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- (73) Patenthaver: **PETER SKOV JOHANSEN, Eskemosevej 8, Refsvindinge, 5853 Ørbæk, Danmark**
- (72) Opfinder: **PETER SKOV JOHANSEN, Eskemosevej 8, Refsvindinge, 5853 Ørbæk, Danmark**
- (74) Fuldmægtig i Danmark: **Patrade A/S, Ceresbyen 75, 8000 Århus C, Danmark**
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DESCRIPTION

Field of the Invention

[0001] The present invention concerns a method for laying and/or fixing a covering material, such as a fibre web or plastic film, on a cultivated area and over a cultivation medium, where the cover material is laid by machine from a magazine in a direction of movement by an apparatus adapted for the purpose.

[0002] The invention further concerns an apparatus for performing such a method, wherein a cover material, such as a fibre web or plastic film is laid for covering a cultivated area, where the apparatus has direction of movement, a first side and a second side, where the apparatus at least at a first side includes a first grooving share and a first press wheel arranged behind the first grooving share, as seen in relation to the direction of movement.

Background of the Invention

[0003] By horticulture and other utilisation of large cultivated areas it is often necessary to lay out cover material such as plastic film or fibre web. These cover materials or films are used for enhancing crop growth, for protection against weather or insects or for weed control.

[0004] Typically, two different types of webs are used, a narrow plastic film or fibre web rolled up on rolls and very wide webs which may be folded, possibly also rolled up on rolls.

[0005] Moreover, the cover material is reused as much as possible.

[0006] The large folded webs are normally laid either by rolling out the web after which an accessible edge side of the web is fastened manually, either by scooping soil on the edge or by laying sandbags on the web, followed by unfolding the web, and the remaining edges are fastened in the same way. When the web has been laid, the web can be further secured by adding more soil by machine, e.g. by running a ploughshare along the web such that soil is moved over upon the edges of the web or film.

[0007] This implies the disadvantage that it takes a long time to lay out a web while at the same time it typically comprises an appreciable amount of manual and physically hard work.

[0008] Narrow single layer webs or plastic films are normally laid by machine in that an apparatus runs in a track while the film is unrolled on the soil in the direction of movement. At the same time, the apparatus holds the film to the ground in that both longitudinal edge sides are simultaneously covered by soil concurrently with unrolling of the film. Typically, this is effected by a grooving share at the first and second sides, respectively, of the apparatus, with

a leading edge and a trailing edge in relation to the direction of movement, forming a groove in the soil under the first and second edge sides of the film in that the leading edges of the grooving share are oriented towards the apparatus. Soil is thereby pushed away from the apparatus during the movement and is deposited outside the edge sides of the film. A press wheel disposed behind the grooving share in the direction of movement at the first and second sides of the apparatus retains the edge sides of the film at the bottom of the formed groove. Then a covering share with a leading edge and a trailing edge as seen in relation to the direction of movement, provided behind the press wheel at the first and second sides of the apparatus, pushes the soil back into the groove upon the retained edge side by orienting the leading edge of the cover share in direction away from the apparatus. The edges of the film are thereby laid and fixed concurrently with the movement of the apparatus.

[0009] This has the disadvantage that only films or webs with the same limited width as that of the apparatus can be laid, since the apparatus straddles the area to be covered. Also, the apparatus has the drawback that only webs rolled up in a single layer with uniform width and with a layered edge orientation in same radial plane can be laid. In reality, the apparatus can thereby only be used for laying out new webs or films rolled up at the factory. The narrow width furthermore entails that a relatively large part of the field is not covered due to the many gaps between webs laid in parallel.

[0010] FR 2736796 and FR 2935223 describes a method for laying and/or fixing a covering material, on a cultivated area and over a cultivation medium, where the cover material is laid by machine from a magazine and in a direction of movement by an apparatus adapted for the purpose.

[0011] FR 2736796 A describes a method for laying and/or fixing a covering material, such as a fibre web or plastic film, on a cultivated area and over a cultivation medium. The cover material is laid by machine from a magazine and in a direction of movement by an apparatus adapted for the purpose. During laying the film extends partly in the direction of movement and partly in a direction which is substantially perpendicular to the direction of movement. The cover material during laying is fixed in cultivation medium along one edge for a subsequent fixation of the opposite edge.

Object of the Invention

[0012] It is the object of the invention to indicate a method and an apparatus for laying and fixing wide webs or films on cultivated areas entirely or partially by machine and in one operation.

