

(19)



(11)

EP 2 523 882 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
06.01.2016 Bulletin 2016/01

(51) Int Cl.:
B65H 23/04^(2006.01) B65H 23/182^(2006.01)

(21) Application number: **11700915.9**

(86) International application number:
PCT/EP2011/050390

(22) Date of filing: **13.01.2011**

(87) International publication number:
WO 2011/086122 (21.07.2011 Gazette 2011/29)

(54) UNREELING ASSEMBLY, PARTICULARLY FOR LABELING DEVICES

ABSPULANORDNUNG, INSBESONDERE FÜR ETIKETTIERUNGSVORRICHTUNGEN

ENSEMBLE DÉROULEUR, EN PARTICULIER POUR LES DISPOSITIFS D'ÉTIQUETAGE

(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

- **DI PINTO, Ivan**
I-46045 Marmirolo (IT)
- **GAZZINI, Alessandro**
I-46028 Sermide (IT)

(30) Priority: **15.01.2010 IT VR20100004**

(74) Representative: **Modiano, Micaela Nadia et al**
Modiano & Partners (IT)
Via Meravigli, 16
20123 Milano (IT)

(43) Date of publication of application:
21.11.2012 Bulletin 2012/47

(73) Proprietor: **Sacmi Verona S.P.A.**
40026 Imola (BO) (IT)

(56) References cited:
DE-A1-102007 050 012 US-A- 4 842 660
US-A- 5 306 382 US-A1- 2004 140 387
US-A1- 2008 048 060

(72) Inventors:
• **PEDERCINI, Maurizio**
I-46045 Marmirolo (IT)

EP 2 523 882 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical field

[0001] The present invention relates to an unreeling assembly, particularly for labeling devices.

Background Art

[0002] Currently, some types of labeling devices for containers such as bottles or jars have means for feeding bands of film to applicator elements, of various types, which are designed to apply the labels on the containers.

[0003] The feeding means have, generally, an unreeling assembly, which is typically comprised of two reels of continuous film which are supported by a respective reel support; from one of the two reels, the continuous film is unreeled by means of a traction drum, and is then cut by a cutting assembly, arranged downstream of the unreeling assembly, to be then sent to the applicator elements.

[0004] Between the "working" reel, i.e. the reel from which the continuous film is unreeled, and the traction drum a plurality of return rolls are normally interposed, as well as a tensioning dandy roll.

[0005] The unreeling assembly, in addition to feeding the continuous film to the cutting assembly to be cut, also has the function of correctly tensioning the film, longitudinally, by means of the action of the tensioning dandy roll.

[0006] In order to keep the film unreeled from the working reel correctly tensioned, the tensioning dandy roll cooperates with the reel support, which can be governed by a braking device or by a servomotor. Although the unreeling assemblies thus structured are widely used, they are not without drawbacks.

[0007] In particular, in applications in which plastic films are used, significant limitations arise when particularly extensible continuous films are unreeled, as is the case with films of reduced thickness, low density and/ or limited height.

[0008] A first partial solution adopted nowadays to eliminate this drawback is to combine the braking device with a pneumatic motor, which also acts on the reel support and makes it possible to minimize the tension of the film being unreeled and therefore its longitudinal extension, predominantly during the initial phase of unreeling the reel.

[0009] However, using a pneumatic motor has some drawbacks including notably the consumption of compressed air, noise, and greater wear of the braking devices.

[0010] A second type of unreeling assemblies has, instead of the pneumatic motor and the braking devices, a second servomotor which is designed to assist the servomotor associated with the traction drum to correctly handle the film being unreeled from the reel, both during the initial phase of unreeling (thus eliminating the stress

on the film which is due to the effect of inertia of the rotating elements, reel and reel support), and during the work phase.

[0011] Basically, when a displacement of the tensioning dandy roll from the set position is detected, the control device operates on the servomotor which is associated with the reel being unreeled to vary the linear speed of the unreeled film so as to return the tensioning dandy roll to the set position.

[0012] A drawback of this solution is the lack of control over the position of the tensioning dandy roll over time, with the consequence of not succeeding in optimizing the performance levels of the unreeling assembly during the work phase and, especially, during the step of connecting the end portion of the film being unreeled from the reel which is about to be depleted and the free end portion of the film which is wound around the other reel.

[0013] In particular, in order to perform the connection adequately, and without subjecting the continuous film to excessive stress, the known unreeling assemblies reduce the speed of the traction drum with a consequent reduction in the productivity of the labeling device that is arranged downstream of the unreeling assembly.

[0014] Prior art devices were disclosed in e.g. DE 10 2007 050 012 A1 and US 2008/048060 A1.

Disclosure of the Invention

[0015] The aim of the present invention is to solve the problems and overcome the drawbacks mentioned above, by providing an unreeling assembly, particularly for labeling devices, that makes it possible to keep the speed of the traction drum high even during the connection step.

[0016] Within this aim, an object of the present invention is to develop an unreeling assembly, particularly for labeling devices, which makes it possible to reduce the stress to which the film is subjected, both during the work phase and during the connection step, with the same geometry of the unreeling assembly.

[0017] A further object of the invention is to provide an unreeling assembly, particularly for labeling devices, which is capable of increasing the range of grammages of the films to be processed.

