US 20070181737A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2007/0181737 A1

Yamashita (43) Pub. Date: Aug. 9, 2007

(54) TAPE EXTRACTING UNIT

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(21) Appl. No.: **11/551,724**

(22) Filed: **Oct. 23, 2006**

(30) **Foreign Application Priority Data**

Oct. 21, 2005 (JP) 2005-307335

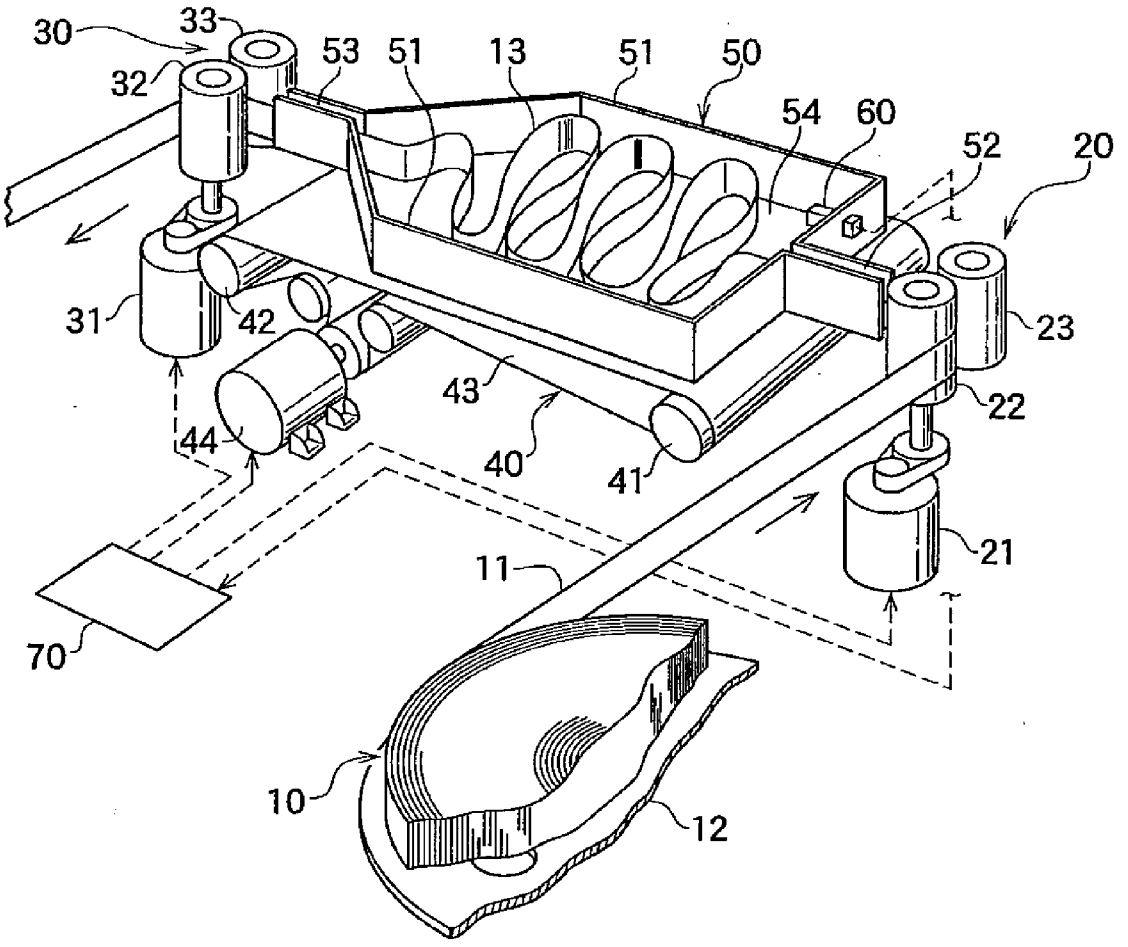
Publication Classification

(51) **Int. Cl.**
B65H 26/00 (2006.01)

(52) **U.S. Cl.** **242/563**

(57) **ABSTRACT**

This invention provides a tape extracting unit having an excellent performance and a compact small structure, the tape extracting unit comprising: two pairs of first and second extracting roller units whose rotation velocities are capable of being adjusted separately; guide frame which is disposed between the first and second extracting roller units and forms an expanding space for storing a tape; and a sensor for detecting the storage condition of the tape within the guide frame electrically, wherein the tape pulled out of the roll body is stored within the expanding space of the guide frame as a storage tape to which no tension is applied; and the rotations of the first and second extracting roller units are controlled based on a detection signal of the sensor so as to be able to extract the storage tape.



