



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
05.07.2017 Bulletin 2017/27

(51) Int Cl.:
D21F 1/08 (2006.01) **B65H 29/00** (2006.01)
D21F 7/00 (2006.01) **D21F 9/00** (2006.01)
D21G 9/00 (2006.01)

(21) Application number: **16202123.2**

(22) Date of filing: **05.12.2016**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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(30) Priority: **28.12.2015 FI 20156012**

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(54) **METHOD OF PRODUCING PULP BALES AND ARRANGEMENT FOR CONTROLLING THE BALE WEIGHT PROFILE IN A PULP DRYING MACHINE**

(57) Invention relates to method of producing pulp bales (1-6) by forming (12) a pulp web (W), drying the formed pulp web (14,16), slitting and cutting (18) the pulp web into sheets and forming number of parallel bales (1-6) of pulp sheets. Basis weight of the web is measured (28) on-line prior to slitting the web, a calculated weight of the bale is determined, and each one of the formed

bales is weighed in a scale (30) and the calculated weight is corrected by the scale weighted weight of the bale, thus determining a corrected weight of the bale, and that the corrected weight value of the bale is used for controlling (26) the process of producing pulp bales. Invention relates also to arrangement for controlling bale weight profile in a pulp drying machine.

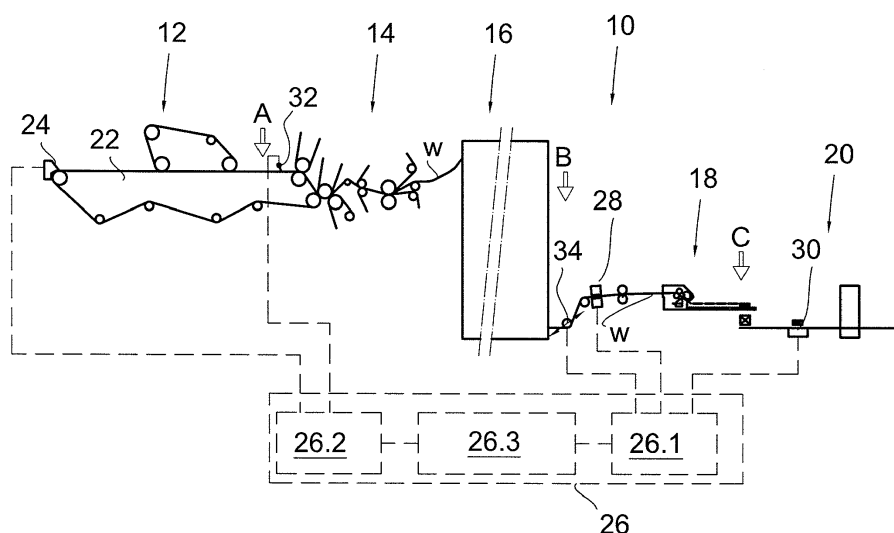


Fig. 1

Description

Technical field

[0001] The present invention relates to method of producing pulp bales according to the preamble of claim 1.

[0002] Invention relates also to arrangement for controlling bale weight profile in a pulp drying machine comprising a forming section, press section, drying section, cutter-layboy and a baling section, in which arrangement a control system is provided for controlling the operation of the pulp drying machine according to the preamble of claim 8.

Background art

[0003] A pulp mill is a manufacturing facility that converts wood chips or other plant fibre source into a mass of fibers. Pulp mills are not necessarily integrated with papermaking operations, so such mills produce market pulp and sell it to papermaking facilities. Market pulp is dried and then cut into sheets that are stacked into bales so they can be transported. The pulp sheets are commonly pressed into bales, having a weight which may be e.g. 200-250 kg.

[0004] A pulp drying machine comprises typically a forming section, into which the stock to be dried is delivered by means of a headbox. After the forming section there is a press section, a dryer section, cutting section and bale formation and finally baling system. In the cutting section the web is slit in its machine direction into a number of partial webs which in turn are cut in cross direction into sheets. The sheets are piled into bales which have a target weight. Automatic bale stocks in the pulp mills requires that the weights of individual bales are not to differ in excess compared to each other. Nowadays correction of bale weight is handled manually (by removing or adding sheets).

[0005] An object of the invention is to provide a method of producing pulp bales by means of which in which the production quality performance is considerably improved compared to the prior art solutions.

Disclosure of the Invention

[0006] The objects of the invention can be met substantially as is disclosed in the independent claim and in the other claims describing more details of different embodiments of the invention.

[0007] According to an embodiment of the invention pulp bales are produced by forming a pulp web, drying the formed pulp web, slitting and cutting the pulp web into sheets and forming number of parallel bales of pulp sheets. In the method basis weight of the web is measured on-line prior to slitting the web, a calculated weight of the bale is determined, and each one of the formed bales is weighed in a scale and the calculated weight is corrected by the scale weighted weight of the bale, thus

determining a corrected weight of the bale, and that the corrected weight value of the bale is used for controlling the process of producing pulp bales.