[0018] This aim, as well as these and other objects which will become more evident hereinafter, are achieved by an unreeling assembly, particularly for labeling devices, comprising a supporting frame for at least two reels of continuous film which are supported by a respective reel support, which can be actuated to rotate about an unreeling axis of the reel by a respective servomotor, and a motorized traction drum, which is designed to unreel said continuous film from one of said at least two reels of continuous film, between the reel of film being unreeled and said traction drum there being at least one element for tensioning said continuous film, said tensioning element being movable, with respect to said supporting frame, along a respective movement path, char-

acterized in that it comprises control means which operate on the servomotor and are adapted to control the position of said tensioning element along the respective movement path.

[0019] Advantageously, the control means are adapted to move, on command, said tensioning element between at least one first working position, in which said tensioning element is adapted to apply a preset tension to said continuous film being unreeled, and at least one second accumulation position for increasing the length of the continuous film that lies between said reel being unreeled and said traction drum with respect to the length of said continuous film, between said reel being unreeled and said traction drum, with said tensioning element in said first working condition.

Brief description of the drawings

[0020] Further characteristics and advantages of the invention will become better apparent from the following detailed description of some preferred, but not exclusive, embodiments of an unreeling assembly, particularly for labeling devices, according to the invention, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a schematic view of an unreeling assembly;

Figure 1a is an enlarged view of a portion of the joining station shown in Figure 1;

Figure 2 is a graph showing the typical trend of the tension to which a continuous film being unreeled from a reel is subjected as a function of the angle of the tensioning dandy roll;

Figure 3 shows a possible trend, as a function of time, of the position of a tensioning dandy roll of an unreeling assembly according to the invention in proximity to the connection step;

Figure 3 shows a possible variation, again as a function of time, of the trend of the position of a tensioning dandy roll of an unreeling assembly according to the invention in proximity to the connection step; and

Figure 4 shows the trend, as a function of time, of the position of a tensioning dandy roll of a known unreeling assembly in proximity to the connection step.

Ways of carrying out the Invention

[0021] In the embodiments that follow, individual characteristics shown in relation to specific examples may in reality be interchanged with other, different characteristics, existing in other embodiments.

[0022] Moreover, it should be noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

[0023] With reference to the figures, the present inven-

tion relates to an unreeling assembly, generally indicated with the reference numeral 1, particularly for labeling devices.

[0024] The unreeling assembly 1 comprises, in particular, a supporting frame 2 for at least two reels 3 of continuous film 10 which will be cut, typically by a cutting assembly, which is arranged downstream of the unreeling assembly 1, to make the labels.

[0025] Each reel 3 is supported by a respective reel support 4, which is rotatably mounted on the supporting frame 2 and can be actuated to rotate about a respective unreeling axis 100 of the reel 3 by a respective servomotor (13a, 13b).

[0026] The unreeling assembly 1 is moreover provided with a traction drum 5, which is motorized for example by an actuation motor 9 and is designed to unreel the continuous film 10 from one of the two reels 3 (hereinafter 3 a shall indicate the reel from which the continuous film 10 is being unreeled).

[0027] For keeping the tension of the continuous film 10 being unreeled from the reel 3a constant, at least one tensioning element 6 is provided between the reel 3a and the traction drum 5, which tensioning element is movable, with respect to the supporting frame 2, along a respective movement path that is schematized in Figure 1 with the arrow marked with the reference numeral 200.

[0028] According to the present invention, the unreeling assembly 1 comprises control means 11, which operate on the servomotor 13a that is associated with the reel being unreeled 3a, to control the position of the tensioning element 6 along the respective movement path 200.

[0029] These control means 11 are, in particular, adapted to move, on command and, advantageously, under defined operative conditions which shall be described in more detail hereinafter, the tensioning element 6 between at least one first working position, in which the tensioning element 6 is adapted to apply a preset tension to the continuous film 10 being unreeled, and at least one second accumulation position.

[0030] In this second accumulation position, the length of the continuous film 10 that lies between the reel 3 a being unreeled and the traction drum 5 is greater than the length of the continuous film 10 between the reel 3a being unreeled and the traction drum 5 when the tensioning element 6 is in the first working position.

[0031] In an entirely similar fashion, the control means 11 are capable, by operating on the servomotor (and specifically on the servomotor 13b that is associated with the reel 3b), of bringing, in a controlled manner and according to a rule of motion which can be preset (see for example the trend of φ in the time interval Δt_4 in Figures 3 and 3a), the tensioning element 6 from the post-connection position (indicated with φ_2 in Figures 3 and 3a), and more generally from any position that is different from the first working position φ_0 , to the first working position φ_0 by precisely controlling (following the aforementioned rule of motion) its movement over time and, consequently,

controlling the tension to which the continuous film 10 is subjected during the entire connection step.

[0032] With reference to the embodiment shown schematically in Figure 1, downstream of the traction drum 5 there is an applicator 20 of labels which are applied from the continuous film 10 onto containers to be labeled.

[0033] For optimizing the unreeling of the continuous film 10 from the reel 3a, the supporting frame 2 supports, between the reel 3a of continuous film 10 being unreeled and the traction drum 5, a plurality of return rolls 7 which include some return rolls of the tensioning device 7a.

[0034] Advantageously, between the at least two reels 3 and the tensioning element 6, there is a joining station 8 which is designed to provide the connection between the end portion of the continuous film 10 being unreeled from the reel 3a about to be depleted and the end portion 3c of the film supported by the other reel 3b.