Description of the Invention

[0013] By a method for laying out and/or fixing a covering material, such as a fibre web or plastic film, on a cultivated area and over a cultivation medium where the cover material is laid by machine from a magazine and in a direction of movement by an device adapted for the purpose. The method is special in that the rolled- up covering material is arranged on a at least one carrying unit, said at least on carrying unit is arranged on the side of a vehicle towing the apparatus or where the at least one carrying unit is arranged on the side of the apparatus, and wherein the film during laying extends partly in the direction of movement and partly in a direction which is substantially perpendicular to the direction of movement and towards the area to be covered away from the apparatus and in a distance to the centre line of the apparatus so as to align a first longitudinal edge of the cover material relative to a first grooving share and a first press wheel of the apparatus when seen in relation to the direction of movement, whereby the cover material during laying is fixed in cultivation medium along only the first longitudinal edge and followed by a subsequent fixation of the opposite longitudinal edge of the cover material.

[0014] Hereby is achieved a result which is peculiar in that the film during laying extends partly in the direction of movement and partly in a direction which is substantially perpendicular to the direction of movement and towards the area to be covered and in a distance to the centre line of the apparatus, where the cover material during laying is fixed in cultivation medium along only one edge for a subsequent fixation of the opposite edge.

[0015] The present invention is also met by a device comprising a vehicle and an apparatus, for laying out and/or fixing a covering material, such as a fibre web or plastic film, on a cultivated area and over a cultivation medium where the cover material is laid by machine from a magazine and in a direction of movement by an apparatus adapted for the purpose. The device is special in that the device includes at least one carrying unit for cover material, where said at least one carrying unit is mounted on the side of a vehicle towing the apparatus or where the at least one carrying unit is arranged on the side of the apparatus, and that said at least one carrying unit is arranged so as to align a first longitudinal edge of the cover material relative to the first grooving share and the first press wheel when seen in relation to the direction of movement, and that said at least one carrying unit is arranged so as to extend from at least at the first side of the apparatus or the vehicle and thus extends in a direction which is substantially perpendicular to the direction of movement of the apparatus towards the area to be covered., Hereby is achieved a result which is peculiar in that the apparatus includes at least one carrying unit for cover material, where the at least one carrying unit is arranged at least at the first side of the apparatus and thus extends in a direction which is substantially perpendicular to the direction of movement and in a distance to the centre line of the apparatus towards the area to be covered away from the apparatus.

[0016] In a preferred variant of the method according to the invention, a groove is formed in the cultivation medium in the direction of movement, where the cover material is arranged in this groove, and where the cover material is fixed in the groove, preferably by a press wheel in the apparatus. The cover material is thus simultaneously laid out and fixed along an edge.

[0017] In yet a preferred variant of the invention, the method for laying and/or fixing the cover material may include that cover material is fixed at both sides of the apparatus, where the fixed cover material thus extends away from both sides of the apparatus. It is thus possible to lay out and fix cover material on sizeable areas by fixing at one side and simultaneously laying and fixing at a second side, whereby in comparison with the hitherto used methods a great saving of time is attained as one working operation according to the invention results in an appreciably larger covered area. The cover material can be much wider than the apparatus and cover material can be laid at both sides of the apparatus as well.

[0018] Fixing the edge of the cover material may, as mentioned in the introduction, be effected at least by a first side including a first grooving share and a first press wheel arranged behind the first grooving share in relation to the direction of movement. Furthermore, the device may include at least one carrying unit for cover material, where the at least one carrying unit is arranged at the first and/or the second side of the apparatus and thus extends towards the area to be covered. It is thus an adjacent side of the cover material which is fixed along the direction of movement.

[0019] Such a fixing may occur in several ways. For example, a groove with a given depth can be formed in the cultivation medium by a narrow share, where the cover material is pressed down into this groove along an edge. The depressing may occur by a narrow wheel running immediately after the narrow share. The narrow wheel may be provided with a shoulder simultaneously pressing the cultivation medium together about the cultivation medium in the groove. Alternatively, a press roller can be arranged behind the narrow depressing wheel.

[0020] In another variant of a device according to the invention, an apparatus for fixing cover material may include a first grooving share with a leading edge and a trailing edge arranged at the first side of the apparatus, a first press wheel arranged behind the first grooving share in relation to the direction of movement, and a first cover share with a leading edge and a trailing edge arranged behind the first press wheel as seen in relation to the direction of movement. In that the trailing edge of the first grooving share is arranged closer to the second side of the apparatus than the leading edge of the first grooving share, and that the leading edge of the first cover share is closer to the second side of the apparatus than the trailing edge of the first cover share, there is achieved a moving of soil or growth medium such that the cover material can be provided in a groove and subsequently fixed when the cultivation medium is moved in over the edge with a cover share.

