



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
09.06.2021 Bulletin 2021/23

(51) Int Cl.:
B65C 3/14 (2006.01) B65C 9/18 (2006.01)

(21) Application number: **19845002.5**

(86) International application number:
PCT/ES2019/070539

(22) Date of filing: **30.07.2019**

(87) International publication number:
WO 2020/025847 (06.02.2020 Gazette 2020/06)

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

(71) Applicant: **Carlos Bacigalupe, S.L.U.**
47014 Valladolid (ES)

(72) Inventor: **BACIGALUPE GARCÍA, Juan Carlos**
47014 Valladolid (ES)

(74) Representative: **Ungria López, Javier**
Avda. Ramón y Cajal, 78
28043 Madrid (ES)

(30) Priority: **31.07.2018 ES 201830790**

(54) **FEEDER FOR A REEL LABELLING MACHINE**

(57) The invention relates to a feeder (1) for a reel labelling machine, comprising a reel (3) of peelable labels (2) or a reel (3) of a sleeve (33) of sleeve labels, and an

application area (5) for applying the labels (2), the feed also comprising an anti-static blower (10) disposed immediately before the area (5) for applying the labels (2).

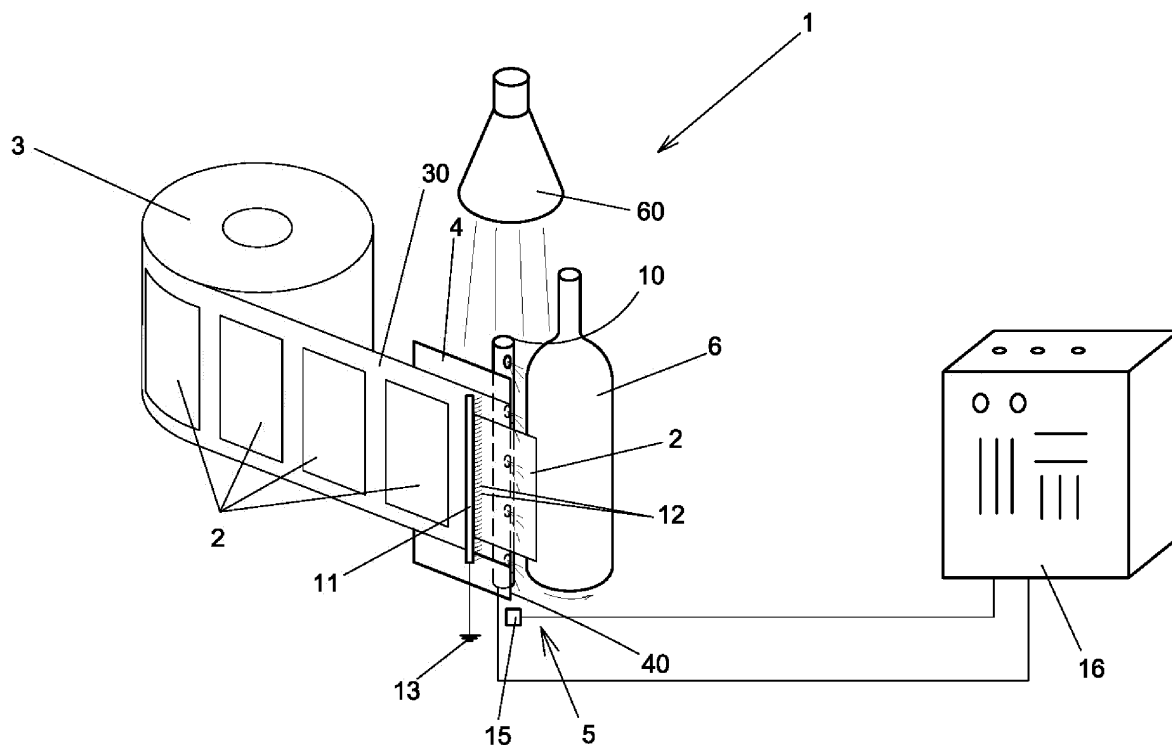


Fig 1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a feeder for a reel labelling machine.