[0035] According to a preferred embodiment, the tensioning element 6 can be constituted by what is called a tensioning dandy roll 6a which is supported by the supporting frame 2 so that it can rotate about a respective pivoting axis 101.

[0036] In this specific case, the position of the tensioning element 6 with respect to the supporting frame 2 is defined by the angular shift (φ) of the tensioning dandy roll 6a about the pivoting axis 101 with respect to a predetermined base position.

[0037] Conveniently, as previously mentioned, the control means 11 comprise means for commanding the servomotor (13a, 13b) that is associated with the two reels (3a, 3b).

[0038] Advantageously, the first working position of the tensioning element 6 substantially corresponds to the minimum tension position (designated by φ_0 in the chart shown in Figure 2) so as to minimize the longitudinal stress to which the film being unreeled is subjected and increase the stability of operation of the unreeling assembly 1.

[0039] According to a possible embodiment, the control means 11 are adapted to bring the tensioning element 6 from the first working position to the second accumulation position by means of a variation in the angular velocity (ω) of the servomotor 13a that is associated with the reel 3a being unreeled.

[0040] In practice, the control means 11 are capable of setting, substantially instantaneously, the speed (ω) of the servomotor 13a in such a way that the linear velocity of the continuous film 10 being unreeled from the reel 3a (i.e. upstream of the tensioning dandy roll 6a) is greater than the linear velocity of the film on the traction drum 5 (i.e. downstream of the tensioning dandy roll 6a).

[0041] This produces the movement of the tensioning dandy roll 6a from the first working position ω_0 to the second accumulation position ω_1 with consequent accumulation of a quantity of continuous film 10 that can be used by the applicator element 20 in the subsequent connection step.

[0042] The control means 11 are further capable of op-

erating on the servomotor 13a to exactly control (as can be seen for example in the diagram shown in Figure 3) the angular position of the tensioning dandy roll 6a during the entire connection step and, therefore, both to accumulate the film and to return the tensioning dandy roll 6a from the post-connection angular position φ_2 to the first working position φ_0 according to a rule of motion which can be preset.

[0043] In practical terms, the control means 11 are able to operate on the servomotors (13a, 13b) which are associated with the two reels (3a and 3b) to precisely define the movement of the tensioning dandy roll 6a (and more generally of the tensioning element 6) as a function of time, and according to a rule of motion which can be preset, along the respective movement path 200, unlike what occurs in the unreeling assemblies used today, which operate on the angular velocity of the servomotor or on the braking device only if a shift of the tensioning dandy roll 6a from the working position is detected and, especially, according to a trend that is completely non-controlled, as shown in the diagram in Figure 4.

[0044] In some applications, for example if the joining station 8 is capable of making an optimal connection only at reduced linear velocities of the film upstream of the tensioning dandy roll, it will be possible, as shown in the diagram in Figure 3a, to use a rule of motion (in the sector Δt_3) to slow down, before effecting the connection, the linear velocity of the film that is crossing the joining station 8 by "consuming" part of the film accumulated by the tensioning dandy roll 6a in the second accumulation position without necessarily reducing the speed of the traction drum 5.

[0045] The operation of the unreeling assembly 1 according to the invention is evident from the foregoing description.

[0046] In particular, the first working position φ_0 of the tensioning dandy roll 6a is set, advantageously, on the basis of the geometry of the unreeling assembly 1 (position of the return rolls of the tensioning device 7a and of the tensioning dandy roll 6a) so as to minimize, during the operation of the unreeling assembly 1, the tensions to which the continuous film 10 being unreeled is subjected.

[0047] Before executing the step of connecting the end portion of the film being unreeled from the reel 3a that is about to be depleted and the free end 3c of the continuous film 10 wound around the other reel 3b, the control means 11, which are for example constituted by a processor or by a PLC, operate on the servomotor 13a that is associated with the reel support 4 on which the reel 3a that is about to be depleted is wound, so as to "force" the movement of the tensioning dandy roll 6a towards the second accumulation position (indicated with φ_1 in the diagrams in Figure 3 and Figure 3a) according to a rule of motion that can be preset.

[0048] This "forcing", as has been explained, is done by acting on the angular velocity ω of the servomotor 13a that is associated with the reel 3a about to be de-

pleted by varying, in particular, this velocity gradually so that the trend of the movement of the tensioning element 6 as a function of time (for the purposes of example, the variation of φ as a function of time as shown in Figures 3 and 3a) follows a "rule of motion" that is set appropriately.

[0049] Similarly, the control means 11 operate on the servomotor 13b so as to gradually return, again following a "rule of motion" which can be preset, the tensioning element 6 from the post-connection position (position indicated with φ_2 in Figure 3 and in Figure 3a) to the first working position φ_0 .

[0050] The rules of motion used to command the movement of the tensioning dandy roll 6a (and, more generally, of the tensioning element 6) along the respective movement path 200 are, in particular, chosen so as to:

- a) contain as far as possible the "stress" to which the continuous film 10 is subjected during the connection step; and/or
- b) limit the quantity of continuous film 10 that is subjected to the variation of tension and, therefore, potentially to be discarded; and/or
- c) prevent the detachment of the continuous film 10 from the return rollers 7 and 7a; and/or
- d) contain the reduction of the speed of the traction drum 5.

