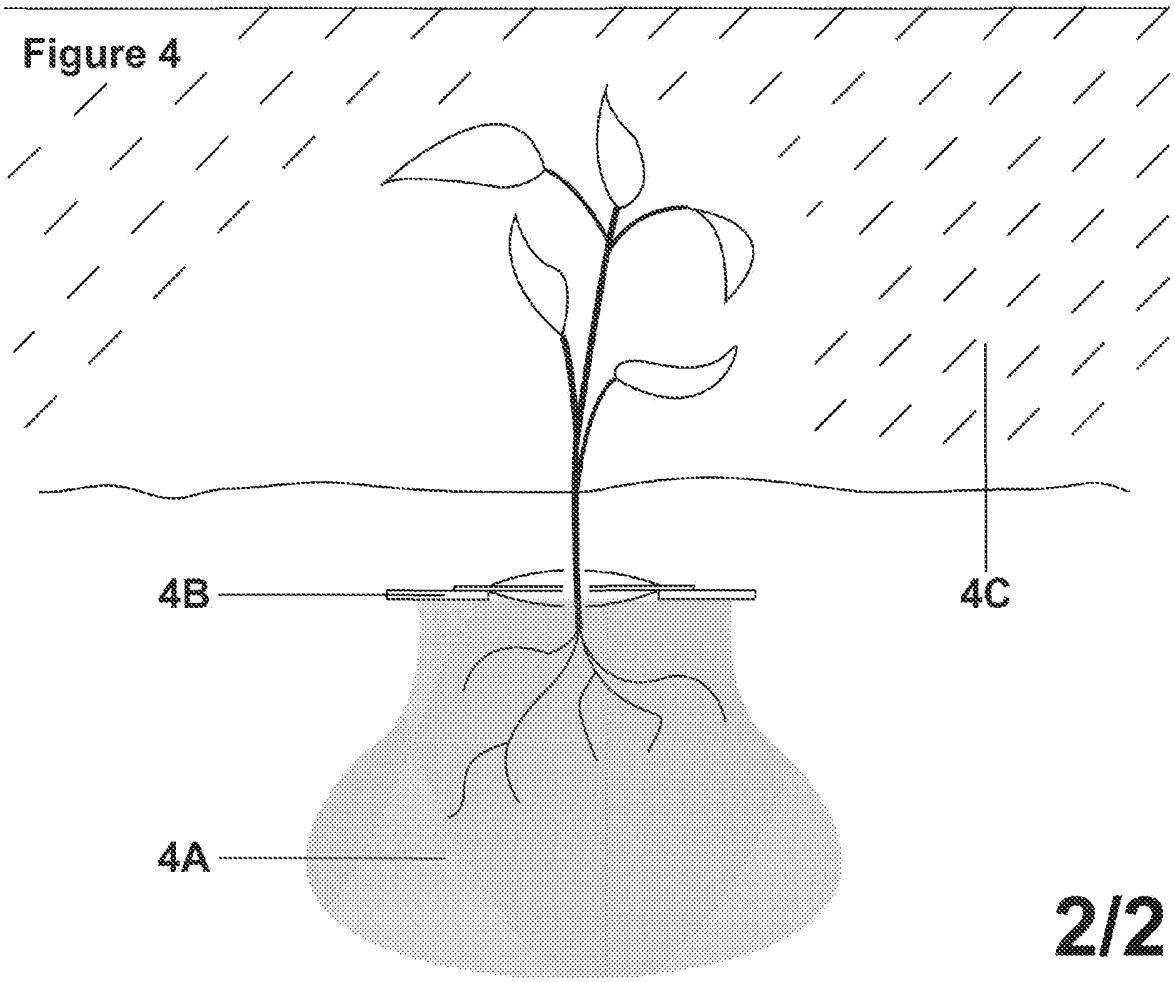


Figure 4



DESCRIPTION

Porous growing mat with nutritional properties

BACKROUND

Technical field

The design aims to bring home horticulture and plant growth to the consumer realm, making the task of setting up and maintaining a home grow plot easier, cheaper and more enjoyable.

Related designs and differences

Seed mats and mulches do exist, and I assume are also patented, many of which use fibrous materials such as paper or card, yet in many cases this material has been mulched, pressed and dried to form a solid sheet material with seeds simply embedded at random throughout.

The design differs as it consists of a double ply porous material roll with a number of precisely distanced seed pockets spaced throughout. This utilisation of such materials as a fertilizer, pesticide and or fungicide does not appear to be presently available, nor does the method or containing seeds for easy planting and distancing which I will later discuss.

SUMMARY OF INVENTION

The invention aims to make home horticulture and plant growth cheaper, easier and more enjoyable, The mat is intended for planting in open or boxed soil environments such as open fields, gardens or allotments.

The following explanation and descriptive diagrams explain the basic structure of the design, the structure of the seed pockets, the adhering of the seed pockets pockets to the main body of the mat and finally the process of nutritional transfer from the mat to the surrounding soil and thus the roots of the developing plant.