[0021] The object of the invention is further achieved by a method for laying cover material on a cultivated area of the type mentioned in the introduction, which is peculiar in that an edge of the cover material is forced down into the groove during movement of the apparatus such that the cover material lies over the cultivated area and extending away from the apparatus, and that the apparatus brings the removed soil entirely or partially back into the groove, preferably upon the edge, for fixing the cover material.

[0022] In that the trailing edge of the first grooving share of the apparatus is nearer to the

second side than the leading edge, it is achieved that the soil moved by the share is moved towards the inner side of the apparatus. By leading and trailing edge is meant the front and rearmost part, respectively, of the share in contact with the soil during movement of the apparatus. The grooving share may e.g. be in the shape of a rotating share, or a stationary share such as a ploughshare.

[0023] A press wheel is disposed behind the grooving share. The press wheel can be a rubber wheel, a steel roller or similar, but in its simplest form be constituted by a press plate which in principle is dragged over the web. The press wheel is arranged such that it will move in the groove formed by the grooving share moving the soil during movement of the apparatus.

[0024] Behind the press wheel is a cover share. The cover share is substantially a reversed version of the grooving share such that the grooving share can move soil in a direction from the second side towards the first side. The cover share will typically be arranged such that soil removed by the grooving share is completely or partially moved back into the groove by the cover share, but now upon the laid out web or film. The cover share may also be designed as e.g. a rotating share or a fixed share such as a ploughshare, or it may be a press wheel that compacts and/or moves cultivation medium back into the groove.

[0025] In a simple embodiment, the apparatus is equipped with means for mounting on a vehicle, such as a narrow gauge tractor or a common tractor. Hereby is achieved that the apparatus is easily carried, moved and propelled forward. Moreover, the apparatus may include means for bringing the shares into driving position or mutual position for transport or adaptation to operation to varying conditions. These means may be lifting/lowering, rotating or displacing means where either shares or press wheels are displaced, possibly assisted by hydraulic, pneumatic or electric actuators but may also be means for engaging and coupling together with the tool-carrying implements typically found on agricultural vehicles.

[0026] By forming a groove by removing or moving soil in direction against the second side of the apparatus, it is achieved that an edge of the cover material easily can be moved down into the groove such that cover materials extend a certain distance away from the apparatus. This enables use of the apparatus for fixing edges on cover material of any size as the apparatus is only to be moved the whole way along the edges of the cover material. Moreover, no requirements are made to the shape of the cover material, and the method may therefore be used on cover materials that are individually adapted to the individual cultivation areas.

[0027] According to a further embodiment, the method for laying the cover material is peculiar in that the film is retained in the groove, preferably by a press wheel on the apparatus, immediately before the removed soil is moved completely or partially back into the groove for fixing the cover material.

[0028] Hereby is achieved that the cover material is temporarily retained by the press wheel before soil is applied. This ensures that the cover material is correctly moved down into the groove while at the same time the press wheel further assists in pulling the edge of the

unfastened cover material down into the groove.

[0029] In a simple embodiment, the apparatus will be equipped with a seat such that a person manually can ensure that the edge of the web is moved under the press wheel during movement of the apparatus.

[0030] According to a further embodiment of the apparatus for fixing cover material, the apparatus is peculiar by including a second grooving share with a leading edge and a trailing edge arranged at the second side of the apparatus, a second press wheel arranged behind the second grooving share in relation to the direction of movement, a second cover share with a leading edge and a trailing edge arranged behind the second press wheel, as seen in relation to the direction of movement, where the trailing edge of the second grooving share is closer to the first side of the apparatus than the leading edge of the second grooving share, and that the leading edge of the second cover share is closer to the first side of the apparatus than the trailing edge of the second cover share.

[0031] Irrespective of using grooving shares, press wheels and cover shares as described above or using other means or method for fixing a cover material, advantages can be achieved by having shares at both sides of the apparatus since it is achieved that the apparatus may fasten cover materials at both sides, either simultaneously or individually. Respective shares and press wheels or other means may advantageously be with actuation means allowing operation of one, the other or both sides of the machine, providing an increased degree of freedom during use.

[0032] According to a further embodiment, the method for laying out cover material is peculiar in that the apparatus may be adapted with means for during the movement to form an additional groove near the second side of the apparatus, where an edge of a further cover material is forced down into the groove such that the cover material lies over the cultivated area extending away from the apparatus, and that the apparatus includes means that either brings the removed soil entirely or partially back into the groove for fixing the additional cover material, or fixes the cover material in the groove in other ways.

[0033] Hereby is achieved increased efficiency as two cover materials can be fastened at the same time.

