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(54) **Method and apparatus of controlling data of reel length and reel off length**

Verfahren und Vorrichtung zum Steuern von Aufwickellänge und Abwickellänge

Méthode et dispositif pour commander la longueur d'enroulement et de déroulement

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a method and an apparatus of storing a rotating amount of a reeling member and a reel length of a reeled object in correspondence therewith as reel information in a step of reeling a reeled object such as yarn or the like to the reeling member and thereafter calculating a reel off length of the reeled object from the above-described reel information in a procedure of utilizing the reeling member.

[0002] In a related art, for example disclosed in JP-A-03-027150 (Japanese Patent Application Publication Number: Hei03-027150), in a procedure of pile weaving, a weight of a pile fabric per unit length is substituted for by a rate (pile magnification) of an amount of using pile warp as compared with an amount of using ground warp and is controlled by the pile magnification. The amounts of using ground warp and pile warp (reel off lengths of warp) can be calculated by detecting a reel diameter of a warp beam and calculated by a calculation from the detected reel diameter and a beam rotating amount. The reel off length of warp is utilized in controlling the weight of the pile fabric in a procedure of pile weaving.

[0003] According to the above-described related calculating means, accuracy of measuring the reel off lengths of ground warp and pile warp is poor, the calculated values are not accurate and therefore, it is difficult to make the weight of the pile fabric (towel) per unit length constant in the procedure of controlling the weight of the pile fabric. Further, in actual weaving, in order to measure the length of a warp sheet, there is also a method of bringing warp into contact with a rotating roller, measuring a moving amount of warp and detecting an amount using warp from a rotating amount of the rotating roller, however, cost of such a measuring apparatus is high, slip is liable to be brought about between the rotating roller and warp and invariably, there pose a problem in accuracy of measuring a reel off length.

[0004] A method of controlling data of a reel length comprising the steps of storing a rotation amount and a reel length and a recording apparatus that stores this information are known from EP-A-1 299 738. A reeling member having embedded media for storing information is known from DE-A-37 32 367.

SUMMARY OF THE INVENTION

[0005] Therefore, it is an object of the invention that in a procedure of reeling a reeled object of yarn or the like, a rotating amount of a reeling member and a reel length of the reeled object in correspondence therewith are stored as reel information, and in a procedure of utilizing the reeled object of yarn or the like, a reel off length of yarn can accurately be calculated from the reel information.

[0006] Under the above-described object, according

to the invention, there is provided a method of controlling data of a reel length and a reel off length, storing a rotating amount (R1) of a reeling member (2) in a reel direction from reel start to reel end of a reeled object (1) and a reel length (L1) of the reeled object (1) in correspondence with the rotating amount (R1), as reel information (D) inherent to the reeling member (2), in a procedure of reeling the reeled object (1) to the reeling member (2), and detecting a rotating amount (R2) of the reeling member (2) and calculating a reel off length (L2) of the reeled object (1) relative to the rotating amount (R2) in a reel off direction from the detected rotating amount (R2) and the reel information (D), in a procedure of utilizing the reeled object (1) while reeling off the reeling member (2).

[0007] Further, according to the invention, there is provided the method of controlling data of a reel length and a reel off length, constituting the reeled object (1) by yarn (11, 37), and storing the rotating amount (R1) of the reeling member (2) in the reel direction from reel start to reel end of the yarn (11, 37) and the reel length (L1) of the yarn (11, 37) in correspondence with the rotating amount (R1) as the reel information (D) inherent to the reeling member (2), in a procedure of reeling the yarn (11, 37) to the reeling member (2), and detecting the rotating amount (R2) of the reeling member (2) and calculating the reel off length (L2) of the yarn (11, 37) relative to the rotating amount (R2) in the reel off direction from the detected rotating amount (R2) and the reel information (D), in a procedure of mounting the reeling member (2) to a weaving machine (10), inputting the reel information (D) of the reeling member (2) and weaving by the yarn (11, 37) while reeling off the reeling member (2).

[0008] Further, according to the invention, there is provided the method of controlling data of a reel length and a reel off length, constituting the reeled object (1) by warp (11), and storing the rotating amount (R1) of a warp beam (21) in the reel direction from reel start to reel end of the warp (11) and the reel length (L1) of the warp (11) in correspondence with the rotating amount (R1) as the reel information (D) inherent to the warp beam (21), in a procedure of reeling the warp (11) to the warp beam (21) constituting the reeling member (2), and detecting the respective rotating amounts (R2) of respective warp beams (22, 23) in the reel off direction and calculating the reel off length (L2) of pile warp (12) and the reel off length (L2) of ground warp (13) in correspondence with the respective rotating amounts (R2) from the detected respective rotating amounts (R2) and the reel information (D) of the respective warp beams (22, 23), in a procedure of utilizing two of the warp beams (21), mounting the warp beams (21) to the weaving machine (10) for pile weaving as the warp beam (22) for supplying the pile warp (12) and the warp beam (23) for supplying the ground warp (13), inputting the reel information (D) of the two respective warp beams (21) to a side of the weaving machine (10) and weaving by the pile warp (12) and the ground warp (13) while reeling off the two warp beams (22, 23).

[0009] Further, there is provided the method of con-

trolling data of a reel length and a reel off length, corresponding data of the reel length (L1) of the reeled object (1) to each constant amount of the rotating amount (R1) of the reeling member (2), or corresponding the rotating amount (R1) of the reeling member (2) to each constant amount of the reel length (L1) of the reeled object (1), further, it is also possible to form a function from the rotating amount (R1) of the reeling member (2) and the reel length (L1) of the reeled object (1), detect the rotating amount (R2) of the reeling member (2) in the reel off direction and calculate the reel off length (L2) of the reeled object (1) relative to the rotating amount (R2) from the detected rotating amount (R2) and the function in a stage of utilizing the reeled object (1).

