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(54) **Method and arrangement for improving the runnability of a continuous mineral fibre web**

(57) The invention relates to a method and arrangement for improving runnability of a continuous mineral fibre web. Mineral fibres are produced from mineral melt by using a fiberising apparatus, binder is added to the formed mineral fibres, and the formed mineral fibres are blowed from the fiberising apparatus towards a collecting surface onto which the mineral fibres are collected as a primary web. Optionally the primary web is cross-lapped to a secondary web. The collected primary mineral fibre web or the secondary mineral fibre web is processed at a working level of a first processing unit and conveying the web to a working level of a second processing unit. According to the invention the working levels of the first and/or the second processing units are adjusted to the substantially same plane in order to ensure an even transfer of the mineral fibre web between the processing units

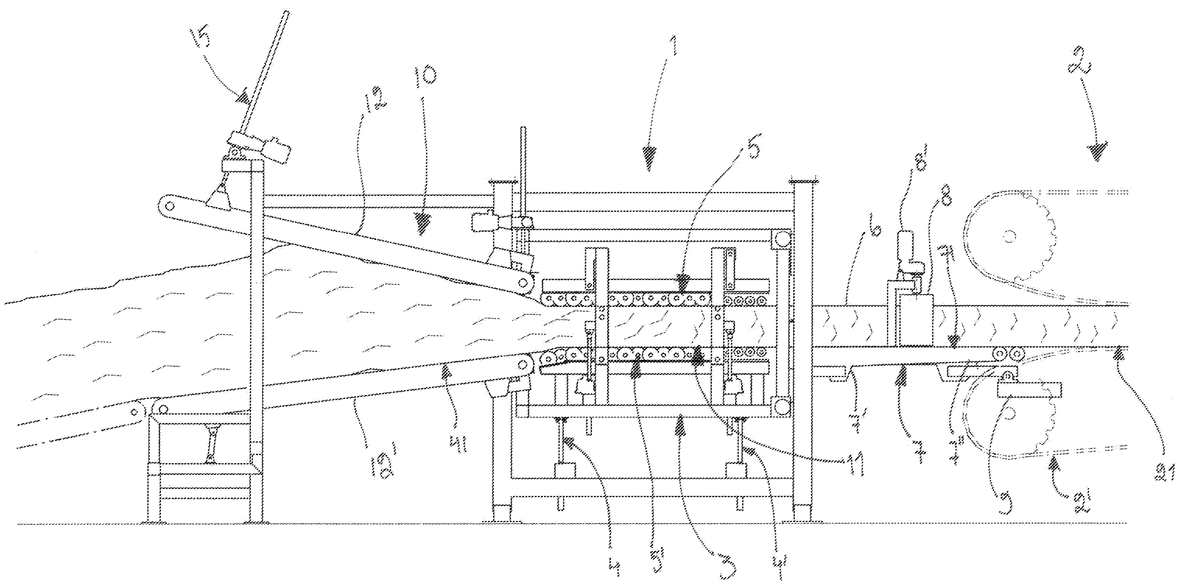

FIG 1

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Description

[0001] The present invention relates to a method and arrangement for improving runnability of a continuous mineral fibre web during the manufacturing process of the mineral fibre web.

[0002] Mineral wool, e.g. stone wool, is made by melting suitable mineral-containing raw materials, such as diabase, limestone and slag in a melting furnace. The obtained mineral melt is discharged from the melting furnace in the form of a melt stream to a fiberising apparatus, such as a spinning machine, in which the melt is formed into mineral fibres.

[0003] For formation of mineral fibres from molten stone a "cascade type" fiberising apparatus is typically used. This kind of fiberising apparatus comprises a series of rotating fiberising rotors or spinning rotors, at present typically 3 to 4 rotors. The mineral melt from the melting furnace is directed toward the mantle surface of the first rotor where it gets hold of the rotor's mantle surface to a certain extent before it is thrown out as a cascade of drops against the mantle surface of the adjacent second rotor in the series. A part of the mineral melt gets then sufficient hold of the mantle surface of the second rotor in order to be formed into fibres due to the effect of the centrifugal force. Another part of the mineral melt is thrown further against the mantle surface of the third rotor. In this way the mineral melt is "transported" as a jet of mineral melt drops or a drop cascade, successively from one rotor to the subsequent one through the whole fiberising apparatus, while a part of the mineral melt is formed into mineral fibres. A binder may be applied on the formed mineral fibres, either during the fibre formation or after it.