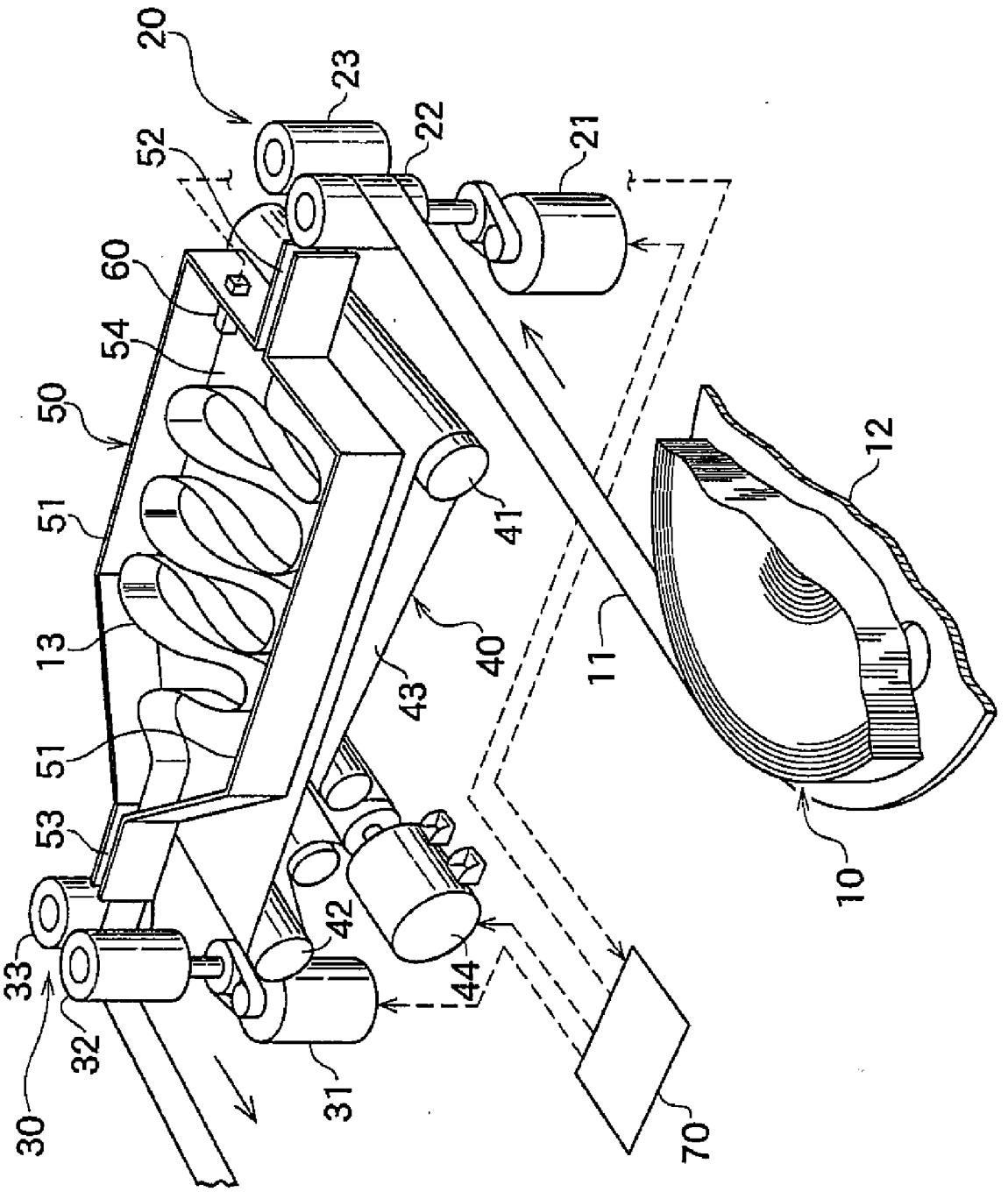

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FIG. 1

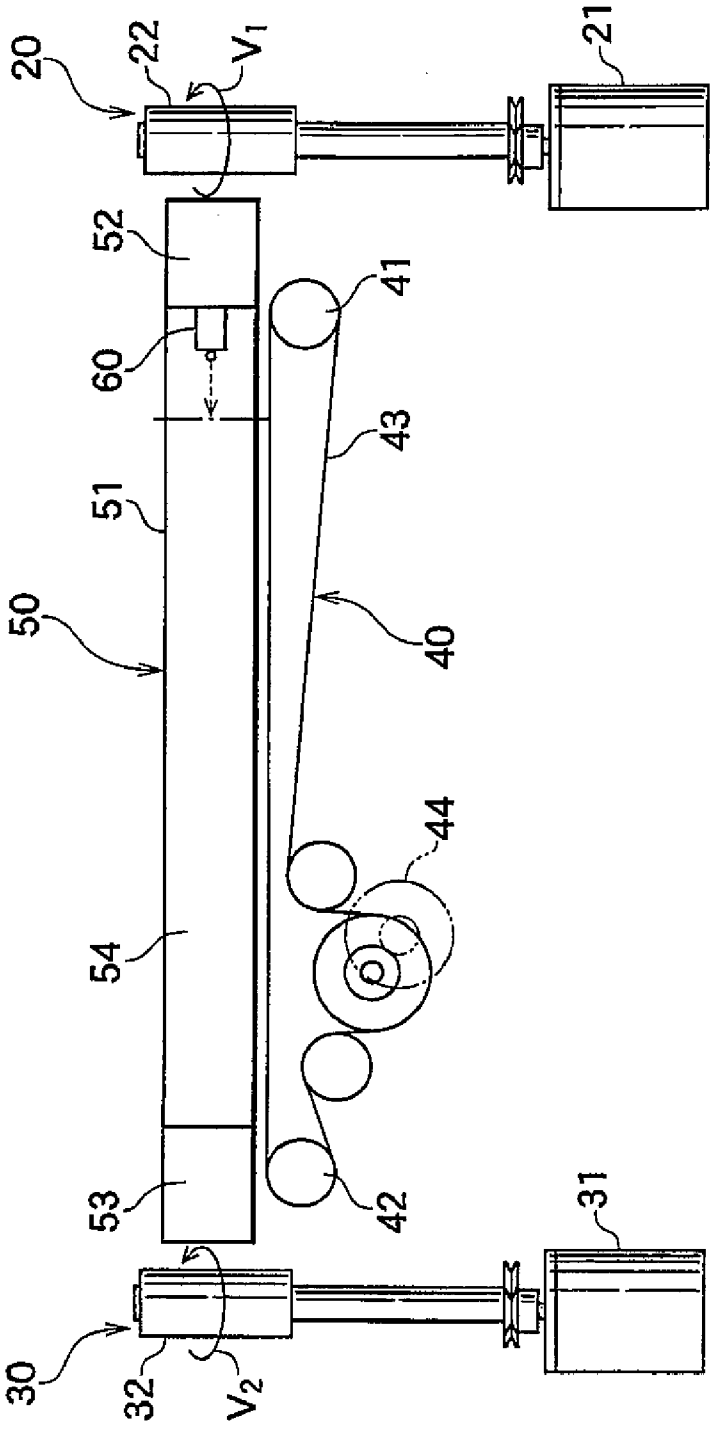


FIG. 2

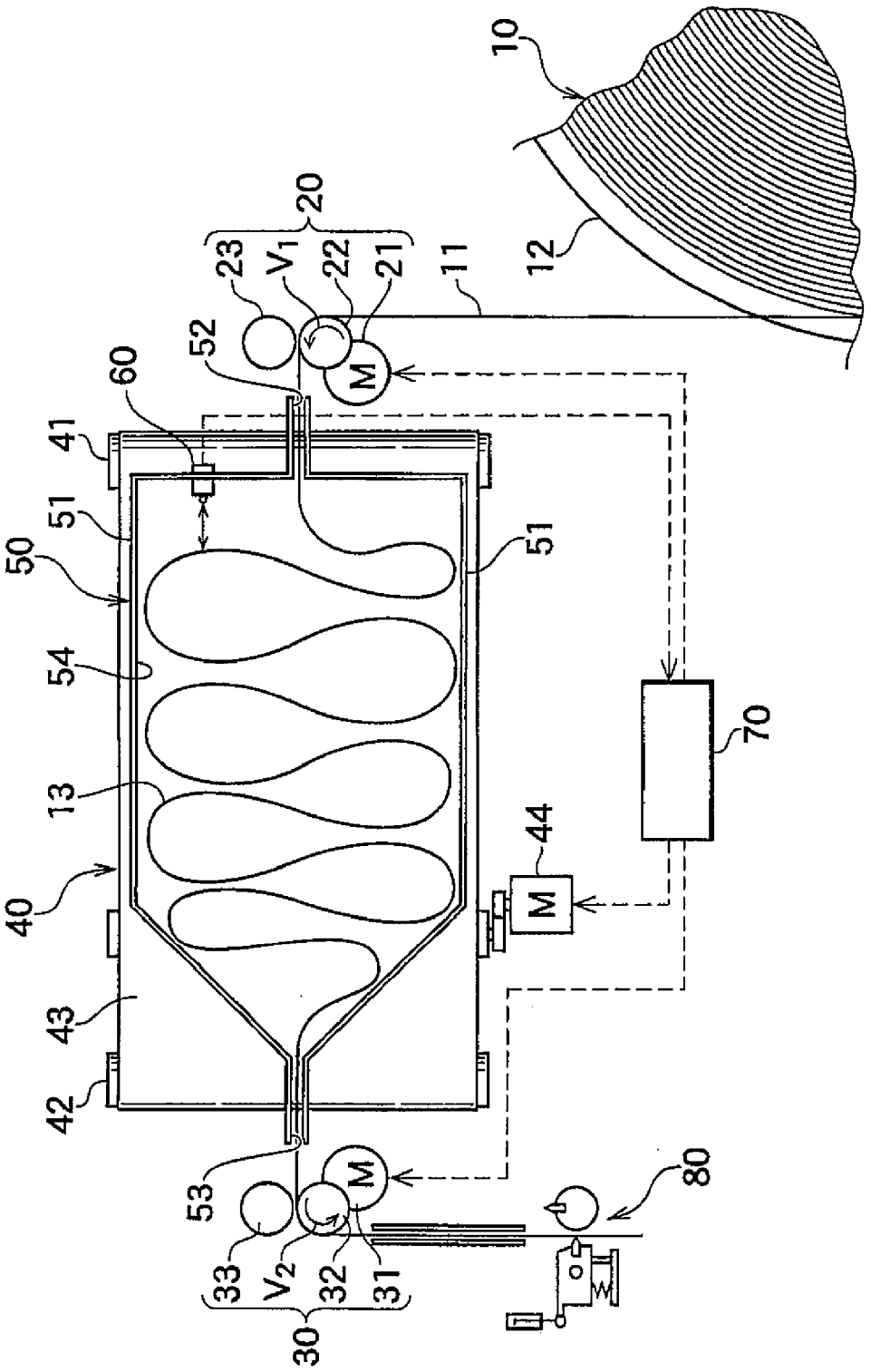

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FIG. 3

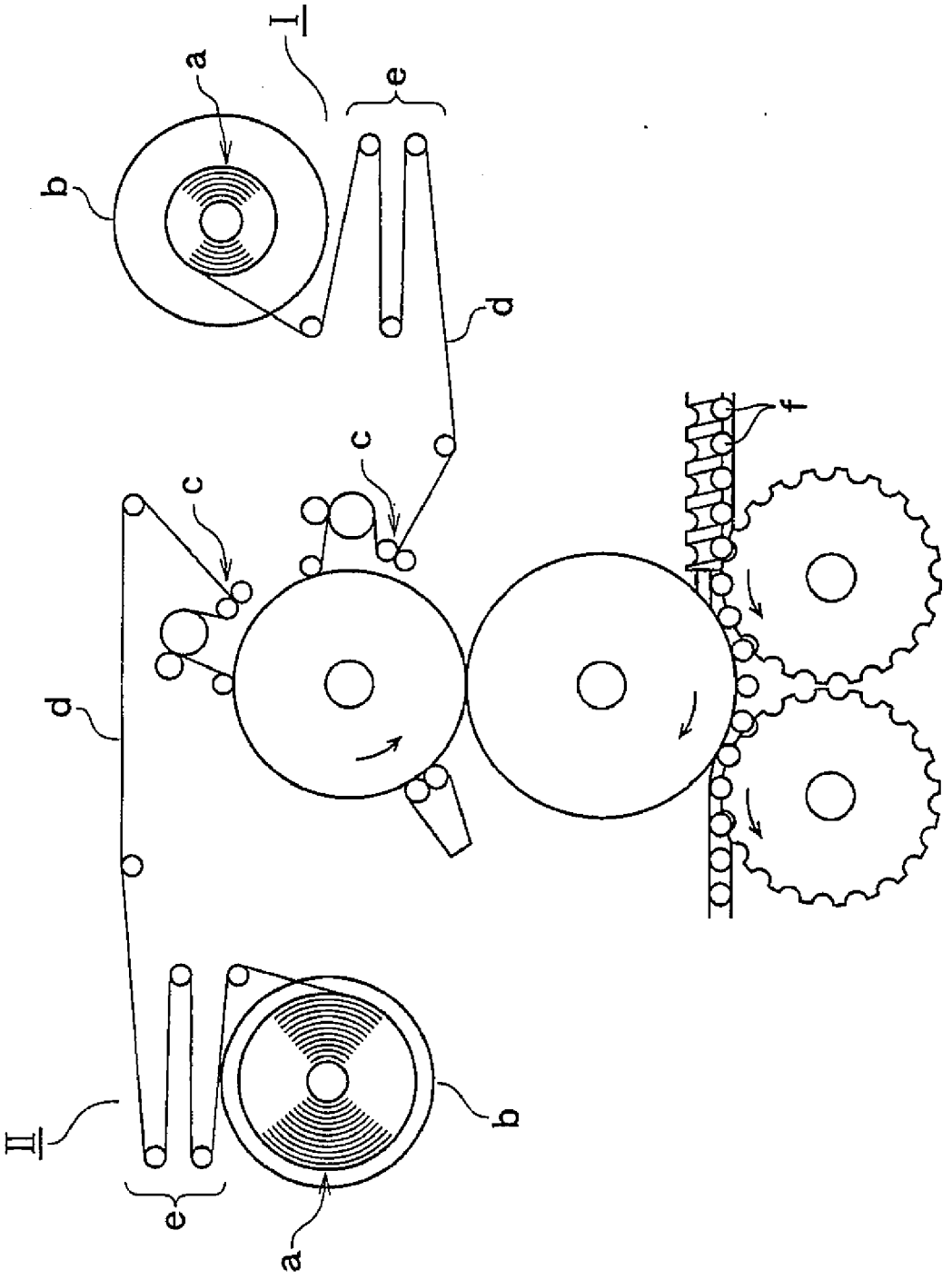


FIG. 4

TAPE EXTRACTING UNIT

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a tape extracting unit applicable to a labeling machine, printing machine and the like, and more particularly to a tape extracting unit which extracts a tape continuously from a roll body which winds a variety of tapes made of paper, resin or the like cylindrically like a roll label.

[0003] 2. Description of the Related Art

[0004] For example, in a roll label type labeling machine shown in FIG. **4**, a roll-like roll label a is loaded on a table b and tape d is extracted and supplied continuously from the roll label a with an extraction force of an extracting roller c constituted of a pair of rollers.