[0010] The invention can be realized also an apparatus. According to the invention, there is provided an apparatus of controlling data of a reel length and a reel off length, comprising: a detecting means (6, 15, 17) that detects a reel length (L1) of a reeled object (1), a detecting means (16, 18) that detects a rotating amount (R1) of a reeling member (2) in a reel direction from reel start to reel end of the reeled object (1), and a recording apparatus (19) that stores the rotating amount (R1) of the reeling member (2) and the reel length (L1) of the reeled object (1) in correspondence with the rotating amount (R1) as reel information (D) inherent to the reeling member (2), in a procedure of reeling the reeled object (1) to the reeling member (2), a transmitting means (43, 44) that transmits the reel information (D) stored in the recording apparatus (19) to an apparatus (10) of utilizing the reeling member (2), a detecting means (30, 31) that detects a rotating amount (R2) of the reeling member (2) in a reel off direction, and a processor (25) that calculates a reel off length (L2) of the reeled object (1) relative to the rotating amount (R2) of the reeling member (2) in the reel off direction from the detected rotating amount (R2) and the transmitted reel information (D), in a procedure of utilizing the reeled object (1) while reeling off the reeling member (2) in the utilizing apparatus (10). A result of the calculation is utilized in controlling the utilizing apparatus (10).

BRIEF DESCRIPTION OF THE DRAWING

[0011]

Fig. 1 is an explanatory view when reel information D of warp in sizing and drying steps (preceding steps) of warp is utilized at a pile weaving step (succeeding step).

Fig. 2 is a graph of a rotating amount R1 of a warp beam-a reel length L1 of warp.

Fig. 3 is a block diagram of a control apparatus 20.

Fig. 4 is a graph of a rotating amount R2 of a warp beam-a reel off length L2 of warp.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0012] Fig. 1 shows a procedure of constituting a reeled object 1 by warp 1 and reeling warp 11 as sized and dried by a warp beam 21 constituting a reeling member 2 and a state of mounting two of the warp beams 21 to a weaving machine 10 as an apparatus of utilizing warp 11 as a warp beam 22 for supplying pile warp 12 and a warp beam 23 for supplying ground warp 13.

[0013] A number of pieces of warp 11 is brought into a sheet-like shape, subjected to a sizing step by a sizer 3 and a drying step by a dryer 4 and thereafter, is reeled by the warp beam 21 of a warp reel apparatus 8 by passing a press roll 5, a length measuring roll 6 and a press roll 7. The length measuring roll 6 is rotated by a drive motor 9 under a constant rotational number (rotational speed). Further, the warp beam 21 is driven by a reel motor 14 and is rotated to gradually constitute low speed in accordance with an increase in a reel diameter of the warp beam 21 by reeling warp 11 by controlling a rotational number (rotational speed) of the reel motor 14.

[0014] Rotating amounts of the drive motor 9 and the reel motor 14 are detected by rotation detectors 15, 16 of encoders or the like respectively connected thereto and counters 17, 18 respectively connected to the rotation detectors 15, 16. The counter 17 measures a reel length L1 of warp 11 from the rotating amount of the length measuring roll 6 and transmits the data to a recording apparatus 19. Further, the counter 18 transmits a rotating amount R1 of the warp beam 21 in a reel direction from reel start to reel end of warp 11. Further, in measuring the length, the length measuring roll 6 is rotated in cooperation with rotation of the warp beam 21 by pinching warp 11 while being pressed by the two press rolls 5, 7 and therefore, slip is hardly present between the length measuring roll 6 and warp 11 in the sheet-like shape.

[0015] The recording apparatus 19 stores the accumulated reel length L1 of warp 11 along with the rotating amount R1 of the warp beam 21 in the reel direction at each constant rotating amount of the warp beam 21. In this way, data of the rotating amount R1 of the warp beam 21 in the reel direction from reel start to reel end of warp 11 of the warp beam 21 and the accumulated reel length L1 of warp 11 in correspondence with the rotating amount R1 are stored to the recording apparatus 19 as reel information D inherent to each of a number of the warp beams 21.

[0016] Here, the recording apparatus 19 stores the data of the reel length L1 of warp 11 at each constant amount of the rotating amount R1 of the warp beam 21 constituting the reel member 2, for example, each rotation or 90°, 45° or 10° in correspondence therewith, or forms a function from the data of the reel length L1 in correspondence with the rotating amount R1 as it is, or forms a function by utilizing a complementally method and stores the function. As described above, the rotating amount R1 is the rotation number or the rotation angle

and is preferably constituted by a small rotation angle in order to ensure necessary accuracy. Further, the function may not be formed at the sizing and drying steps (preceding step) but may be formed at a weaving step (succeeding step) thereafter.

[0017] Fig. 2 shows a relationship between the rotating amount R1 of the warp beam 21 and the accumulated reel length L1 of warp 11 in correspondence therewith as a graph. At each increase in the rotating amount R1 of the warp beam 21, the reel length L1 is increased exponentially. Further, when the rotating amount R1 of the warp beam 21 is increased, by an increase in a reel diameter of the warp beam 21, a change amount of the reel length L1 as compared with an amount of an increase in the rotating amount R1 is increased and therefore, when necessary accuracy cannot be maintained, the recording apparatus 19 automatically changes an interval for detecting the reel length L1 of warp 11, that is, the rotating amount R1 (rotation angle) to gradually reduce in accordance with the increase in the reel diameter of the warp beam 21 as necessary. Further, the accumulated reel length L1 can be calculated from a count value of the counter 18 and a roll diameter of the lengthmeasuring roll 6.

[0018] In the sizing and drying steps, when reeling by a necessary number of the warp beams 21 has been finished, two of the warp beams 21 among them are mounted to the weaving machine 10 for pile weaving as the warp beam 22 for supplying pile warp 12 and as the warp beam 23 for supplying ground warp 13.

[0019] Here, the reel information D inherent to the warp beam 22 for supplying pile warp 12 and the reel information D inherent to the warp beam 23 for supplying ground warp 13 both mounted to the weaving machine 10 for pile weaving are read from the recording apparatus 19 to transmit to a control apparatus 20 (data memory 24 at inside of the control apparatus 20 in Fig. 3, mentioned later) of the weaving machine 10 for pile weaving constituting a succeeding step.

[0020] The transmission is carried out by utilizing record media 43 of a flexible disk, a memory card or the like and switching a corresponding one of the record media 43 between the recording apparatus 19 and the control apparatus 20 (data memory 24), or utilizing a wired or wireless exclusive channel 44 connecting the recording apparatus 19 and the control apparatus 20 and a weave cloth factory control system by a host computer, registering the reel information D inherent to each of the warp beams 21 to a server or the like relatedly along with a beam ID thereof and calling the corresponding one of the reel information ID by the beam ID by way of the channel 44 from the succeeding step. Further, when the warp beam 21 is embedded with a memory chip as readable and writable record media 43, the reel information D is stored thereto and operation of removing the warp beam 21 from the warp reeling apparatus 8 and mounting the warp beam 21 to the weaving machine 10 also constitute transmission of the reel information D as it is.