[0004] The mineral fibres are usually collected as a thin fibre web, a so-called primary fibre web or a primary web. The primary fibre web is normally collected by a travelling perforated surface forming the collecting surface of the collecting member. The collected primary web can be processed in several different manners. It can be, for example, cross-lapped by using pendulum conveyors or other oscillation means to form a secondary fibre web. Both primary and secondary web can be compressed in height direction, longitudinally and/or transversely. Usually the web is cured in a curing oven before it is cut to final product and packed.

[0005] Problems often arise when the fibre web is transported in the manufacturing process between different processing units, such as compression units. Usually a processing unit comprises an upper and lower part, which support the large surfaces of the web during processing, i.e. the web is supported both from above and from underneath. The distance between the upper and lower part of the processing unit depends on the properties which are to be achieved in that unit, for example, the degree of compression. When two or more processing units are arranged in line after each other, very often their working levels, i.e. the levels of their lower parts, are not in the same plane, because the processing parameters of the different units require different distances between the upper and lower part of the first and second processing unit. The mineral fibre web has to be conveyed either downwards or upwards between the different processing units. In practice this causes easily runnability problems, such as bulging and distortion of the fibre web between the different processing units. Especially the problem appears after the web has been compressed longitudinally. Longitudinal compression causes web stress and tension, which may be uncontrollably released when the direction of the travel of the web is changed, with runnability problems as a result.

[0006] Therefore an object of this invention is to provide a method and an arrangement for the making of mineral wool, where the above-mentioned disadvantages have been minimised or even eliminated.

[0007] An object is also to provide a method and an arrangement which improves the runnability and transport of the continuous mineral fibre web in the process.

[0008] A further object of this invention is to provide a method and an arrangement which makes it easier to transfer the mineral fibre web from one processing unit to a second succeeding unit.

[0009] These objects are attained with a method and an arrangement having the characteristics presented below in the characterising parts of the independent claims.

[0010] Typical method for improving runnability of a continuous mineral fibre web according to the present invention comprises at least the following steps

- producing mineral fibres from mineral melt by using a fiberising apparatus,
- adding binder to the formed mineral fibres,
- blowing the formed mineral fibres from the fiberising apparatus towards a collecting surface onto which the mineral fibres are collected as a primary web, and optionally cross-lapping the primary web to a secondary web,
- processing the collected primary mineral fibre web or the secondary mineral fibre web at a working level of a first processing unit and conveying the web to a working level of a second processing unit, and
- adjusting the working levels of the first and/or the second processing units to the substantially same plane in order to ensure an even transfer of the mineral fibre web between the processing units.

Typical arrangement for improving runnability of a continuous mineral fibre web according to the present invention comprises

- a fiberising apparatus for producing mineral fibres from mineral melt,
- blow-off means for blowing the formed mineral fibres from the fiberising apparatus
- a collecting surface onto which the mineral fibres are collected as a primary fibre web,
- optionally cross-lapping means for cross-lapping the collected primary mineral fibre web,

- a first and a second processing unit for processing the primary or secondary fibre web, the processing units being arranged after each other so that the fibre web is conveyed from the working level of the first processing unit to the working level of the second processing unit, whereby the arrangement comprises means for adjusting the working levels of the first and/or the second processing units to the substantially same plane in order to ensure an even transfer of the mineral fibre web between the processing units.

[0011] Now it has been surprisingly found out that the runnability of the mineral fibre web, i.e. its transfer and transport between succeeding processing units is significantly improved when the working levels of the units are adjusted to the substantially same plane. Thus the number of points where the mineral fibre web is compelled to change its direction of transport is reduced and at the same time the risk for bulging and the distortion of the fibre web is minimised.

[0012] In this application "working level" of a processing unit is defined as the level on which the mineral web to be processed is supported against the gravitational force. For example, if the processing unit comprises an upper and lower part, the working level of that unit is defined by the supporting surface of the lower part.