[0008] This way the accuracy of the bale table is increased, basis weight from online measurement calibrated with a scale at the baling station. Invention makes possible automatic bale handling without any manual control. Invention reduces required amount of labour in the pulp bale handling.

[0009] Advantageously a target value for the weight is set for each bale and the corrected weight value of the bale is used for controlling the process of producing pulp bales in order to meet the target value.

[0010] According to an embodiment of the invention the corrected weight is determined for each parallel bale resulting in cross directional corrected weight values and the web is formed such that each cross directional corrected weight is used for controlling the process of forming and/or drying of the pulp at the cross directional location corresponding to respective bale.

[0011] According to an embodiment of the invention the process of forming of the pulp bales comprises controlling the cross directional basis weight of the pulp web by a headbox by controlling the cross directional feeding of dilution water for controlling the cross directional bale weight profile.

[0012] According to an embodiment of the invention the process of forming of the pulp comprises controlling the cross directional basis weight of the pulp web by a headbox of a forming section such that each cross directional corrected weight is used for controlling the cross directional basis weight in the headbox at the cross directional location of the respective bale.

[0013] According to an embodiment of the invention the cross directional basis weight in the headbox is controlled by feeding dilution water to those cross sectional locations where the corrected weight value is different than cross directional target value.

[0014] According to an embodiment of the invention the corrected weight is determined for a side bale of the number of parallel bales and a reference weight value based on the weight of the middle bales between both side bales is determined and in case the corrected weight of the side bale deviates more than accepted from the reference weight, the cross directional position a web edge is changed at the edge of the web on the side of said side bale.

[0015] According to an embodiment of the invention the cross directional position of the web edge is controlled at the forming section by controlling the cross directional position of an edge trim jet nozzle.

[0016] According to an embodiment of the invention the width of the web is determined before slitting of the web and the cross directional position of the web edge is controlled at the forming section in order to meet a target value of the web width before slitting of the web.

[0017] According to an embodiment of the invention the cross directional position a web edge is changed to-

wards the opposite edge at the first edge of the web and the cross directional position a web edge is changed away from the opposite edge at the second edge of the web causing a lateral shift of the web at the forming section and, guiding the web before slitting such that the lateral position is compatible with the cutter-layboy.

[0018] According to an embodiment of the invention the process of producing of pulp bales for providing desired bale weight profile comprises a any combination of

- a) controlling the cross directional basis weight of the pulp web by a headbox of a forming section and each cross directional corrected weight is used for controlling the cross directional basis weight in the headbox at the cross directional location of the respective bale,
- b) determining the corrected weight for a side bale of the number of parallel bales and determining a reference weight value based on the weight of the middle bales between both side bales and in case the corrected weight of the side base deviates more than accepted from the reference weight changing the cross directional position a web edge on the side of said side bale, and
- c) determining the corrected weight for a side bale of the number of parallel bales and determining a reference weight value based on the weight of the middle bales between both side bales and in case the corrected weight of the side base deviates more than accepted from the reference weight, the cross directional position a web edge is changed at the edge of the web on the side of said side bale.

[0019] According to an embodiment of the invention the pulp drying machine comprises an arrangement for controlling bale weight profile, in which arrangement a control system is provided for controlling the operation of the pulp drying machine. The control system comprises an input unit adapted to communicate with an on-line measurement scanner arranged in the machine and with a scale of the baling section for receiving basis weight measurement data from the on-line scanner and for receiving a scale weighted weight data of a bale from the scale. The control system further comprises an output unit adapted to communicate with the pulp drying machine to transmit control data to the machine.

[0020] Additionally the control system comprises a data processing unit, which comprises executable instructions to determine a corrected weight of the bale by calculating a weight of the bale from the basis weight measurement data received from the on-line scanner and correcting the calculated weight of the bale scale weighted weight of the bale received from the scale.

[0021] The data processing unit comprises advantageously executable instructions to determine the corrected weight for each parallel bale resulting in cross directional corrected weight values, and the data processing unit comprises executable instruction using each cross

directional corrected weight for controlling the process of forming and/or drying of the pulp at the cross directional location corresponding to respective bale.

[0022] According to an embodiment of the invention the data processing unit comprises executable instructions to control the cross directional basis weight of the pulp web by a headbox of a forming section by feeding dilution water to those cross sectional locations where the corrected weight value is different, advantageously higher than cross directional target value, and executable instructions to use each cross directional corrected weight for controlling the cross directional basis weight in the headbox at the cross directional location of the respective bale.

[0023] According to an embodiment of the invention the data processing unit comprises executable instructions to determine the corrected weight for a side bale of the number of parallel bales and further determine a reference weight value based on the weight of the middle bales between both side bales and instructions to change the cross directional position a web edge at the edge of the web on the side of said side bale in case the determined corrected weight of the side base deviates more than accepted from the reference weight.

[0024] According to another embodiment of the invention the data processing unit comprises executable instructions to control the cross directional position of the web edge at the forming section by controlling the cross directional position of an edge trim jet nozzle.