[0005] When the tape d is extracted from the roll label a, it is difficult to extract the tape d such that the peripheral velocity of the roll label a always agrees with an extracting velocity of the tape d because of a change in the extracting velocity of the tape d or change in inertia accompanying reduction of the diameter of the roll label a.

[0006] If a difference occurs between the peripheral velocity of the roll label a and the extracting velocity of the tape d, breaking of the tape d or excessive feeding of the tape d is induced.

[0007] To avoid such phenomenon, conventionally, a tension adjusting unit comprising a plurality of idle type slide rollers is disposed between the table b and the extracting roller c.

[0008] The tape d is wound around the plurality of the slide rollers e which constitute the tension adjusting unit in a folding manner and the slide rollers e are slid corresponding to changes in tension of the tape d so as to relax the change of tension of the tape d.

[0009] A recent labeling machine includes two systems I, II for supplying the labels, so that just after supply of the tape d by the label supply system I is finished, the other label supply system II is activated so as to continue the supply of the tape d.

[0010] The above-described conventional tape tension adjusting technology has following problems.

[0011] (1) The conventional tension adjusting unit needs to be installed so that the slide roller e is allowed to slide about 1 m.

[0012] For the reason, a large space is required for the installation of the tension adjusting unit thereby leading to enlargement of the size of the machine.

[0013] Particularly, because as higher the operating speed of the labeling machine, the larger tension adjusting length of the tape d needs to be secured, the quantity of the slide rollers e installed in parallel of the tension adjusting machine and the amount of slide of the slide roller e need to be increased, so that a higher velocity machine requires a wider installation space.

[0014] (2) A labeling machine equipped with the two label supply systems I, II takes at least 10 and several minutes to change over the tape d.

[0015] The reason why it takes time to change over the tape d is that the conventional tension adjusting machine uses a moving resistance (spring force) of the slide roller e for adjustment of the tension of the tape d so that it takes time for the slide roller d to move resisting the spring force.

