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(72) Inventor: **Hoebergen, Wilhelmus, Maria**
5751 JR Deurne (NL)

(74) Representative: **Niestadt, Bart Jan et al**
Algemeen Octrooi-en Merkenbureau
P.O. Box 645
5600 AP Eindhoven (NL)

(71) Applicant: **Wiri B.V.**
5751 JR Deurne (NL)

(54) **Arrangement for producing a composite slab.**

(57) The present invention is directed to an arrangement (1) for producing a composite slab, comprising means (5) for providing a composite mixture to a carrier surface (3), and pressing means (21) for pressing said composite mixture on said carrier surface (3) for producing said composite slab. The pressing means (21) comprise a press having at least a first press plate (22) and a second press plate (23) opposite said first press plate (22). The first press plate (22) has a first press surface (25) facing said second press plate (23), and said second

press plate (23) has a second press surface (26) facing said first press plate (22). At least one of said first press surface (25), said second press surface (26), or said carrier surface (3) comprises a ventilation layer (2,18) for ventilation of gaseous substances from said composite mixture during pressing thereof by said press (21). This arrangement enables quick and easy manufacturing of a composite slab, in a reliable manner and free from defects or regions of reduced material integrity, such as caused by inclusion of gaseous substances during said pressing.

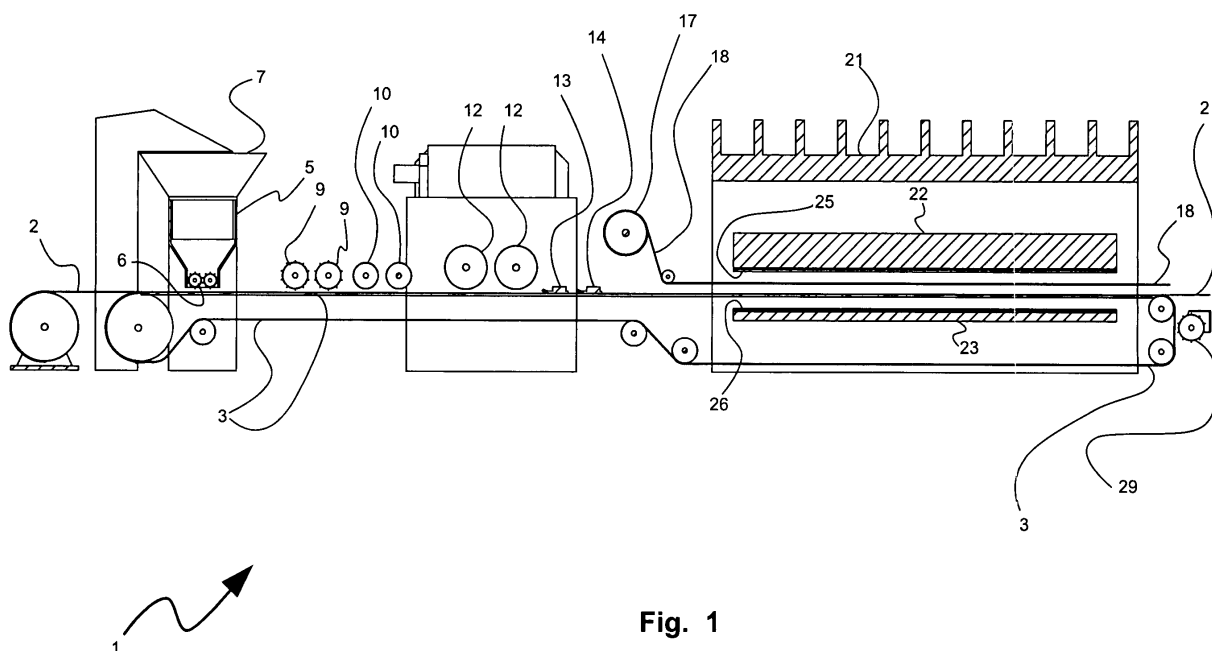


Fig. 1

Description

Field of the invention

[0001] The present invention is related to an arrangement for producing a composite slab comprising means for providing a composite mixture to a carrier surface, and pressing means for pressing said composite mixture on said carrier surface for producing said composite slab. The present invention further relates to a method for producing a composite slab, wherein said arrangement may be applied.

Background of the invention

[0002] Conventionally, artificial stone slab is manufactured by providing an artificial stone composite mixture in a flexible moulding form, which is subsequently subjected to vibrations. Said vibrations are mainly in multiple directions parallel to the surface of the slab to be produced. Optionally, evenly distributed force is exerted on the surface of the stone slab in order to further increase the density thereof. Gaseous substances that are released to the stone slab during said vibrations, are removed from the moulding form without being released from the environment.

[0003] There are several disadvantages with the conventional manufacturing method for producing artificial stone slab. As a result of the vibrations exerted on the composite mixture, the mixture is centered in the middle of the moulding form, whereas the gaseous substances collect in the periphery of the moulding form. After curing and cooling of the artificial stone slab, defects in the form of the slab may be seen in the periphery of the slab.

[0004] Residual gaseous substances have to be removed from the moulding form in an active removal step, e.g. by means of suction of the substances from the moulding form. It is however difficult to remove the residual gaseous substances from the stone slab, and if most of the gaseous substances are to be removed from the stone slab efficiently, the overall manufacturing process takes a long time to complete. In addition, there is a risk that after the manufacturing process, areas of reduced integrity of the slab as a result of gas bubbles present in the stone slab are present, and this cannot be prevented with the conventional manufacturing technique.

Summary of the invention

[0005] It is an object of the present invention to provide a method and arrangement for producing a composite slab, which overcomes the above-mentioned problems of the prior art, which can be performed quickly and efficiently and provides good quality slabs of composite material.