[0025] According to another embodiment of the invention the data processing unit comprises executable instructions to determine the width of the web before slitting of the web and controlling the cross directional position of the web edge at the forming section in order to meet a target value of the web width before slitting of the web.

[0026] According to still another embodiment of the invention the data processing unit comprises executable instructions to change the cross directional position a web edge towards the opposite edge at the first edge of the web and change the cross directional position a web edge away from the opposite edge at the second edge of the web causing a lateral shift of the web at the forming section and, to guide the web before slitting such that the lateral position is compatible with the cutter-layboy.

[0027] Advantageously the data processing unit comprises executable instructions to guide the web before slitting by controlling a guide roll operation such that the lateral position is compatible with the cutter-layboy.

[0028] The exemplary 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" is used in this patent application as an open limitation that does not exclude the existence of also unrecited features. The term "machine direction" refers to general direction of the run of the web from the wet end towards the dry end of the production line. The term "cross direction" refers to direction perpendicular to the machine direction in the

general plane of the web i.e. direction from one side to the other side of the machine. In this context the weight means total weight of the bale including the weight of the dry matter and water in the bale, unless otherwise specifically mentioned. The features recited in depending claims are mutually freely combinable unless otherwise explicitly stated. The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims.

Brief Description of Drawings

[0029] In the following, the invention will be described with reference to the accompanying exemplary, schematic drawings, in which

Figure 1 illustrates a pulp drying machine to the method according to the invention is applied,

Figure 2 illustrates a top view of the web during the production according to an embodiment of the invention, and

Figure 3 illustrates a top view of the web during the production according to another embodiment of the invention.

Detailed Description of Drawings

[0030] Figure 1 depicts schematically a pulp drying machine 10. The pulp drying machine 10 comprises follow sections: a forming section 12, press section 14 drying section 16, cutter-layboy 18 and baling section 20. Pulp, particularly a market pulp is produced such that water suspended pulp is introduced to a former 22 from a head-box 24 in the forming section 12 for forming the pulp web. Water is removed from the pulp suspension and a web is formed. The web is guided to the press section 14 and further to the drying section 16 to dry the pulp and remove excess water from the web. Typically the water content of the dried market pulp is about 10% of the dry weight of the pulp.

[0031] The dried web is guided to the cutter-layboy 18, where the web is slit in machine direction into partial webs and the partial webs are cut in cross direction into sheets. The sheets are stacked into bales which bales are pressed and usually wrapped for transportation in the baling section 20.

[0032] In the process of forming the pulp into bales, the bales are formed from side by side running successive sheets of the web in such a manner that a number of bales are formed concurrently. This way there are certain cross directional ranges in the web which will form sheets of number of parallel bales of pulp sheet. One set of parallel bales is formed concurrently and possible weight differences of the bales are ruled by possible variations in the cross directional basis weight of the web. Depending on the mill architecture, there can be different types of conveyors (swing conveyor, transport conveyor, scale conveyor) between the cutter and bale press. In

the last conveyor before the bale press, each bale is weighed, and the final verification of the total mill production takes place here.

[0033] In the figure 1 the arrows A, B and C refer to the schematic top views of the web shown in figures 2 and 3 representing the positions of forming section A, dried web B and bale formation C in the machine direction from left to the right in the figures. The pulp drying machine 10 is provided with a control system 26, which may also be denoted as quality control system and/or bale quality system. It may be integrated or distributed computer system. In the production there is a target value set for the weight of each bale. In this context the weight means total weight of the bale including the weight of the dry matter and water in the bale, unless otherwise specifically mentioned. The target value may be used in control system for various control processes in forming of pulp web as well as forming the bales from the web sheets. The pulp drying machine is also provided with an on-line measurement scanner 28 which is arranged to measure at least a basis weight of the running web in a traversing manner. This way a cross directional profile of the web's basis weight may be provided as on-line measurement. The scanner 28 is arranged in data transmission connection with the control system 26 such that the measurements of the scanner 28 are made available to the control system 26 for use in controlling purposes. The scanner 28 is positioned before the cutter-layboy 18 and after the drying cabinet 16, which may be for example of air born type.

[0034] The control system 26 comprises an input unit 26.1 adapted to communicate with an on-line measurement scanner 28 such that basis weight measurement data is transmitted from the on-line scanner 28 to the control system. The input unit 26.1. is also adapted to communicate which a scale 30 of the baling section 20 for receiving a scale weighted weight data of a bale from the scale 30.

[0035] The control system 26 comprises also an output unit 26.2 adapted to communicate with the pulp drying machine to transmit control data to the machine. There is also a data processing unit 26.3 provided in the control system 26. The data processing unit 26.3 comprises executable instructions to determine a corrected weight of the bale by calculating a weight of the bale from the basis weight measurement data received from the on-line scanner 28 and correcting the calculated weight of the bale scale weighted weight of the bale received from the scale 30.

