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(54) **Labelling machine for labelling products continuously**

Etikettiermaschine zum kontinuierlichen Etikettieren von Gegenständen

Machine à étiqueter pour étiqueter en continu des articles

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Description

[0001] The present invention relates to a labeling machine for labeling products continuously according to the preamble of claim 1. More specifically, the invention relates to a labeling machine that, by means of solutions that are simpler and cheaper than conventional ones, allows to avoid machine downtimes for replacing the reels of labels.

[0002] As is known, labeling machines have a labeling head, which is fed by a reel whereto the labels to be placed on the products are applied.

[0003] The drawback of single labeling machines arises from the fact that the reel clearly has a limited duration and therefore has to be replaced. This replacement inevitably entails downtimes in the production cycle.

[0004] Some known solutions adopt a so-called master-slave system, in which the products are labeled by using two separate labeling machines arranged side by side. Substantially, the two labeling machines, each provided with its own control unit, are not connected to one another, and a device for sensing the presence of the label is interposed between the two machine bodies. Such device is always active and checks all the products that pass between the two machine bodies.

[0005] Whenever the upstream machine fails to apply a label, this anomaly is detected by the control device, which activates the downstream machine, which was in standby.

[0006] When the reel of labels of the upstream machine ends, the operator must replace such reel, while the downstream machine, activated continuously by the control device, labels the passing products.

[0007] As soon as the upstream machine is repositioned, the labeling cycle resumes and therefore the downstream machine, no longer activated by the control device, returns to its standby condition.

[0008] As an alternative, an already known solution provides for the mutual electronic connection of the two machines.

[0009] Each labeling machine has its own control unit, and between the machines there is an electronic connection for managing nonstop operation; this solution provides for the use of two separate electronic units, which are functionally preset to label all the passing products without machine stops.

[0010] FR2817838, issued to MC3 Société à responsabilité limitée, discloses an automatic label laying or labeling station comprising a bearing to which a support of a plurality of label dispensing devices is movably coupled; each dispensing device is constituted by a label storage case inside which the labels are stored in stacks or on continuous support web wounded in a reel. The support is movable in respect of a labeling area so as to bring one dispensing device at a time into or near the labeling area.

[0011] When the dispensing device which is active in the labeling area has to be replaced with another one it is necessary to stop the labeling station and, consequently, all the production chain, in order to move the support so as to bring a new dispensing device in the labeling area.

[0012] Thus the operation of the labeling station disclosed in FR 2817838 is discontinuous, because of the downtimes for the replacement of the dispensing devices.

[0013] US 4,594,123, issued to Krones AG, discloses an automatic labeling machine for containers according to the preamble of claim 1 comprising a rotating rotary table for supporting the containers and a first labeling station and a second labeling station that are arranged adjacent to the periphery of the rotary table. The first labeling station and the second labeling station are provided with an own labels supplier and are adapted to independently label the containers with two different labels. In one embodiment, the first labeling station applies a normal length label, i.e. a a label non-encircling the container body, while the second labeling station applies an extra-length label, i.e. a label encircling the container body.

[0014] The aim of the invention is to reduce the constructive complexities described above, by providing a labeling machine for labeling products continuously which comprises a smaller number of components than known solutions, which in practice provide for two separate labeling machines.

[0015] Within this aim, an object of the invention is to provide a machine that though being structurally simplified is capable of giving the greatest assurances of reliability and safety in use.

[0016] Another object of the present invention is to provide a labeling machine that can be obtained easily starting from commonly commercially available elements and materials and is also competitive from a merely economical standpoint.

[0017] This aim and these and other objects that will become better apparent hereinafter are achieved by a labeling machine according to claim 1.

[0018] Further characteristics and advantages will become better apparent from the description of a preferred but not exclusive embodiment of a labeling machine for labeling products continuously, illustrated only by way of non-limitative example in the accompanying drawing, which is a block diagram of the machine according to the invention.

[0019] With reference to the figure, the machine according to the invention, generally designated by the reference numeral 1, comprises power supply means 2, which are adapted to receive in input electric power 3 for supplying the machine, which comprises a first machine body 10 and a second machine body 11 which are separate.