[0034] According to a further embodiment of the apparatus for fixing cover material, the apparatus is peculiar by including means for changing the spacing between the first and second sides of the apparatus.

[0035] Hereby is achieved that webs/films with different widths or webs/films that are to be laid with varying spacing can be laid simultaneously as the shares at the first and the second side, respectively, are moved when changing the spacing. This is particularly advantageous when one web/film is unrolled and fixed at one side of the apparatus while at the same time an edge from an already unrolled web/film is fixed at the second side of the apparatus such that it may

be ensured that the already unrolled web/film lies extended tight across the cultivated area.

[0036] The means for changing the spacing may be provided in connection with a frame structure on the apparatus, and will typically be in the form of hydraulic, electric or pneumatic displacing apparatuses, such as e.g. actuators.

[0037] The apparatus may further include similar means that may adjust the spacing between the shares or other means at first and second sides, respectively, in a direction in parallel with the direction of movement.

[0038] It will hereby be possible to achieve a very narrow working width of the apparatus, while at the same time the apparatus will still have room for seats for persons who therefore unhindered can assist in laying cover material during use of the apparatus.

[0039] According to a further embodiment of the apparatus for fixing cover material, the apparatus is peculiar by including one or more carrying units for cover material at the first and/or second side of the apparatus.

[0040] Cover material in the form of very large webs is typically folded and possibly rolled up on a roll or coil after being folded longitudinally. The carrying unit may e.g. consist of a container for folded material, or of a shaft on which a roller or coil may be mounted such that the roller or coil can rotate about the shaft, or a carrying unit may include at least two carrier rollers upon which a rolled up cover material can be placed, whereby the web is unrolled and laid out concurrently with the movement of the apparatus. In the following, the term shaft will be used generally to include a regular shaft but also carrier rollers and other possible means for holding a roll or coil with covering medium.

[0041] The carrying units may alternatively be mounted on the vehicle driving the apparatus. This may be advantageous if very large covering materials with great weight are applied. At the same time, it is possible to couple the carrying units to the vehicle or to another mechanism in order thereby to achieve a forced rotation of the shaft or shafts, whereby laying of heavy webs can be effected in a much easier way.

[0042] According to a further embodiment, the method for laying cover materials is peculiar in that the cover material is supplied from one or more carrying units.

[0043] Hereby is achieved that the cover material can be laid simultaneously with fixing it. As only one edge of the cover material per side can be fastened, it is not required that the cover material is rolled up nicely. The laying and fixing may take place as long as the edge is moved under the press wheel as described above. Hereby is achieved that folded cover material can be laid out and fixed simultaneously. Furthermore, this means that cover material may easily be reused as the method does not require a certain way of folding/rolling of the cover material.

[0044] By new rolls, irrespectively whether these are rolled up in a single layer or in multiple

layers, the free edge side of the roll facing the apparatus may advantageously be fixed at first. After fastening the first edge side of the web, the web will thereby simultaneously be laid on the area away from the apparatus. By using coiled recycled rolls, the edge side of the web laid out at first will be loosened and separated from the other cover material before and concurrently with the press wheel engaging the edge.

[0045] Furthermore, it is achieved that by the method an edge of cover material which is already laid at one side of the apparatus can be fixed while at the same time some new cover material is unrolled and fixed at another side of the apparatus. This means that by the method already laid material can be fixed while simultaneously laying out new material for later fixing.

[0046] According to a further embodiment of the device for fixing cover material, the apparatus is peculiar by including a shaft arranged in a horizontal plane, preferably in parallel with the direction of movement, where the shaft has a free end part, and where the apparatus includes means for elevating, lowering and tilting the shaft in relation to the cultivated area.

[0047] The apparatus may hereby be used for collecting and unloading cover material which is coiled about a pipe or a pulley in that the free end part is inserted in the roll. The shaft may either be mounted directly on the apparatus, or may advantageously be mounted in front of the towing vehicle such as tractor. In that the shaft is mounted in front of a tractor, very large and heavy rolls may be collected. This is advantageous as very heavy rolls may cause the apparatus and/or the tractor to overturn if arranged at the side of the apparatus.

[0048] The shaft may further act as a carrying unit during laying of a web as the web can be moved from the shaft to the press wheel at the first or second side of the apparatus. The apparatus may further include a vertically arranged pin, contact roller, pulley or similar that may assist in guiding the edge of the web to the press wheel.

[0049] According to a further embodiment of the device for fixing cover material, the apparatus is peculiar by including means for pivoting the shaft in the horizontal plane, preferably between a direction which is substantially in parallel with the direction of movement and a direction which is substantially at right angles to the direction of movement.