[0051] In more detail, the rules of motion are to be considered a succession, as a function of time, of intermediate positions between the initial position (for example φ_0 or φ_2) and the final position (for example φ_1 or, respectively, φ_0) that is desired to be reached.

[0052] According to the invention, the control means 11 are adapted to generate an extremely high number of intermediate positions so that the "rules of motion" that are actually followed by the tensioning dandy roll 6a tend towards the preset "rules of motion", such as for example a fifth-order polynomial or a trapezoidal.

[0053] All characteristics of the invention, indicated above as advantageous, advisable or similar, may also be missing or substituted by equivalent characteristics.

[0054] The individual characteristics set out with reference to general teachings or to specific embodiments may all be present in other embodiments or may substitute characteristics in such embodiments.

[0055] In practice it has been found that in all embodiments the invention is capable of fully achieving the set aim and objects.

[0056] In particular, the use of an unreeling assembly 1 according to the invention, by making it possible to perceptibly reduce the longitudinal stress on the film being unreeled, allows the use of continuous films (10) with low grammage and/or limited height and/or low quality.

[0057] Furthermore, thanks to the control means 11 it is possible to preset several rules of motion so as to make it possible to optimize, for example, the accumulation of film before the connection step or to limit the stress during

the passage from the post-connection position to the first working position.

[0058] Lastly, it has been found that, with the ability to simultaneously control the speed of the film that is crossing the joining station and the accumulation of the continuous film, an optimal connection can be obtained without necessarily reducing the speed of the traction drum and, therefore, without compromising the productivity of the labeling device.

[0059] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0060] In practice the materials used, provided they are compatible with the specific use, as well as the dimensions and the shapes may be any, according to the requirements.

[0061] Moreover, all the details may be substituted by other, technically equivalent elements.

Claims

1. An unreeling assembly (1), particularly for labeling devices, comprising a supporting frame (2) for at least two reels (3) of continuous film (10) which are supported by a respective reel support (4), which can be actuated to rotate about an unreeling axis (100) of the reel (3) by a respective servomotor (13a, 13b), a motorized traction drum (5), which is designed to unreel said continuous film (10) from one of said at least two reels (3) of continuous film (10), between the reel (3a) of film being unreeled and said traction drum (5) there being at least one element (6) for tensioning said continuous film (10), said tensioning element (6) being movable, with respect to said supporting frame (2), along a respective movement path (200), and further comprising control means (11) which operate on said servomotor (13a, 13b) and are adapted to control the position of said tensioning element (6) along the respective movement path (200), **characterized in that** said control means (11) are adapted to move on command said tensioning element (6) between at least one first working position, in which said tensioning element (6) is adapted to apply a preset tension to said continuous film (10) being unreeled, and at least one second accumulation position for increasing the length of the continuous film (10) that lies between said reel (3a) being unreeled and said traction drum (5) with respect to the length of said continuous film, between said reel (3a) being unreeled and said traction drum (5), with said tensioning element (6) in said first working condition.
2. The unreeling assembly (1) according to claim 1, **characterized in that** said control means (11) are adapted to actuate said servomotors (13a, 13b) to move in a preset and gradual manner said tensioning

element (6) along the respective movement path (200) according to a rule of motion which can be preset.

3. The unreeling assembly (1) according to claim 1 or 2, **characterized in that** said control means (11) are adapted to move said tensioning element (6) from said first working position to said second accumulation position by means of a variation of the angular velocity of said servomotor (13a) associated with the reel support (4) that supports said reel (3a) being unreeled. 5
4. The unreeling assembly (1) according to one or more of the preceding claims, **characterized in that** said first working position of said tensioning element (6) substantially corresponds to the minimum tension position, so as to allow the processing of continuous films (10) with low grammage and/or with limited height. 10
5. The unreeling assembly (1) according to one or more of the preceding claims, **characterized in that** it comprises, downstream of said traction drum (5), an applicator (20) of labels obtained from said continuous film (10) onto containers to be labeled. 15
6. The unreeling assembly (1) according to one or more of the preceding claims, **characterized in that** it comprises a plurality of guiding cylinders (7, 7a) between the reel (3a) of film being unreeled and said traction drum (5). 20
7. The unreeling assembly (1) according to one or more of the preceding claims, **characterized in that** it comprises, between said at least two reels (3) and said tensioning element (6), a joining station (8) designed to provide the connection between the end portion of the continuous film (10) being unreeled from the reel (3a) about to be depleted and the end portion (3c) of the film supported by the other reel (3b). 25
8. The unreeling assembly (1) according to one or more of the preceding claims, **characterized in that** said tensioning element (6) comprises a tensioning dandy roll (6a), which is supported by said supporting frame (2) so that it can rotate about a respective pivoting axis (101). 30

