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(54) **METHOD AND SYSTEM OF PRODUCING OF FIBER WEBS**

(57) The invention relates to a method of producing of fiber webs, in which method pulp is fed the from a head box (10) to a forming section (20), in which water is removed from the pulp by water removal means and a fiber web is formed, in which water is further removed by pressing the fiber web in a press section (30), in which in a subsequent drying section (40) the fiber web is dried, in which the fiber web is reeled into a parent roll in a reel-up (80), in which the parent roll is unwound in an unwinder of a slitter-winder (90) and then slit into partial fiber webs in a slitter of the slitter-winder (90), which par-

tial fiber webs are wound to customer rolls in a winder of the slitter winder (90), in which method the fiber web is trimmed before the reeling on the reel-up by at least one trim cutting device (100), in which trimming at least one trim strip is removed from at least one edge of the fiber web. The fiber web is trimmed by the cutting of the at least one trim strip to a fullwidth defined by total width of the customer rolls to be produced in the slitter-winder (90). The trim strip has a width of at least 300 mm. The invention also relates to a system of producing of fiber webs.

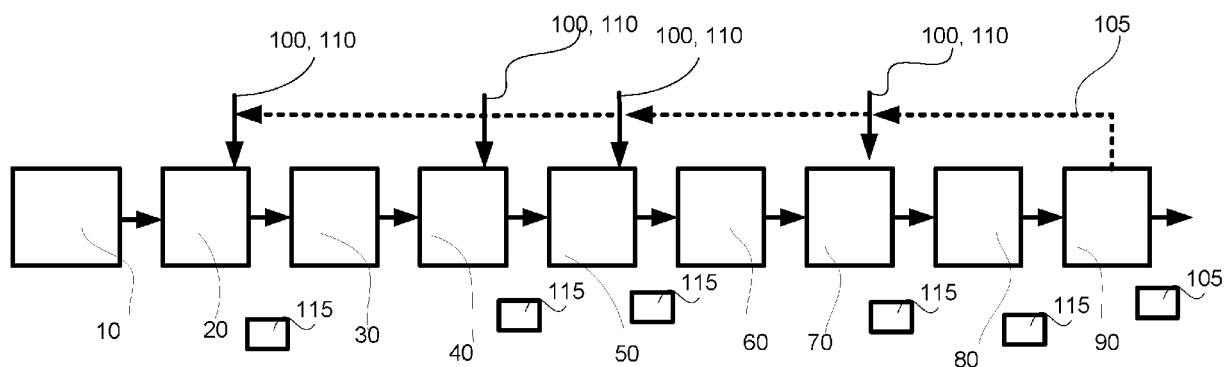


Fig. 1

Description

Technical field

[0001] In general, present invention relates to producing of fiber webs in a fiber web production line. More especially the present invention relates to a method according to preamble part of the independent method claim and to a system according to preamble part of the independent system claim.

[0002] In this description and the following claims by fiber webs are meant for example a paper and board webs.

Background

[0003] The fiber webs are produced by fiber web production methods in fiber web production systems, typically in fiber web production lines. As known from the prior art in fiber web production methods and systems typically comprise an assembly formed by a number of apparatus arranged consecutively in the fiber web production line. A typical fiber web production and treatment line comprises a head box, a wire section and a press section as well as a subsequent drying section and a reel-up. The production and treatment line can further comprise other devices and/or sections for finishing the fiber web, for example, a pre-calender, a sizer, a final-calender, a coating section. The production and treatment line also typically comprises at least one slitter-winder for forming customer rolls as well as a roll packaging apparatus.

[0004] It is known that a fiber web production lines can be hundreds of meters long. Modern fiber web production lines can produce over 450,000 tons of fiber web per year. Speed of the fiber web production line can exceed 2,000 m/min and width of the fiber web in the production line can be more than 11 meters.

[0005] In the fiber web production lines, the production of the fiber web takes place as a continuous process. A fiber web completing in the fiber web production line is reeled by the reel-up around a reeling shaft i.e. a reel spool into a parent roll, diameter of which can be more than 5 meters and weight more than 160 tons. The purpose of the reeling is to modify the fiber web manufactured as planar to a more easily processable form. On the reel-up located in the fiber web production line the continuous process of the fiber web production line breaks for the first time and shifts into periodic operation.

[0006] The fiber web of the parent roll produced in the fiber web production line is fullwidth and typically even more than 100 km long so it is slit into component fiber webs (partial fiber webs) with suitable width and length for the customers of the fiber web mill and wound around winding cores into so-called customer rolls (partial fiber web rolls) before delivering them from the fiber web mill. The slitting and winding up of the fiber web takes place as known in an appropriate separate ma-

chine i.e. in a slitter-winder.