[0013] In this application substantially same plane means that the working levels of two succeeding processing units are arranged so dose to the same plane as possible, so that no changes in the structure of the web occurs during transition from the first to the second processing unit. Existence of sharp steps between the first and the second processing unit should be minimised, if not totally eliminated. A step having a height < 1 cm, preferably < 0.7 cm may be tolerated between the height of the working levels of the first and second processing units. In practice the difference between the plane of the working level of the first processing unit and the plane of the working level of the second processing unit is at the maximum 2°, preferably at the maximum 1°.

[0014] The present invention does not necessarily require that all the different processing units are arranged to be adjustable. Normally it is sufficient to arrange the one processing unit or a number of processing units at certain critical point(s) of the process adjustable. According to one embodiment of the present invention the working level of the first processing unit is adjusted substantially at the same plane with the working level of the second processing unit. This means that the working level of the second processing unit defines the working level of the first processing unit. This is especially suitable when the adjustment of the working level of the second processing unit is complicated. There might exist also a number of first processing units, working levels of which are adjusted according to the working level of the second processing unit.

[0015] According to one embodiment of the invention both the working level of the first processing unit and the working level of the second processing unit are adjustable. The working levels of the first and the second processing units may also be adjustable independently from each other, and/or they may be continuously adjustable, even during the processing of the mineral fibre web.

[0016] According to one embodiment of the invention the working levels of the first and second processing unit are monitored continuously by using position sensor means. Position sensor means may be, for example, pulse encoders or other corresponding transducers. A first position sensor means may be arranged to monitor the position of the working level of the first processing unit and a second position sensor means may be arranged to monitor the working level of the second processing unit. The position sensor means may be connected to a control system, which may be used for automatic control of the working levels of the processing units.

[0017] The adjustment of the working level of a processing unit may be achieved by adjusting the height of the support structure of the processing unit. According to one preferred embodiment of the invention the height adjustment of the processing unit is achieved by installing height adjustment means, such as screw hoists or hydraulic cylinders, to the support structure of the unit. Height adjustment means may be operated manually or by using motor means, such as electric motor(s). Height adjustment means may be connected via a control system to the position sensor means, so that they are operated according to the signal received from the position sensor means monitoring the other processing unit. For example, when the control system receives the information from the second position sensor means that the plane of the working level of the second processing unit has changed, it sends a command to the height adjustment means of the first processing unit to move the working level of the first processing unit to the corresponding plane. The adjustment of the working levels may be performed also manually or mechanically without automation. According to one embodiment of the invention the adjustment of the working level of the first processing unit is achieved by adjusting the height of the support structure of the first processing unit by using the height adjustment means of the first processing unit.

[0018] Preferably the first and the second processing units are arranged as dose to each other as practically possible in order to minimise the distance between the processing units. The distance between the different processing units is typically 1 - 15 cm, more typically 1.3-7 cm, sometimes 1.5-3 cm. In some embodiments of the invention, however, the mineral fibre web is conveyed from the first processing unit to the second processing unit by using an intermediate conveyor means arranged between the first processing unit and the second processing unit. This is advantageous when a coating, separate mineral fibre layer, metal, textile or plastic foil, metal, textile or plastic sheet is to be applied onto the mineral fibre web between the processing units. The working level of the intermediate conveyor means is preferably adjusted or arranged to the substantially same plane with the working levels of the first and second processing units, the conveyor means comprising means for adjusting the working level of the conveyor means. The intermediate conveyor means may be a belt conveyor or it may comprise a number of rollers arranged after each other. It may also comprise a pair of conveyors or a number of set of rollers arranged after each other so that the web to be conveyed is supported on both sides, i.e. both large surfaces of the web are supported by the conveyor means. The length of the intermediate conveyor means is preferably as short as possible, typically 0.5 - 3 m, more typically 1 - 2.5 m, most typically about 2 m.

[0019] In some embodiments of the invention the intermediate conveyor means may comprise side support means, which guide the sides of the mineral fibre web between the successive processing units and prevent the expansion of the web in transverse direction. The side support means may comprise one or more vertical adjustable and/or flexible support(s) e.g. rollers or conveyor belt(s), arranged on both transversal sides of the fibre web, and rotated with the aid of a motor(s). The speed of the side support is at least the same as the speed of the fibre web or preferably 1 - 3 % higher. If the speed of the side support is arranged higher than the speed of the fibre web it has been noticed that the side supports keep clean and require less maintenance. The side supports means may be used for active control of the mineral fibre web, i.e. it is possible to exert a slight transversal compressive force to the web with the aid of the side support means, and thus improve the runnability of the web and reduce its bulging.