[0006] This and other objects of the present invention are achieved in that there is provided an arrangement for producing an composite slab, comprising means for

providing a composite mixture to a pressing means, wherein said pressing means are arranged for pressing said composite mixture for producing said composite slab, said arrangement further comprising a ventilation layer, wherein said ventilation layer is disposed in said arrangement such that during pressing operation said ventilation layer is in direct contact with said composite mixture, in between said composite mixture and at least one operational surface of said pressing means facing said composite mixture, for ventilation of gaseous substances from said composite mixture.

[0007] As a result of the use of a ventilation layer on at least one of the surfaces of the pressing means, residual gaseous substances are easily removed from the composite mixture during pressing thereof in order to form a composite slab. Therefore, the present invention provides an arrangement that enables production of composite slabs in an efficient manner, wherein effective removal of residual gaseous substances from the composite mixture is guaranteed as a result of the pressing forces of the pressing means. In addition, the use of a press enables control of the mass density of the resulting composite slab, by means of control of the pressing force exerted on the slab. Therefore, a user of an arrangement in accordance with the present invention can control the quality of the delivered composite slab by controlling the operational parameters used in the arrangement, in particular the pressing force. This additional advantage could not be achieved with the conventional method described above.

[0008] Although development of the arrangement in accordance with the present invention has been driven by problems encountered in the manufacturing of artificial stone composite slab, it has been discovered the arrangement of the present invention advantageously can be directly applied to manufacturing methods for other composite slabs, such as composite materials comprising wood fragments and a suitable (e.g. polymer or natural) resin.

[0009] In accordance with an embodiment of the invention, said pressing means of said arrangement comprises a press having at least a first press plate and a second press plate opposite said first press plate, said first press plate having a first press surface facing said second press plate, and said second press plate having a second press surface facing said first press plate, said at least one operational surface of said pressing means comprising said first and second press surface, wherein said ventilation layer is comprised by at least one of said first press surface or said second press surface.

[0010] In accordance with a preferred embodiment of the invention, the ventilation layer comprises a separation layer, and the separation layer is permeable to gas or vapour. In particular, the separation layer is not permeable to the particles forming the composite mixture. This establishes that only the residual gaseous substances coming from the composite mixture are passed through by the separation layer, enabling removal of the

gaseous substances during the pressing operation.

[0011] In addition, the ventilation layer may further comprise a fluid receiving layer. The fluid receiving layer is arranged for receiving the gaseous substances released by the composite mixture during pressing. In particular, the structure of the fluid receiving layer could be such that the gaseous substance released by the composite mixture may at least temporary be retained in the fluid receiving layer until they are removed therefrom. In addition, the fluid receiving layer may be arranged for leading the received gaseous substances to an exhaust or outlet port.

[0012] The arrangement may comprise a ventilation layer having a two-layered configuration comprised of a separation layer and a fluid receiving layer, wherein the separation layer separates the fluid receiving layer from the composite mixture during the pressing operation.

[0013] The separation layer may be comprised of a geosynthetic material, such as a geotextile material. It is known from geosynthetic materials that they may comprise characteristics that are desirable for use in the present invention. Geotextile materials are for example known that are permeable to gas or vapour, but that are not permeable to solid or liquid substances.

[0014] In particular, the separation layer may comprise a non-woven material. A material that is in particular favorable for use as a separation layer may comprise a non-woven polyester fibre material such as Trevira Spunbond™, that used to be produced by Hoechst. Trevira Spunbond™ is a geotextile material having excellent characteristics and properties for use in the present invention, as described above.

[0015] The fluid receiving layer described above may comprise at least one of a group comprising a perforated layer, a wire mesh, a porous material, or a rigid or semi-rigid foam. These materials have in common that they provide storage capacity for gaseous substances, are permeable to substances, and may thus be used as fluid receiving layer. In particular, a wire mesh has the advantage that the wire configuration of the mesh provides sufficient storage capacity, the construction of the wire mesh is rigid during pressing, and the configuration of the wires form channels for transporting the gaseous substances for example to the side of the wire mesh during a pressing operation, e.g. under the influence of increased pressure.

[0016] The benefit of using a rigid material such as a metal or rigid polymer in the fluid receiving layer is that during pressing operation, the rigid material will only be deformed at most to a limited extend, such that the storage capacity of the fluid receiving layer is mostly left unaffected during operation of the pressing means.

[0017] In accordance with another embodiment of the present invention, the ventilation layer comprises a non-adhesive surface layer on the surface facing the composite mixture during pressing. This prevents the composite mixture from adhering to the ventilation layer during pressing, and enables easy removal of the composite slab after curing thereof. The non-adhesive surface layer

may be liquid non-adhesive material, such that it can be easily added to the ventilation layer surface.

[0018] The arrangement in accordance with the invention may comprise a carrier surface for providing the composite mixture to the pressing means. The carrier surface may for example be constituted by, or comprise, a conveyor belt onto which the composite mixture is provided prior to entering the pressing means. In addition, and in accordance with a preferred embodiment, the carrier surface may comprise a ventilation layer, such as the ventilation layer described above.

[0019] Additionally, this carrier surface may comprise a non-adhesive surface layer, e.g. such as the non-adhesive surface layer described above. It is noted that the carrier surface carries the composite slab, and may be present underneath the composite mixture during pressing thereof. Therefore, adding the non-adhesive surface layer on to the carrier surface provides advantages relating the removal of the composite slab after production thereof.

[0020] According to another embodiment of the present invention, the arrangement comprises means for providing the liquid non-adhesive surface layer to the carrier surface. The carrier surface may be a conveyor belt of the arrangement, which conveyor belt transports the composite mixture into the pressing means, and after pressing, transport the composite slab further until it is removed from the belt. In this embodiment of the arrangement, it provides benefits to install cleaning means for cleaning the conveyor belt downstream the pressing means. These cleaning means may be geared to, or cooperate with the non-adhesive surface layer provided to the carrier surface.

[0021] In respect of the above it is noted that as an alternative to the above mentioned non-adhesive surface layer, the ventilation layer and/or carrier surface may itself have non-adhesive properties.