[0007] On the slitter-winder, the parent roll is unwound in an unwinding section, the wide web is slit on a slitting section into several narrower component webs which are wound up on a winding section around winding cores, such as spools, into customer rolls. When the customer rolls are completed, the slitter-winder is stopped and the wound rolls i.e. the so-called set is removed from the slitter-winder and new winding cores for a new set of new component fiber web rolls are to be transferred to winding stations for winding the new set of the new component fiber web rolls. Then, the process on the slitter-winder is continued with the winding of a new set. These steps are repeated periodically until the fiber web runs out of the parent roll, whereby a parent roll change is performed and the operation starts again as the unwinding of a new, next parent roll.

[0008] Slitter-winders employ winding devices for winding the customer rolls of different types depending on, inter alia, on the type of the fiber web being wound. On slitter-winders of two drum winder type, the fiber web is guided from the unwinding via guide rolls to the slitting section, where the fiber web is slit into component fiber webs, which are further guided via guide rolls to the winding (support or carrier) drum of the two drum winder and slit component webs are wound around a winding core on support of the winding drums. On slitter-winders of the multistation winder type, the web is guided from the unwinding via guide rolls to the slitting section, where the fiber web is slit into component fiber webs, which are further guided via guide rolls to the winding drum/drum on the winding stations to be wound up onto winding cores into customer rolls. In multistation winders the adjacent component fiber webs are wound up on different sides of the winding drum/drums. Multistation winders have one to three winding drums and in them each component web is wound to a component fiber web roll in its own winding station.

[0009] It is known from prior art to provide clean/good quality edges for the fiber web by trimming the width of the full width fiber web before the reel-up by cutting in longitudinal direction an edge strip of the fiber web, i.e., removing a trim strip from the wide fiber web by water jet cutting in order to provide desired trim width for the fiber web to be reeled onto the parent roll. One arrangement known from prior art is disclosed in patent publication US7166194 B2. In this known arrangement a water jet cutter for separation of a trim strip from a moving paper, cardboard, tissue or other type of fiber web, in a machine for the production and/or conversion of the fiber web is provided. The water jet cutter is located approximately above a pulper, for the purpose of capturing the trim strip that is separated from the fiber web. The arrangement has also a support plate equipped with a cutout for the water jet, so that it can pass through unimpeded. According to an example of the arrangement the water jet cutter is located in the dryer section of the fiber web production or conversion line and in order to produce clean edges

on the fiber web, the water jet cutter is utilized in the unsupported section of the fiber web, for example at the end of one dryer group, and specifically at the end of the last dryer group.

[0010] It is also known from prior art to provide a trim strip slitting and removal arrangement for slitting a trim strip from a fiber web in connection with a slitter-winder. In patent application publication WO2009022053A1 is disclosed one known arrangement for this purpose. This known arrangement comprises an edge strip trimmer and a supporting device for the edge strip adapted at a distance from the slitting point of the edge strip trimmer in the running direction of the trimmed strip, in which the supporting device is adapted in transverse direction relative to the running direction of the web in the region of the slitting point on the trim strip's side. It is disclosed that by this arrangement even an edge strip with a width up to 300 mm can be cut. In this known arrangement the edge slit device is based on roller blades. One disadvantage in cutting by blades is that the cutting causes dusting and also web breaks may occur.

[0011] In patent application publication WO2018236264A1 is disclosed a paper making machine comprising a forming section in which a fiber web can be formed; a drying section in which a formed fiber web can be dried; and a reel-up on which a dried fibrous web can be wound into a roll, and the paper making machine has at least one water jet cutting device arranged to cut the fiber web that is moving in the machine direction such that the fiber web is divided into at least one waste part and a remaining part and the waste part is guided away from the path of the remaining part.

[0012] In patent application publication US2002124701A1 is disclosed a movable integral water jet web cutting and trim chute unit adapted for relative movement inwardly of an outside edge of a web travelling in a first direction to cut a strip from the travelling web and to remove the strip, the movable integral water jet web cutting and trim chute unit comprising: a support plate adapted to extend relative to the plane of the travelling web to support the web immediately prior to and after the strip is cut from the edge of the travelling web as the unit moves relative to the web, and the support plate having a cutting aperture; a water jet nozzle positioned behind the support plate aligned with the cutting aperture for directing a water jet through the cutting aperture and away from the support plate to cut through the web and form the strip; a trim chute extending out of and away from the plane of the travelling web from the support plate and having an opening in the support plate downstream of the cutting aperture, the trim chute opening being bounded by a first side edge extending in the first direction of web travel substantially in alignment with the cutting aperture to limit that portion of the web passing over the trim chute opening; and negative pressure means associated with the trim chute for drawing the strip into and through the trim chute.

[0013] In patent application publication EP3855373A1

is disclosed a method of generating optimal trimming patterns for trimming raw rolls and/or sheets for fulfillment of a flat sheet stock and/or customer orders.

[0014] In patent application publication WO2018236264A1 is disclosed a paper making machine comprising a forming section with least one water jet cutting device arranged to cut the fibrous web that is moving in the machine direction such that the fibrous web is divided into at least one waste part and a remaining part and wherein the paper making machine is arranged to direct the at least one waste part away from the predetermined path and to convey the remaining part further in the machine direction along the predetermined path.