BACKGROUND OF THE INVENTION

[0002] Labelling machines are known in the labelling industry which comprise a reel of peelable labels or a reel of a tube of sleeve labels, and an application area for applying the labels, wherein in the case of the peelable labels, the reel comprises a reel of peelable paper wherein the labels are peelably adhered, and elements for circulating the peelable paper from said reel which include a peeling plate for peeling the labels from the peelable paper equipped with an edge in the application area for applying the label to the bottle or jar in order to generate the quick bending of the flexible peelable paper and the peeling of the end of the label from the peelable paper since it is slightly less flexible, which produces the start of the gluing on the contour of the bottle, it can also have elements for rotating the bottle and/or elements for exerting pressure against the contour of the bottle in order to complete the gluing. Peelable paper is understood to be a waxed paper or paper that is treated in general so that the labels can be peeled off and transferred to the contour of the bottle or container while preserving the properties of the adhesive.

[0003] In the case of sleeve labelling machines, the reel is a roll of a sleeve made of shrink-wrap plastic which is cut into segments with a suitable height and the inside of which lines the bottle or container before passing through an oven which shrinks the lining over the container or bottle.

[0004] In both types of labelling machines, the appearance of wrinkles, folds and bubbles in the labels applied to the containers or bottles is very common.

[0005] For labelling machine manufacturers and distributors, the problem comes down to something all too simple: it is a label with low-quality paper or backing. All papers that are not porous and have a high grammage are not good. For these kinds, the problem is always with the label and sometimes with the bottle, and since it is not their problem they do not pay attention to it, or it does not exist.

[0006] On the other hand, for bottle manufacturers the problem is not their responsibility either; although on many occasions the outer walls of the bottles appear full of pockets and, in these pockets, the adhesive of the label cannot perform its function because it cannot adhere properly to make "Tac" (action of bonding the adhesive of the label with the varnish of the bottle). Once Tac has been done, if we remove the label it can be seen that it has left a mark on the bottle.

[0007] Paper manufacturers, on their behalf, have not stopped researching and improving the performance of

their products and, above all, of the adhesives in order to overcome the problems of moisture, cold, temperature changes, etc. but they have not completely solved the aforementioned problems.

[0008] The constant research they perform with adhesives has proven significant and the positive results thereof have been noticed, but the aforementioned problem has not been solved. Moreover, printers specialising in high-quality adhesive labels try to resolve the adverse situations that these problems cause for them, knowing that the problem is not theirs but suffering as if it were.

[0009] In this sense, many times the only possible solution is to inform the users of these machines, usually winemakers who label their product, that it is something difficult to solve, since the environment of the winery also increases the problem and because of another element that is difficult to observe and measure: the static electricity which is generated by the influence of this adverse environment, and the stress produced when the label is peeled off the peelable paper.

[0010] A solution to the problem could be to charge the reels of labels in the printers with the appropriate charge in order to eliminate the problem; but when this has been attempted it has been observed that they discharge by themselves and arrive at the work site completely discharged of any polarity. An attempt has also been made to raise awareness about the storage conditions of the reels, taking into account temperature and moisture criteria, which is difficult to fulfil in most cases.

[0011] Although the labels on rough paper and with a higher grammage are not affected as much, they are also capable of hiding the problem, since due to the rigidity and thickness thereof they hide small folds and bubbles (also metal labels made of tin or aluminium).

[0012] On the other hand, papers with lower grammage, coated, printed on most of the surface thereof with inks and varnishes, metal stamping films, are continuously affected, especially when there are fog, rain, cold, moisture and temperature changes. With plastic materials (polypropylene, PVC, sleeves, etc.) the problem is aggravated. For this reason, many wineries have resigned to not using them due to the aforementioned problems that these materials generate at any time of the year. With the sleeve, the problem is that the sleeve tube sticks to itself and does not enable the product to be wrapped.