[0020] The power supply means are connected to a single driving unit 4, which is bidirectionally connected to electronic user interface means 5, which are advantageously driven by a control software 6 and receive signals

from the first and second machine bodies.

[0021] The driving unit is therefore shared by the first and second machine bodies.

[0022] In the block diagram, the signals are generally designated by the reference numeral 7, while the first and second machine bodies by 10 and 11.

[0023] One of the machine bodies, for example the one arranged downstream of the labeling line, or as an alternative each machine body, is provided with means for visually identifying the product to be labeled, which are designated by the reference numerals 12 and 13, respectively, for the visual identification means of the first and second machine bodies.

[0024] The means 12 and 13 for visually identifying the product to be labeled send their respective signals to the electronic user interface means 5.

[0025] The electronic user interface means 5 drive switching means 8, which switch between the first and second machine bodies 10 and 11, according to the operating conditions of the machine.

[0026] Substantially, the machine according to the invention comprises separate machine bodies 10 and 11, which are adapted to perform product labeling operations independently, driven by the single driving unit 4 and by single electronic user interface means 5, which drive switching means 8 and allow to switch the operation of the machine from one machine body to another machine body.

[0027] Operation of the machine according to the invention entails that the downstream machine body, for example the machine body 11, is activated first and therefore all the products that pass at the machine body 11 and are sensed by the visual product identification means 13 are labeled.

[0028] When the reel with the labels is about to end on the downstream machine body 11, switching must occur, by way of switching means 8, with the upstream machine body 10.

[0029] Once the upstream machine body 10 is also about to end its reel, control returns to the downstream machine body 11, by way of switching means 8, so that the machine body 11 resumes labeling, with a moment in which both machine bodies 10 and 11 are simultaneously inactive, since the electronic system acquires the number of products contained between the two machine bodies and therefore already labeled by the upstream machine body, which obviously must not be labeled by the downstream machine body.

[0030] The electronic interface means 5, which communicate with the single driving unit and therefore with the switching means 8, receive as input signals, both from the machine body 10 and from the machine body 11.

[0031] These signals are encoder signals, alarm signals of the machine body 10 and of the machine body 11, signals of the visual product identification means 12 and 13, label sensors of the machine body 10 and label sensors of the machine body 11, signals indicating that the reel is about to end for the machine body 10 and a similar signal for the machine body 11.

[0032] The means 12 and 13, or at least means 12, for visually identifying the product to be labeled are instead always active and are connected to the electronic means for interfacing with the user 5.

[0033] Substantially, therefore, the machine according to the invention provides for a labeling machine that is constituted by two machine bodies 10 and 11, controlled by a single driving unit, which is connected to switching means that allow the alternating operation of the machine body 10 and of the machine body 11 and vice versa, according to the conditions of approaching label reel end, i.e., controlled alarm, or in case of breakage of the siliconized backing; i.e., in any case in which every single machine body is disabled to operate.

[0034] The machine thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0035] All the details may further be replaced with other technically equivalent elements.

[0036] In practice, the components used, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to requirements of the market and to options of the state of the art.

[0037] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A labeling machine (1) for labeling products continuously, comprising a first machine body (10) and a second machine body (11) each of which is separate and provided with its own reel of labels and adapted to label products independently of the other machine body, said first machine body (10) is arranged upstream of a labeling line and said second machine body (11) is arranged downstream said labeling line , **characterized in that** it further comprises a single driving unit (4) for the selective activation of said first and second machine bodies (10, 11), and switching means (8) connected to said single driving unit (4) which activates alternately said first and second machine bodies (10, 11) according to the operating conditions of the machine such that when one of said first or second machine bodies (10, 11) is activated, the products passing said machine body (10, 11) are labeled and the other one of said first or second machine bodies (10, 11) is deactivated and vice-versa.

2. The machine (1) according to claim 1, **characterized in that** it comprises a single electronic user interface

means (5) connected to said single driving unit (4) and controlled by software (6), said single electronic interface means (5) being adapted to receive as input said operating conditions of the machine (1).