[0015] In practice a very common problem in connection with production of fiber webs is that width of the fiber web on the reel-up does not correspond to width required based on widths of required customer rolls to be produced on the slitter winder as in practice used edge cutting devices (trim cutting devices) at the slitter-winder typically are not capable of cutting wide enough edge strips for removal of wide enough trim strip such, that the width of the full width web would correspond to that required by the set of the customer rolls to be produced. This leads to producing extra partial fiber web trim rolls as the too wide trim strip is slitted by the slitter itself and then wound in the winder. In some cases these extra rolls can be sold, but seldom at a reasonable price and thus this is an uneconomical option. Thus, these extra rolls often are to be stored to be rejected and to be delivered to repulping even though being of quality fiber web. This is typically labor- and time-consuming at least partially manual work and often totally manual work.

[0016] In practice mostly the known edge cutting devices for controlling the trim of the fiber web need a support device on opposite side of the fiber web in respect of the cutting device. The cutting devices typically are based on either water jet cutting or on cutting by rotating blades. After cutting the trim strip is typically guided to repulping via a pipe-like removal device, which typically has an underpressure created by an ejector, a shredder blower or an underpressure blower. In these types of devices the maximum of the trim strip is 150 mm, in some rare cases at most 300 mm.

Summary

[0017] An object of the invention is to create an improved method and system of producing of fiber webs, especially in view trim width control, in which the disadvantages and problems of prior art are eliminated or at least minimized.

[0018] An object of the invention is to create an improved method and system of producing of fiber webs, especially in view trim width control, in which new, alternative ways of controlling the trim width for the customer rolls are provided.

[0019] In order to achieve the above-mentioned objects, the method to the invention is mainly characterized

by the features of the characterizing clause of the independent method claim and the system according to the invention is in turn mainly characterized by the features of the characterizing clause of the independent system claim.

[0020] Advantageous embodiments and features are disclosed in the dependent claims.

[0021] According to the invention in the method of producing of fiber webs pulp is fed from a head box to a forming section, in which water is removed from the pulp by water removal means and a fiber web is formed, in which water is further removed by pressing the fiber web in a press section, in which in a subsequent drying section the fiber web is dried, in which the fiber web is reeled into a parent roll in a reel-up, in which the parent roll is unwound in an unwinder of a slitter-winder and then slit into partial fiber webs in a slitter of the slitter-winder, which partial fiber webs are wound to customer rolls in a winder of the slitter winder, in which method the fiber web is trimmed in machine direction before the reeling on the reel-up, preferably before a last drying cylinder of the drying section, by at least one trim cutting device, in which trimming at least one trim strip is removed from at least one edge of the fiber web, wherein the fiber web is trimmed by the cutting of the at least one trim strip to a fullwidth defined by total width of the customer rolls to be produced in the slitter-winder.

[0022] According to an advantageous feature the trim strip has a width of at least 150 mm, advantageously over 300 mm, more advantageously over 500 mm.

[0023] According to an advantageous feature the width of the trim strip is adjustable.

[0024] According to an advantageous feature in the method the fiber web is trimmed at the end of the drying section.

[0025] According to an advantageous feature the trim strip is removed to a pulper or to a reject conveyor leading to a pulper. The removal is advantageously directly to the pulper or the reject conveyor and no suction pipes or like are needed.

[0026] According to an advantageous feature the trimming of the fiber web is performed by water jet cutting, advantageously by high pressure water jet cutting, typically with pressure over 600 bar, advantageously over 1500 bar.

[0027] According to an advantageous feature the trimming the fiber web is performed in the drying section at a location, where the fiber web runs between two, following each other located drying cylinders or at a drying cylinder.

[0028] According to an advantageous feature width of the trim strip is controlled based on information of the required width of the fiber web for the set of the customer rolls to be produced in the slitter-winder.

[0029] According to an advantageous feature information of the required width of the fullwidth fiber web at the trimming is utilized for tension calculations of the tension of the fiber web and based on the information of the re-

quired width of the fullwidth fiber web at the trimming reeling parameters of the reel-up are controlled.

[0030] According to the invention the system of producing of fiber webs comprises a head box, a forming section, a press section, a drying section, a reel-up and a slitter-winder, which system further comprises at least one trim cutting device located before the reel-up, preferably before the last drying cylinder of the drying section, advantageously at the end of the drying section for trimming the fiber web such, that at least one trim strip is removed from at least one edge of the fiber web to trim the fiber web to a fullwidth defined by total width of customer rolls to be produced from the fiber web in the slitter-winder.

[0031] According to an advantageous feature the at least one trim cutting device is located at the end of the drying section, advantageously in the drying section at a location, where the fiber web is configured to run between two, following each other located drying cylinders or at a drying cylinder.