[0022] In accordance with another embodiment of the present invention, the arrangement further comprises a valve for removing the gaseous substances from the pressing means during operation thereof. The valve may be in operative connection with the ventilation layer for removal of said gaseous substances. It is for example possible to have an open connection with the ventilation layer, or in particular with the fluid receiving layer of the ventilation layer, while at the same time providing a suction force on the valve for removing the gaseous substances during operation of the arrangement.

[0023] According to another embodiment of the present invention, the valve is arranged for letting the gaseous substances pass through the valve only in an outward direction from the pressing means. In this arrangement, any inflow of environmental gases into the ventilation layer or into the composite slab is prevented.

[0024] The arrangement may, in accordance with another embodiment, further comprise sealing means for sealing the pressing means in operation thereof, and for limiting spreading of the composite mixture during oper-

ation of the pressing means. These sealing means will preferably be sufficiently flexible to be compressed by the pressing means during operation.

[0025] The above-mentioned sealing means and valve could be integrated in a single part of the arrangement. In particular, the sealing means may in accordance with the embodiment be found by a flexible hose which is arranged for receiving the gaseous substances from the ventilation layer. During pressing, the flexible hose will of course deform, preventing spilling of the composite mixture outside the pressing means. At the same time, even when deformed, the flexible hose still provides a transport channel alongside the pressing means that enables removal of the gaseous substances when there is provided an operative or fluid connection with the ventilation layer, or in particular the fluid receiving layer.

[0026] In accordance with another embodiment of the present invention, the sealing means are disposed at a periphery of at least one of said first press surface, said second press surface or said carrier surface.

[0027] In accordance with a second aspect of the invention, there is provided a method of producing a composite slab, comprising the steps of: providing a composite mixture to a pressing means, pressing said composite mixture using said pressing means for producing said composite slab, ventilating of gaseous substances from said composite mixture during pressing through a ventilation layer, wherein said ventilation layer is disposed in said arrangement such that during pressing operation said ventilation layer is in direct contact with said composite mixture, in between said composite mixture and at least one operational surface of said pressing means facing said composite mixture.

[0028] The invention will now further be elucidated by means of a nonlimiting illustrative embodiment of the present invention, with reference to the enclosed drawings.

Brief description of the drawings

[0029]

Figure 1 illustrates an arrangement according to the present invention for manufacturing a composite slab.

Figure 2 illustrates an enlarged portion of a part of the pressing means of the apparatus illustrated in figure 1.

Figure 3 schematically illustrates a ventilation layer in accordance with an embodiment of the present invention.

Figure 4 schematically illustrates a ventilation layer in accordance with an embodiment of the present invention, including sealing means in accordance with an embodiment of the present invention.

Figure 5 schematically illustrates pressing means of an arrangement according to an embodiment of the present invention, in operation, including the function

of the sealing means.

Detailed description of the drawings

[0030] Figure 1 schematically illustrates an arrangement according to the present invention generally indicated with reference numeral 1. Arrangement 1 comprises a conveyer belt 3 arranged for receiving a composite mixture and guiding the composite mixture through the arrangement 1. The conveyer belt 3 extends through the full length of the arrangement 1, including the pressing means 21 of the arrangement 1. Conveyor belt 3 is first covered with a non-woven fabric layer 2, which optionally may have additional non-adhesive properties or may be coated with a non-adhesive layer.

[0031] In operation, the conveyer belt 3 first passes by a dispenser unit 5. The dispenser unit is arranged for providing the composite mixture onto the carrier surface 3 formed by the conveyer belt. The dispenser unit 5 comprises a funnel arrangement 7, and a pair of doctor rolls 6 arranged for distributing the composite mixture evenly across the width of the conveyer belt 3. As will be appreciated by the skilled person, the dispensing unit 5 may be of any suitable form, comprising any suitable parts for dispensing the composite mixture evenly across the width of the conveyer belt, and it is considered to be within the skills of the skilled person to suggest alternative solutions for the dispenser unit 5 disclosed in figure 1.

[0032] Further downstream the conveyer belt 3, in operation, the arrangement comprises one or more further doctor rolls 9 arranged for improving the distribution of the composite mixture on the conveyer belt before processing thereof.

[0033] Downstream of doctor rolls 9, the arrangement comprises a pair of smooth rollers 10 arranged for exerting a pressing force on the composite mixture in order to increase the density thereof and in order to release a first amount of gaseous substances present in the composite mixture. The amount of pressing force is further increased downstream of the conveyer belt 3, by a further pair of smooth rollers 12 for increasing the density of the composite mixture, and releasing a further amount of gaseous substances from the composite mixture. Smooth rollers 10 and 12 may rotate in any direction, independent of the direction of motion of the conveyer belt. It is not necessary that the rollers 10 and 12 all rotate in a same direction. If one of the rollers is rotating in operation in a direction, running counter to the direction of motion of the conveyer belt, this has the effect of smoothing out any thickness variations in the composite mixture layer present on the conveyer belt. Any shear forces resulting from the roller running counter to the conveyer belt direction are mainly exerted on those parts of the composite mixture where the layer thickness is larger than the average layer thickness of the composite mixture. To some extent, this effect may also be achieved by a roller which is running in a direction of rotation that corresponds to the direction of motion of the conveyer

belt, if the velocity of motion of the conveyor belt is different from the velocity of rotation of the roller in question. As will be appreciated, this also creates shear forces that are mainly exerted on the thicker parts of the composite mixture, relative to the average thickness of the composite mixture layer. In addition to the above, it is noted that a roller of which the direction of rotation and the speed of rotation correspond to the speed of motion of the conveyor belt, can be used to effectively exert relatively large pressure force on the composite mixture on the conveyor belt, without disturbing the arrangement of solid fragments in the composite mixture too much.