[0050] The shaft may hereby be pivoted to one or the other side of the apparatus and the shaft may thereby be used as carrying unit. Since the shaft can be tilted, it is further achieved that the roll with cover material can be adjusted relative to the cultivated area; this may particularly be advantageous in hilly terrain where there may be a risk of the roll sliding off the shaft or overturning of the apparatus. This may then be counteracted by tilting the shaft such that the point of gravity of the roll is changed in relation to the apparatus.

[0051] According to a further embodiment of the device for fixing cover material, the apparatus is peculiar by including propulsion means.

[0052] By propulsion means is meant means for driving the apparatus, preferably driving a set

of wheels, and means for steering the apparatus such that the apparatus is a self-propelled agricultural apparatus.

[0053] According to a further embodiment of the device for fixing cover material, the apparatus is peculiar by including at least one insertion means for inserting a cover material in front of a press wheel.

[0054] Hereby is achieved that the cover material is automatically inserted in front of a press wheel and thereby fixed. The insertion means may include radially co-driven wheel pairs or rollers, one or more arms gripping the edge of the material and inserting it in front of the press wheel. Alternatively, the means may include a suction mechanism that may suck on to the edge of the material such that it is retained in front of the press wheel. The means may also be passive elements with a groove or a slot in which the edge of the material may pass, where this groove or slot will guide the cover material down in front of the press wheel.

[0055] By using horizontally rotatable and speed regulated wheel pairs or rollers it will e.g. be possible to control the transverse movement of the edge relative to the direction of movement as well as the laying of the second edge side of the web may also be effected automatically e.g. under consideration of the tensile breaking strength of the web.

Description of the Drawing

[0056] The invention is described in the following with reference to the drawing, wherein:

Fig. 1

shows the device viewed from above;

Fig. 2

shows the device with a carrying unit; and

Fig. 3

shows the device during laying of cover material.

[0057] In the explanation of the Figures, identical or corresponding elements will be provided with the same designations in different Figures. Therefore, no explanation of all details will be given in connection with each single Figure/embodiment.

List of reference numbers:

[0058]

1. 1. apparatus

- 2. 2. first side
- 3. 3. second side
- 4. 4. vehicle
- 5. 5. direction of driving
- 6. 6. first grooving share
- 7. 7. first press wheel
- 8. 8. first cover share
- 9. 9. trailing edge of first grooving share
- 10. 10. leading edge of first grooving share
- 11. 11. leading edge of first cover share
- 12. 12. trailing edge of first cover share
- 13. 13. second grooving share
- 14. 14. second press wheel
- 15. 15. second cover share
- 16. 16. trailing edge of second grooving share
- 17. 17. leading edge of second grooving share
- 18. 18. leading edge of second cover share
- 19. 19. trailing edge of second cover share
- 20. 20. carrying unit
- 21. 21. rolled up cover material

Detailed Description of the Invention

[0059] Fig. 1 shows a drawing of the apparatus comprising a vehicle 4 and the apparatus 1 as seen from above. The apparatus 1 has a first side 2 and a second side 3. In the shown embodiment, the apparatus 1 is towed by a vehicle 4, such as a tractor, having a driving direction 5. For the sake of clarity, coupling between apparatus 1 and vehicle 4 is not shown, and the frame structure constituting the load-supporting part of the apparatus and the fastenings to which the individual parts are fixed are not shown either as these parts are not essential for understanding the invention.

[0060] The apparatus 1 includes a first grooving share 6 arranged in front of the first press wheel 7 in relation to the direction of driving 5. A first cover share 8 is arranged behind the press wheel 7.

[0061] The first grooving share 6 has a trailing edge 9 which is nearer the second side 3 than the leading edge 10 of the first grooving share. The first cover share has a leading edge 11 which is closer to the second side 3 than the trailing edge 12 of the first cover share.

[0062] The apparatus 1 includes a second grooving share 13 arranged in front of a second press wheel 14 in relation to the direction of driving 5. A second cover share 15 is arranged

behind the press wheel 14.

[0063] The second grooving share 13 has a trailing edge 16 which is closer to the first side 2 than the leading edge 17 of the second grooving share. The second cover share has a leading edge 18 which is closer to the first side than the trailing edge 19 of the second cover share.

[0064] Fig. 2 shows an embodiment where a carrying unit 20 is mounted on the vehicle 4. On the carrying unit is placed rolled up cover material 21 intended for laying in a direction corresponding to the direction of driving 5 and in parallel with the vehicle 4.