Figure 1 shows the structure of the mat, partly rolled and hung to exemplify its potential storage and display methods.

The main body of the mat is a flexible structure consisting of a single sheet of double ply porous material(1A), with an optional number of perforations spanning its lengths (for easy tearing) (1B) with one or more of the layers of the material being treated with soluble fertilizer, pesticides and or fungicides, this can also be done through an inlaid/adhered material which is sandwiched between or on the surface of the two conventional layers of material. The mat also has a series of seed pockets (1C) positioned accordingly along its length.

For the purpose of the diagram I have displayed only three rows of seed pockets with perforations dividing each row, this is simply for diagrammatic purposes as the mat can

consist of a single row and or many rows with the seed pockets spaced at varying distances throughout.

Figure 2 shows the structure of the seed pockets detached from the main body of the mat.

A number of sealed, porous material seed pockets (1C), containing a number of seeds (2C) are accurately spaced throughout the mat (1A) at determined distances depending on the types (for example) of vegetable, fruit, flower,grass or herb seed contained within. The intention of these pockets is to house the seeds in a dry, sterile environment during the mats production, storage, transit, display and planting.

These pockets also prevent the seeds from coming into contact with the fertilizer, pesticide and or fungicide contained within the mats main body at an early stage in the plants development, preventing the risk of fertilizer or pesticide burn to the developing stem or root system. This is also a common factor of many of the current patented and commercially available designs. This element of the design also fundamentally contributes the mats germination and overall plant growth and or crop yield success rate.

The pockets consist of a porous material (2B) which when wet break down easily within a matter of days allowing the seed stem and root shoots to penetrate the material with little force during its initial development and thus cause the plant little or no harm during its later development and growth. This again is something which I assume differs my design from any on the market and or currently patented inventions, as in existing designs the plants root or stem system is forced to penetrate far more robust materials which can decrease the chances of earlier plant development and thus crop yield and or overall plant growth. These pockets are also labelled (2A) to allow for easy recognition.

Figure 3 shows the mounting of the seed pockets to the mat.

The seed pockets adhere to the mat over pre cut mounting holes, allowing the root systems to easily develop downwards and the stem to grow upwards once the mat has been planted.

The mats nutritional, pesticidal and fungicidal properties can be achieved in a varied number of ways, for example: through spraying, where by raw single sheet porous material is sprayed by liquidated fertilizer and allowed to dry then used in the production of the double ply sheet material and or the inlaid/adhered material. Or by simply adding the fertilizer to the material mulch during production of the sheet material for later use in the production of the porous material and or the inlaid/adhered material.

Figure 4 shows the pocket degradation and nutrient to soil transfer.

The fertilizer, pesticides or fungicides may consist of an organic or chemical based nutrient which can be applied when in liquid form, dried and still maintain its nutritional properties. After the plant has been germinated and has had time to develop, and as rain or artificially applied water (5C) soaks down through the soil, the mat (5B/1A) begins to break down releasing the nutrients and pesticides (5A) contained within into the soil surrounding the plants root system feeding and protecting it from harmful infection it as it continues to develop further.

CLAIMS

1. A new and novel seed plantation devise that acts as a transport mechanism for the seeds, fertilizer, pesticide and fungicide.

2. The main body of the mat contains a number of porous material seed pockets, containing a number of seeds, which are designed to break down within a matter of days in a moisture rich environment, increasing the chances of seed germination.

3. The seed pockets are designed to allow the seed to come into contact with the surrounding soil far quicker than conventional seed mats.

4. The specially sized seed pockets prevent the seeds from coming into contact with the fertilizer, pesticides or fungicides contained within the mat at too early a stage in the plants development.

5. The main body of the mat acts as a positioning mechanism for the seeds, spacing them accurately, allowing for maximum crop yield and or plant growth.

6. The mat can be cut to any desired length to fit any size growing environment.

7. The mat is designed to completely break down within a matter of months, and thus slowly release the fertilizer, pesticides and fungicides contained within.

8. The mats intention is to increase the success rate of crop yield and overall plant growth.

9. The mat acts as a display mechanism for retail environments.

Application No:	GB0912032.0	**Examiner:**	Hayley Yates
Claims searched:	1-9	**Date of search:**	10 November 2009

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 at least	DE6925976 U Hauptmann; see figure 3 and page 4 lines 1-12
A	-	WO97/00003 A1 Miln; see figures 6 and 7
A	-	GB944597 A Burger; see figures and whole document
A	-	JP2007222034 A Azuchi; see abstract translation and figures
A	-	GB605799 A Anstey; see figures and whole document
A	-	GB2328600 A Talbot-Ponsonby; see figure 2
A	-	US2309702 A Kirscehnbaum; see figures

Categories:

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.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

Worldwide search of patent documents classified in the following areas of the IPC

A01C

The following online and other databases have been used in the preparation of this search report

WPI & EPODOC

International Classification:

Subclass	Subgroup	Valid From
A01C	0001/04	01/01/2006