[0020] The first and second processing units may be processing units where the mineral fibre web is compressed vertically, longitudinally and/or transversally in the direction of the travel of the web. The first processing unit may, for example, be a longitudinal compression unit and the second processing unit a transversal compression unit. The first and second processing units may also perform the same function, i.e. they may be functionally identical. It is also possible that even if the first and the second processing units are functionally identical, they differ in structural details. For example, the first and the second processing unit may be both e.g. longitudinal compression units, but they differ in the number of compression zones and/or the degree of compression achieved.

[0021] According to one preferred embodiment of the present invention the mineral fibre web is longitudinally compressed in the first processing unit, which is a longitudinal compression unit and cured in the second processing unit, which is a curing oven. The problem of bulging and web distortion is often especially pronounced when a longitudinal compression unit is arranged before a curing oven. i.e. longitudinal compression precedes the curing oven. A curing oven typically comprises two parts arranged on top of each other, namely a lower and an upper part. The distance between the upper and lower part of the curing oven depends on the thickness of the final mineral web, and the distance between the oven parts is often controlled by moving the lower part of the oven in vertical direction. As a consequence, the working level of the curing oven varies depending of the final product type and quality, and the working level of the oven is routinely adjusted when the produced type is changed. This leads to the situation where the working level of the curing oven is not in the same plane with the working level of the preceding longitudinal compression unit. By adjusting the working level of the longitudinal processing unit to the substantially same plane this problem is solved by the present invention.

[0022] The longitudinal compression unit preferably comprises a number of compression elements, such as disc-rollers. Disc-rollers comprise shafts extending transversally across the web to be compressed, the shafts being provided with a number of means, such as discs, which come into contact with the web and which affect the advancing speed of the web. One shaft may be provided 20 - 40 discs, equidistantly arranged and having a diameter of about 100 - 200 mm. Typically in a longitudinal compression unit the compression elements are arranged in pairs, one on either side of the web and rotating in a direction towards each other. A longitudinal compression unit may comprise 10 - 20 compression elements on one side of the web. The upper part of the longitudinal compression unit with its compression elements is arranged movable in vertical direction with respect to the lower part of the unit defining the working level of the unit. The degree of compression is defined by adjustment of the upper part of the unit and the rotational speed of the compression elements. Depending on the rotational speed of the compression elements in relation to the advancing speed of the web, they exert a braking or an accelerating effect on the web, leading to a re-orientation of the fibres. According to one embodiment preferably the 1 to 6, more preferably 2 to 4 upper rollers situated near the exit of the compression unit have a smooth surface in order to still increase the smoothness of the surface of the compressed fibre web and reduce the possible traces caused by the compression elements.

[0023] In order to enhance the improvement in mineral fibre web runnability that may be achieved with the present invention between the longitudinal compression unit and the curing oven it is also possible to perform the longitudinal compression in the first processing unit by using at least three consecutive compression zones, preferably four compression zones, more preferably five compression zones. A compression zone comprises typically 1 - 10, more typically 3 - 5 compression element pairs. The compression zones may be independently controllable. According to one embodiment there is an equal decrease in speed from compression zone to compression zone, which decrease may be e.g. about 10 to 20%. The change in speed does not, however, need to be uniform, but it can be advantageously of different magnitude at different stages of the longitudinal compression procedure. The decrease in speed from zone to zone can thus be smaller in the beginning of the compression and bigger towards the end of the treatment, or the difference in speed between two consecutive zones can be substantially bigger than between the other zones. Compression element pairs in one compression zone are preferably connected to its own motor means, so they can be independently controlled irrespective of other compression element pairs. The speed can be controlled continuously without steps or with discreet steps. One motor means may be connected to one or several compression element pairs, or all the compression element pairs in one compression zone. In the former case one compression zone may be associated with a number of motor means, in the latter case one compression zone is driven by one motor means. The longitudinal compression is achieved by gradual reduction in web height and speed inside the compression unit. When the number of compression zones in the longitudinal compression unit is increased, the reduction in speed and height may be performed more discreetly, and the differences between the zones may be reduced. This enables a more gentle compression procedure, leading to improved fibre orientation and minimised creasing of the fibre web surfaces, also enhancing the fibre web runnability. All the compression zones may also have the same speed, when the longitudinal compression unit is used in by-pass mode, without compression.