[0034] Further downstream the conveyor belt 3, the arrangement 1 according to the present invention comprises one or more vibrational plates 13 and 14 that again exert a pressure force combined with a vibration onto the composite mixture in order to increase the density thereof and in order to further remove gaseous substance present in the composite mixture. It is noted that as a result of the vibration, the solid fragments present in the composite mixture, e.g. stone fragments, wood fragments or the like, arranged in a compact stacking or packing corresponding to a favourable energetic state. Exerting a combined pressure force and vibrational force on the composite mixture, using vibrational plates 13 and 14, this enables to effectively remove a further amount of gaseous substances from the composite mixture.

[0035] The arrangement 1 according to the embodiment of present invention disclosed in figure 1, comprises means 17 for covering the composite mixture on the conveyor belt 3 with a non-woven cover layer 18. The non-woven cover layer 18 enables entrainment of gaseous substances from the composite mixture into a fluid receiving layer present on the upper pressing plate 22 during pressing operation, as discussed herein below. Said cover layer 18 may be non-adhesive in order to provide a smooth surface of the slab to be produced, and to protect the slab against damage during removal of the cover layer downstream, due to adhesion thereof. The provisioning of a non-woven and non-adhesive layer may also be implemented differently, e.g. by providing a non-woven layer with non-adhesive coating on the operating surfaces of the upper pressing plate 22.

[0036] The conveyor belt 3 in the arrangement 1 illustrated in figure 1, eventually provides the composite mixture into the pressing means 21 of the arrangement. The pressing means 21 comprises a first press plate 22 and a second press plate 23. The first press plate 22 and the second press plate 23 comprise operational surfaces 25 and 26 facing each other, and facing the conveyor belt 3.

[0037] In operation, the conveyor belt moves the composite mixture into the pressing means 21, in between the press plates 22 and 23 thereof. The conveyor belt may then stop motion, and the press plates 22 and 23 are closed in order to exert a very high pressing force on the composite mixture present on the conveyor belt 3. The press plates may for example be operated hydraulically.

[0038] As a result of the high pressing force exerted on the composite mixture, gaseous substances are released from the composite mixture and entrain ventilation layers. These ventilation layers are formed on one side (upper side in pressing means 21) by non-woven fabric cover layer 18 and a fluid receiving layer present on surface 25 of upper press plate 22, and on the other (lower) side by non-woven fabric layer 2 on top of (and contiguous) the conveyor belt 3, and conveyor belt 3 which is constituted by a material functioning as a fluid receiving layer. Conveyor belt 3 may for example comprise a wire mesh or grid material, a woven metal wire sheet, a suitable porous material or similar material that enable receiving and transporting said gaseous substances. The ventilation layers are arranged for transporting the released gaseous substances from the ventilation layers, e.g. into the environment of the pressing means 21.

[0039] A mayor improvement of the invention over the prior art, is that the ventilation layer enables the release of gaseous substances during pressing operational the pressing means. As a result of continuous release of gaseous substances from the composite mixture in the pressing means, whilst maintaining to exert a high pressing force on the composite mixture, a composite slab can be achieved having a very high mass density as compared to the prior art methods of pressing composite material into slabs. This is a major improvement as compared to the conventional methods of manufacturing artificial stone composite slabs, as described hereinabove. However, by applying the present manufacturing technique of the invention to different composite mixtures, e.g. a composite mixture of for example wood fragments and a (polyester) resin, the same effects are achieved, and a composite slab having a very high mass density, free from enclosed gaseous substances in the slab, is achievable. Superior quality composite slabs can thus be produced with the present invention.

[0040] Another advantage of the present invention is that curing and cooling of the composite mixture achieved using the manufacturing method of the present invention can be done efficiently, by exposing the composite slab directly to the environment (i.e. without being retained in a moulding form). Further to this, since the present invention can be applied by making use of a conveyor belt, such as conveyor belt 3, a relatively large throughput is achievable, which further reduces the manufacturing costs of composite slabs.

[0041] Figure 2 illustrates an enlargement of a portion of the pressing means 21 of the arrangement 1 illustrated in figure 1. In figure 2, there is shown the first and second press plate 22 and 23, and the operational surfaces 25 and 26 respectively. The operational surface 25 of upper press plate 22 comprises a fluid receiving layer 31. The separation layer 18 formed by non-woven fabric sheet 18 enables separation of gaseous substances from the solid and liquid substances in the composite mixture, and the fluid receiving layer 31 enables receiving of the gaseous substances that entrain through the separation layer

er 18, and transporting the gaseous substances away from the pressing plate 22. Similarly, underneath the composite mixture there is provided non-woven fabric layer 2 functions as separation layer 2, and conveyor belt 3 is arranged for functioning as fluid receiving layer (e.g. by being made of woven wire or wire mesh material).

[0042] Figure 3 schematically illustrates the structure of a ventilation layer in accordance with the present invention. As mentioned above, the ventilation layer is comprised of the separation layer 30 and a fluid receiving layer 31. The separation layer 30 enables separation of gaseous substances on one hand from solids and liquid substances from the composite mixture on the other hand. The separation layer must be permeable to a gas or vapour, and may be comprised of a geosynthetic material, such as a geo textile. Various geo textile materials are known that have the property of enabling the separation of gaseous substances from liquid or solid fractions. The separation layer may be comprised of a non-woven material, such as a non-woven polyester fibre material, e.g. Trevira Spunbond™ or Akzo Colback™ non-woven fabric.