[0021] Next, Fig. 3 shows an example of the control apparatus 20. The control apparatus 20 is constituted by a processor 25, a display 26 and a weaving machine controller 27 other than the data memory 24 for storing the reel information D. The processor 25 is connected to the data memory 24 and the weaving machine controller 27 in a transmittable and receivable state on input and output sides thereof, connected to a rotation detector 30 connected to a feed motor 28 of the warp beam 22 and a rotation detector 31 connected to a feed motor 29 of the warp beam 23 on the input side and further connected to the display 26 on the output side.

[0022] According to the weaving machine 10 for pile weaving of Fig. 1, in weaving, ground warp 13 is supplied from the warp beam 23 and is guided to loom front of weaving weave cloth 35 of a pile structure after passing a ground tension roll 32, a heald 33 and a reed 34. Further, pile warp 12 is supplied from the pile beam 22 and is guided to loom front of weaving the weave cloth 35 of a pile structure after passing a guide roll 45, a pile tension roll 36, a heald 33 and the reed 34. Further, the warp beams 22, 23 are respectively driven by the feed motors 28, 29 and rotation thereof is detected by the rotation detectors 30, 31.

[0023] Ground warp 13 and pile warp 12 intersect with weft 37 at inside of an shedding by shedding motion of the heald 33 to constitute the weave cloth 35 of the pile structure. The weave cloth 35 of the pile structure is forwardly and rearwardly moved along with a terry motion roll 39 and the ground tension roll 32 by a terry motion apparatus 38 in the case of a cloth moving type for forming pile by pile warp 12 and is reed by a cloth reel roll 42 by way of a surface roll 40 and a guide roll 41.

[0024] In the weaving procedure, the processor 25 inputs signals from the rotation detector 30 and the rotation detector 31, respectively detects a rotating amount R2 in a reel off (feed) direction of the warp beam 22 and a rotating amount R2 in a reel off (feed) direction of the warp beam 23 by counting rotational signals, calculates a reel off length L2 of pile warp 12 and a reel off length L2 of ground warp 13 relative to the respective rotating amounts R2 at the same timing in reference to the reel information D for the respective warp beams 22, 23 from the data memory 24 and transmits the signals to the display 26 and simultaneously transmits the signals also to the weaving machine controller 27. Further, the processor 25 calculates a pile magnification from a ratio of the reel off length L2 of pile warp 12 to the reel off length of ground pile 13 and transmits the signal to the display 26 and transmits the signal also to the weaving machine controller 27 as necessary.

[0025] Fig. 4 shows a relationship between the rotating amount R2 of the warp beam 22 or the warp beam 23 and the reel off length L2 of pile warp 12 or ground warp 13 in correspondence therewith as a graph. As is seen in the graph, at each increase in the rotating amount R2 of the warp beam 22 or the warp beam 23, the reel off length L2 per unit rotational number of pile warp 12 or

ground warp 13 is exponentially reduced.

[0026] Hence, the display 26 displays the reel off length L2 of pile warp 12 and the reel off length L2 of ground warp 13 and the pile magnification as necessary. Thereby, the operator can confirm a weaving situation by optically recognizing consumption amounts of pile warp 12 and ground warp 13 and the pile magnification from a display content of the display 26 therefrom, and manually adjusts factors for changing the respective reel off lengths L2 per unit time (reed escape amount of the terry motion apparatus 38, set tension of the ground tension roll 32, set tension of the pile tension roll 36 and the like) with regard to a corresponding one of the weaving machines 10 as necessary. Thereby, control of tension of feeding off pile warp 12 or feeding off ground warp 13 is adjusted to respective pertinent states.

[0027] Further, the weaving machine controller 27 compares a target consumption amount and an actual consumption amount of pile warp 12 and compares a target consumption amount and an actual consumption amount of ground warp 13, calculates deviations of respective and automatically controls the factors (the reed escape amount of the terry motion apparatus 38, the set temperature of the ground tension roll 32, the set tension of the pile tension roll 36 and the like) for changing the respective reel off lengths L2 in accordance with magnitudes of the respective deviations when shifts from allowable values of the respective deviations are detected as necessary. Thereby, the feed tension control of pile warp 12 or the feed tension control of ground warp 13 is operated in a direction of resolving the respective deviations and therefore, the weave cloth 35 of the pile structure is converged to a target weight per unit length.

[0028] Further, when accident is brought about at the preceding step (sizing and drying step) and a defect is brought into warp 11, it is predicted that an influence is effected on woven fabric quality in the succeeding step (weaving procedure). In order to deal therewith, it is also possible to produce a pertinent operating state such that the influence is not effected on the woven fabric quality by storing the rotating amount R1 of the warp beam 21 or the reel length L1 of warp 11 at that time and predicting and specifying the portion beforehand at the succeeding step.

[0029] In the above-described example, the reel length L1 of warp 11 relative to the constant rotating amount R1 of the warp beam 21 is stored. However, in the storing operation, the rotating amount R1 of the warp beam 21 relative to the constant reel length L1 of warp 11 may be stored. Further, although in the above-described example, since the weaving machine 10 is a pile weaving machine, pile warp 12 and ground warp 13 are used, in the case of a weaving machine which is not a pile weaving machine, the above-described ground warp 13 is used as single warp 11.

[0030] Further, the reeled object 1 is not limited to warp 11 but may be weft 37, or wool yarn utilized not in the weaving machine but in a warp knitting machine or the

like in the succeeding step and the invention is applicable to an object in a sheet-like shape such as a film.