Patentansprüche

1. Eine Abspulanordnung (1), insbesondere für Etikettier-
vorrichtungen, umfassend:
einen Stützrahmen (2) für mindestens zwei Spulen (3) von Endlosfilm (10), die von einem ent- 55

sprechenden Spulenträger (4) getragen werden, der von einem entsprechenden Servomotor (13a, 13b) betätigt werden kann, um sich um eine Abspulachse (100) der Spule (3) zu drehen, eine motorisierte Zugtrommel (5), die konstruiert ist, um den Endlosfilm (10) von einer der mindestens zwei Spulen (3) von Endlosfilm (10) abzuspuhlen, wobei sich zwischen der Spule (3a) von Film, der abgespult wird, und der Zugtrommel (5) mindestens ein Element (6) zum Spannen des Endlosfilms (10) befindet, und das Spannelement (6) mit Bezug auf den Stützrahmen (2) entlang einem entsprechenden Bewegungspfad (200) beweglich ist und weiter Steuermittel (11) umfasst, die an dem Hilfsmotor (13a, 13b) arbeiten und ausgebildet sind, um die Position des Spannelements (6) entlang dem entsprechenden Bewegungspfad (200) zu steuern,

dadurch gekennzeichnet, dass die Steuermittel (11) ausgebildet sind, um das Spannelement (6) auf Befehl zwischen mindestens einer ersten Arbeitsposition zu bewegen, in welcher das Spannelement (6) ausgebildet ist, um eine voreingestellte Spannung auf den Endlosfilm (10) auszuüben, der abgespult wird, und mindestens einer zweiten Sammelposition zur Erhöhung der Länge des Endlosfilms (10), der zwischen der Spule (3a) liegt, die abgespult wird, und der Zugtrommel (5), mit Bezug auf die Länge des Endlosfilms, zwischen der Spule (3a), die abgespult wird, und der Zugtrommel (5), wobei sich das Spannelement (6) in der ersten Arbeitsposition befindet.

2. Die Abspulanordnung (1) gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Steuermittel (11) ausgebildet sind, um die Hilfsmotoren (13a, 13b) zu aktivieren, um das Spannelement (6) auf voreingestellte und graduelle Art und Weise entsprechend einer Bewegungsregel, die voreingestellt werden kann, entlang dem entsprechenden Bewegungspfad (200) zu bewegen.
3. Die Abspulanordnung (1) gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Steuermittel (11) ausgebildet sind, um das Spannelement (6) aus der ersten Arbeitsposition in die zweite Sammelposition durch eine Variation der Winkelgeschwindigkeit des Hilfsmotors (13a) zu bewegen, der mit dem Spulenträger (4) verbunden ist, welcher die Spule (3a) trägt, die abgespult wird.
4. Die Abspulanordnung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die erste Arbeitsposition des Spannelements (6) im Wesentlichen der Position der Mindestspannung entspricht, um die Verarbeitung von

Endlosfilmen (10) mit geringem Quadratmetergewicht und/oder mit begrenzter Höhe zu ermöglichen.

5. Die Abspulanordnung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** sie, stromabwärts von der Zugtrommel (5), einen Applikator (20) für Etiketten, die aus dem Endlosfilm (10) gewonnen werden, auf zu etikettierende Behälter umfasst.
6. Die Abspulanordnung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** sie eine Vielzahl von Führungszylindern (7, 7a) zwischen der Spule (3a) von Film, der abgespult wird, und der Zugtrommel (5) umfasst.
7. Die Abspulanordnung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** sie, zwischen den mindestens zwei Spulen (3) und dem Spannelement (6), eine Verbindungsstation (8) umfasst, konstruiert, um die Verbindung zwischen dem Endabschnitt des Endlosfilms (10), der von der Spule (3a) abgespult wird, welche bald leer ist, und dem Endabschnitt (3c) des Films herzustellen, der von der anderen Spule (3b) getragen wird.
8. Die Abspulanordnung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** das Spannelement (6) eine Spann-Druckwalze (6a) umfasst, die von dem Stützrahmen (2) so getragen wird, dass sie sich um eine entsprechende Schwenkachse (101) drehen kann.

Revendications

1. Système de dévidoir (1), en particulier pour des dispositifs d'étiquetage, comportant un châssis porteur (2) pour au moins deux bobines (3) de film continu (10) supportées par un support respectif (4) de bobine, qui peut être actionné pour tourner autour d'un axe de dévidement (100) de la bobine (3) sous l'action d'un servomoteur respectif (13a, 13b), un tambour de traction motorisé (5), qui est conçu pour dévider ledit film continu (10) depuis l'une desdites au moins deux bobines (3) de film continu (10), au moins un élément (6) pour tendre ledit film continu (10) étant situé entre la bobine (3a) de film à dévider et le ledit tambour de traction (5), ledit élément de tension (6) étant mobile, par rapport audit châssis porteur (2), sur une trajectoire respective (200), et comportant en outre des moyens de commande (11) qui agissent sur ledit servomoteur (13a, 13b) et sont conçus pour commander la position dudit élément de tension (6) sur la trajectoire respective (200), **caractérisé en ce que** lesdits moyens de commande (11) sont conçus pour déplacer sur commande ledit

élément de tension (6) entre au moins une première position de marche, dans laquelle ledit élément de tension (6) est conçu pour exercer une tension préétablie sur ledit film continu (10) à dévider, et au moins une deuxième position d'accumulation pour accroître la longueur du film continu (10) située entre ladite bobine (3a) à dévider et ledit tambour de traction (5) par rapport à la longueur dudit film continu, entre ladite bobine (3a) à dévider et ledit tambour de traction (5), ledit élément de tension (6) étant dans ladite première position de marche.