[0032] According to an advantageous feature the system comprises at least one pulper and/or a reject conveyor leading to the/a pulper for receiving the trim strip removed from the fiber web by the trim cutting device.

[0033] According to an advantageous feature the trim cutting device is a water jet cutting device, advantageously with high pressure water jet cutting nozzle, and on the opposite side of the fiber web in respect of the water jet cutting nozzle a suction pipe is arranged for removing from the fiber web detached matter during the cutting of the fiber web by the water jet cutting device to the pulper or to the reject conveyor leading to the pulper, which suction pipe has an away from the fiber web tapering form and/or its towards the fiber web located end has a trumpet-like form.

[0034] According to an advantageous aspect the trimming i.e. the cutting of the fiber web in the machine direction i.e. in longitudinal direction of the fiber web to the trim width defined by the total width of the customer rolls is performed before the reeling on the reel-up, advantageously in the drying section, of the fiber web production line. Thus, by the trimming a narrower fullwidth fiber web is provided.

[0035] According to an advantageous aspect the trim strips have a width of at least 150 mm, or even over 300 mm, more advantageously over 500 mm. Advantageously, the width of the trim strips is adjustable.

[0036] According to an advantageous aspect of the invention the width of the fullwidth fiber web at the reel-up is defined such, that the trim strips on the slitter-winder are desired and as required by the trimming system and mechanical limitations of the slitter-winder.

[0037] According to an advantageous aspect the trim width is controlled based on information received from the slitter-winder.

[0038] According to an advantageous aspect, the information of the required width of the fullwidth fiber web at the trim cutting is utilized for tension calculations of

the tension of the fiber web and based on the information of the required width of the fullwidth fiber web at the trim cutting the reeling parameters, or example nip load adjustment, torque values of center drives, are controlled.

[0039] Additionally according to an advantageous aspect the information of the width of fullwidth fiber web at the trim cutting is transmitted to calculations of drives of the slitter-winder.

[0040] According to an advantageous aspect of the invention the changing width of the fiber web is covered by movements of core chucks of the winding section of the slitter-winder and if needed extensions for the core chucks can be used.

[0041] According to an advantageous aspect the cut trim strips are removed to a pulper, advantageously to a pulper located below the last drying cylinder of the drying section, or to a reject conveyor leading to a pulper.

[0042] According to an advantageous embodiment the trimming i.e. the edge cutting of the fiber web is performed in the drying section of the fiber web production line at a location, where the fiber web runs between two, following each other located drying cylinders or at a drying cylinder or between last drying cylinder of the drying section and a guide roll following the last drying cylinder.

[0043] According to an advantageous aspect the trimming i.e. the edge cutting of the fiber web is performed by water jet cutting or by rotating blades or by laser cutting. Water jet cutting is advantageous in view of dust forming during the cutting as it does not cause dusting. Advantageously, water jet of the water jet cutting is a high pressure water jet, typically with pressure over 600 bar, advantageously over 1500 bar. The cleanliness is improved as pressure of the water jet increases.

[0044] According to an advantageous aspect of the invention the trimming is performed when the run of the fiber web is unsupported or supported.

[0045] According to an advantageous aspect threading of the fiber web is performed either as full width threading or as threading of a narrower, cut fiber web depending on concept of threading. For example, if threading is ropeless from the last drying cylinder or drive group, the threading can be performed with a narrower fiber web.

[0046] According to an advantageous aspect the fiber web is trimmed by cutting from least one edge of the fiber web in longitudinal direction of the fiber web a trim strip and the trim strip is removed from the system of producing of fiber webs at a different location in respect of location of the trimming after the trimming. Advantageously, the trim strip is guided to a pulper or to a reject conveyor leading to a pulper. Advantageously, the cutting is performed by a water-jet cutting device. This provides that no separate system for removing the trim strip is needed.

[0047] According to an advantageous aspect the fiber web is trimmed in the drying section by cutting at least one edge of the fiber web in longitudinal direction of the fiber web before or at a drying cylinder of the drying section such, that from the fiber web a trim strip is removed

and the trim strip is removed from the drying section at a different location in respect of location of the trimming. Advantageously, the trim strip is guided to a pulper or to a reject conveyor leading to a pulper. Advantageously, the trim strip is removed from the drying section at a location on other side of the drying cylinder, before or at which the trim strip is cut, preferably by doctoring. Thus, after cutting the trim strip is first guided over the drying cylinder, before or at which the trim strip is cut. Advantageously, the cutting is performed by a water-jet cutting device. This provides that no separate system for removing the trim strip is needed.

[0048] Advantageously, the trim strip is guided to a pulper or to a reject conveyor leading to a pulper. Advantageously, the cutting is performed by a water-jet cutting device. This provides that no separate system for removing the trim strip is needed.