[0031] As an application of the invention, a number of reeling weft to a reeling member (bobbin, pirn, cone or the like) of weft 37 can also be utilized in a filling insertion apparatus at a succeeding step as inherent information of a package. For example, a reel off amount (rotating amount R2) of weft can be calculated by relating a number of times of reeling single weft (rotating amount R1) of a package of bobbin, pirn, cone or the like and a reel length L1 of weft at a preceding step to store as reel information D, transmitting the reel information D to the weaving machine control apparatus 20 and detecting a number of times of reel off turns from the package at a weft length measuring and storing apparatus in a weaving procedure at a succeeding step. Therefore, in reeling off weft, reel end of the package can be predicted beforehand from the reel off amount (rotating amount R2) of weft. Thereby, reel off speed can be retarded or a weft input timing or the like can be changed beforehand by predicting an instance of switching the package beforehand and therefore, the constitution can contribute to a reduction in the defect of the woven fabric. Although in switching the package, a package at reel end having a small reel diameter is switched to a new package at reel start having a large reel diameter and therefore, a weft error is liable to be brought about by a difference in weft tension, the weft error can be prevented beforehand by adjusting the reel off speed or changing a filling insertion timing or the like.

[0032] According to the invention, in the procedure of reeling the reeled object to the reeling member, the rotating amount of the reeling member and the reel length of the reeled object are stored as the reel information inherent to the reeling member, thereafter, in the procedure of utilizing the reeling member, the reel off length of the reeled object is calculated from the rotating amount of the reeling member and the reel information and therefore, a special length measuring apparatus is not needed in the procedure of utilizing the reeling member and the accurate reel off length is provided for each reeling member.

[0033] Further, according to an another aspect of the invention, the reeled object is warp or weft or the like, the reel information inherent to the reeling member is stored in the preceding step of the yarn, the reel off length of yarn is calculated from the rotating amount of the reeling member and the reel information in the procedure of weaving by the weaving machine at the succeeding step and therefore, even when a length measuring apparatus is not attached to the weaving machine, a weaving situation or weaving can also be controlled from the data of the reel off length.

[0034] Further, according to an another aspect of the invention, in the step of reeling warp by the warp beam, the rotating amount of the warp beam and the reel length of warp in correspondence with the rotating amount are stored as the inherent reel information, two of the beams

are mounted to the pile weaving machine for supplying pile warp and ground warp, in the procedure of pile weaving, the reel off length of pile warp and the reel off length of ground warp can be calculated from the rotating amounts of the respective warp beams and the respective reel information and therefore, even when the weaving machine is not provided with a length measuring apparatus, a situation of consuming pile warp and ground warp can accurately be confirmed and when the weaving machine is adjusted based on the respective reel off lengths, the weight of pile weave cloth (towel) per unit length can accurately be grasped and a product having excellent quality can be produced.

[0035] Further, in a weave cloth factory having a large number of weaving machines, it is not necessary to attach an apparatus of measuring a length of warp to each of the weaving machines and therefore, a reduction in facility cost can be archived.

[0036] Further, according to another aspect of the invention, the reel length of the reeled object is stored at each constant rotating amount of the reeling member and therefore, a signal of the constant rotating amount (number of times of rotations rotation angle) of the reeling member can be utilized as reel length storing instruction.

[0037] Further, according to another aspect of the invention, the rotating amount of the reeling member is stored at each constant reel length of the reeled object and therefore, even when an outer diameter of the reeling member is increased, the reel length of the reeled object becomes constant and the correspondence between the rotating amount and the reel length is maintained pertinently also numerically.

[0038] Further, according to another aspect of the invention, the function is formed from the rotating amount of the reeling member and the reel length of the reeled object and therefore, in the stage of utilizing the reeled object, the reel off length of the reeled object relative to the rotating amount can be calculated from the rotating amount of the reeling member and the function. In forming the function, by utilizing the complementally method, continuous data is provided and therefore, the reel off length of the reeled object relative to the rotating amount can finely be calculated.

[0039] Further, according to another aspect of the invention, the method of controlling data of the reel length and the reel off length is embodied as an apparatus. Therefore, in the procedure of reeling the reeled object to the reeling member, the rotating amount of the reeling member and the reel length of the reeled object are stored as the reel information inherent to the reeling member, thereafter, in the procedure of utilizing the reeling member, the reel off length of the reeled object is calculated from the rotating amount of the reeling member and the reel information and therefore, a special length measuring apparatus is not needed in the procedure of utilizing the reeling member and the accurate reel off length is provided for each reeling member.

Claims

1. A method of controlling data of a reel length and a reel off length, comprising the steps of:

storing a rotating amount (R1) of a reeling member (2) in a reel direction from reel start to reel end of a reeled object (1) and a reel length (L1) of the reeled object (1) in correspondence with the rotating amount (R1), as a reel information (D) inherent to the reeling member (2), in a procedure of reeling the reeled object (1) to the reeling member (2), and detecting a rotating amount (R2) of the reeling member (2), and calculating a reel off length (L2) of the reeled object (1) relative to the rotating amount (R2) in a reel off direction from the detected rotating amount (R2) and the reel information (D), in a procedure of utilizing the reeled object (1) while reeling off the reeling member (2).

2. The method of controlling data of a reel length and a reel off length according to claim 1, wherein the reeled object (1) is yarn (11, 37), further comprising the steps of:

storing the rotating amount (R1) of the reeling member (2) in the reel direction from reel start to reel end of the yarn (11, 37) and the reel length (L1) of the yarn (11, 37) in correspondence with the rotating amount (R1) as the reel information (D) inherent to the reeling member (2) in a procedure of reeling the yarn (11, 37) to the reeling member (2), mounting the reeling member (2) to a weaving machine (10) and inputting the reel information (D) of the reeling member (2), and detecting the rotating amount (R2) of the reeling member (2), and calculating the reel off length (L2) of the yarn (11, 37) relative to the rotating amount (R2) in the reel off direction from the detected rotating amount (R2) and the reel information (D), in a procedure of weaving by the yarn (11, 37) while reeling off the reeling member (2).