[0016] In the labeling machine equipped with the conventional tension adjusting machine, the supply line is required to be so long as to be able to accommodate a large amount of label affixing objects such as containers and the conventional tension adjusting machine results in a cause for enlargement of the entire machine and increase of manufacturing cost.

[0017] (3) Because as described above, the conventional tension adjusting means for the tape d utilizes the moving resistance (spring force) of the slide roller e, tension is always applied to the tape d wound around the slide rollers e. This tension increases in proportion to the supply speed of the tape d.

[0018] On the other hand, the supply velocity of the tape d cannot be increased without limitation from viewpoints of preventing a breaking of the tape d because the tape d has a limit in tensile strength, which is a significant obstacle to high-speed operation of the labeling machine.

SUMMARY OF THE INVENTION

[0019] The present invention has been achieved in views of the above-described circumstances and an object of the invention is to provide a following tape extracting machine.

[0020] (1) To supply the tape smoothly without applying any tension to the tape with a simple structure

[0021] (2) To be structured in a compact size with a high performance

[0022] (3) To be constructed into a small structure including the tape extracting unit

[0023] (4) Machine loaded with the tape extracting unit, which can achieve acceleration of the operating velocity

[0024] (5) Machine loaded with plural tape supplying systems, which can reduce change-over time of the supply systems.

[0025] To achieve the above described object, according to a first aspect of the present invention, there is provided s tape extracting unit disposed at a position in the vicinity of a rotation table loaded with a roll body, comprising: two pairs of first and second extracting roller units whose rotation velocities are capable of being adjusted separately; guide frame which is disposed between the first and second extracting roller units and forms an expanding space for storing a tape; and a sensor for detecting the storage condition of the tape within the guide frame electrically, wherein the tape pulled out of the roll body is passed through the first extracting roller unit, guide frame and second extracting roller unit in succession and disposed; the tape to which no tension is applied is stored within the expanding space of the guide frame as a storage tape; and the rotations of the first and second extracting roller units are controlled based on a detection signal of the sensor so as to be able to extract the storage tape.

[0026] According to a second aspect of the present invention, there is provided a tape extracting unit disposed at a

position in the vicinity of a rotation table loaded with a roll body, comprising: two pairs of first and second extracting roller units whose rotation velocities are capable of being adjusted separately; an auxiliary feed conveyer which is disposed between the first and second extracting roller units and rotates in a single direction from the first extracting roller unit to the second extracting roller unit; guide frame which is disposed on the auxiliary feed conveyer and forms an expanding space for storing a tape; a sensor for detecting the storage condition of the tape within the guide frame electrically; and a control unit for controlling the rotations of the first and second extracting roller units separately based on a detection signal from the sensor, wherein the tape pulled out of the roll body is passed through the first extracting roller unit, guide frame on the auxiliary feed conveyer and second extracting roller unit in succession and disposed; and the control unit controls the rotations of the first and second extracting roller units separately based on a detection signal from the sensor so as to store a tape to which no tension is applied with the expanding space within the guide frame as a storage tape so that the storage tape is capable of being extracted.

[0027] According to a third aspect of the present invention, there is provided the tape extracting unit according to the first aspect or the second aspect wherein the first extracting roller unit is disposed in the upstream of the guide frame while the second extracting roller unit is disposed in the downstream of the guide frame and increase/decrease of the rotation velocity of the first extracting roller unit is capable of being controlled with reference to the rotation velocity of the second extracting roller unit.

[0028] According to a fourth aspect of the present invention, there is provided the tape extracting unit according to the first-third aspect wherein the tape to which no tension is applied is stored in irregular folding manner within the expanding space of the guide frame.

[0029] According to a fifth aspect of the present invention, there is provided the tape extracting unit according to the first-fourth aspect wherein the roll body is a roll label.

[0030] According to a sixth aspect of the present invention, there is provided the tape extracting unit according to the fifth aspect wherein the labeling machine includes two label supply systems.

[0031] The present invention exerts at least one of following advantages.

[0032] (1) According to the present invention, the tape does not need to be wound linearly around the slide rollers because no slide rollers do not need to be installed unlike conventional art and the expanding space within the compact guide frame can be used effectively as a space for storing the tape to which no tension is applied in a large quantity as the storage tape. Accordingly, the tape extracting unit can supply the tape smoothly without applying any tension to the tape with a simple structure.

[0033] (2) The present invention provides a simple structure in which the first extracting roller unit and the second extracting roller unit are disposed in the upstream and downstream of the guide frame and additionally the sensor is provided. Accordingly, the tape extracting unit can be constructed in a small compact structure and the tape to which no tension is applied can be stored in a large quantity thereby securing a high performance.

[0034] (3) Reduction in size and cost of the machine provided with the tape extracting unit can be achieved.

[0035] (4) The passage time taken for the storage tape stored within the guide frame to be carried from the first tape extracting roller unit to the second extracting roller unit can be extended. The longer the passage time between the first and second tape extracting roller units, the more roughly the rotation of the first tape extracting roller unit can be controlled, which is advantageous and very effective for intensifying the tape extracting velocity. Therefore, in the machine provided with the tape extracting unit of the present invention, acceleration of the operating velocity exceeding that of the conventional machine can be achieved.

[0036] (5) In the machine loaded with plural tape supplying systems, the change-over time of the supply systems can be reduced largely.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037] FIG. **1** is an explanatory diagram of an embodiment of the present invention or a partially broken perspective view of a tape extracting machine;

[0038] FIG. **2** is a longitudinal sectional view of the tape extracting machine;

[0039] FIG. **3** is a plan view of the tape extracting machine; and

[0040] FIG. **4** is a model view of a labeling machine.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0041] The embodiment of the present invention will be described with reference to the accompanying drawings.