[0049] By the invention and its advantageous features several benefits are achieved: There is no limitations to the maximum width of the trim strip as the trim strip is cut already before the reel-up, preferably before the last drying cylinder of the drying section, advantageously at the end of the drying section based on the required width of the customer rolls to be produced in the slitter-winder. The need of making extra fiber web trim rolls is eliminated or at least minimized. Also, due to the invention the trim strips can be re-used in the process. Additionally, even eliminating the edge trimming at the slitter-winder may be achieved. As the trimming is performed already before the last drying cylinder of the drying section, advantageously at the end of the drying section, the possible slack edges caused by the drying shrinkage are removed before the slitter-winder and thus the outermost customer rolls i.e. edge rolls produced by the slitter-winder are of good quality.

[0050] The exemplifying embodiments of the invention presented in this patent application are not to be interpreted to pose limitations to the applicability of the appended claims. The verb "to comprise" and its derivatives are used in this patent application as an open limitation that does not exclude the existence of also unrecited features. The features described hereinafter are mutually freely combinable unless explicitly stated otherwise.

Brief description of the drawings

[0051] In the following the invention is explained in detail with reference to the accompanying drawing to which the invention is not to be narrowly limited, in which

In figure 1 is shown schematically an example of the system and the method of producing of the fiber webs.

In figure 2 is shown schematically another example of the system and the method of producing of the fiber webs.

In figure 3 is shown schematically an example of a trim cutting device to be utilized in the system and the method of producing of the fiber webs.

Detailed description

[0052] During the course of the following description like numbers and signs will be used to identify like elements according to the different views which illustrate the invention and its advantageous examples. In the figure some repetitive reference signs have been omitted for clarity reasons.

[0053] In the example of figure 1 the production line of a fiber web product is shown very schematically and it is well understood by one skilled in the art that the actual production line for the fiber web product comprises several components, parts and devices which can be constructed in various ways known as such to one skilled in the art.

[0054] In the example of figure 1 the production line for fiber webs comprises a head box 10, a wire section (i.e. forming section) 20 and a press section 30 as well as a subsequent drying section 40 a reel-up 80 and a slitter-winder 90. The production line may also comprise a sizer 50 and a pre-calender 60 and a coating section 70. The production line may also comprise a calender and/or a roll packaging apparatus or a sheet cutter. After the sizer 50 drying equipment is typically located to dry the fiber web and also after the coating section 70 typically drying equipment is located to dry the fiber web before reeling the fiber web in the reel-up 80 to a parent roll. In production of the fiber webs from the head box 10 pulp is fed onto the wire section (i.e. forming section) 20, in which water is removed from the pulp by water removal means. In the press section 30 water is further removed by pressing the fiber web in press nips and/ or in shoe - or belt nips. In the subsequent drying section 40 the fiber web is dried, typically by contact drying by leading the fiber web to run in contact over heated surfaces of drying cylinders. In the example of the figure 1 after the drying section 40 in the sizer 50 sizing substance is applied onto the fiber web and thereafter the fiber web is typically drying by following drying equipment, which may comprise drying cylinders. Thereafter in the example of the figure 1 the fiber web is pre-calendered in the pre-calender 60 and at least one coating layer is applied onto the fiber web in the coating section 70. In the reel-up 80 the fiber web is reeled into the parent roll, which is unwound in an unwinder of the slitter-winder 90 and then slit into partial webs in a slitter, which are wound to customer rolls in the winder. The customer roll may be packed in a roll packaging machine. The fiber web may also be cut into sheets in a sheet cutter.

[0055] The fiber web production line comprises at least one trim cutting device 100 before the reel-up, preferably before the last drying cylinder of the drying section 80 for cutting the fiber web in longitudinal direction of the fiber web. The trim cutting device 100 is advantageously lo-

cated at the end of the forming section 20 and/or at the end of the drying section 40 and/or in connection with the possible drying equipment of the sizer 50 and/or of the coating section 70. Advantageously, the location of the trim cutting device is such, that no supporting devices for the run of the fiber web at the cutting location is needed as tension of the fiber web W keeps the fiber web W at the cutting location supported. The trim cutting device 100 is advantageously a water jet cutting device or a cutting device comprising rotating blades or a laser cutting device. The trim cutting device 100 is positioned to a beginning point in width direction of the fiber web such, that trim strip of required width is provided to set the width of the fiber web to correspond to that required by the set of the customer rolls to be produced in the slitter-winder.

[0056] The trim cutting device 100 performs the trimming i.e. the edge cutting of the fiber web to the trim width defined by the total width of the customer rolls to be slitted and wound in the slitter-winder 90 and the trimming is performed before the reeling on the reel-up 80, advantageously in the drying section 40, of the fiber web production line. The trim width is controlled based on information 105 of the required width for the set of the customer rolls to be produced in the slitter-winder 90. The cut trim strip is cut in transverse direction after the longitudinal cutting. The cut trim strip is removed to a pulper 115 or to a reject conveyor leading to a pulper 115. Advantageously, the cut trim strip is removed directly to the pulper or to the reject conveyor by a doctor and no removal pipes or like equipment are needed.