[0036] As referred to previously the pulp drying machine 10, particularly its baling section 20, is provided with the scale 30 by mean of which the most accurate weight of the bale is measured. The control system 26 is in data transmission connection with the scale 30 such that the measurements of the scale 30 are made available to the control system 30 for use in controlling purposes.

[0037] In the method according to an embodiment of

the invention the basis weight is measured on-line 28 from dried, but preferably still full width web W. Next the basis weight is used for calculating a so called calculated weight of each one of the parallel bale formed. The calculated weight is determined by making use of the measured basis weight, dimensions of a single sheet and number of sheets in the bale, being a product of the factors. Next the calculated weight is corrected by the scale weighted weight of the bale. In practise the scale weighted weight of the bale is not the weight of the freshly formed bale or the bale being currently formed but a weight of previously formed bale or a reference value, such as a moving average of the previously formed bales. Advantageously the scale weighted weight is used for providing a correction factor which is used to correct the calculated weight of the bale. As is depicted in the figure 2 the parallel bales 1 - 6 are weighted in the scale 30 one after the other and therefore it is possible to assign a correction factor for each parallel bale separately. It other words it is possible to define the correction factors separately for each cross directional range of the web belonging to area of respective formed bale. This way each bale formation in cross direction may have dedicated correction factor. Now, according to the embodiment of the invention the corrected weight of the bale is used for controlling the process of forming the pulp into bales in order to meet the target value and provided desired bale weight profile. This way the corrected weight determined for each parallel bale results in cross directional corrected weight values and the web is formed and the process is controlled such that each cross directional corrected weight is used for controlling the process of forming of the pulp at the cross directional location corresponding to respective bale.

[0038] In order to operate the pulp drying machine 10 as desired the processing unit 26.3 comprises executable instructions to determine the corrected weight for each parallel bale 1-6 resulting in cross directional corrected weight values, and the data processing unit 26.3 further comprises executable instruction using each cross directional corrected weight for controlling the process of forming and/or drying of the pulp at the cross directional location corresponding to respective bale.

[0039] In general the desired target value for the weight of the bales may be interpreted as desired cross directional bale weight profile, and there are certain schemes of operating the pulp drying machine to meet the desired cross directional bale weight profile.

[0040] In the following the advantageous schemes of using the corrected weight of the bale in controlling the process will be described.

1st Scheme

[0041] According to an embodiment of the invention the headbox 24 is a so called dilution headbox. The dilution headbox is provided with means 25 for controlling the cross-directional basis weight profile of the pulp stock

flow discharged from the headbox. For practical embodiment of dilution headbox, a reference is made to e.g. to EP0635599 A1, where profile adjustment is implemented by feeding dilution water to those points of the web formation where the weight is different, advantageously higher than average via, e.g. manifold channels of the turbulence generator of the headbox. The headbox 24, and particularly the means for controlling the dilution effect, is arranged in data transmission communication with the control system 26 such that the headbox is under control of the control system 30 to meet the desired cross directional bale weight profile. This way the cross directional basis weight of the pulp web is controlled by a headbox 24 by controlling the cross directional feeding of dilution water for resulting in desired cross directional bale weight profile.

[0042] In the 1st scheme the data processing unit 26.3 comprises executable instructions to control the cross directional basis weight of the pulp web by a headbox 24 of a forming section by feeding dilution water to those cross sectional locations where the corrected weight value is different, advantageously higher than cross directional target value, and also executable instructions to use each cross directional corrected weight for controlling the cross directional basis weight in the headbox 24 at the cross directional location of the respective bale 1-6.

[0043] Now, the individual corrected bale weight is checked against a target value and since the cross directional range - or width area - of the web, of which the bale is formed is known, in the method the cross directional basis weight is controlled in the headbox 24 by making use of the dilution control of the headbox. This way the bale weight profile is effected by controlling the dilution profile in the headbox 24. This may, in practise, mean that dry weight profile of the web is intentionally allowed to decline within a predetermine range in favour providing more even bale weight profile, i.e. a so called wet weight profile.

[0044] This way each cross directional corrected bale weight is used for controlling the cross directional basis weight in the headbox at the cross directional location of the respective bale to provide the desired weight profile. Advantageously the cross directional basis weight in the headbox is controlled by feeding dilution water to those cross sectional locations where the corrected weight value is different, advantageously higher than cross directional target value.

[0045] By means of the 1st scheme it is possible to control the bale weight profile effecting on each bale of the set 1 - 6, but particularly the scheme is suitable for controlling the weight of the middle bales 2 - 5 of the set.