[0024] According to one embodiment of the invention the continuous fibre web is precompressed before the first processing unit, especially when the first processing unit is a longitudinal compression unit. The pre-compression means comprise two conveyors arranged on top of each other, i.e. an upper and a lower conveyor, in horizontally wedge-shape configuration, the tip of the wedge being situated nearest to the first processing unit. The pre-compression means are arranged as near to the first processing unit as possible, so that the distance between pre-compression means and the first processing unit is minimised. The distance is typically only a few centimetres, less than 15 cm, very typically 3 to 10 cm, often about 5 cm. In this way the transfer of the fibre web from the pre-compression means is improved. The output level of the pre-compression means is preferably arranged at the same level as the working level of the succeeding first processing unit.

[0025] The upper conveyor of the pre-compression means may move faster than the lower conveyor of the pre-compression means. The upper conveyor of the pre-compression means has typically 1 - 10 %, more typically 3 -- 7 % higher speed than the lower conveyor. This difference between the conveyor speeds also has a positive impact on the overall runnability of the fibre web. Preferably the length of the pre-compression means is arranged greater than normally, i.e. the length of the pre-compression means is Typically > 0.45 m, more typically 0.5 - 3 m, most typically 1 - 2 m. Preferably the fibre web has an active contact with at least 50 %, typically 55 - 80 %, more typically 65 - 75 % of the surface of the upper conveyor forming the pre-compression means during the pre-compression preceding the first processing unit. Typically the fibre web has an active contact with at least 85 %, typically 90 - 99 % of the surface of the lower conveyor, The input height of the pre-compression means, i.e. the distance between the upper and the lower conveyor is adjustable. The pre-compression means may comprise belt or roller conveyors.

[0026] According to one preferred embodiment of the present invention, when the second processing unit is a curing oven, the heat transfer from the curing oven is blocked to the preceding processing unit, such as the longitudinal compression unit. Often the heat transfer from the curing oven to the preceding process unit is undesired, as it may cause partial curing of the fibre web already before the curing oven, i.e. too early in the process. This may naturally deteriorate the processing of the mineral fibre web. The heat blockade may be achieved by arranging different kinds of blocking means near the entrance of the curing oven. Blocking means may comprise mechanical means, such as a heat transfer damper, or blocking may be achieved by cooling of the intermediate conveying means arranged between the first and second processing unit. The intermediate conveying means may comprise, at its end nearest to the curing oven a cooling system, based e.g. on water circulation.

[0027] When an intermediate conveyor system is arranged between a first processing unit and a second processing unit, it being a curing oven, the first end of the conveyor means may be connected to the first processing unit and the second end of the conveyor means may be connected to the curing oven. The connection between the second end and the curing oven is preferably such that it allows the thermal expansion of the curing oven during the use of the oven. The second end of the conveyor means may be for example in immediate contact with the oven via supports arranged on the sides of the oven, on which the end of the conveyor means is resting.

[0028] According to one embodiment of the invention, when the second processing unit is a curing oven, which lower part is arranged movable in vertical direction, the height of the preceding first processing unit may be adjusted by using an immediate connection between the processing units. The lower part of the second processing means is changed by a number of jack means. A connecting shaft is connected from its first end to the lower part of the second processing means and its second end is connected to the elevator means of the first processing unit. Thus an immediate mechanical connection is created between the second and the first processing unit.

[0029] Normally the binder in the mineral fibre web is cured in conventional manner in the curing oven, and the cured fibre web is cut transversely and/or longitudinally in order to obtain the final product, such as a slab, a board or the like.

[0030] The present invention is especially suitable for processes where the mineral fibres are produced by using a fiberisation apparatus of cascade type comprising at least two, preferably three or most preferably four rotating fiberising rotors. Each rotor is normally mounted for rotation about a substantially horizontal axis and the melt is fed onto the first rotor, onto its mantle surface. From the first rotor a part of the melt is thrown onto the second rotor, onto its mantle surface. Part of the melt is formed to the fibres on the mantle surface of the second rotor and part of the melt is thrown back to the first rotor and/or off to the third rotor. If the fiberising apparatus comprises four rotors, a part of the melt is formed to the fibres on the mantle surface of the third rotor and a part is thrown off onto the fourth rotor, onto its mantle surface. The mineral fibres are formed from the melt on active periphery of the rotating fiberising rotors, optionally and preferably also on the mantle surface of the first rotor. The active periphery of the fiberising rotor is the part of the periphery of the fiberising rotor where mineral fibres are formed from the mineral melt which is located on the surface of the rotor while the rotor rotates. Mineral fibres are generally defined as that weight fraction of the binderless fibre material which passes through a 32 μm sieve.