[0057] In figure 2 is schematically shown end part of the drying section 40 comprising drying cylinders 41, 42 located in two rows. The fiber web W runs alternating around one drying cylinder 41 in one row and around another cylinder 42 in the other row. As shown in the example of figure 2 advantageously the trimming i.e. the edge cutting of the fiber web by the trim cutting device 100 is performed in the drying section 40 of the fiber web production line at a location, where the fiber web runs between two, following each other located drying cylinders 41, 42 (fig. 2) or at a drying cylinder 42.

[0058] In figure 3 an example of a trim cutting device 100 to be utilized in the system and the method of producing of the fiber webs W. The trim cutting device comprises a water jet cutting nozzle 130 creating a high pressure water jet 135 by which the fiber web W is cut. The water jet cutting nozzle 130 may also comprise at least one air blower 137 creating an air shield around the high pressure water jet 135 to avoid disturbances in the water jet 135. On the opposite side of the fiber web W in respect of the water jet cutting nozzle a suction pipe 120 is arranged for removing from the fiber web W detached matter, such as cuttings, shearings, fibers, excessive water, in the cutting by the water jet 135. The suction pipe 120 has an away from the fiber web W tapering form and its towards the fiber web W located end 125 has a trumpet-like form. At the end 125 towards the fiber web W of the suction pipe 120 inside the suction pipe 120 may be ar-

ranged at least one water flushing means 127 to enhance the removal of the fiber web during the cutting detached matter and to keep the suction pipe 120 clean. In some cases there might be along the run of the fiber web W at least one supporting means 140 for supporting the run of the fiber web W and for keeping the distance between the fiber web W and the end 125 of the suction pipe 120 steady and as desired. Advantageously, the location of the trim cutting device is such, that no supporting devices for the run of the fiber web at the cutting location is needed as tension of the fiber web W keeps the fiber web W at the cutting location supported. The trim cutting device 100 is positioned to a beginning point in width direction of the fiber web such, that trim strip of required width is provided to set the width of the fiber web to correspond to that required by the set of the customer rolls to be produced in the slitter-winder. Thus, the water jet cutting device 130 and the suction pipe 120 are configured to be correspondingly movable.

[0059] In the description in the foregoing, although some functions have been described with reference to certain features and examples, those functions may be performable by other features and examples whether described or not. Although features have been described with reference to the certain examples, those features may also be present in other examples whether described or not.

[0060] Above only some advantageous examples of the invention have been described to which examples the invention is not to be narrowly limited, and many modifications and alterations are possible within the invention.

Claims

1. Method of producing of fiber webs, in which method pulp is fed the from a head box (10) to a forming section (20), in which water is removed from the pulp by water removal means and a fiber web is formed, in which water is further removed by pressing the fiber web in a press section (30), in which in a subsequent drying section (40) the fiber web is dried, in which the fiber web is reeled into a parent roll in a reel-up (80), in which the parent roll is unwound in an unwinder of a slitter-winder (90) and then slit into partial fiber webs in a slitter of the slitter-winder (90), which partial fiber webs are wound to customer rolls in a winder of the slitter winder (90), in which method the fiber web is trimmed by the cutting of at least one trim strip to a fullwidth defined by total width of the customer rolls to be produced in the slitter-winder (90), **characterized in that** in the method the fiber web is trimmed before the reeling on the reel-up in the drying section by cutting at least one edge of the fiber web in longitudinal direction of the fiber web before or at a drying cylinder of the drying section (40) by at least one trim cutting device (100), in which

trimming at least one trim strip is removed from at least one edge of the fiber web and the trim strip is removed from the drying section (40) at a location on other side of the drying cylinder, before or at which the trim strip is cut, preferably by doctoring, and that the trim strip has a width of at least 300 mm.

2. Method according to claim 1, **characterized in that** the trim strip has a width of at least 500 mm.
3. Method according claim 1 or 2, **characterized in that** the width of the trim strip is adjustable.
4. Method according to any of previous claims, **characterized in that** in the method the fiber web is trimmed at the end of the drying section (40).
5. Method according to any of previous claims, **characterized in that** the trim strip is removed to a pulper (115) or to a reject conveyor leading to a pulper (115).
6. Method according to any of previous claims, **characterized in that** the trimming of the fiber web is performed by water jet cutting, advantageously by high pressure water jet cutting, typically with pressure over 600 bar, advantageously over 1500 bar.
7. System of producing of fiber webs, which system comprises a head box (10), a forming section (20), a press section (30), a drying section (40), a reel-up (80) and a slitter-winder (90), which system comprises at least one trim cutting device (100) to trim the fiber web to a fullwidth defined by total width of customer rolls to be produced from the fiber web (W) in the slitter-winder (90), **characterized in that** the at least one trim cutting device (100) is located before the reel-up (80), preferably before the last drying cylinder of the drying section (40), before or at a drying cylinder of the drying section (40) for trimming the fiber web and that at least one trim strip with a width of at least 300 mm is removed from at least one edge of the fiber web at a location on other side of the drying cylinder, before or at which the trim strip is cut, preferably by doctoring.
8. System according to claim 7, **characterized in that** the trim strip has a width of at least 500 mm.
9. System according to claim 7 or 8, **characterized in that** the at least one trim cutting device (100) is located at the end of the drying section (40), advantageously in the drying section (40) at a location, where the fiber web is configured to run between two, following each other located drying cylinders (41, 42) or at a drying cylinder (42).
10. System according to any of claims 7-9, **characterized in that** the system comprises at least one pulper