[0013] In many tests carried out by the inventor, it was observed that when the flattening roller, brush or rubber sheet or similar presses the label correctly on the bottle, problems are reduced over the entire surface of the label. This pressure allows the adhesive to do its job correctly, but inexplicably the label does not always adhere perfectly; in rainy months, with the presence of variable moisture, cold temperatures, and/or temperature changes, and even on the least expected occasions, the optimal behaviour of the label in the labelling process suddenly becomes incomprehensibly abnormal with no apparent cause. At first glance, the problem lacks a known com-

mon pattern or an apparent reason.

[0014] On many occasions, the flattening performed by the labelling machines is not enough and wrinkles, folds, creases and areas wherein the label is not adhered to the bottle appear. In these areas, obviously, there is air left and this air, as it grows, for example, due to an increase or variation in temperature, increases in volume and produces the bubble. In many cases, these bubbles appear after the bottles have left the winery, and are produced before the end customer, sometimes flattened and generating a wrinkle when they hit the box with the movement from transportation.

[0015] It should be noted that these problems are exponentially increased in wineries located in rural areas, where wineries are normally located, with highly variable weather environments.

[0016] Sometimes, simply moving the labelling machine a few metres has reduced the problem greatly, especially in very moist and highly localised environments. Likewise, ventilating the labelling area also helps, but does not solve the problem. In a very moist labelling area, and especially with cold or temperature changes, it is practically impossible to perform the labelling process correctly. For this reason, the only solution for many wineries, especially in seasons with adverse climates, is to stop production, with the consequent disruptions that this causes.

[0017] In an attempt to find other solutions to the problem, sources of hot air were installed in front of the reels of the labelling machine and the peeling area of the label, and heat bulbs were installed above the mentioned area of the labelling machine. Nevertheless, this only somewhat solves the problem, and not always, causing occasional or frequent errors without any pattern.

DESCRIPTION OF THE INVENTION

[0018] The feeder for a reel labelling machine of the invention has a configuration which solves the problem described.

[0019] The feeder in question is of the type comprising a reel of peelable labels or a sleeve reel of sleeve labels, and an application area for applying the labels to the containers or bottles to be labelled, which, according to the invention, comprises an anti-static blower disposed immediately before the area for applying labels, in order to neutralise the static electricity generated when the label is peeled off the peelable paper or when the tube sleeve is unrolled from the reel thereof, or generated by the effect of the moisture, etc.

[0020] By measuring conductivity with different label materials, and measuring the static electricity, which is produced in the labelling process, it has been found that the moment the label is peeled off the peelable paper of the reel, just before it is positioned on the bottle, is where the polarity differences are generated. In that moment, the label is stressed and generates static electricity in relation to the backing thereof. This is the precise location

where this polarisation must be measured and neutralised. In the case of sleeve labelling machines, it is just above the lining area.

[0021] The configuration of the invention achieves the following advantages:

- since the label, when it is peeled off the backing of the reel, acquires a polarity, and the peelable paper acquires a different one, it would be necessary to measure these polarities in order to counteract the effect with precision, but reliable measuring devices are expensive and it is impossible for the related professionals to have them, making it very difficult for them to assess the problem and clearly identify it. The anti-static blower located in the area of the edge of the peeling plate eliminates the static electricity without needing measuring,
- by eliminating the static electricity at this point, the label is prevented from taking on a charge and the peelable paper is prevented from remaining at zero, which would cause the label, when charged, to stick to the bottle and cause wrinkles, folds and creases,
- by eliminating the static electricity, the label is prevented from not being positioned correctly on the bottle, preventing accumulations of air between the label and the bottle which prevent the correct adhesion from being performed with an optimal bonding,
- in the case of sleeve labels, the sleeve is prevented from collapsing internally, in other words, preventing the inner walls thereof from sticking before the lining of the bottle or container.

[0022] This would be the simplest embodiment of the invention, complements or variations can be implemented as described below.