[0043] The fluid receiving layer 31 of the ventilation layer of the present invention may be comprised of a wire mesh, a perforated rigid layer, or any other layer that enables the intake and retaining of gaseous substances from the separation layer 30. Ideally, and in accordance with the preferred embodiment, the fluid receiving layer also enables transportation of the gaseous substances away from the pressing means; e.g. to the sides of the press plates 22 and 23 of the arrangement 1 illustrated in figures 1 and 2. A woven wire mesh configuration has both properties of being able to receive the intake of gaseous substances from the separation layer, as well as transportation of the gaseous substances across the surface of the woven wire mesh layer, e.g. to the sides of the pressing plate. A combination of a rigid perforated material with many small channels extending through the fluid receiving layer, e.g. interconnecting a plurality of perforations along a line, will provide another workable solution that may be applied as fluid receiving layer. The invention is not limited to the above-mentioned options described in detail. Another option is the use of a porous rigid material, or a rigid or semi rigid foam that is permeable to gas or vapour. In respect of this, it is however noted that the most preferred options are those materials that are sufficiently rigid in order to survive the high pressing forces between the pressing plates in operation on one hand, and enable the intake of gaseous substance and the transportation thereof across the surface of the layer on the other hand.

[0044] Not shown in figure 1, but present at the sides of the pressing plate, are sealing members 34 that seal the room in between the pressing plate during operation. A schematic illustration of a preferred solution of the sealing means in the present invention is illustrated in figure 4. Figure 4 is a cross section of a ventilation layer, comprised of a separation layer 30 and a fluid receiving layer

31, e.g. as described herein above. The fluid receiving layer may be comprised of a woven wire mesh arrangement, or a wire mesh arrangement as is disclosed in figure 3. The fluid receiving layer extends slightly further over the width of the ventilation layer than the separation layer 30. The terminal parts of the fluid receiving layer 31 extend into a flexible (e.g. rubber or plastic) hose 34 that comprises an opening 35 such as a slit that extend along the length of the hose. Gasses and vapour being transported in the fluid receiving layer 31 during pressing operation of the pressing means described above, find their way into the sealing means 34 formed by the flexible hose. The flexible hose may at one end thereof be connected to a pump or similar means for removing the gaseous substances. It is however not necessary to actively remove the gaseous substances from the sealing means 34 using a pump, as most of the gaseous substances will automatically release the sealing means as a result of deformation thereof during pressing operation, under influence of a pressing force.

[0045] Figure 5 illustrates schematically the deformation of sealing means 34 during operation of the pressing means. Figure 5 discloses the first press plate 22, the second press plate 23, the separation layers 30 and the fluid receiving layers 31. Figure 5 further discloses the sealing means 34 present near the sides of the press plates 22 and 23. In operation, the composite mixture 40 is pressed using press plates 22 and 23, causing deformation of sealing members 34 at the sides of the press. The deformation of the sealing members 34 seals off the room in between the press plates, wherein the composite mixture is retained. At the same time, as a result of deformation, gaseous substances which are released from the fluid receiving means into the sealing member 34 are effectively removed at the ends of the sealing members 34 as a result of deformation thereof.

[0046] For the purpose of comprehensiveness, it is noted that numerous modification and variations of the present invention are possible in the light of the above teachings. It is therefore understood that, within the scope of the appended claims, the invention may be practised otherwise than as specifically described herein.

Claims

1. Arrangement for producing an composite slab, comprising means for providing a composite mixture to a pressing means, wherein said pressing means are arranged for pressing said composite mixture for producing said composite slab, said arrangement further comprising a ventilation layer, wherein said ventilation layer is disposed in said arrangement such that during pressing operation said ventilation layer is in direct contact with said composite mixture, in between said composite mixture and at least one operational surface of said pressing means facing said composite mixture, for ventilation of gaseous

substances from said composite mixture.

2. Arrangement according to claim 1, wherein said pressing means comprises a press having at least a first press plate and a second press plate opposite said first press plate, said first press plate having a first press surface facing said second press plate, and said second press plate having a second press surface facing said first press plate, said at least one operational surface of said pressing means comprising said first and second press surface, wherein said ventilation layer is comprised by at least one of said first press surface or said second press surface. 5
3. Arrangement according to any of the claims 1 or 2, wherein said ventilation layer comprises a separation layer, said separation layer being permeable to gas or vapour. 10
4. Arrangement according to claim 3, wherein said separation layer comprises a geosynthetic material, such as a geotextile material. 15
5. Arrangement according to any of the claims 3 or 4, wherein said separation layer comprises a non-woven material. 20
6. Arrangement according to claim 4 or 5, wherein said separation layer comprises a non-woven polyester fibre material, such as Trevira Spunbond™ 25
7. Arrangement according to any of the claims 3-6, wherein said ventilation layer further comprises a fluid receiving layer. 30
8. Arrangement according to claim 7, wherein said fluid receiving layer comprises at least one of a group comprising a perforated layer, a wire mesh, a porous material, or a rigid or semi-rigid foam. 35
9. Arrangement according to claim 7 or 8, wherein said fluid receiving layer comprises a rigid material, such as a metal or rigid polymer. 40
10. Arrangement according to any of the previous claims, wherein said ventilation layer comprises a non-adhesive surface layer. 45
11. Arrangement according to claim 10, wherein said non-adhesive surface layer is comprised of a liquid non-adhesive material. 50
12. Arrangement according to any of the previous claims, further comprising a carrier surface for providing said composite mixture to said pressing means. 55
13. Arrangement according to claim 12, wherein said

carrier surface comprises a non-adhesive surface layer.

14. Arrangement according to any of the claims 12 or 13, further comprising means for providing a liquid non-adhesive layer to said carrier surface.
15. Arrangement according to any of the claims 12-14, wherein said carrier surface forms a conveyor belt of said arrangement, further comprising means for cleaning said conveyor belt downstream said pressing means.
16. Arrangement according to any of the claims 12-15, wherein said ventilation layer is comprised by said carrier surface.
17. Arrangement according to any of the previous claims, further comprising a valve for removing said gaseous substances from said pressing means during operation thereof.
18. Arrangement according to claim 17, wherein said valve is mounted such that said valve is in operative connection with said ventilation layer for removing said gaseous substances.
19. Arrangement according to claim 17 or 18, wherein said valve is arranged for letting said gaseous substance pass through said valve only in an outward direction from said pressing means.
20. Arrangement according to any of the previous claims, further comprising sealing means for sealing said pressing means in operation thereof, and for limiting spreading of said composite mixture during operation of said pressing means.
21. Arrangement according to claim 20, and any of the claims 17-19, wherein said valve is formed by said sealing means.
22. Arrangement according to claim 21, wherein said sealing means comprises a flexible hose arranged for receiving said gaseous substances from said ventilation layer.
23. Arrangement according to claim 21 or 22, wherein said sealing means are disposed at a periphery of at least one of said first press surface, said second press surface, or said carrier surface.
24. Arrangement according to any of the previous claims, arranged for producing said composite slab, wherein said composite mixture comprises at least one fragmented material and at least one connective material.