(115) and/or a reject conveyor leading to the/a pulper (115) for receiving the trim strip removed from the fiber web by the trim cutting device (100).

11. System according to any of claims 7-10, **characterized in that** the trim cutting device (100) is a water jet cutting device, advantageously a high pressure water jet cutting nozzle (130), and that on the opposite side of the fiber web (W) in respect of the water jet cutting nozzle (130) a suction pipe (120) is arranged for removing from the fiber web (W) detached matter during the cutting of the fiber web by the water jet cutting device to the pulper (115) or to the reject conveyor leading to the pulper (115), which suction pipe (120) has an away from the fiber web (W) tapering form and /or its towards the fiber web (W) located end (125) has a trumpet-like form.

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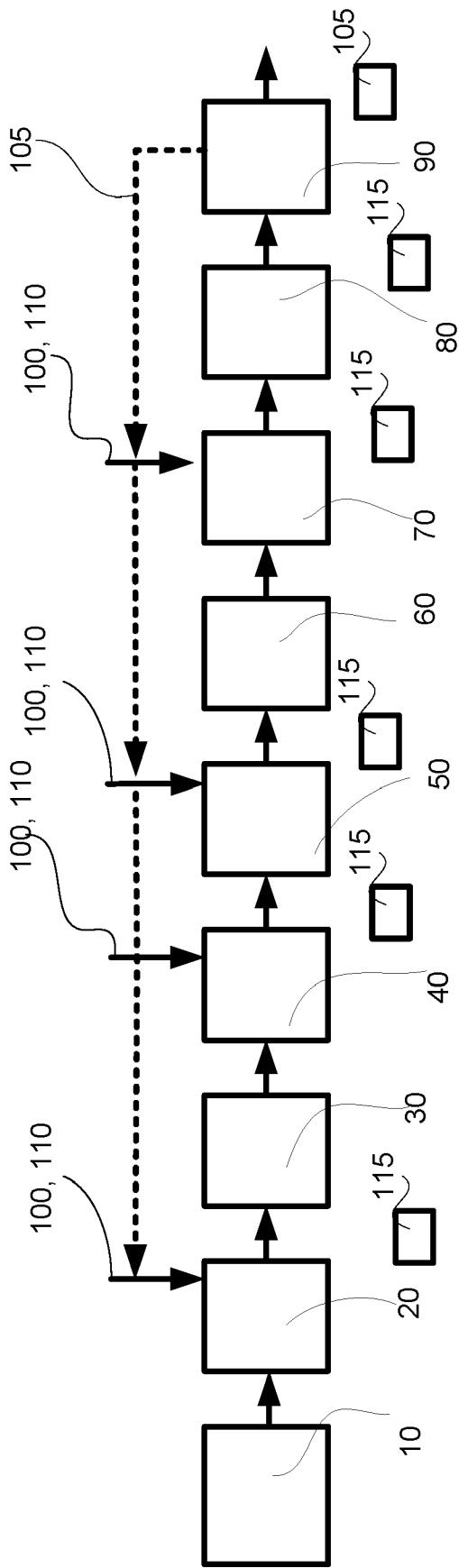