DESCRIPTION OF THE DRAWINGS

[0023]

Figure 1 shows a view of a variant of the invention for reels of peelable labels with bar blower.

Figure 2 shows a view of another variant of the invention for sleeve reels of sleeve labels.

Figure 3 shows a view of another variant of the invention for reels of peelable labels with point blower.

PREFERRED EMBODIMENT OF THE INVENTION

[0024] The feeder (1) for a reel (3) labelling machine of the invention is the type comprising a reel (3) of peelable labels (2) (see Fig. 1) or a reel (3) of a tube or sleeve (33) of sleeve labels (see Fig. 2), and an application area (5) for applying the labels (2), which according to the invention further comprises an anti-static blower (10) disposed immediately before the application area (5) for applying the labels (2).

[0025] Very preferably, the invention has foreseen the

possible arrangement of a static electricity discharger (11) (see Fig. 1), grounded and in contact with the label (2) in the application area (5). Said static electricity discharger (11) ideally comprises a carbon bristle brush (12), which is grounded (13), due to the good connectivity of this material.

[0026] Continuing with Fig. 1, additionally it has also been foreseen the possible arrangement of a static electricity measuring device (15) in the application area (5), and which is linked to the control unit (16) of the anti-static blower (10) in order to modulate the effect thereof based on the static electricity detected during the application/placement of the label (2) such that it will supply the necessary charges in order to eliminate the electrostatic charges detected depending on the amount and charge thereof.

[0027] In the embodiment of the invention shown in Figure 1, the reel (3) comprises a reel of peelable paper (30) whereon the labels (2) are peelably adhered, and elements for circulating the peelable paper (30) from said reel (3) which include a peeling plate (4) for peeling the labels (2) from the peelable paper (30) equipped with an edge (40) in the application area (5) for applying the label (2) to the bottle (6) or jar in order to generate the quick bending of the peelable paper (30) with peeling of the end of the label (2) from the peelable paper (30) and the start of the gluing on the contour of the bottle (6), with the possibility of the cooperation of elements for rotating the bottle (6) and/or elements for exerting pressure against the contour of the bottle (6) in order to complete the gluing; the anti-static blower (10) comprising an anti-static bar with blowing air which is disposed next to the area of the edge (40) of the peeling plate (4) in order to neutralise the static electricity generated when the label (2) is peeled from the peelable paper (30) in parallel. More preferably, the anti-static bar (10) would be disposed at a distance comprised between 1 and 10 centimetres from the edge (40) of the peeling plate (4), since the best results have been found depending on the type of label.

[0028] In another variant of the invention shown in Fig. 3, and which is very similar to the variant of Figure 1, the reel (3) likewise comprises a reel of peelable paper (30) whereon the labels (2) are preferably adhered, and the elements for circulating the peelable paper (30) from said reel (3), which include the peeling plate (4) for peeling the labels (2) from the peelable paper (30) equipped with an edge (40) in the application area (5) for applying the label (2) to the bottle (6) or jar in order to generate the quick bending of the peelable paper (30) with peeling of the end of the label (2) from the peelable paper (30) and the start of the gluing on the contour of the bottle (6); the anti-static blower (10) comprising a point anti-static blower which is disposed over the area of the edge (40) of the peeling plate (4) in order to simultaneously neutralise the static electricity generated when peeling off several labels simultaneously in multiple labelling processes of the same bottle (6) or jar.

[0029] In these variants, the anti-static blower (10) is disposed after the static electricity discharger (11) so that the label(s) (2) can run completely through the discharger (11) starting the discharging of static electricity, leaving a residual fraction thereof which can be easily removed through the anti-static bar (10). Ultimately, what the anti-static blower (10) does is release air with positive and negative charges so that the material picks up what it needs, the effect being reinforced with the placement of the discharger (11) which is grounded, combing or almost combing the label (2), which ensures a more direct neutral environment.