[0031] Typically the binder in the mineral fibre web is cured in a curing oven, and the cured fibre web is cured transversely and/or longitudinally.

[0032] An embodiment of the invention is described in more detail below with reference to the enclosed figure, where

Figure 1 schematically shows an arrangement according to one embodiment of the invention, seen transversely to the direction of the movement of the mineral fibre web.

[0033] Figure 1 schematically shows an arrangement according to one embodiment of the invention, seen transversely to the direction of the movement of the mineral fibre web. The arrangement comprises a first processing unit 1, which is a longitudinal compression unit, and a second processing unit 2, which is a curing oven. The lower part 2' of the curing oven 2 is adjusted according to the height of the produced product, whereby the working level 21 of the curing oven defines the working level 11 of the first processing unit 1.

[0034] The first processing unit 1 is arranged to a support structure 3. The working level 11 of the first processing unit 1 is adjustable by using height adjustment means 4, 4' connected to the support structure 3. With the height adjustment means 4, 4' the support structure 3 can be raised or lowered so that the working levels 11, 21 are substantially at the same plane. The height adjustment means 4, 4' comprise screw hoists that are operated by using motor means (not shown). When the working level 21 of the curing oven 2 is changed, for example, when the manufactured product quality is changed the working level 11 of the longitudinal compression unit is adjusted to the same plane with the working level 21 of the curing oven by lowering or raising the support structure 3 by using height adjustment means 4, 4'.

[0035] The longitudinal compression unit 1 comprises a number of disc-rollers 5, 5' that are in contact with the fibre web 6 to be compressed and which serve as compression elements. The lower disc-rollers 5' define the working level 11 of the longitudinal compression unit

[0036] The mineral fibre web 6 is conveyed from the longitudinal compression unit 1 to the curing oven 2 with the aid of an intermediate conveyor 7. The working level 71 of the intermediate conveyor 7 is arranged to the substantially same plane with the working levels 11, 21. The first end 7' of the intermediate conveyor 7 is connected to the support structure 3 of the longitudinal compression unit 1 and the second end 7" is in immediate contact with an adjustment structure 9 arranged on the side of the lower part 2' of the curing oven 2. The second end 7" is resting on the adjustment structure 9. The working level 71 of the intermediate conveyor thus automatically follows the adjustment of the working levels 11, 21.

[0037] The intermediate conveyor 7 comprises also side support means 8 for guiding the sides of the mineral fibre web between the longitudinal compression unit 1 and the curing oven 2. The side support means 8 are here arranged as vertical rollers on both sides of the web and they prevent the expansion of the web in transverse direction. The side support means 8 are driven with their own motor means 8'.

[0038] Before the mineral fibre web 6 enters the longitudinal compressing unit it is precompressed with a pre-compression means 10. The pre-compression means 10 comprises two conveyors 12, 12' arranged on top of each other in wedge-shape configuration. The working level of the pre-compression means 41 is arranged at the same level as the working level 11 of the succeeding longitudinal compression unit 1 at the output end of the pre-compression means 10. The difference between the upper conveyor 12 and lower conveyor 12', i.e. the input height of the pre-compression means, can be adjusted with regulating means 15 that may be operated manually or be connected to a motor means and be operated by computer control.

[0039] Even if the invention was described with reference to what at present seems to be the most practical and preferred embodiments, it is appreciated that the invention shall not be limited to the embodiments described above, but the invention is intended to cover also different modifications and equivalent technical solutions within the scope of the enclosed claims.