Fig. 1

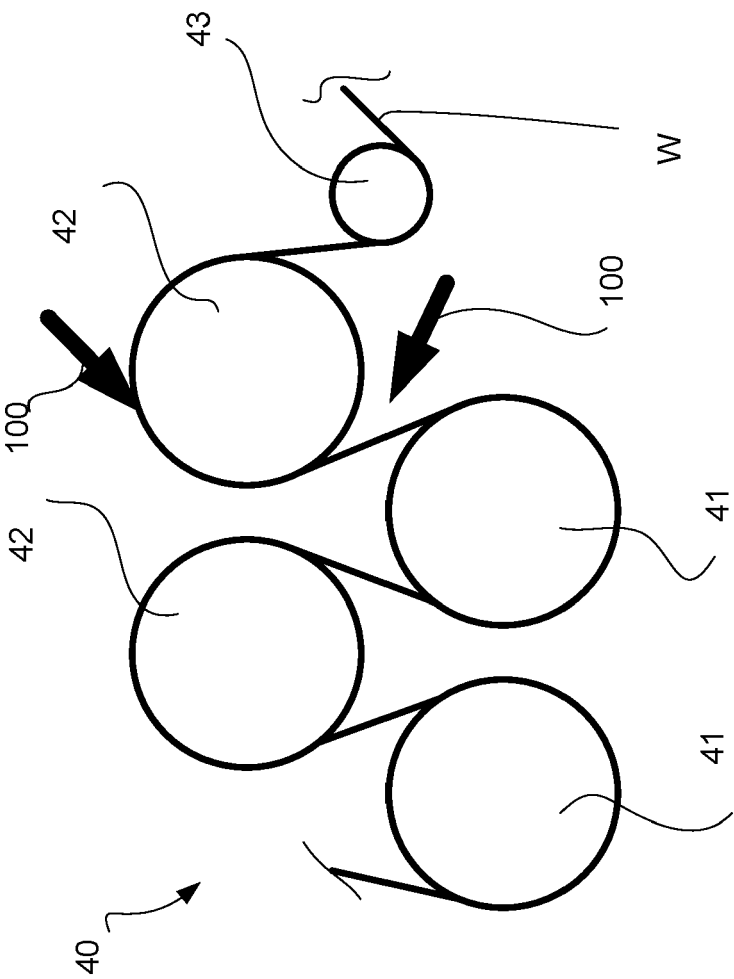


Fig. 2

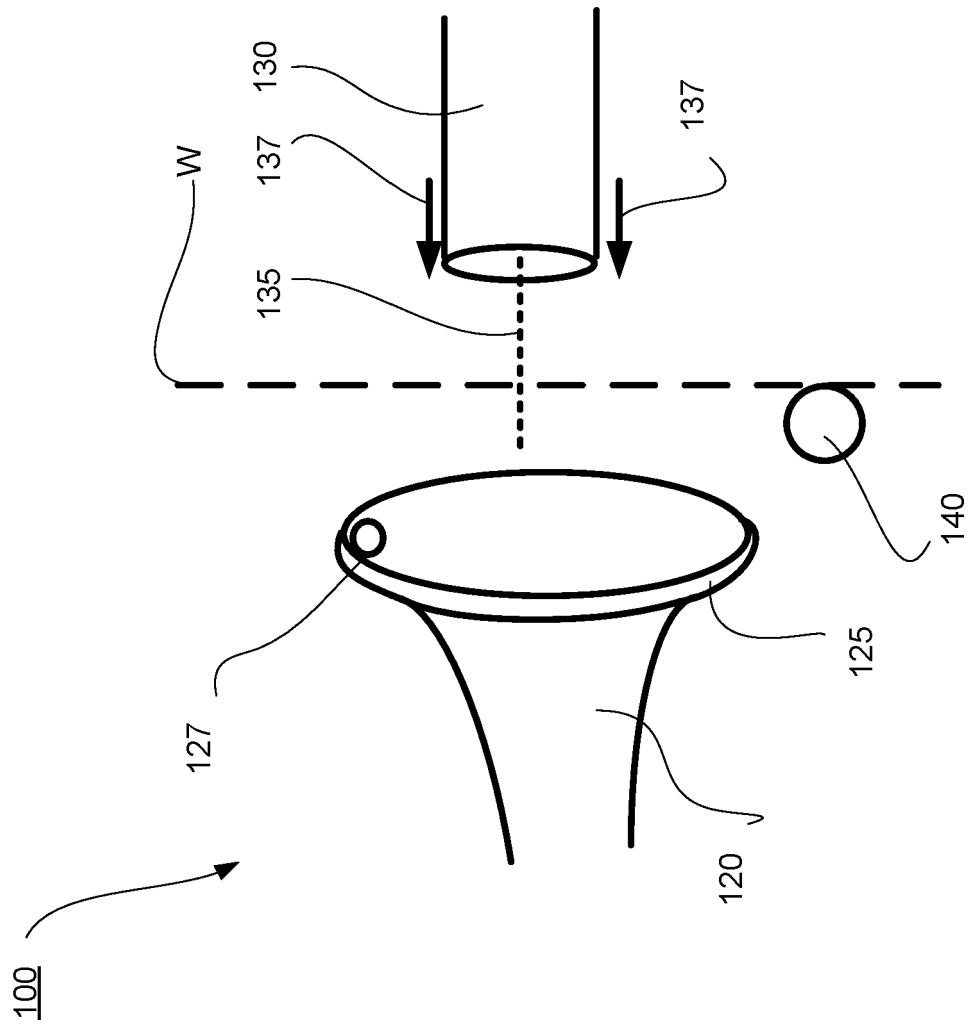


Fig. 3



EUROPEAN SEARCH REPORT

Application Number

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EPO FORM 1503 03.82 (P04C01)

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			TECHNICAL FIELDS SEARCHED (IPC)
			D21F D21J B26F B26D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 July 2023	Examiner Swiderski, Piotr
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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ON EUROPEAN PATENT APPLICATION NO.

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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11-07-2023

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