[0030] In another variant of the invention for reels (3) of a sleeve (33) for sleeve labels, shown in Figure 2, the anti-static blower (10) is disposed just over the application area (5), since the cut sleeve or lining falls due to gravity.

[0031] In any of the variants, the invention has foreseen the possible use of a radiant heat source (an infrared lamp (60) for example) disposed over the application area (5) in order to eliminate as much moisture as possible and minimise the generation of static electricity. It is shown installed in the variants of Figures 1 and 3.

[0032] Having sufficiently described the nature of the invention, it is indicated that the description of it and of the preferred embodiment thereof should be interpreted in a non-limiting manner, and that it encompasses all the possible variant embodiments that may be deduced from the contents of the present specification and the claims.

Claims

1. A feeder (1) for a reel (3) labelling machine, comprising a reel (3) of peelable labels (2) or a reel (3) of a sleeve (33) of sleeve labels, and an application area (5) for applying the labels (2), **characterised in that** it comprises an anti-static blower (10) disposed immediately before the application area (5) for applying the labels (2).
2. The feeder (1) for a reel (3) labelling machine according to claim 1, **characterised in that** it comprises a static electricity discharger (11), grounded and in contact with the label (2) in the application area (5).
3. The feeder (1) for a reel (3) labelling machine according to claim 2, **characterised in that** the static electricity discharger (11) comprises a carbon bristle brush (12) which is grounded (13).
4. The feeder (1) for a reel (3) labelling machine according to any of the preceding claims, **characterised in that** it further comprises a static electricity measuring device (15) disposed in the application area (5), and which is linked to the control unit (16) of the anti-static blower (10) in order to modulate the effect thereof based on the static electricity detected

during the application/placement of the label (2).

ised in that it comprises a radiant heat source disposed over the application area (5).

5. The feeder (1) for a reel (3) labelling machine according to any of the preceding claims, **characterised in that** the reel (3) comprises a reel of peelable paper (30) whereon the labels (2) are adhered in a peelable manner, and elements for circulating the peelable paper (30) from said reel (3), which include a peeling plate (4) for peeling the labels (2) from the peelable paper (30) equipped with an edge (40) in the application area (5) for applying the label (2) to the bottle (6) or jar in order to generate the quick bending of the peelable paper (30) with peeling of the end of the label (2) from the peelable paper (30) and the start of the gluing on the contour of the bottle (6); the anti-static blower (10) comprising an anti-static bar with blowing air which is disposed next to the area of the edge (40) of the peeling plate (4) in order to neutralise the static electricity generated when the label (2) is peeled from the peelable paper (30).

5
10
15
20
6. The feeder (1) for a reel (3) labelling machine according to claim 5, **characterised in that** the anti-static bar (10) is disposed at a distance comprised between 1 and 10 centimetres from the edge (40) of the peeling plate (4).

25
7. The feeder (1) for a reel (3) labelling machine according to any of claims 1 to 4, **characterised in that** the reel (3) comprises a reel of peelable paper (30) whereon the labels (2) are adhered in a peelable manner, and elements for circulating the peelable paper (30) from said reel (3), which include a peeling plate (4) for peeling the labels (2) from the peelable paper (30) equipped with an edge (40) in the application area (5) for applying the label (2) to the bottle (6) or jar in order to generate the quick bending of the peelable paper (30) with peeling of the end of the label (2) from the peelable paper (30) and the start of the gluing on the contour of the bottle (6); the anti-static blower (10) comprising a point anti-static blower which is disposed over the area of the edge (40) of the peeling plate (4).

30
35
40
45
8. The feeder (1) for a reel (3) labelling machine according to claim 6 or 7, **characterised in that** the anti-static blower (10) is disposed after the static electricity discharger (11).

50
9. The feeder (1) for a reel (3) labelling machine according to any of claims 1 to 4, **characterised in that** the reel (3) comprises a reel of a sleeve (33) for sleeve labels, the anti-static blower (10) being disposed over the application area (5).