3. The method of controlling data of a reel length and a reel off length according to claim 1, wherein the reeled object (1) is warp (11), further comprising the steps of:

storing the rotating amount (R1) of the warp beam (21) in the reel direction from reel start to reel end of the warp (11) and the reel length (L1) of the warp (11) in correspondence with the rotating amount (R1) as the reel information (D) inherent to the warp beam (21), in a procedure

- of reeling the warp (11) to a warp beam (21) that is the reeling member (2),
 mounting two warp beams (21) to a to the weaving machine (10) for pile weaving, as a warp beam (22) for supplying pile warp (12) and warp beam (23) for supplying a ground warp (13),
 inputting the reel information (D) of the two respective warp beams (22, 23) to the weaving machine (10), and
 detecting the respective rotating amounts (R2) of the respective warp beams (22, 23) in the reel off direction, and calculating the reel off length (L2) of the pile warp (12) and the reel off length (L2) of the ground warp (13) in correspondence with the respective rotating amounts (R2) from the detected respective rotating amounts (R2) and the reel information (D) of the respective warp beams (22, 23), in a procedure of weaving by the pile warp (12) and the ground warp (13) while reeling off the two warp beams (22, 23).
4. The method of controlling data of a reel length and a reel off length according to anyone of the preceding claims,
 wherein data of the reel length (L1) of the reeled object (1) corresponds to each constant amount of the rotating amount (R1) of the reeling member (2).
5. The method of controlling data of a reel length and a reel off length according to anyone of claims 1 to 3, wherein the rotating amount (R1) of the reeling member (2) corresponds to each constant amount of the reel length (L1) of the reeled object (1).
6. The method of controlling data of a reel length and a reel off length according to anyone of the preceding claims further comprising the steps of:
 forming a function from the rotating amount (R1) of the reeling member (2) and the reel length (L1) of the reeled object (1),
 detecting the rotating amount (R2) of the reeling member (2) in the reel off direction, when the reeled object (1) is utilized, and
 calculating the reel off length (L2) of the reeled object (1) relative to the rotating amount (R2) from the detected rotating amount (R2) and the function.
7. An apparatus of controlling data of a reel length and a reel off length comprising:
 means (6, 15, 17) for detecting a reel length (L1) of a reeled object (1), in a procedure of reeling the reeled object (1) to the reeling member (2),
 means (16, 18) for detecting a rotating amount (R1) of a reeling member (2) in a reel direction from reel start to reel end of the reeled object (1), in a procedure of reeling the reeled object (1) to the reeling member (2),
 a recording apparatus (19) that stores the rotating amount (R1) of the reeling member (2) and the reel length (L1) of the reeled object (1) in correspondence with the rotating amount (R1) as reel information (D) inherent to the reeling member (2),
 means (43, 44) for transmitting the reel information (D) stored in the recording apparatus (19) to an apparatus (10) of utilizing the reeling member (2),
 means (30, 31) for detecting a rotating amount (R2) of the reeling member (2) in a reel off direction, in a procedure of utilizing the reeled object (1) while reeling off the reeling member (2) in the utilizing apparatus (10), and
 a processor (25) for calculating a reel off length (L2) of the reeled object (1) relative to the rotating amount (R2) of the reeling member (2) in the reel off direction from the detected rotating amount (R2) and the transmitted reel information (D).
8. An apparatus of controlling data of a reel length and a reel off length according to claim 7, wherein the reeled object (1) is yarn (11, 37).
9. An apparatus of controlling data of a reel length and a reel off length according to claim 7, wherein the reeled object (1) is warp (11).
10. A reeling member (2), for reeling a reeled object (1), comprising:
 a media (43) that stores a rotating amount (R1) of the reeling member (2) and the reel length (L1) of the reeled object (1) in correspondence with the rotating amount (R1) as reel information (D) inherent to the reeling member (2), and
 wherein the media (43) is embedded in the reeling member (2).
- ### Patentansprüche
1. Verfahren zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge, umfassend die Schritte:
 Speichern eines Dreh- bzw. Rotationsbetrags bzw. -anzahl (R1) eines Wickelglieds (2) in einer Wickelrichtung von Wickelstart zu Wickelende eines gewickelten Objekts (1) und einer Wickellänge (L1) des gewickelten Objekts (1) in Übereinstimmung mit dem Drehbetrag (R1) als eine dem Wickelglied (2) inhärente Wickelinformation (D) in einem Vorgang eines Wickelns des

gewickelten Objekts (1) zu dem Wickelglied (2),
und

Erfassen bzw. Detektieren eines Dreh- bzw. Rotationsbetrags bzw. -anzahl (R2) des Wickelglieds (2) und Berechnen einer Abwickellänge (L2) des gewickelten Objekts (1) relativ zu dem Drehbetrag (R2) in einer Abwickelrichtung aus dem erfassten Drehbetrag (R2) und der Wickelinformation (D) in einem Vorgang des Verwendens des gewickelten Objekts (1) während einem Abwickeln des Wickelglieds (2).

2. Verfahren zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach Anspruch 1, wobei das gewickelte Objekt (1) Garn (11, 37) ist, ferner umfassend die Schritte:

Speichern des Drehbetrags (R1) des Wickelglieds (2) in der Wickelrichtung von Wickelstart zu Wickelende des Garns (11, 37) und der Wickellänge (L1) des Garns (11, 37) in Übereinstimmung mit dem Drehbetrag (R1) als die dem Wickelglied (2) inhärente Wickelinformation (D) in einem Vorgang eines Wickelns des Garns (11, 37) zu dem Wickelglied (2), und
Montieren bzw. Anbringen des Wickelglieds (2) an einer Webmaschine (10) und Eingeben der Wickelinformation (D) des Wickelglieds (2), und Erfassen des Drehbetrags (R2) des Wickelglieds (2) und Berechnen der Abwickellänge (L2) des Garns (11, 37) relativ zu dem Drehbetrag (R2) in der Abwickelrichtung aus dem erfassten Drehbetrag (R2) und der Wickelinformation (D) in einem Vorgang des Webens durch bzw. anhand des Garns (11, 37) während einem Abwickeln des Wickelglieds (2).