2. Système de dévidoir (1) selon la revendication 1, **caractérisé en ce que** lesdits moyens de commande (11) sont conçus pour actionner lesdits servomoteurs (13a, 13b) afin de déplacer d'une manière préétablie et progressive ledit élément de tension (6) sur la trajectoire respective (200) conformément à une règle de déplacement qui peut être préétablie.
3. Système de dévidoir (1) selon la revendication 1 ou 2, **caractérisé en ce que** lesdits moyens de commande (11) sont conçus pour faire passer ledit élément de tension (6) de ladite première position de marche à ladite deuxième position d'accumulation à l'aide d'une variation de la vitesse angulaire dudit servomoteur (13a) associé au support (4) de bobine qui supporte ladite bobine (3a) à dévider.
4. Système de dévidoir (1) selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ladite première position de marche dudit élément de tension (6) correspond sensiblement à la position de tension minimale, afin de permettre le traitement de films continus (10) à faible grammage et/ou d'une hauteur limitée.
5. Système de dévidoir (1) selon une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** comporte, en aval dudit tambour de traction (5), un applicateur (20) d'étiquettes, prélevées sur ledit film continu (10), sur les récipients à étiqueter.
6. Système de dévidoir (1) selon une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** comporte une pluralité de cylindres de guidage (7, 7a) entre la bobine (3a) de film à dévider et ledit tambour de traction (5).
7. Système de dévidoir (1) selon une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** comporte, entre lesdites au moins deux bobines (3) et ledit élément de tension (6), un poste de raccordement (8) conçu pour assurer le raccordement de l'extrémité du film continu (10) à dévider depuis la bobine (3a) s'appêtant à être épuisée avec l'extrémité (3c) du film supporté par l'autre bobine (3b).

8. Système de dévidoir (1) selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit élément de tension (6) comprend un rouleau égalisateur de tension (6a), supporté par ledit châssis porteur (2) afin de pouvoir tourner autour d'un axe de pivotement respectif (101).