[0065] Fig. 3 shows the apparatus in use. In the shown embodiment, two carrying units 20 are mounted with each their roll of rolled up cover material 21. The cover material 22 is rolled out across the first and second grooving share 6, 13. The first and second grooving shares 6, 13 are arranged such that during movement in the direction of driving 5, a groove (not shown) is formed by removing soil 23 (shown as the hatched area) in which the first and second press wheel 7, 14 can retain the cover material 22. The first and second cover share 8, 15 are arranged such the removed soil 23 is moved back into the groove and upon the cover material 22 such that the latter is fixed. If the cover material 22 is folded, it may be unfolded subsequently in the usual way, possibly manually or by machine.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- [FR2736796](#) [0010]
- [FR2935223](#) [0010]
- [FR2736796A](#) [0011]

PATENTKRAV

1. Fremgangsmåde for udlægning og/eller fiksering af et dækningsmateriale, såsom fiber- eller plastdug, på et dyrkningsareal og over et dyrkningsmedie, hvor dækningsmaterialet er udlagt maskinelt, fra et magasin og i en fremdriftsretning, med et dertil indrettet apparat, **kendetegnet ved**, at

det oprullede dækningsmateriale (21) er arrangeret på mindst et bæreggregat (20), hvor nævnte mindst ene bæreggregat (20) er arrangeret på siden af et køretøj (4), som trækker apparatet (1) eller hvor det mindst ene bæreggregat (20) er arrangeret på siden af apparatet (1), og hvori dugen under udlægning strækker sig delvist fremdriftsretningen og delvist i en retning, som i det væsentlige er vinkelret på fremdriftsretningen og frem mod arealet, som skal tildækkes, væk fra apparatet (1), og i en afstand til apparatets (1) midterlinje for at justere en første langsgående kant af dækningsmaterialet (22) i forhold til et første oprilleskær (6) og et første trykhjul (7) af apparatet (1), set i forhold til fremdriftsretningen, hvorved dækningsmaterialet under udlægning er fikseret i dyrkningsmedie langs kun den første langsgående kant og efterfulgt af en efterfølgende fiksering af dækningsmaterialets modsatte langsgående kant.

2. Fremgangsmåde ifølge krav 1, **kendetegnet ved**, at der dannes en rille i dyrkningsmediet i fremdriftsretningen, at dækningsmaterialet arrangeres i denne rille, at dækningsmaterialet fikseres i rillen, fortrinsvist med et trykhjul (7) på det nævnte apparat (1).

3. Fremgangsmåde ifølge kravene 1 og 2, **kendetegnet ved**, at der fikseres dækningsmateriale på begge sider af apparatet (1), hvor det udlagte og fikserede dækningsmateriale således strækker sig væk fra begge apparatets (1) sider.

4. Anordning til udøvelse af en fremgangsmåde ifølge kravene 1 til 3, omfattende et køretøj (4) og et apparat (1), hvor et dækningsmateriale, såsom en fiber- eller plastikdug udlægges og fikseres for afdækning af et dyrkningsareal, hvor apparatet (1) har en fremdriftsretning, en første side (2) og en anden side (3), hvor apparatet (1) i det mindste ved en første side (2) omfatter et første oprilleskær (6) og et første trykhjul (7) arrangeret bagved det første oprilleskær (6) set i forhold til fremdriftsretningen, **kendetegnet ved**, at anordningen omfatter i det mindste ét

bæreaggregat (20) for dækningsmateriale, hvor det i det mindste ene bæreaggregat (20) er monteret på siden af et køretøj (4), som trækker apparatet (1), eller hvor det mindst ene bæreaggregat (20) er arrangeret på siden af apparatet (1), og at nævnte mindst ene bæreaggregat (20) er arrangeret for at justere en første langsgående kant af dækningsmaterialet (22) i forhold til det første oprilleskær (6) og det første trykhjul (7) set i forhold til fremdriftsretningen, og at nævnte mindste ene bæreaggregat (20) er anbragt for at strække sig fra i det mindste den første side (2) af apparatet (1) eller køretøjet (4) og således strækker sig i en retning, som i det væsentlige er vinkelret på apparatets (4) fremdriftsretning, frem mod arealet, som skal tildækkes, væk fra apparatet (1).

5. Anordning til udlægning af et dækningsmateriale ifølge krav 4, **kendetegnet ved**, at apparatet (1) ved såvel den første side (2) som ved den anden side (3) omfatter et oprilleskær (6, 13) og et trykhjul (7, 14), hvor trykhjulet (7, 14) er arrangeret bagved de nævnte oprilleskær (6, 13) set i forhold til fremdriftsretningen.