3. Verfahren zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach Anspruch 1, wobei das gewickelte Objekt (1) Kettfaden (11) ist, ferner umfassend die Schritte:

Speichern des Drehbetrags (R1) des Kettbaums (21) in der Wickelrichtung von Wickelstart zu Wickelende des Kettfadens (11) und der Wickellänge (L1) des Kettfadens (11) in Übereinstimmung mit dem Drehbetrag (R1) als die dem Kettbaum (21) inhärente Wickelinformation (D) in einem Vorgang eines Wickelns des Kettfadens (11) zu einem Kettbaum (21), der das Wickelglied (2) ist,
Montieren zweier Kettbäume (21) an der Webmaschine (10) für Samtweberei als ein Kettbaum (22) zum Zuführen einer Florkette (12) und ein Kettbaum (23) zum Zuführen einer Grundkette (13),
Eingeben der Wickelinformation (D) der beiden jeweiligen Kettbäume (22, 23) in die Webma-

schine (10), und

Erfassen der jeweiligen Drehbeträge (R2) der jeweiligen Kettbäume (22, 23) in der Abwickelrichtung und Berechnen der Abwickellänge (L2) der Florkette (12) und der Abwickellänge (L2) der Grundkette (13) in Übereinstimmung mit den jeweiligen Drehbeträgen (R2) aus den erfassten, jeweiligen Drehbeträgen (R2) und der Wickelinformation (D) der jeweiligen Kettbäume (22, 23) in einem Vorgang des Webens durch bzw. anhand der Florkette (12) und die Grundkette (13) während einem Abwickeln der beiden Kettbäume (22, 23).

4. Verfahren zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach einem der vorhergehenden Ansprüche, wobei die Daten der Wickellänge (L1) des gewickelten Objekts (1) jedem konstanten Betrag bzw. Anzahl des Drehbetrags (R1) des Wickelglieds (2) entsprechen.

5. Verfahren zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach einem der Ansprüche 1 bis 3, wobei der Drehbetrag (R1) des Wickelglieds (2) jedem konstanten Betrag der Wickellänge (L1) des gewickelten Objekts (1) entspricht.

6. Verfahren zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach einem der vorhergehenden Ansprüche, ferner umfassend die Schritte:

Bilden einer Funktion aus dem Drehbetrag (R1) des Wickelglieds (2) und der Wickellänge (L1) des gewickelten Objekts (1),
Erfassen des Drehbetrags (R2) des Wickelglieds (2) in der Abwickelrichtung, wenn das gewickelte Objekt (1) verwendet wird, und
Berechnen der Abwickellänge (L2) des gewickelten Objekts (1) relativ zu dem Drehbetrag (R2) aus dem erfassten Drehbetrag (R2) und der Funktion.

7. Vorrichtung zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge, umfassend:

Mittel (6, 15, 17) zum Erfassen bzw. Detektieren einer Wickellänge (L1) eines gewickelten Objekts (1) in einem Vorgang eines Wickelns des gewickelten Objekts (1) zu dem Wickelglied (2),
Mittel (16, 18) zum Erfassen bzw. Detektieren eines Dreh- bzw. Rotationsbetrags bzw. -anzahl (R1) eines Wickelglieds (2) in einer Wickelrichtung von Wickelstart zu Wickelende des gewickelten Objekts (1) in einem Vorgang eines Wik-

- kelns des gewickelten Objekts (1) zu dem Wickelglied (2),
 eine Aufzeichnungsvorrichtung (19), die den Drehbetrag (R1) des Wickelglieds (2) und die Wickellänge (L1) des gewickelten Objekts (1) in Übereinstimmung mit dem Drehbetrag (R1) als dem Wickelglied (2) inhärente Wickelinformation (D) speichert,
 Mittel (43, 44) zum Übertragen der in der Aufzeichnungsvorrichtung (19) gespeicherten Wickelinformation (D) zu einer Vorrichtung (10) zum Verwenden des Wickelglieds (2),
 Mittel (30, 31) zum Erfassen bzw. Detektieren eines Dreh- bzw. Rotationsbetrags bzw. -anzahl (R2) des Wickelglieds (2) in einer Abwickelrichtung in einem Vorgang des Verwendens des gewickelten Objekts (1) während einem Abwickeln des Wickelglieds (2) in der Verwendungsvorrichtung (10), und
 einen Prozessor (25) zum Berechnen einer Abwickellänge (L2) des gewickelten Objekts (1) relativ zu dem Drehbetrag (R2) des Wickelglieds (1) in der Abwickelrichtung aus dem erfassten Drehbetrag (R2) und der übertragenen Wickelinformation (D).
8. Vorrichtung zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach Anspruch 7, wobei das gewickelte Objekt (1) Garn (11, 37) ist.
9. Vorrichtung zum Steuern bzw. Regeln von Daten einer Wickellänge und einer Abwickellänge nach Anspruch 7, wobei das gewickelte Objekt (1) Kettfaden (11) ist.
10. Wickelglied (2) zum Wickeln eines gewickelten Objekts (1), umfassend:
- ein Medium (43), das einen Dreh- bzw. Rotationsbetrags bzw. -anzahl (R1) des Wickelglieds (2) und die Wickellänge (L1) des gewickelten Objekts (1) in Übereinstimmung mit dem Drehbetrag (R1) als dem Wickelglied (2) inhärente Wickelinformation (D) speichert, und
 wobei das Medium (43) in das Wickelglied (2) eingebettet ist.

Revendications

1. Méthode de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement, comprenant les étapes consistant à :
- mémoriser une quantité de rotation (R1) d'un organe de dévidage (2) dans une direction d'en-

roulement depuis un début de l'enroulement jusqu'à une fin de l'enroulement d'une matière bobinée (1) et une longueur d'enroulement (L1) de la matière bobinée (1) en correspondance avec la quantité de rotation (R1), comme une information de bobinage (D) inhérente à l'organe de dévidage (2), dans une procédure de bobinage de la matière bobinée (1) sur l'organe de dévidage (2), et
 détecter une quantité de rotation (R2) de l'organe de dévidage (2), et calculer une longueur de déroulement (L2) de la matière bobinée (1) par rapport à la quantité de rotation (R2) dans une direction de déroulement à partir de la quantité de rotation détectée (R2) et de l'information de bobinage (D), dans une procédure d'utilisation de la matière bobinée (1) pendant le déroulement de l'organe de dévidage (2).