Construction

(1) Tape Body

[0042] Prior to describing the tape extracting unit of the present invention, the roll body **10** as a premise will be described. The roll body **10** is constituted by winding a tape **11** of a predetermined length around the outer periphery of a core tube or without any core. The tape **11** is a belt-like sheet formed of a variety of materials, such as a label sheet printed continuously preliminarily, a plain label sheet and tag label produced by affixing a label to a separation tape. The size and material of the roll body **10** include well known various rolls selected depending on application purpose.

(2) Outline of Tape Extracting Unit

[0043] FIGS. **1** to **3** show an example of the tape extracting unit of the present invention. The tape extracting unit stores a large amount of the tape **11** extracted from the roll body **10** in a sectioned space such that no tension is applied to the tape **11** while feeding the stored tape **11** in a condition in which no tension is applied thereto and is disposed at a position in the vicinity of a rotation table **12** loaded with the roll body **10**.

[0044] The tape extracting unit comprises two pairs of extracting rollers **20**, **30** each whose rotation velocity can be adjusted separately, an auxiliary feed conveyor which is

disposed between the first and second extracting rollers **20**, **30** and rotates in a single direction from the first extracting roller unit **20** to the second extracting unit **30**, a fixed type guide frame **50** disposed above the auxiliary feed conveyer **40**, a sensor **60** for detecting the storage condition of an extracted tape **11** electrically and a control unit **70** which controls rotations of motors **21**, **31** separately which are drive sources of the first, second extracting roller units **20**, **30** based on a detection signal of the sensor **60**.

(3) Extracting Roller Unit

[**0045**] The first extracting roller unit **20** and the second extracting roller unit **30** are units which produce tape to which no tension is applied (hereinafter referred to as storage tape **13**) within the sectioned guide frame **50** and comprise drive rollers **22**, **32**, idle rollers **23**, **33** and motors **21**, **31** for driving the drive rollers **22**, **32**.

[**0046**] The pairs of the rollers **22**/**23**, **31**/**33** are disposed such that they can rotate around a perpendicular rotation shaft and their outer peripheral faces make contact with each other.

[**0047**] The motors **21**, **31** are connected to the rotation shafts of the drive rollers **22**, **32** rotatably through transmission mechanism such as a belt and gears.

[**0048**] If explaining the functions of the respective extracting roller units **20**, **30**, the first extracting roller unit **20** disposed in the upstream of the auxiliary feed conveyer **40** forms the storage tape **13** by discharging the tape **11** extracted from the roll body **10** into the interior of the guide frame **50**.

[**0049**] The second extracting roller unit **30** has a function for extracting the storage tape **13** discharged into the interior of the guide frame **50** and supplying to a next process such as a rotation cutter **80** as shown in FIG. **3**.

[**0050**] The adjustment method of the rotation velocity of the first extracting roller unit **20** and the second extracting roller unit **30** will be described.

(4) Auxiliary Feed Conveyor

[**0051**] The auxiliary feed conveyor **40** applies an auxiliary carrying force to the storage tape **13** in a direction from the first extracting roller unit **20** to the second extracting roller unit **30** for the bottom portion of the loaded storage tape **13** not to be bent.

[**0052**] In this example, an endless belt **43** is wound between the pair of the drums **41**, **42** so as to transmit a rotation of the motor **44** which is a drive source to part of the belt **43** or any one of the drums to rotate the belt **43** in a single direction.

[**0053**] The belt **43** may be of single sheet endless belt or a plurality of narrow endless tapes may be disposed in parallel with each interval.

[**0054**] The carrying speed of the auxiliary feed conveyer **40** may be extremely low relative to the feed velocity of the first extracting roller unit **20** or the second extracting roller unit **30**.

(5) Guide Frame

[**0055**] The guide frame **50** is a frame body for storing a large amount of the extracted tape **11** (storage tape **13**) on the auxiliary feed conveyer **40**, which is constructed by disposing a pair of guide plates **51**, **51** bent into a substantially U shape on the top of the belt **44** such that they oppose each other.

[**0056**] In the guide frame **50**, a narrow introducing slit **52** which restricts the tape **11** from falling down is formed on the side of the first extracting roller unit **20** and a narrow discharge slit **53** which restricts the tape **11** from falling down is formed on the side of the second extracting roller unit **30**.

[**0057**] A wide expanding space **54** is formed between the slits **52** and **53**. This wide expanding space **54** is a space for storing a large amount of the storage tape **13**.

[**0058**] Therefore, the plan shape of the guide frame **50** and the size of the wide expanding space **54** can be selected appropriately corresponding to the environment in which the tape extracting unit is installed.

[**0059**] In the tension adjusting unit in which the tape is wound linearly around a plurality of slide rollers, space between the wound tapes cannot be utilized effectively.

[**0060**] On the contrary, according to the present invention, the tape does not need to be wound linearly around the slide rollers because no conventional slide rollers do not need to be installed. Consequently, all the expanding space **54** within the guide frame **50** can be used effectively as the storage space of the storage tape **13**.

[**0061**] Thus, the tape **11** of a necessary length can be stored as the storage tape **13** within the guide frame **50** which is a compact space several tens centimeters square.

[**0062**] In the meantime, although the storage plan shape of the storage tape **13** is represented in the folding manner for convenience for description in the drawing, the actual storage plan shape of the storage tape **13** within the guide frame **50** is of irregular shape.