5

10

15

20

25

30

35

40

45

50

55

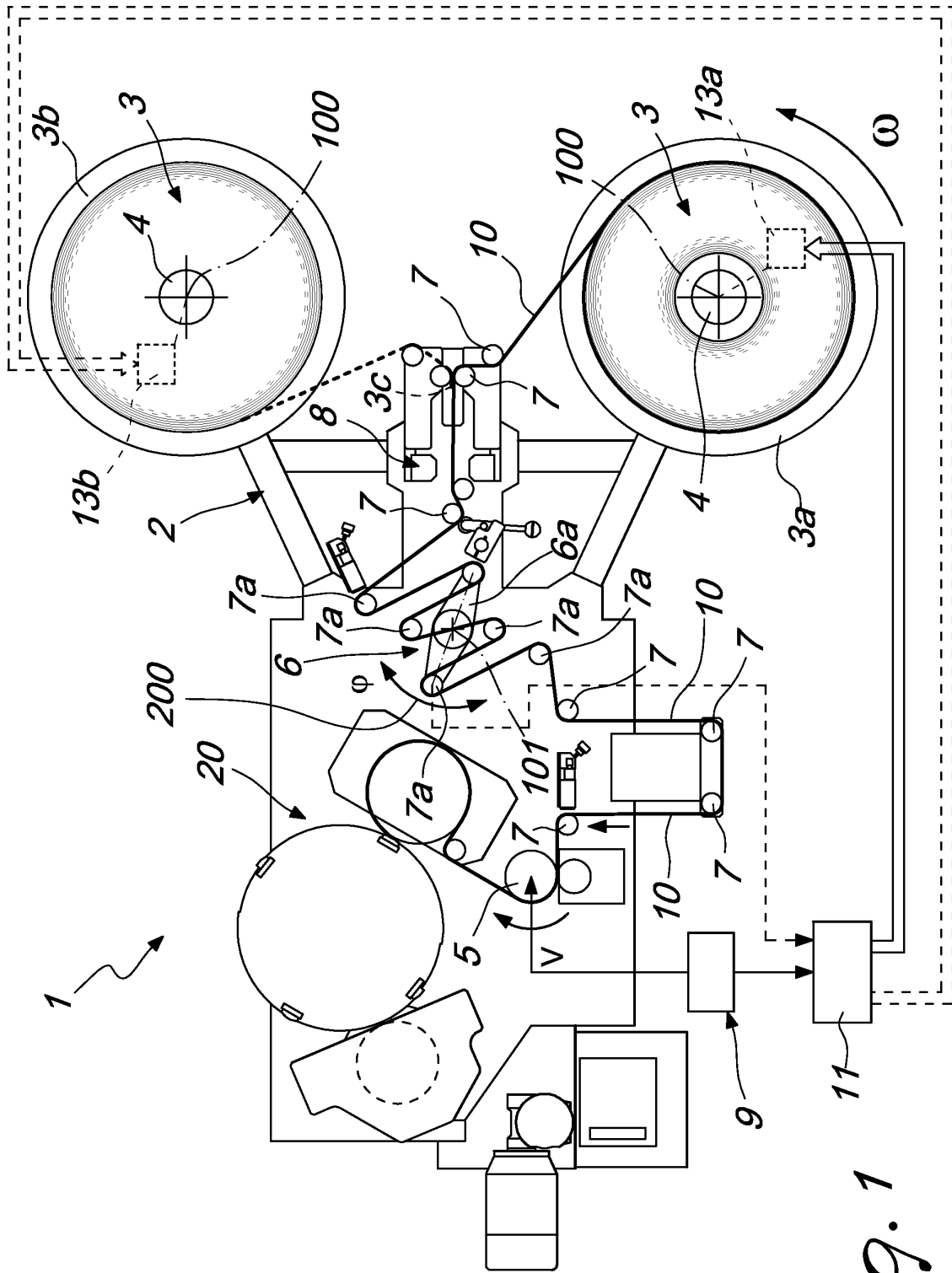


Fig. 1

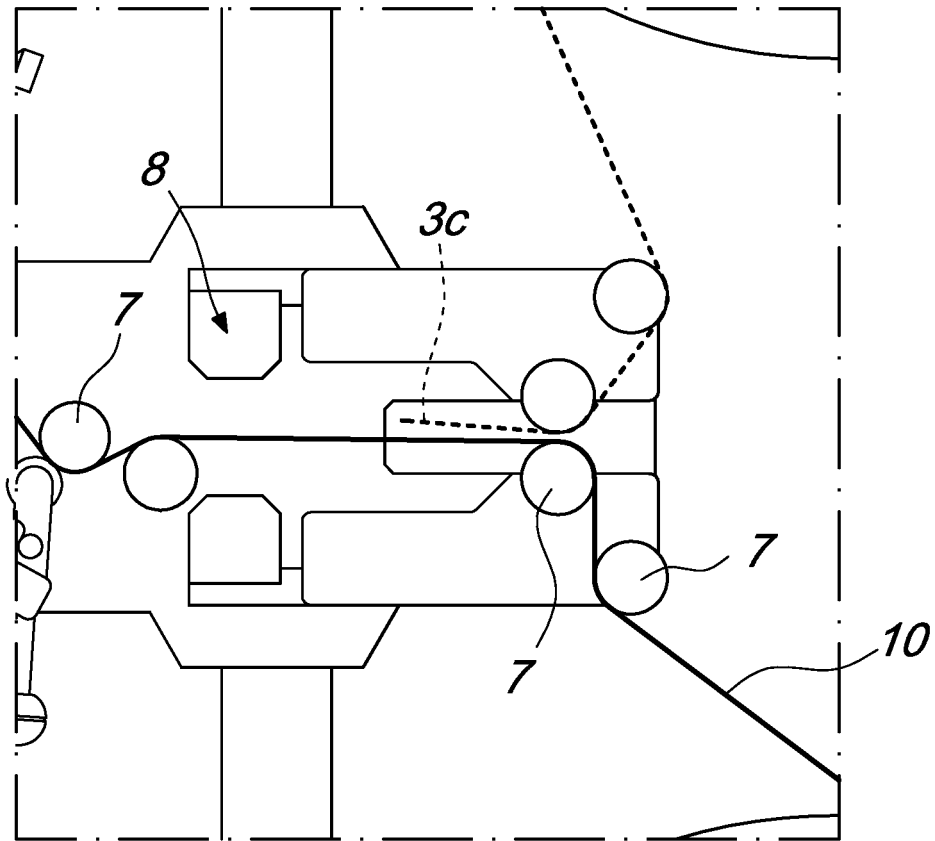


Fig. 1a

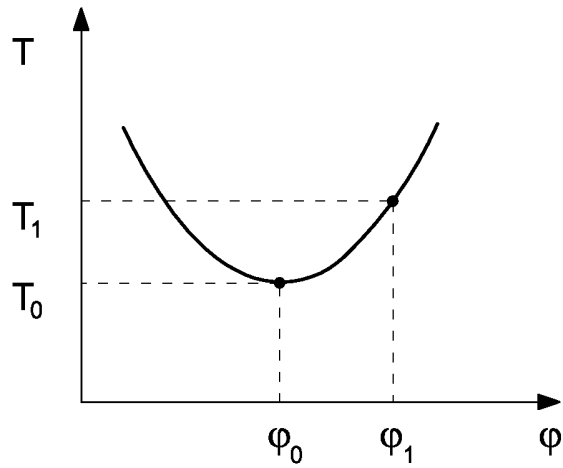


Fig. 2

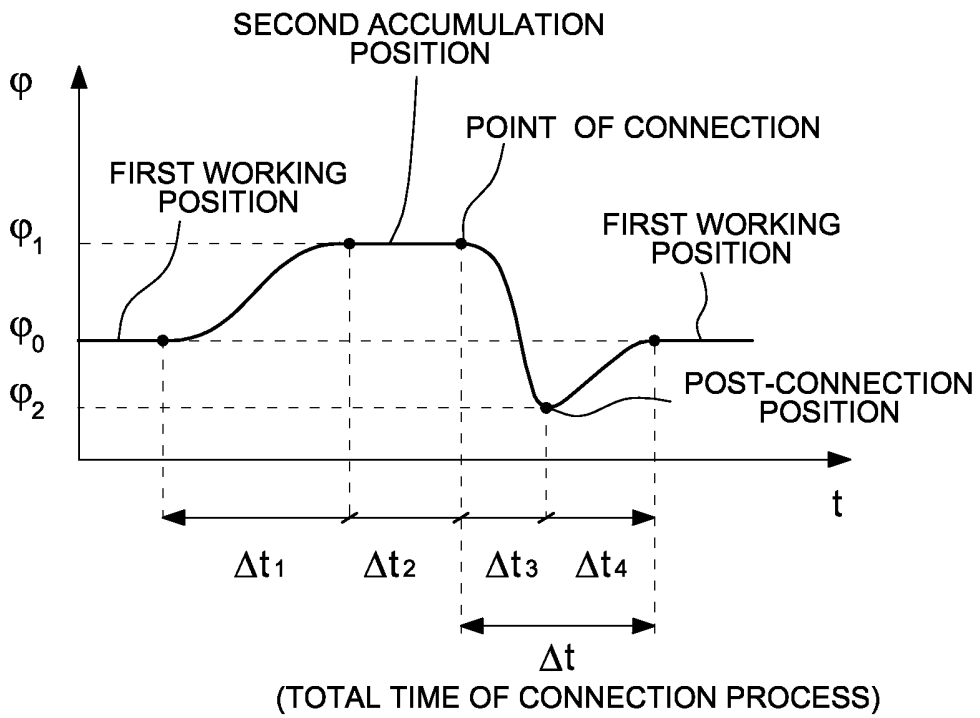