3. The machine (1) according to claim 1 or 2, **characterized in that** at least one of said first and second machine bodies (10, 11) comprises means (12, 13) for visual identification of the product which are always active, regardless of the activation or not of the corresponding machine body (10, 11), and are adapted to send respective signals to said electronic user interface means (5).

Patentansprüche

1. Etikettiermaschine (1) zum kontinuierlichen Etikettieren von Gegenständen, umfassend: einen ersten Maschinenkörper (10) und einen zweiten Maschinenkörper (11), von denen jeder separat ist und mit seiner eigenen Rolle von Etiketten versehen ist un dazu eingerichtet ist, Gegenstände unabhängig vom anderen Maschinenkörper zu etikettieren; wobei der erste Maschinenkörper (10) einer Etikettierreihe vorgelagert angeordnet ist und der zweite Maschinenkörper (11) der Etikettierreihe nachgelagert angeordnet ist, **dadurch gekennzeichnet, dass** sie ferner umfasst: eine einzelne Antriebseinheit (4) zur selektiven Aktivierung des esrten und zweiten Maschinenkörpers (10, 11), und eine Schalteinrichtung (8), die an der einzelnen Antriebseinheit (4) angeschlossen ist, welche abwechselnd den ersten und zweiten Maschinenkörper (10, 11) gemäß den Betriebszuständen der Maschine so aktiviert, dass, wenn einer des ersten oder zweiten Maschinenkörpers (10, 11) aktiviert ist, die Gegenstände etikettiert werden, welche den Maschinenkörper (10, 11) durchlaufen, und der andere des ersten oder zweiten Maschinenkörpers (10, 11) deaktiviert ist und umgekehrt.

2. Maschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** sie ferner umfasst: eine einzelne elektronische Nutzerschnittstelleneinrichtung (5), die an der einzelnen Antriebseinheit (4) angeschlossen ist und durch Software (6) gesteuert wird, wobei die einzelne elektronische Nutzerschnittstelleneinrichtung (5) dazu eingerichtet ist, die Betriebszustände der Maschine (1) als Eingabe zu empfangen.