25. Arrangement according to claim 24, wherein said fragmented material comprises at least one element of a group comprising wood or wood fragments, such as wood parts or wood particles, stone or stone fragments, such as granite. 5
26. Method of producing an composite slab, comprising the steps of:
- providing a composite mixture to a pressing means; 10
- pressing said composite mixture using said pressing means for producing said composite slab;
- ventilating of gaseous substances from said composite mixture during pressing through a ventilation layer, wherein said ventilation layer is disposed in said arrangement such that during pressing operation said ventilation layer is in direct contact with said composite mixture, in between said composite mixture and at least one operational surface of said pressing means facing said composite mixture. 15 20
27. Method according to claim 26, wherein said pressing means is comprised of a press having at least a first press plate and a second press plate opposite said first press plate, said first press plate having a first press surface facing said second press plate, and said second press plate having a second press surface facing said first press plate, and wherein said at least one operational surface comprises at least one of said first press surface or said second press surface. 25 30 35
28. Method according to any of the claims 26 or 27, wherein prior to said pressing said composite mixture is provided to a carrier surface for providing said composite mixture to said pressing means. 40
29. Method according to claim 28, wherein during said pressing said composite mixture is carried by said carrier surface, and wherein said ventilation layer is present on said carrier surface. 45
30. Method according to any of the claims 26-29, further comprising a step of adding a non-adhesive surface layer to at least one of said operational surface of said pressing means. 50
31. Method according to any of the claims 28 or 29, further comprising a step of adding a non-adhesive surface layer to said carrier surface. 55