Fig. 3

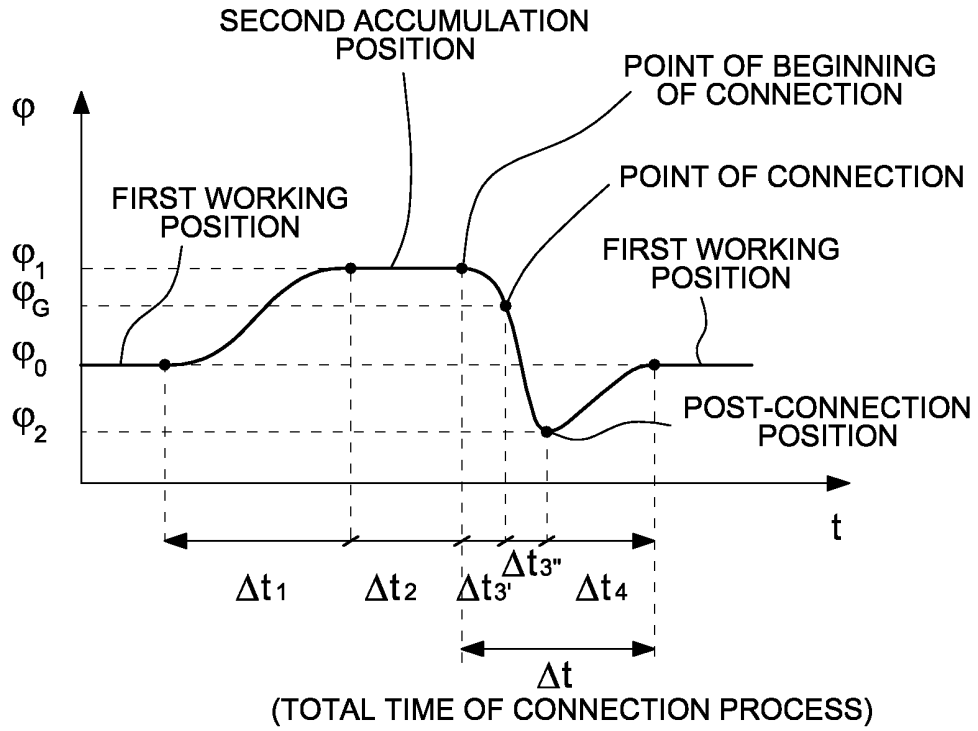


Fig. 3a

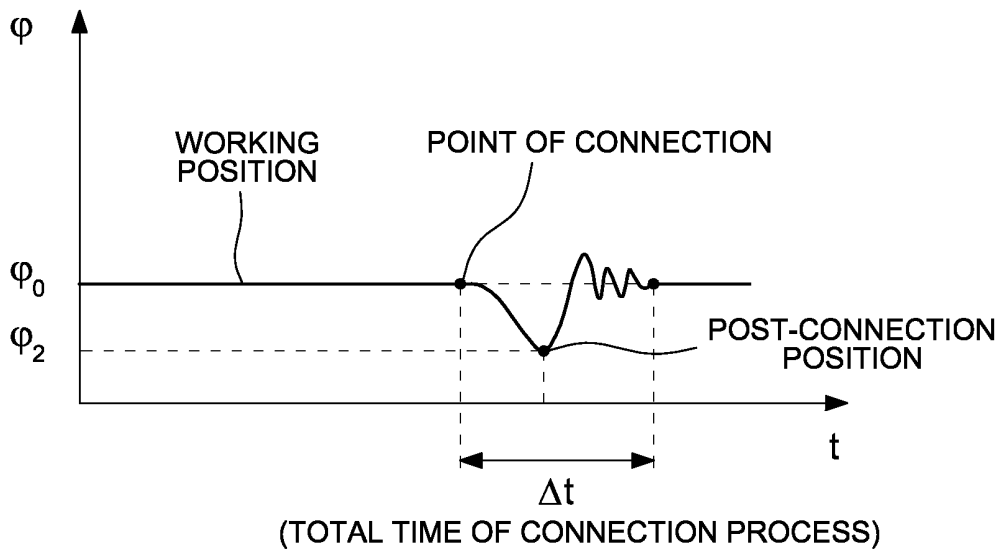


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 102007050012 A1 [0014]
- US 2008048060 A1 [0014]