2nd Scheme

[0046] The 2nd scheme is subjected mainly to the controlling the weight of the end bales 1, 6 of the set of bales 1 - 6 formed from the width of the web, i.e. the outermost bales. This is explained with the reference to figures 1

and 2. According to an embodiment of the invention the forming section 12 is provided with an edge trim nozzle 32 preferably at both sides of the forming section. The edge trim nozzles 32 are connected to or are provided with means for changing the cutting positions in width-wise. The edge trim nozzle is arranged to cut the edge W' of the web W away by means of a high pressure water jet. This way the distance between the front and back side nozzles 32 defines the width L1 of the web at the forming section which is illustrated in the figure 2. The edge trim nozzles 32 are arranged in data transmission communication with the control system 26 such that the operation of the edge trim nozzles, and particularly the cross directional positions of the nozzles, is controllable by the control system 30 for the purposes and in a manner explained in the following.

[0047] Now, the end bales 1, 6 of the set of bales will have a width defined by the position of the edge trim nozzles 32 and the cross directional shrinkage of the web during the drying process. The width of the web W after the drying section 16 is illustrated in the figure 2 with the reference L2. The on-line measurement scanner 28 is arranged also to measure the width L2 of the web after the drying section 16. The information of the width L2 is made available to the control system 26 for controlling the positions of the edge trim nozzles 32. According to an embodiment of the invention the measure width L2 is compared to a target value of the width. The target value of the width is determined based on the demands set for forming the bales in the cutter-layboy 18. Since the cross directional shrinkage of the web during the drying process may vary according to changing circumstances such as composition of the pulp the positions of the edge trim nozzles 32 are substantially continuously controlled to result in the width L2 of the dried web within a set target range.

[0048] Actual weight of the bale is dependent of the sheet area and therefore it is possible to control the actual weight of the edge bales 1,6 by controlling the widths of the bales by controlling the positions of the edge trim nozzles 32 in the forming section 12. It is beneficial to trim the edges of the web at the forming section 12 because at this stage the trims may be easily handled e.g. by pulped again for recycle back to the headbox and this way also usage of excess drying energy is avoided.

[0049] In the method the corrected weight is determined for a side bale 1,6 of the number of parallel bales i.e. the set 1 - 6 and a reference weight value based on the weight of the middle bales 2 - 5 between both side bales is determined. In case the corrected weight of the side base deviates more than accepted from the reference weight, the cross directional position a web edge is changed at the edge of the web on the side of said side bale. This is accomplished advantageously by changing the cross directional position of an edge trim jet nozzle 32. It should be understood that there are practical limits for the width of the edge bales but changing the position of the trim jet nozzle 32 is very effective. As

an example, if the total weight of a bale is 250 kg and the bale contains 400 sheets, then one sheet weighs 625 g. If the basis weight is 800 g/m² then the dimensions of a square sheet are about 884mm x 884mm. Assume that the trim jet nozzle 32 is moved such that the width of the dry sheet is 5 mm narrower. This result in a decrease of about 1 kg in the bale. Thus controlling continuously the positions of the trim jet nozzles 32 it is possible to obtain side bales of the desired weight.

[0050] The data processing unit 26.3 comprises executable instructions to determine the corrected weight for a side bale 1,6 of the number of parallel bales 1-6 and further determine a reference weight value based on the weight of the middle bales 2-5 between both side bales and instructions to change the cross directional position a web edge at the edge of the web on the side of said side bale in case the determined corrected weight of the side base deviates more than accepted from the reference weight. Advantageously the data processing unit 26.3 comprises executable instructions to control the cross directional position of the web edge at the forming section by controlling the cross directional position of an edge trim jet nozzle.

[0051] According to an embodiment of the invention the data processing unit 26.3 further comprises executable instructions to determine the width of the web before slitting of the web and controlling the cross directional position of the web edge at the forming section in order to meet a target value of the web width before slitting of the web.

[0052] According to an embodiment of the invention the 2nd scheme may be employed such that only the shrinkage is monitored, ie the difference of the web edges before and after the drying section 16. In case the basis weight is stable in the area of the side bales 1, 6 it is enough that the width of the side bales is maintained constant or within certain ranges.

3rd Scheme

[0053] The execution of the 3rd scheme requires that the pulp drying machine 10 is provided with a means for guiding the run of the web in cross direction, such as a web guiding roll 34 or a guiding roll system. The machine is also provided with a sensor to monitor the web position for cross directional tracking. The lateral position of the web can be changed by suitably inclined roll or rolls. The 3rd scheme present a possibility of select the usable cross directional section of the web of the bales in order have the bale weight profile as even as possible. As can be seen in the figure 3 the trim jet nozzles 32 are positioned such that from the first edge only a minimum trim is cut while on the opposite edge, the second edge a greater trim is cut away. Now the web is laterally shifted towards the first edge. After the drying section 16 the web is guided by the guide roll(s) 34 back to the position required by or compatible with the cutter-layboy 18 settings. In any case the width L1 is controlled such that the dried

web width L2 is as needed in the cutter-layboy for bale formation.

[0054] The 3rd scheme is advantageous for example in case when there is a local deviation of weight near the edge of the web and the by shifting the used web area in cross direction leaves the deviation range outside the used web area and is cut away by the trim jet nozzles 32.