6. Anordning til udlægning af et dækningsmateriale ifølge et hvilket som helst af de foregående krav, **kendetegnet ved**, at apparatet (1) omfatter i det mindste én aksel, hvor akslen er arrangeret i et horisontalt plan fortrinsvist parallelt med fremdriftsretningen, hvor akslen har en fri endedel, og hvor apparatet (1) omfatter midler for hævnning, sænkning og kipning af akslen, set i forhold til dyrkningsarealet.

7. Anordning til udlægning af dækningsmateriale ifølge krav 6, **kendetegnet ved**, at apparatet (1) omfatter midler for svingning af akslen i det horisontale plan fortrinsvist mellem en retning, der i det væsentlige er parallel med fremdriftsretningen og en retning, der i det væsentlige er vinkelret på fremdriftsretningen.

8. Anordning til udlægning af dækningsmateriale ifølge et hvilket som helst af de foregående krav, **kendetegnet ved**, at apparatet (1) omfatter fremdriftsmidler.

9. Anordning til udlægning af dækningsmateriale ifølge et hvilket som helst af de foregående krav, **kendetegnet ved**, at apparatet (1) omfatter mindst et indføringsmiddel for indføring af et dækningsmateriale foran et trykhjul (7).

10. Anordning til fastgørelse af dækningsmateriale ifølge et hvilket som helst af de foregående krav, **kendetegnet ved**, at apparatet (1) omfatter forskydningsmidler for ændring af den indbyrdes afstand mellem den første (2) og den anden side (3) af apparatet (1).