(6) Sensor

[**0063**] The sensor **60** detects a displacement of a tape position at the most outer end located on the supply side (side of the introducing slit **52** or the side of the first extracting roller unit **20**) of the storage tape **13** loaded on the auxiliary feed conveyor **40** and disposed in part of the guide frame **50** near the introducing slit **52** of the guide frame **50** to be directed to the storage tape **1**.

[**0064**] As the sensor **60** for detecting the position of the tape, a reflection type photoelectric tube capable of detecting a distance to the storage tape **13** electrically may be used. In addition, for example, a known contact type limit switch may be used.

(7) Control Unit

[**0065**] The first, second extracting roller units **20**, **30**, the respective motors **21**, **31**, the motor **44** of the auxiliary feed conveyer **40** and the sensor **60** are connected electrically to the control unit **70**.

[**0066**] A program for controlling the rotations of the motors **21**, **31** of the first extracting roller unit **20** and the second extracting roller unit **30** individually and a program for controlling the rotation of the motor **44** of the auxiliary feed conveyer **40** are incorporated in the control unit **70**.

[0067] The control method of the first extracting roller unit **20** and the second extracting roller unit **30** by the control unit **70** will be described.

[0068] Assuming that the carrying velocity of the first extracting roller unit **20** is V_1 and the carrying velocity of the second extracting roller unit **30** is V_2, the carrying velocity V_1 on the side of the first extracting roller unit **20** is controlled with reference to the carrying velocity V_2 of the second extracting roller unit **30**.

[0069] Further, the carrying velocity V_1 of the first extracting roller unit **20** is controlled with a difference in velocity due to slight increase or decrease relative to the carrying velocity V_2 of the second extracting roller unit **30**.

[0070] If the carrying velocities V_1, V_2 of the first, second extracting roller units **20**, **30** are set to the same velocity, not only it is technically difficult to meet a trend of intensifying the operating speed of the machine but also a displacement such as slippage of the tape **11** cannot be absorbed.

[0071] Thus, according to the present invention, the length of the storage tape **13** secured within the guide frame **50** is supplied with a play and the difference in velocity between the carrying velocities V_1 and V_2 of the first, second extracting roller units **20**, **30** is controlled on the side of the first extracting roller unit **20** so as to complement the increase/decrease of the tape **13**.

[0072] If the storage amount of the storage tape **13** located within the guide frame **50** is short based on the increase/decrease information of the storage amount of the storage tape **13** by the sensor **60**, the rotation velocity V_1 of the first extracting roller **20** is accelerated to increase the supply amount of the tape **11** and if the storage amount of the storage tape **13** is excessive, the rotation velocity V_1 of the first extracting roller unit **20** is decreased. As a consequence, the storage tape **13** to which no tension is applied can be stored continuously within the guide frame **50**.

[0073] The control method of the respective rotation velocities V_1, V_2 of the first extracting roller unit **20** and second extracting roller unit **30** is just an exemplification, needless to say, other control methods may be applied.

Operation

[0074] The operation of the tape extracting unit will be described.

[0075] (1) Preliminary Preparation

[0076] A beginning end of the tape **11** of the roll body **10** loaded on the rotation table **12** is extracted with the hand and set as follows.

[0077] First, the extracted tape is passed between the pair of the rollers **22** and **23** constituting the first extracting roller unit **20** and then, passed through the introducing slit **52** in the guide frame **50** provided on the auxiliary feed conveyer **40**, the wide expanding space **54** and the discharge slit **53** in sequence and finally through the pair of the rollers **32**, **33** constituting the second extracting roller unit **30** so as to complete the setting of tape **11**.

[0078] When setting the tape **11**, it is recommended to extract the tape **11** by an extra amount into the guide frame **50**. Additionally, this setting of the tape **11** can be automatized.

[0079] (2) Operation Start

[0080] If an instruction from the control unit **70** is received, the first extracting roller unit **20** and the second extracting roller unit **30** start the rotation and at the same time, the auxiliary feed conveyer **40** also starts the rotation.

[0081] The first extracting roller unit **20** pulls out the tape **11** from the roll body **10** compulsorily and supplies it continuously into the wide expanding space **54** through the introducing slit **52** in the guide frame **50** provided on the auxiliary feed conveyer **40**.

[0082] The tape **11** supplied into the wide expanding space **54** makes contact with the inside face of the guide frame **50** and meanders so that it is stored as the storage label **13**.

[0083] The storage label **13** is carried by the auxiliary feed conveyer **40** keeping the storage condition. The storage label **13** stored within the expanding space **54** in the guide frame **50** is extracted through the discharge slit **53** by the second extracting roller unit **30** and supplied to a rotation cutter unit **80** or the like.

[0084] The tape **11** extracted from the roll body **10** by the first extracting roller unit **20** is supplied continuously into the expanding space **54** of the guide frame **50** in a condition in which no tension is applied thereto and stored as the storage tape **13**. The storage tape **13** is discharged out of the guide frame **50** by the second extracting roller unit **30** in parallel.

[0085] Because the storage tape **13** can be discharged in the condition in which no tension is applied thereto regardless of the carrying velocity by the second extracting roller unit **30**, the tape **11** can be carried at high speeds.

[0086] Therefore, for example, in the labeling machine, the operating velocity of the machine can be accelerated.

[0087] (3) Control of the Storage Amount of the Storage Label

[0088] As described above, the sensor **60** always monitors the storage tape stored within the expanding space **54** of the guide frame **50**. If it detects shortage of the storage tape **13**, the sensor **60** transmits an acceleration signal to the motor **22** of the first extracting roller unit **20** through the control unit **70** so as to increase the supply amount of the tape **11**.