[0055] In order to accomplish the operation of the 3rd scheme the data processing unit 26.3 comprises executable instructions to change the cross directional position a web edge towards the opposite edge at the first edge of the web and change the cross directional position a web edge away from the opposite edge at the second edge of the web causing a lateral shift of the web at the forming section and, to guide the web before slitting such that the lateral position is compatible with the cutter-layboy 18. Advantageously the data processing unit 26.3 comprises executable instructions to guide the web before slitting by controlling a guide roll 34 operation such that the lateral position is compatible with the cutter-layboy 18.

[0056] Depending on the case any combination of the schemes 1 to 3 may be used to improve the bale weight profile. Best controllability and results are obtained by using all the schemes concurrently.

[0057] While the invention has been described herein by way of examples in connection with what are, at present, considered to be the most preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments, but is intended to cover various combinations or modifications of its features, and several other applications included within the scope of the invention, as defined in the appended claims. The details mentioned in connection with any embodiment above may be used in connection with another embodiment when such combination is technically feasible.

[0058] Invention relates to method of producing pulp bales (1-6) by forming (12) a pulp web (W), drying the formed pulp web (14, 16), slitting and cutting (18) the pulp web into sheets and forming number of parallel bales (1-6) of pulp sheets. Basis weight of the web is measured (28) on-line prior to slitting the web, a calculated weight of the bale is determined, and each one of the formed bales is weighed in a scale (30) and the calculated weight is corrected by the scale weighted weight of the bale, thus determining a corrected weight of the bale, and that the corrected weight value of the bale is used for controlling (26) the process of producing pulp bales. Invention relates also to arrangement for controlling bale weight profile in a pulp drying machine.

Claims

1. Method of producing pulp bales (1-6) by forming (12) a pulp web (W), drying the formed pulp web (14, 16), slitting and cutting (18) the pulp web into sheets and

forming number of parallel bales (1-6) of pulp sheets, **characterized in that** basis weight of the web is measured (28) on-line prior to slitting the web, a calculated weight of the bale is determined, and each one of the formed bales is weighed in a scale (30) and the calculated weight is corrected by the scale weighted weight of the bale, thus determining a corrected weight of the bale, and that the corrected weight value of the bale is used for controlling (26) the process of producing pulp bales.

2. Method of producing pulp bales according to claim 1, **characterized in that** the corrected weight is determined for each parallel bale (1-6) resulting in cross directional corrected weight values and the web is formed such that each cross directional corrected weight is used for controlling the process of forming and/or drying of the pulp at the cross directional location corresponding to respective bale.
3. Method of producing pulp bales according to claim 2, **characterized in that** the process of forming of the pulp comprises controlling the cross directional basis weight of the pulp web by a headbox (24) of a forming section by controlling the cross directional feeding of dilution water for controlling the cross directional bale weight profile.
4. Method of producing pulp bales according to claim 1, **characterized in that** the corrected weight is determined for a side bale of the number of parallel bales (1-6) and a reference weight value based on the weight of the middle bales between both side bales is determined and in case the corrected weight of the side bale deviates more than accepted from the reference weight, the cross directional position a web edge is changed at the edge of the web on the side of said side bale (1,6).
5. Method of producing pulp bales according to claim 4, **characterized in that** the cross directional position of the web edge is controlled at the forming section by controlling the cross directional position of an edge trim jet nozzle.
6. Method of producing pulp bales according to claim 4, **characterized in that** the width of the web is determined before slitting of the web and the cross directional position of the web edge is controlled at the forming section in order to meet a target value of the web width before slitting of the web.
7. Method of producing pulp bales according to claim 4, **characterized in that** the cross directional position a web edge is changed towards the opposite edge at the first edge of the web and the cross directional position a web edge is changed away from the opposite edge at the second edge of the web

causing a lateral shift of the web by a guide roll (34) for guiding the web before slitting such that the lateral position is compatible with the cutter-layboy (18).

8. Arrangement for controlling bale weight profile in a pulp drying machine comprising a forming section (12), press section (14), drying section (16), cutter-layboy (18) and a baling section (20), in which arrangement a control system (26) is provided for controlling the operation of the pulp drying machine (10), **characterized in that** the control system (26) comprises
 - an input unit (26.1) adapted to communicate with an on-line measurement scanner (28) arranged in the machine and with a scale (30) of the baling section (20) for receiving basis weight measurement data from the on-line scanner (28) and for receiving a scale weighted weight data of a bale from the scale (30)
 - an output unit (26.2) adapted to communicate with the pulp drying machine to transmit control data to the machine
 - data processing unit (26.3) comprises executable instructions to determine a corrected weight of the bale by calculating a weight of the bale from the basis weight measurement data received from the on-line scanner (28) and correcting the calculated weight of the bale scale weighted weight of the bale received from the scale (30).
9. Arrangement for controlling bale weight profile in a pulp drying machine according to claim 8, **characterized in that** data processing unit (26.3) comprises executable instructions to determine the corrected weight for each parallel bale (1-6) resulting in cross directional corrected weight values, and the data processing unit (26.3) comprises executable instruction using each cross directional corrected weight for controlling the process of forming and/or drying of the pulp at the cross directional location corresponding to respective bale.
10. Arrangement for controlling bale weight profile in a pulp drying machine according to claim 8, **characterized in that** the data processing unit (26.3) comprises executable instructions to control the cross directional basis weight of the pulp web by a headbox (24) of a forming section by feeding dilution water to those cross sectional locations where the corrected weight value is different, advantageously higher than cross directional target value, and executable instructions to use each cross directional corrected weight for controlling the cross directional basis weight in the headbox (24) at the cross directional location of the respective bale (1-6).