2. Méthode de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon la revendication 1, dans laquelle la matière bobinée (1) est un fil (11, 37), comprenant en outre les étapes consistant à :

mémoriser la quantité de rotation (R1) de l'organe de dévidage (2) dans la direction d'enroulement depuis le début de l'enroulement jusqu'à la fin de l'enroulement du fil (11, 37) et la longueur d'enroulement (L1) du fil (11, 37) en correspondance avec la quantité de rotation (R1) comme l'information de bobinage (D) inhérente à l'organe de dévidage (2) dans une procédure de bobinage du fil (11, 37) sur l'organe de dévidage (2),
 monter l'organe de dévidage (2) sur un métier à tisser (10) et entrer l'information de bobinage (D) de l'organe de dévidage (2), et
 détecter la quantité de rotation (R2) de l'organe de dévidage (2), et calculer la longueur de déroulement (L2) du fil (11, 37) par rapport à la quantité de rotation (R2) dans la direction du déroulement à partir de la quantité de rotation détectée (R2) et de l'information de bobinage (D), dans une procédure de tissage par le fil (11, 37) pendant le déroulement de l'organe de dévidage (2).

3. Méthode de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon la revendication 1, dans laquelle la matière bobinée (1) est une chaîne (11), comprenant en outre les étapes consistant à :

mémoriser la quantité de rotation (R1) de l'ensemble de chaîne (21) dans la direction d'enroulement depuis le début de l'enroulement jusqu'à la fin de l'enroulement de la chaîne (11) et la

- longueur d'enroulement (L1) de la chaîne (11) en correspondance avec la quantité de rotation (R1) comme l'information de bobinage (D) inhérente à l'ensouple de chaîne (21), dans une procédure de bobinage de la chaîne (11) sur une ensouple de chaîne (21) qui est l'organe de dévidage (2),
- monter deux ensouples de chaînes (21) sur un métier à tisser (10) pour un tissage avec poils, telles qu'une ensouple de chaîne (22) pour fournir une chaîne de poil (12) et une ensouple de chaîne (23) pour fournir une chaîne de fond (13), entrer l'information de bobinage (D) des deux ensouples de chaînes respectives (22, 23) dans le métier à tisser (10), et
- détecter les quantités de rotation respectives (R2) des ensouples de chaînes respectives (22, 23) dans la direction du déroulement, et calculer la longueur de déroulement (L2) de la chaîne de poil (12) et la longueur de déroulement (L2) de la chaîne de fond (13) en correspondance avec les quantités de rotation respectives (R2) à partir des quantités de rotation respectives détectées (R2) et de l'information de bobinage (D) des ensouples de chaînes respectives (22, 23), dans une procédure de tissage par la chaîne de poil (12) et la chaîne de fond (13) pendant le déroulement des deux ensouples de chaînes (22, 23).
4. Méthode de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon une quelconque des revendications précédentes, dans laquelle les données de la longueur d'enroulement (L1) de la matière bobinée (1) correspondent à chaque quantité constante de la quantité de rotation (R1) de l'organe de dévidage (2).
5. Méthode de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon une quelconque des revendications 1 à 3, dans laquelle la quantité de rotation (R1) de l'organe de dévidage (2) correspond à chaque quantité constante de la longueur d'enroulement (L1) de la matière bobinée (1).
6. Méthode de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon une quelconque des revendications précédentes, comprenant en outre les étapes consistant à :
- créer une fonction à partir de la quantité de rotation (R1) de l'organe de dévidage (2) et la longueur d'enroulement (L1) de la matière bobinée (1),
- détecter la quantité de rotation (R2) de l'organe de dévidage (2) dans la direction du déroulement, lorsque la matière bobinée (1) est utilisée,
- et
- calculer la longueur de déroulement (L2) de la matière bobinée (1) par rapport à la quantité de rotation (R2) à partir de la quantité de rotation détectée (R2) et de la fonction.
7. Dispositif de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement comprenant :
- des moyens (6, 15, 17) destinés à détecter une longueur d'enroulement (L1) d'une matière bobinée (1), dans une procédure de bobinage de la matière bobinée (1) sur l'organe de dévidage (2),
- des moyens (16, 18) destinés à détecter une quantité de rotation (R1) d'un organe de dévidage (2) dans une direction d'enroulement depuis un début de l'enroulement jusqu'à une fin de l'enroulement de la matière bobinée (1), dans une procédure de bobinage de la matière bobinée (1) sur l'organe de dévidage (2),
- un dispositif d'enregistrement (19) qui mémorise la quantité de rotation (R1) de l'organe de dévidage (2) et la longueur d'enroulement (L1) de la matière bobinée (1) en correspondance avec la quantité de rotation comme une information de bobinage (D) inhérente à l'organe de dévidage (2),
- des moyens (43, 44) destinés à transmettre l'information de bobinage (D) mémorisée dans le dispositif d'enregistrement (19) vers un dispositif (10) d'utilisation de l'organe de dévidage (2),
- des moyens (30, 31) destinés à détecter une quantité de rotation (R2) de l'organe de dévidage (2) dans une direction de déroulement, dans une procédure d'utilisation de la matière bobinée (1) pendant le déroulement de l'organe de dévidage (2) dans le dispositif d'utilisation (10), et
- un processeur (25) destiné à calculer une longueur de déroulement (L2) de la matière bobinée (1) par rapport à la quantité de rotation (R2) de l'organe de dévidage (2) dans la direction du déroulement à partir de la quantité de rotation détectée (R2) et de l'information de bobinage transmise (D).
8. Dispositif de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon la revendication 7, dans lequel la matière bobinée (1) est un fil (11, 37).
9. Dispositif de contrôle de données d'une longueur d'enroulement et d'une longueur de déroulement selon la revendication 7, dans lequel la matière bobinée (1) est une chaîne (11).

10. Organe de dévidage (2), destiné à enrouler une matière bobinée (1), comprenant :

un support (43) qui mémorise une quantité de rotation (R1) de l'organe de dévidage (2) et la longueur d'enroulement (L1) de la matière bobinée (1) en correspondance avec la quantité de rotation (R1) comme une information de bobinage (D) inhérente à l'organe de dévidage (2), et dans lequel le support (43) est incorporé dans l'organe de dévidage (2).