[0089] On the contrary, if the sensor **60** detects an excessive supply of the storage tape **13**, it transmits a deceleration signal to the motor **22** of the first extracting roller unit **20** through the control unit **70** so as to decrease the supply amount of the tape **11**.

[0090] As described above, the control unit **70** controls the increase/decrease of the tape supply amount by the first extracting roller unit **20** so as to complement the increase/decrease of the storage tape **13** stored within the expanding space **54** of the guide frame **50** based on a detection signal from the sensor **60**.

[0091] By continuing this operation, the storage tape **13** can be discharged (pulled out) continuously while storing the storage tape **13** to which no tension is applied within the expanding space **54** of the guide frame **50**.

[0092] In the present invention, the storage tape **13** stored within the expanding space **54** of the guide frame **50** corresponds to the tape wound around the plurality of the slide rollers of the conventional apparatus and the storage amount of the storage tape **13** means the adjustment length.

[0093] Although the conventional apparatus always applies tension to the tape wound around the plurality of the slide rollers, the present invention provides an apparatus capable of extracting the storage tape **13** without applying any tension, which is a point completely different from the conventional apparatus.

[0094] Additionally, the tape **11** can be stored in the irregular folding manner within the compact expanding space **54** as a large amount of the storage tape **13** so that the space can be used effectively.

[0095] Because the narrow discharging slit **53** is formed as an exit at only a single position in the guide frame **50**, the storage tape **13** can be discharged smoothly out of the guide frame **50** in however irregular a condition the storage tape **13** is stored within the expanding space **54** of the guide frame **50**.

[0096] The passage time taken for the storage tape **13** stored within the guide frame **50** to be carried from the first tape extracting unit **20** to the second extracting roller unit **30** can be extended.

[0097] The longer the passage time between the first and second extracting roller units **20** and **30** in pair, the more roughly the rotation of the first tape extracting unit **20** can be controlled, which is an advantage and very effective for intensifying the extracting velocity of the tape **11**.

[0098] That is, the tape **11** needs to be supplied by the first tape extracting unit **20** only by an amount larger than the discharge amount by the second extracting unit **30**. Consequently, the discharge of the storage tape **13** by the second extracting roller unit **30** is never hampered.

[0099] Thus, in a machine loaded with the tape extracting unit of the present invention, acceleration of the operating velocity exceeding that of the conventional apparatus can be achieved.

Other Embodiment

[0100] A static complete surface floor or a floor composed of arranged plates with each gap may be used instead of the above-described auxiliary feed conveyer **40**. If the auxiliary feed conveyer **40** is replaced with the complete surface floor or the floor of arranged plates with each gap, it is recommended to apply a low friction sheet on the surface thereof or coat the surface with chemical agent.

[0101] It is permissible to use a plurality of rollers instead of the auxiliary feed conveyer **40**. Any structure may be used as long as the storage tape **13** surrounded by the guide frame **50** can slide with a small moving resistance.

[0102] If the tape extracting unit of the present invention is applied to the labeling machine provided with the two label supply systems I, II shown in FIG. **4**, the change-over time of the label supply system can be reduced largely as compared with the conventional apparatus.

[0103] Thus, the storage amount of the label affixing objects such as the container is reduced so that the length of the supply line can be reduced, thereby achieving reduction in size of the entire machine and manufacturing cost.

What is claimed is:

1. A tape extracting unit disposed at a position in the vicinity of a rotation table loaded with a roll body, comprising:

two pairs of first and second extracting roller units whose rotation velocities are capable of being adjusted separately;

a guide frame which is disposed between the first and second extracting roller units and forms an expanding space for storing a tape; and

a sensor for detecting the storage condition of the tape within the guide frame electrically, wherein the tape pulled out of the roll body is passed through the first extracting roller unit, guide frame and second extracting roller unit in succession and disposed; the tape to which no tension is applied is stored within the expanding space of the guide frame as a storage tape; and

the rotations of the first and second extracting roller units are controlled based on a detection signal of the sensor so as to be able to extract the storage tape.

2. A tape extracting unit disposed at a position in the vicinity of a rotation table loaded with a roll body, comprising:

two pairs of first and second extracting roller units whose rotation velocities are capable of being adjusted separately;

an auxiliary feed conveyer which is disposed between the first and second extracting roller units and rotates in a single direction from the first extracting roller unit to the second extracting roller unit;

a guide frame which is disposed on the auxiliary feed conveyer and forms an expanding space for storing a tape;

a sensor for detecting the storage condition of the tape within the guide frame electrically; and

a control unit for controlling the rotations of the first and second extracting roller units separately based on a detection signal from the sensor, wherein

the tape pulled out of the roll body is passed through the first extracting roller unit, guide frame on the auxiliary feed conveyer and second extracting roller unit in succession and disposed; and

the control unit controls the rotations of the first and second extracting roller units separately based on a detection signal from the sensor so as to store a tape to which no tension is applied with the expanding space within the guide frame as a storage tape so that the storage tape is capable of being extracted.

3. The tape extracting unit according to claim 1 or 2 wherein the first extracting roller unit is disposed in the upstream of the guide frame while the second extracting roller unit is disposed in the downstream of the guide frame and increase/decrease of the rotation velocity of the first extracting roller unit is capable of being controlled with reference to the rotation velocity of the second extracting roller unit.

4. The tape extracting unit according to claim 1 to 3 wherein the tape to which no tension is applied is stored in irregular folding manner within the expanding space of the guide frame.

5. The tape extracting unit according to claim 1 to 4 wherein the roll body is a roll label.

6. The tape extracting unit according to claim 5 wherein the labeling machine includes two label supply systems.

* * * * *