11. Arrangement for controlling bale weight profile in a pulp drying machine according to claim 8, **characterized in that** the data processing unit (26.3) comprises executable instructions to determine the corrected weight for a side bale (1,6) of the number of parallel bales (1-6) and further determine a reference weight value based on the weight of the middle bales (2-5) between both side bales and instructions to change the cross directional position a web edge at the edge of the web on the side of said side bale in case the determined corrected weight of the side base deviates more than accepted from the reference weight.
12. Arrangement for controlling bale weight profile in a pulp drying machine according to claim 11, **characterized in that** the data processing unit (26.3) comprises executable instructions to control the cross directional position of the web edge at the forming section by controlling the cross directional position of an edge trim jet nozzle.
13. Arrangement for controlling bale weight profile in a pulp drying machine according to claim 11, **characterized in that** the data processing unit (26.3) comprises executable instructions to change the cross directional position a web edge towards the opposite edge at the first edge of the web and change the cross directional position a web edge away from the opposite edge at the second edge of the web causing a lateral shift of the web by a guide roll (34) for guiding the web before slitting such that the lateral position is compatible with the cutter-layboy (18).

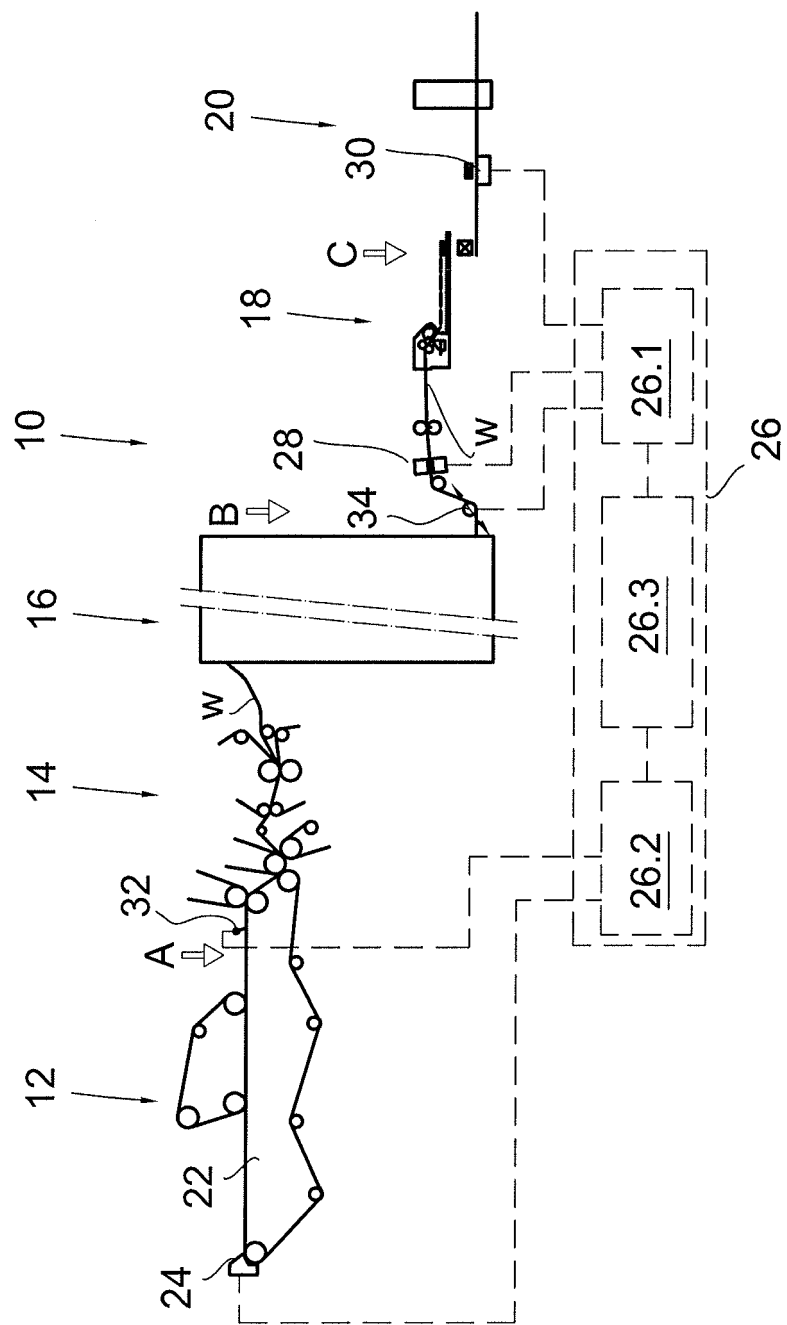


Fig. 1

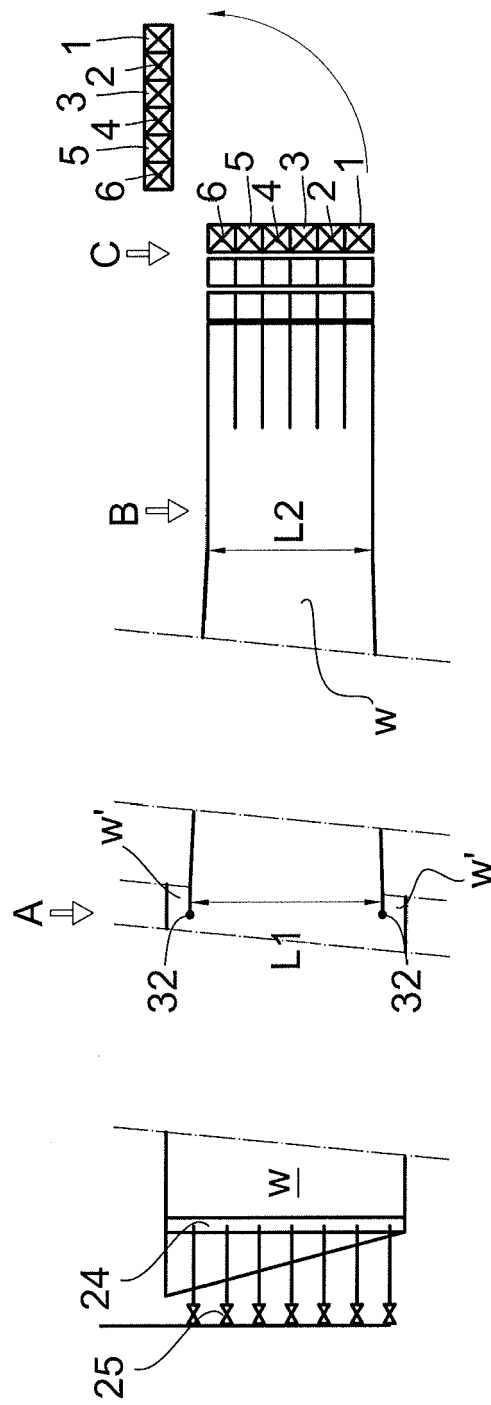


Fig. 2

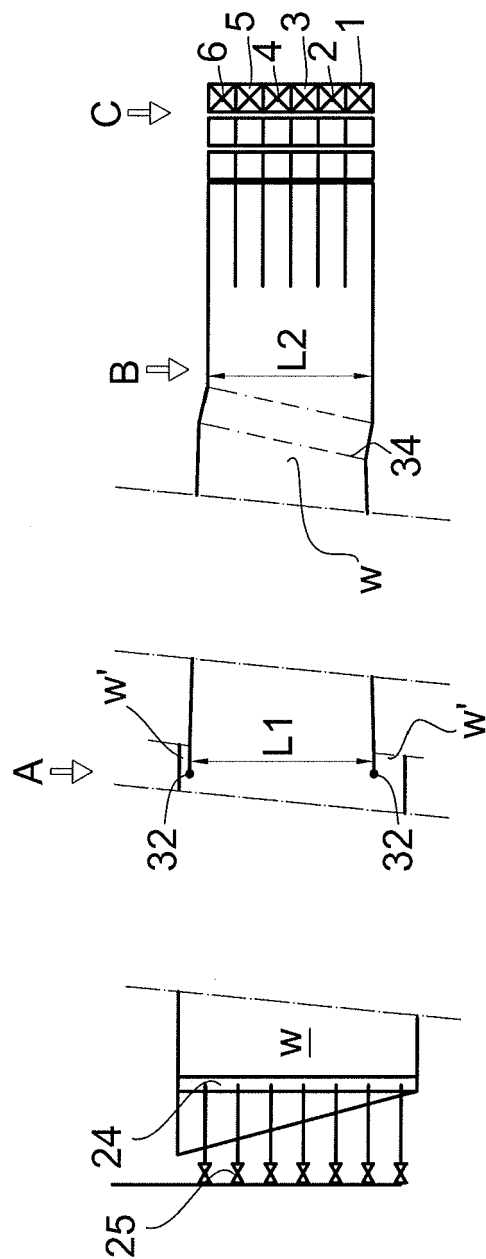


Fig. 3



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Application Number
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 April 2017	Examiner Maisonnier, Claire
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ON EUROPEAN PATENT APPLICATION NO.**

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The members are as contained in the European Patent Office EDP file on
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