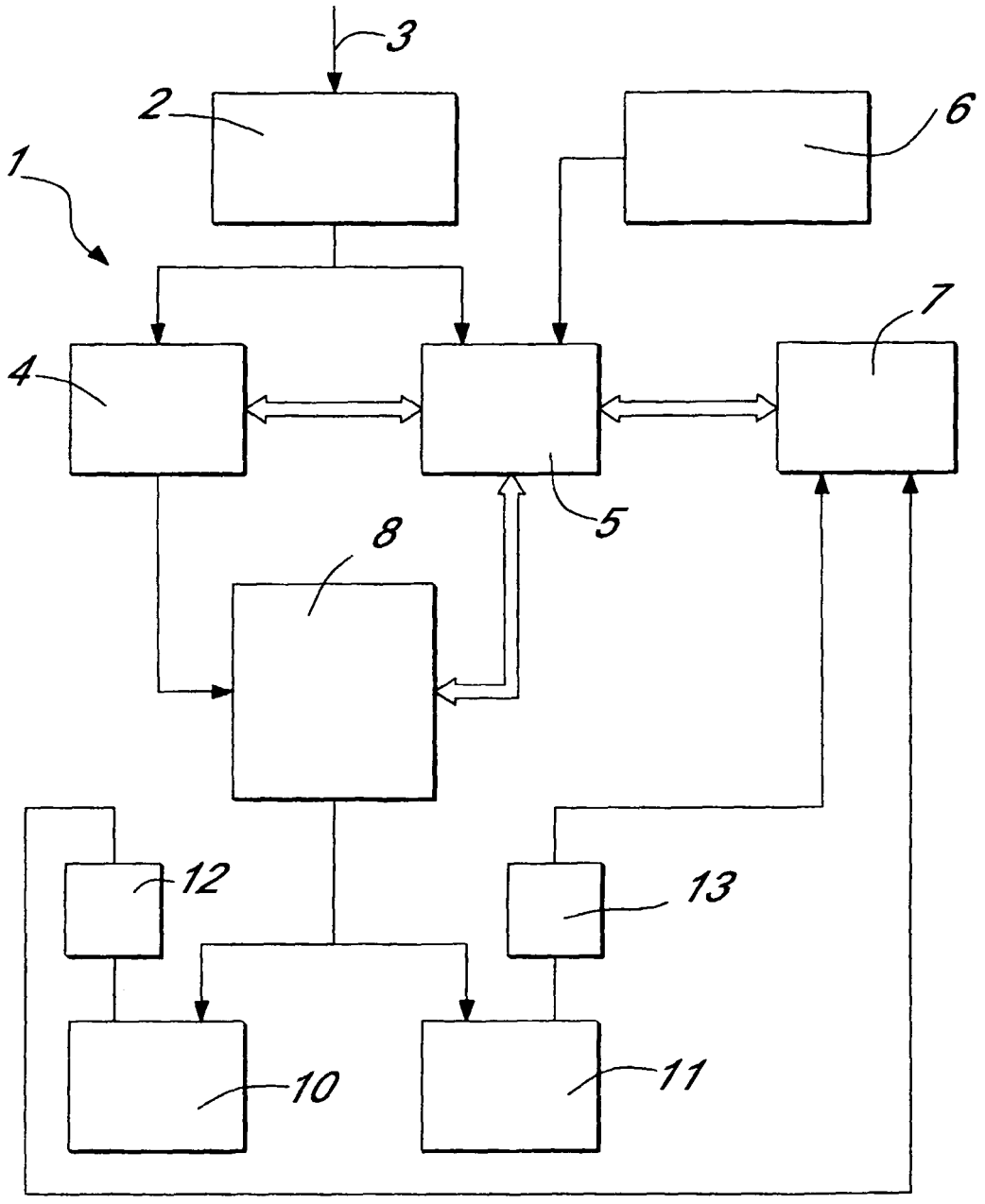
3. Maschine (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** zumindest einer des ersten un zweiten Maschinenkörpers (10, 11) eine Einrichtung (12, 13) zur visuellen Identifikation des Produktes umfasst, welche, ungeachtet ob der dazugehörige Maschinenkörper (10, 11) aktiviert ist oder nicht, immer aktiv ist, und dazu eingerichtet ist, entsprechende Signale an die elektronische Nutzerschnittstelleneinrichtung (5) zu senden.

Revendications

1. Machine à étiqueter (1) pour étiqueter en continu des articles comprenant un premier corps de machine (10) et un deuxième corps de machine (11) dont chacun est séparé et présente sa propre bobine d'étiquettes et apte à étiqueter des articles indépendamment de l'autre corps de machine, ledit premier corps de machine (10) est agencé en amont d'une chaîne d'étiquetage, et ledit deuxième corps de machine (11) est agencé en aval de ladite chaîne d'étiquetage, **caractérisée en ce qu'**elle comprend en outre une seule unité d'entraînement (4) pour l'activiation sélective desdits premier et deuxième corps de machine (10, 11) et des moyens de commutation (8) reliés à ladite unité d'entraînement unique (4) qui active alternativement lesdits premier et deuxième corps de machine (10, 11) selon les conditions de fonctionnnement de la machine de telle sorte que lorsque l'un desdits premier ou deuxième corps de machine (10, 11) est activé, les articles passant devant ledit corps de machine (10, 11) sont étiquetés et l'autre parmi lesdits premier ou deuxième corps de machine (10, 11) est désactivé et vice versa.

2. Machine (1) selon la revendication 1, **caractérisée en ce qu**'elle comprend un seul moyne d'interface utilisateur électronique (5) relié à ladite unité d'entraînement unique (4) et commandé par un logiciel (6), ledit moyen d'interface électronique unique (5) étant apte à recevoir, comme entrée, lesdites conditions de fonctionnement de la machine (1).

3. Machine (1) selon la revendication 1 ou 2, **caractérisée en ce qu'**au moins parmi lesdits premier et deuxième corps de machine (10, 11) comprend des moyens (12, 13) pour l'identification visuelle du produit, qui sont toujours actifs, que le corps de machine correspondant (10, 11) soit activé ou non, et sont aptes à transmettre des signaux respectifs audit moyen d'interface utilisateur électronique (5).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REFERENCES CITED IN THE DESCRIPTION

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