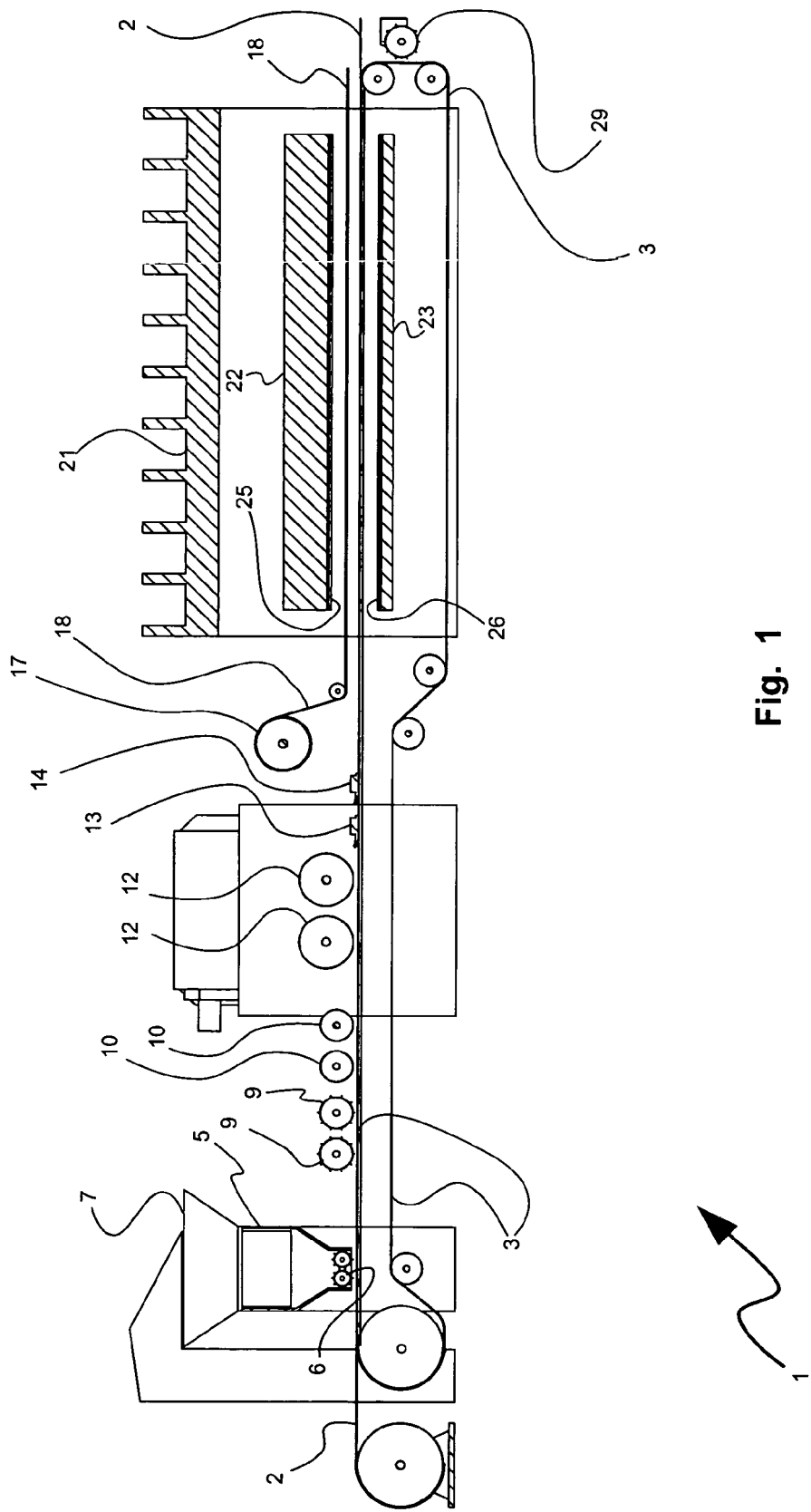


Fig. 1

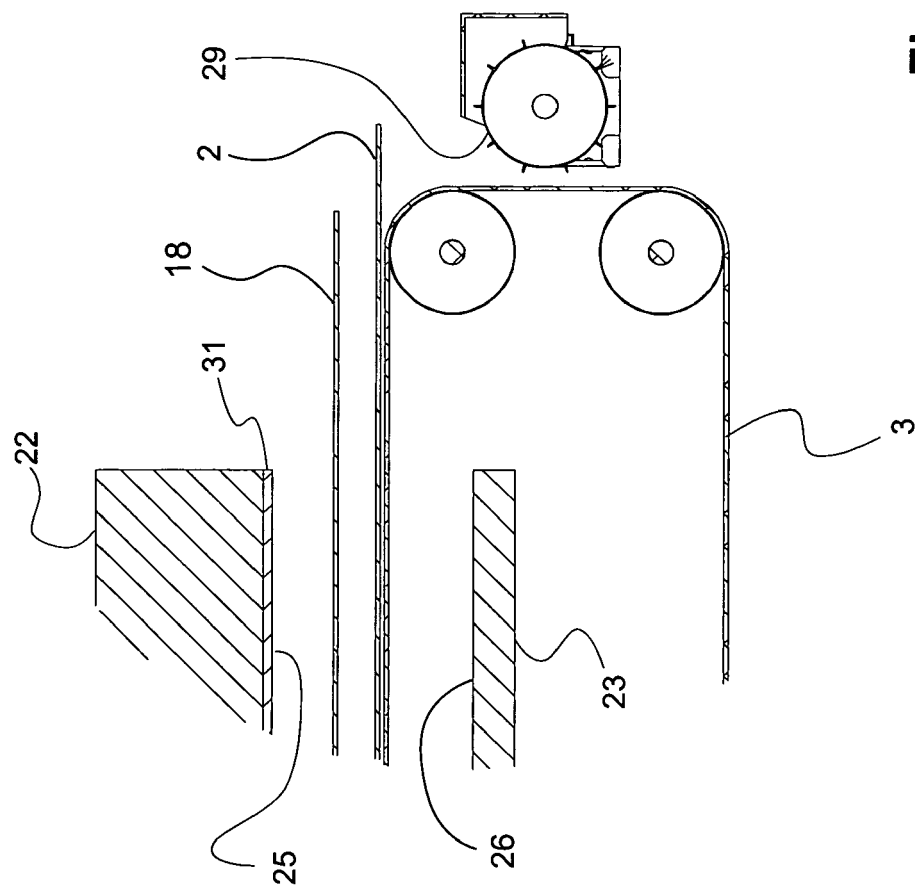


Fig. 2

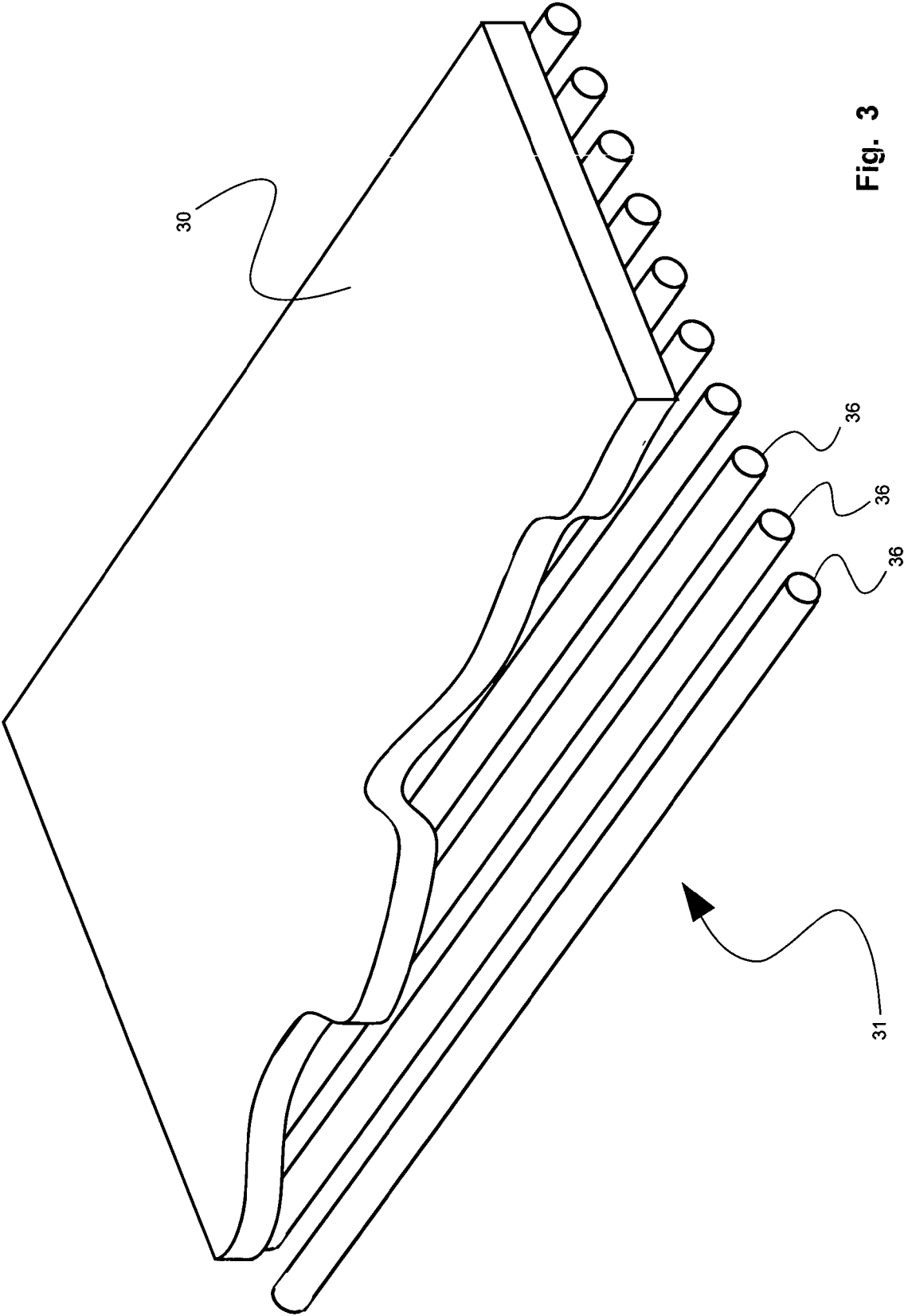


Fig. 3

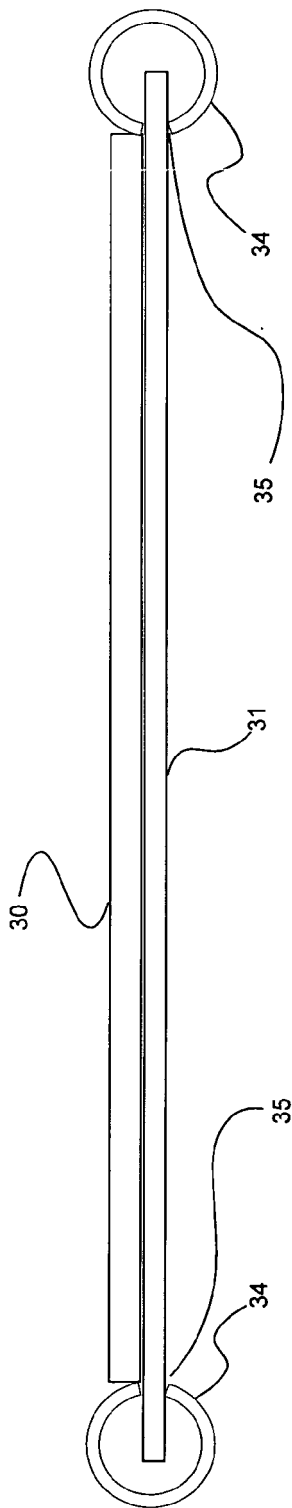


Fig. 4

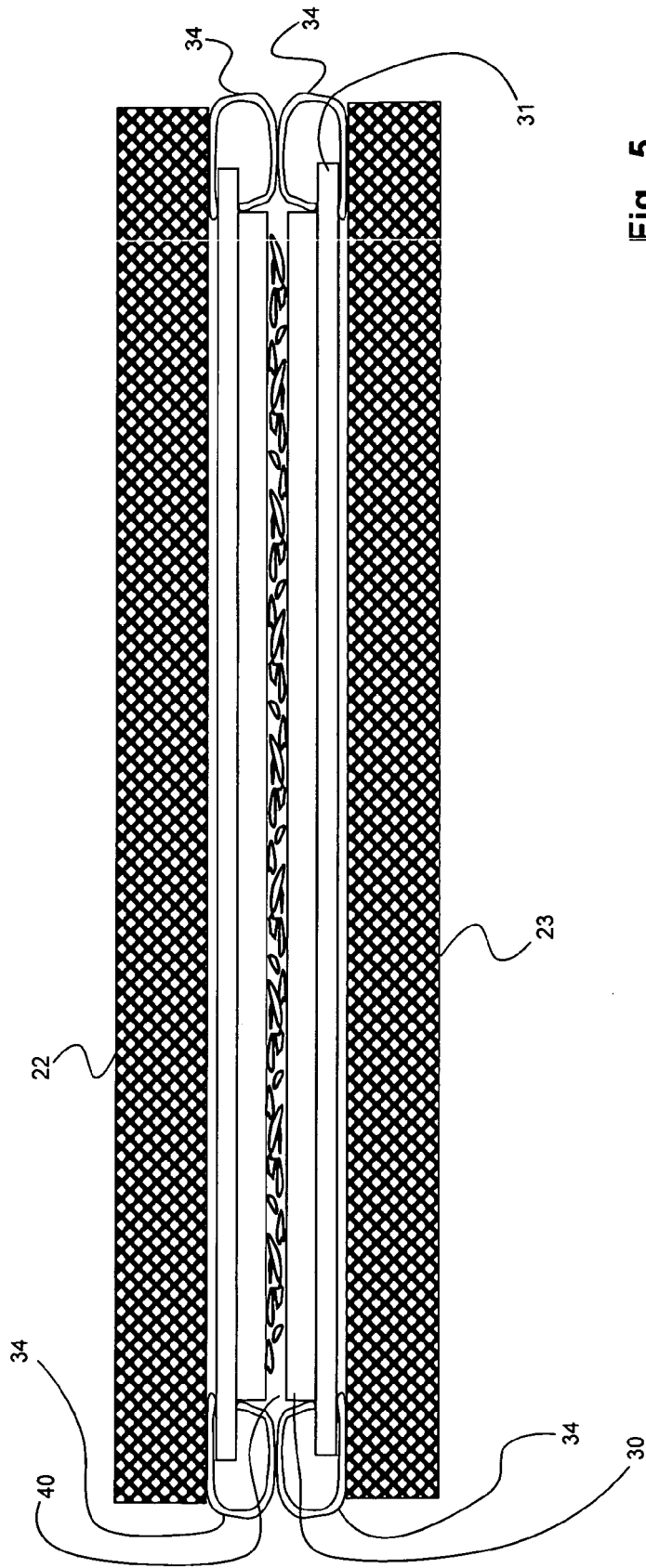


Fig. 5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 9392

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Place of search The Hague		Date of completion of the search 4 July 2008	Examiner Orij, Jack
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