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FIG.1

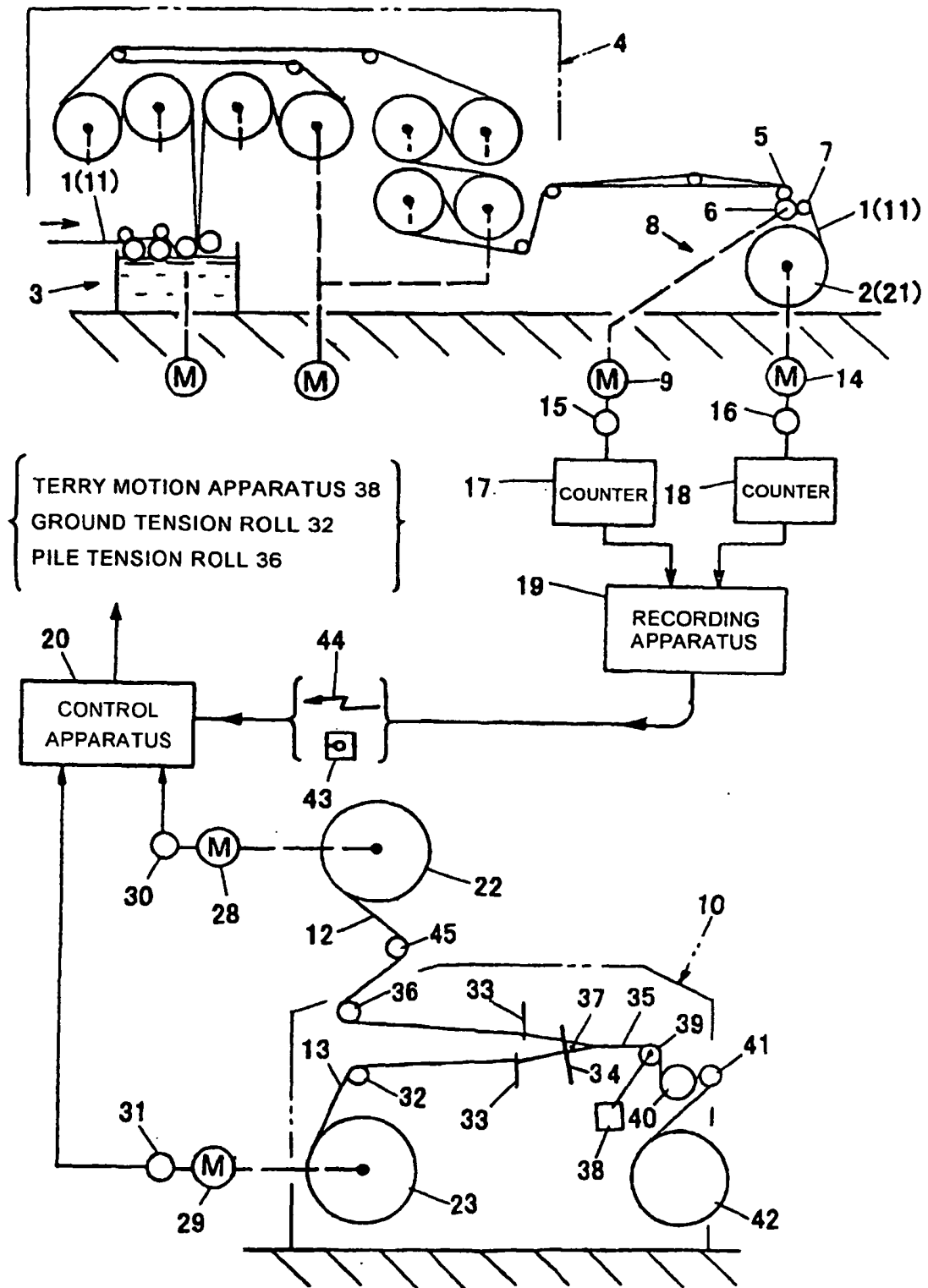


FIG.2

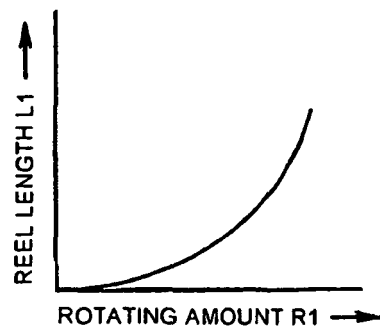


FIG.3

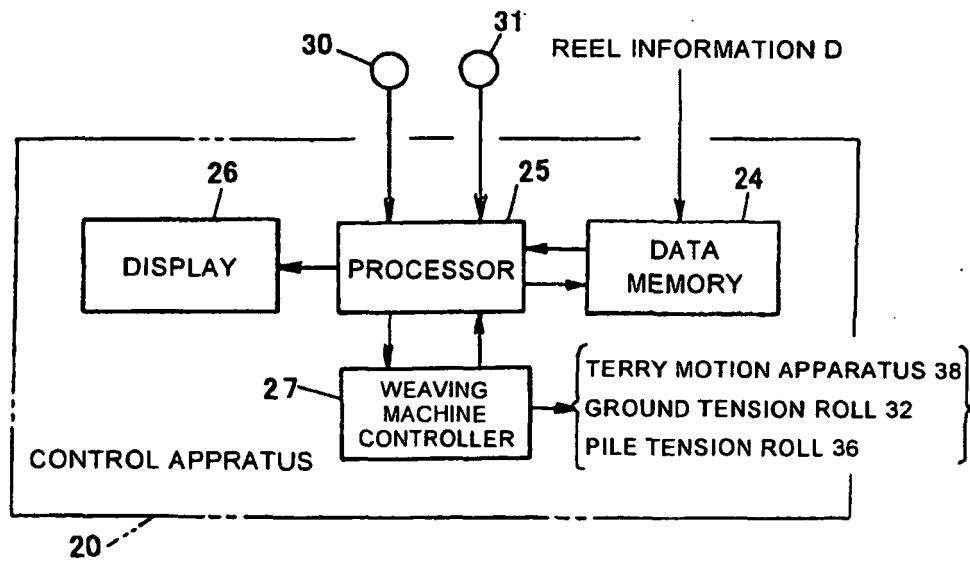
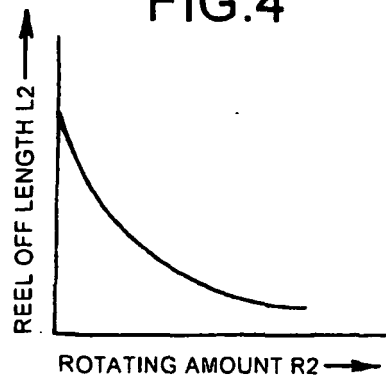


FIG.4



REFERENCES CITED IN THE DESCRIPTION

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