DRAWINGS

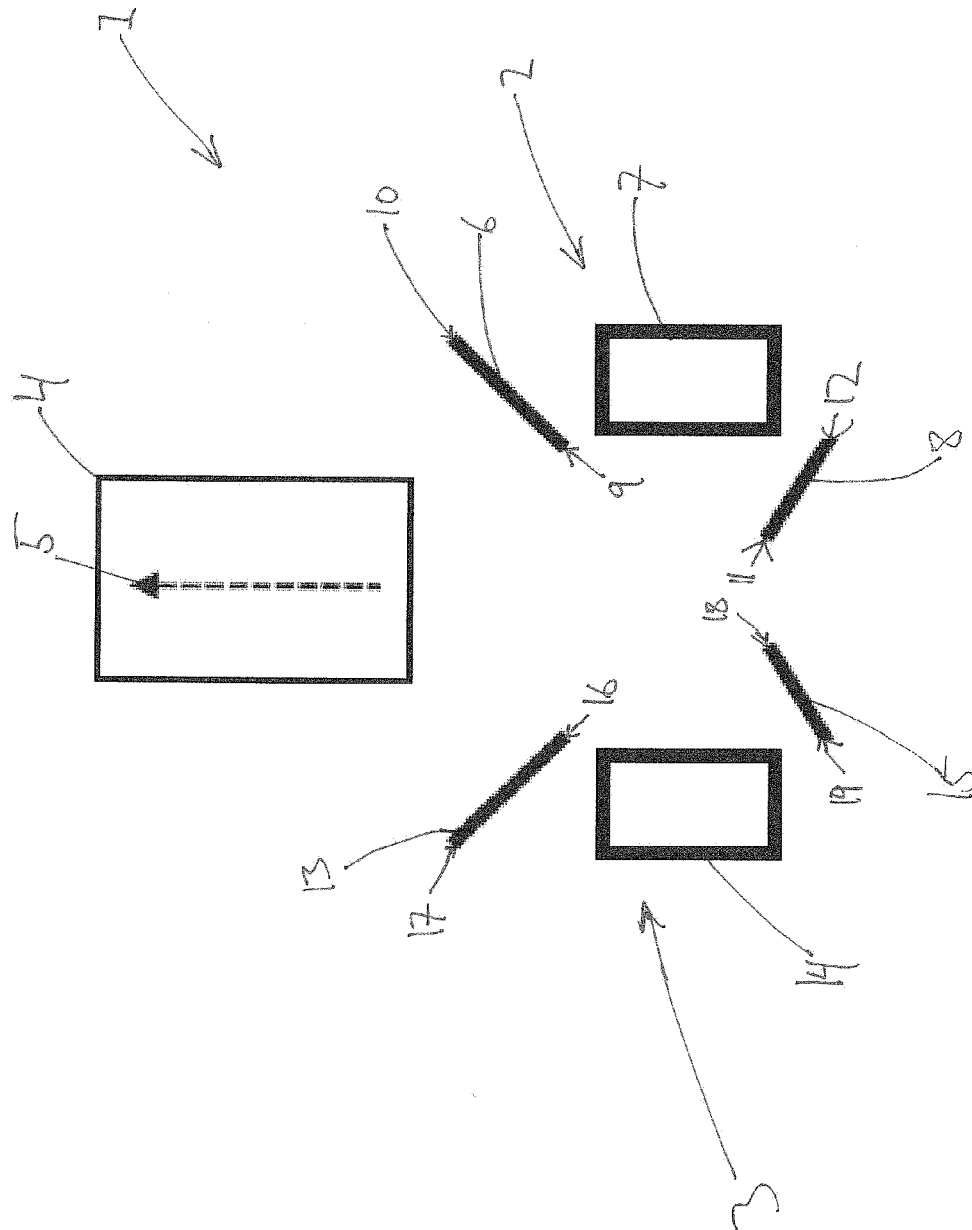


Fig. 1

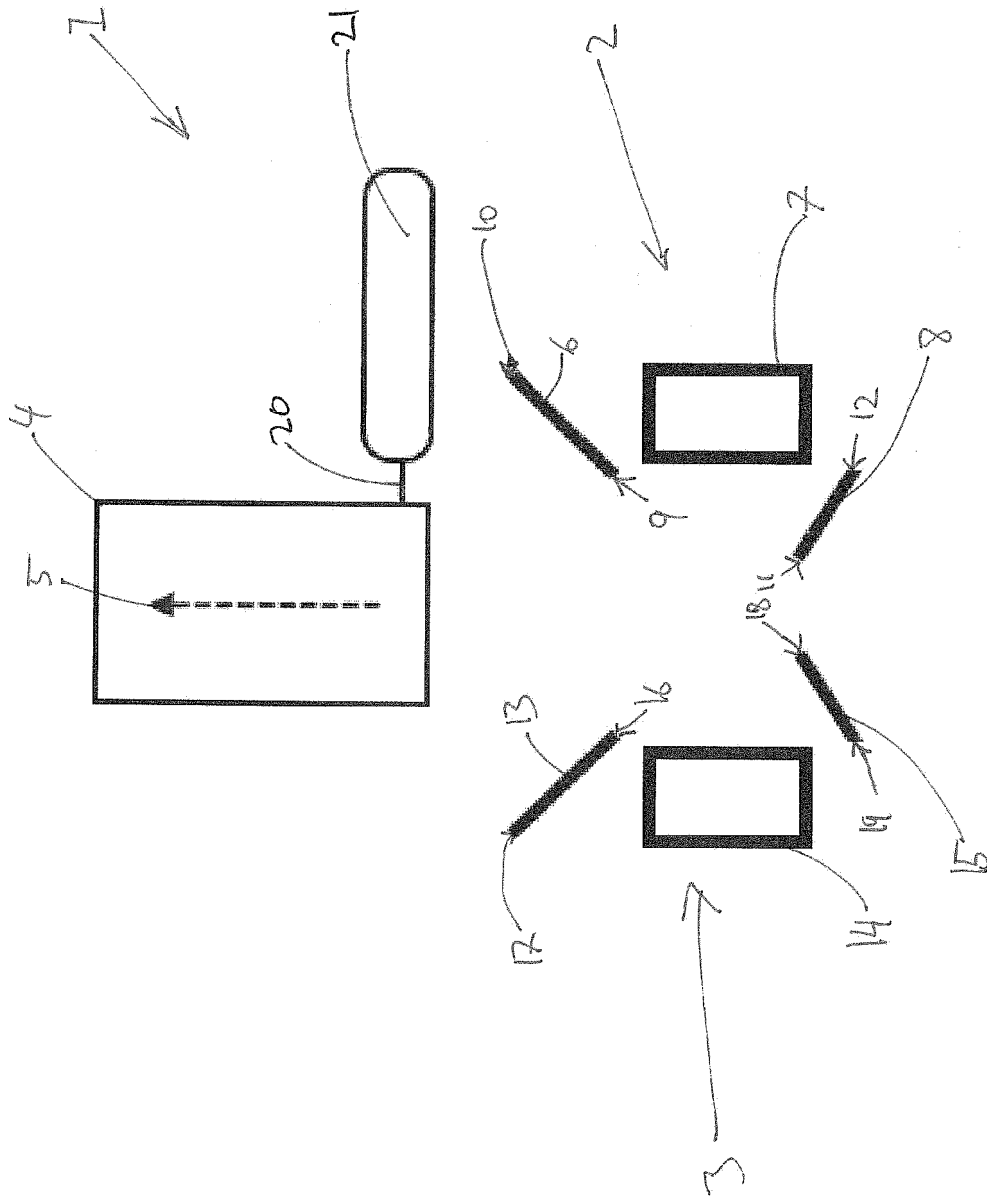


Fig. 2