Claims

1. A method for improving runnability of a continuous mineral fibre web comprising:

- producing mineral fibres from mineral melt by using a fiberising apparatus,
- adding binder to the formed mineral fibres,
- blowing the formed mineral fibres from the fiberising apparatus towards a collecting surface onto which the mineral fibres are collected as a primary web, and optionally cross-lapping the primary web to a secondary web,
- processing the collected primary mineral fibre web or the secondary mineral fibre web at a working level of a first processing unit and conveying the web to a working level of a second processing unit,

characterised in

- adjusting the working levels of the first and/or the second processing units to the substantially same plane in order to ensure an even transfer of the mineral fibre web between the processing units

2. Method according to claim 1, **characterised in** adjusting the working level of the first processing unit substantially at the same plane with the working level of the second processing unit.

3. Method according to claim 1 or 2, **characterised in** monitoring the working levels of the first and the second processing unit continuously by using position sensor means.

4. Method according to any of claims 1 to 3, **characterised in that** the adjustment of the working level of the first processing unit is achieved by adjusting the height of the support structure of the first processing unit.

5. Method according to any of claims 1 to 4, **characterised in** conveying the web from the first processing unit to the second processing unit by using an intermediate conveyor means, and adjusting the working level of the intermediate conveyor means to the substantially same plane with the working levels of the first and the second processing units.

6. Method according to any preceding claim, **characterised in** longitudinally compressing the mineral fibre web in the first processing unit and curing it in the second processing unit.

7. Method according to claim 6, **characterised in** achieving the longitudinal compression in the first processing unit by using at least three consecutive compression zones.

8. Method according to claim 6, **characterised in** blocking of the heat transfer from the curing oven to the longitudinal compression unit.

9. Method according to claim 8, **characterised in** cooling of the intermediate conveying means between the first and the second processing unit.

10. An arrangement for improving runnability of a continuous mineral fibre web, the arrangement comprising

- a fiberising apparatus for producing mineral fibres from mineral melt,
- blow-off means for blowing the formed mineral fibres from the fiberising apparatus
- a collecting surface onto which the mineral fibres are collected as a primary fibre web,
- optionally cross-lapping means for cross-lapping the collected primary mineral fibre web,
- a first and a second processing unit for processing the primary or secondary fibre web, the processing units being arranged after each other so that the fibre web is conveyed from the working level of the first processing unit to the working level of the second processing unit,

characterised in that arrangement comprises means for adjusting the working levels of the first and/or the second processing units to the substantially same plane in order to ensure an even transfer of the mineral fibre web between the processing units.

11. Arrangement according to claim 10, **characterised in that** it comprises means for adjusting the working level of the first processing unit substantially at the same level with the working level of the second processing unit.

12. Arrangement according to claim 10 or 11, **characterised in that** it comprises first position sensor means for monitoring the position of the working level of the first processing unit and second position sensor means for monitoring the position of the working level of the second processing unit.

13. Arrangement according to any of claims 10 to 12, **characterised in that** the first processing unit comprises height adjustment means for adjusting the height of the support structure of the first processing unit.

14. Arrangement according to any of preceding claim, **characterised in that** it comprises intermediate conveyor means arranged between the first processing unit and the second processing unit, the conveyor means comprising means for adjusting the working level of the conveyor means to the working levels of the first and the second processing means.

15. Arrangement according to any of preceding claim, **characterised in that** the first processing unit is a longitudinal compression unit and the second processing unit is a curing oven.

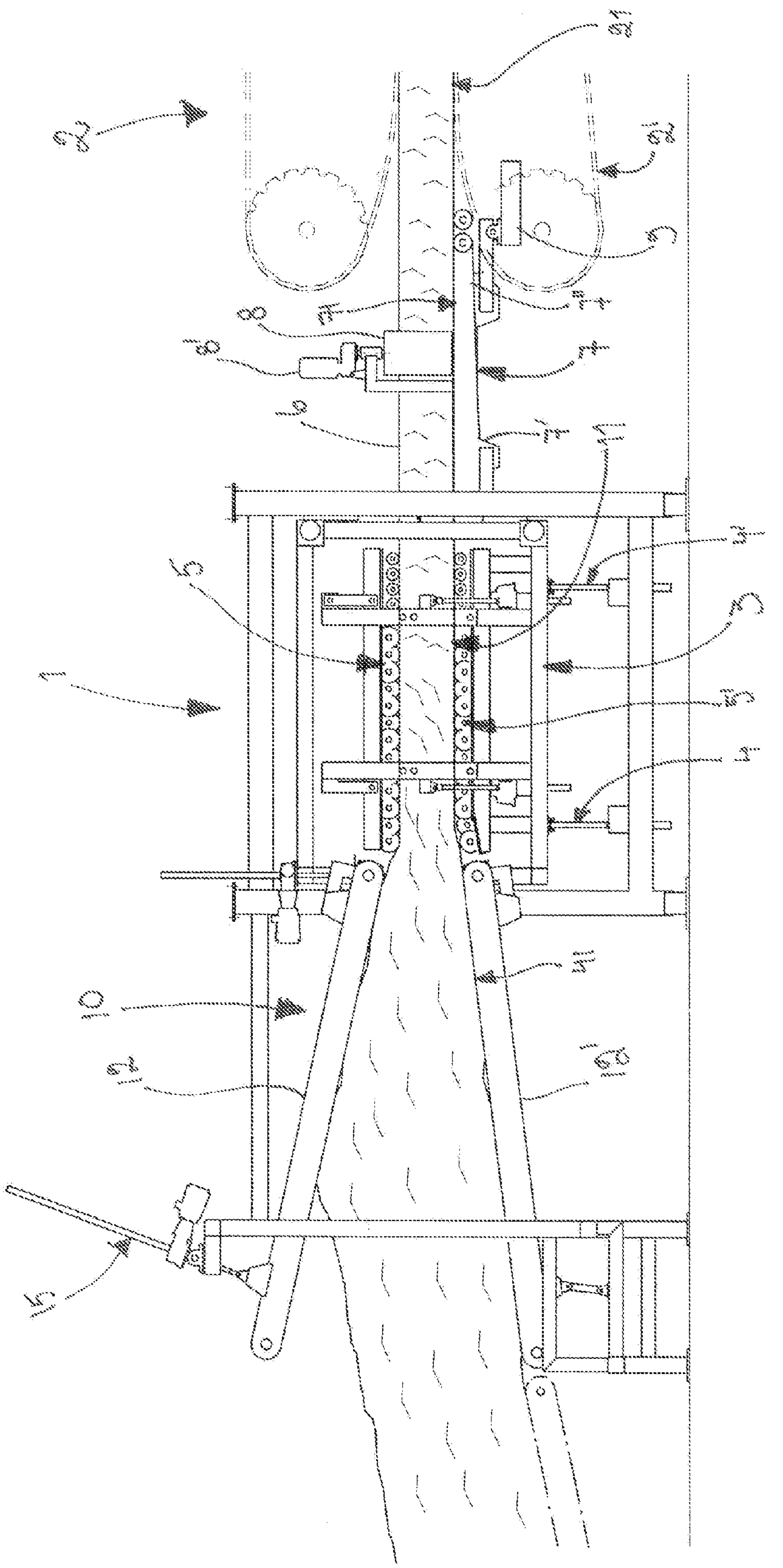

FIG 1

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 10 2522

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 111 113 A (ROCKWOOL INT [DK]; FLUMROC AG [CH]) 27 June 2001 (2001-06-27) * paragraph [0038] - paragraph [0042] * * paragraph [0046] - paragraph [0056] * * paragraph [0061] * * paragraph [0066] * * paragraph [0072]; figures 6a,7a,9,13a,13d,13e * -----	1-15	INV. D04H1/70 D04H13/00 C03B37/00
X	US 6 851 283 B2 (BARACCHINI PAOLO [CH] ET AL) 8 February 2005 (2005-02-08) * column 1, line 51 - column 2, line 37 * * column 3, line 30 - line 33 * -----	1-15	
X	WO 02/27090 A (SAINT GOBAIN ISOVER [FR]; BOUQUET FRANCOIS [FR]; BLANDIN YANNICK [FR];) 4 April 2002 (2002-04-04) * page 5, line 25 - page 7, line 15; figures 1,2 * -----	1-15	
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A	WO 2005/095727 A (ROCKWOOL INT [DK]; BIRCH JORGEN [DK]; JENSEN GORM ROSENBERG [DK]; BOLL) 13 October 2005 (2005-10-13) * figure 2 * -----	1-15	
A	WO 92/10602 A (ROCKWOOL INT [DK]) 25 June 1992 (1992-06-25) * page 7, line 8 - line 21; figure 1 * -----	1-15	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	14 August 2008	Demay, Stéphane

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