55
10. The feeder (1) for a reel (3) labelling machine according to any of the preceding claims, **character-**

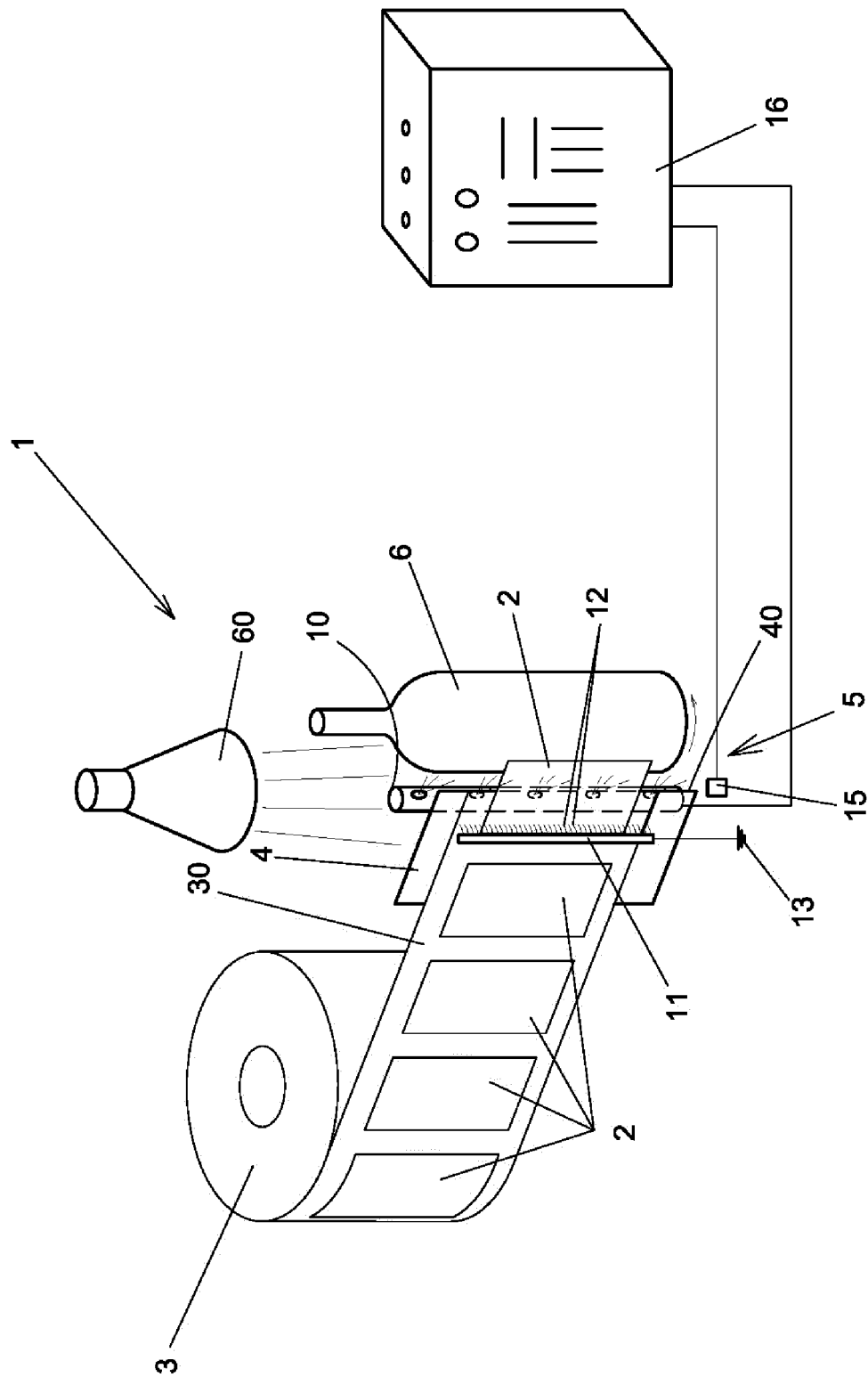


Fig 1

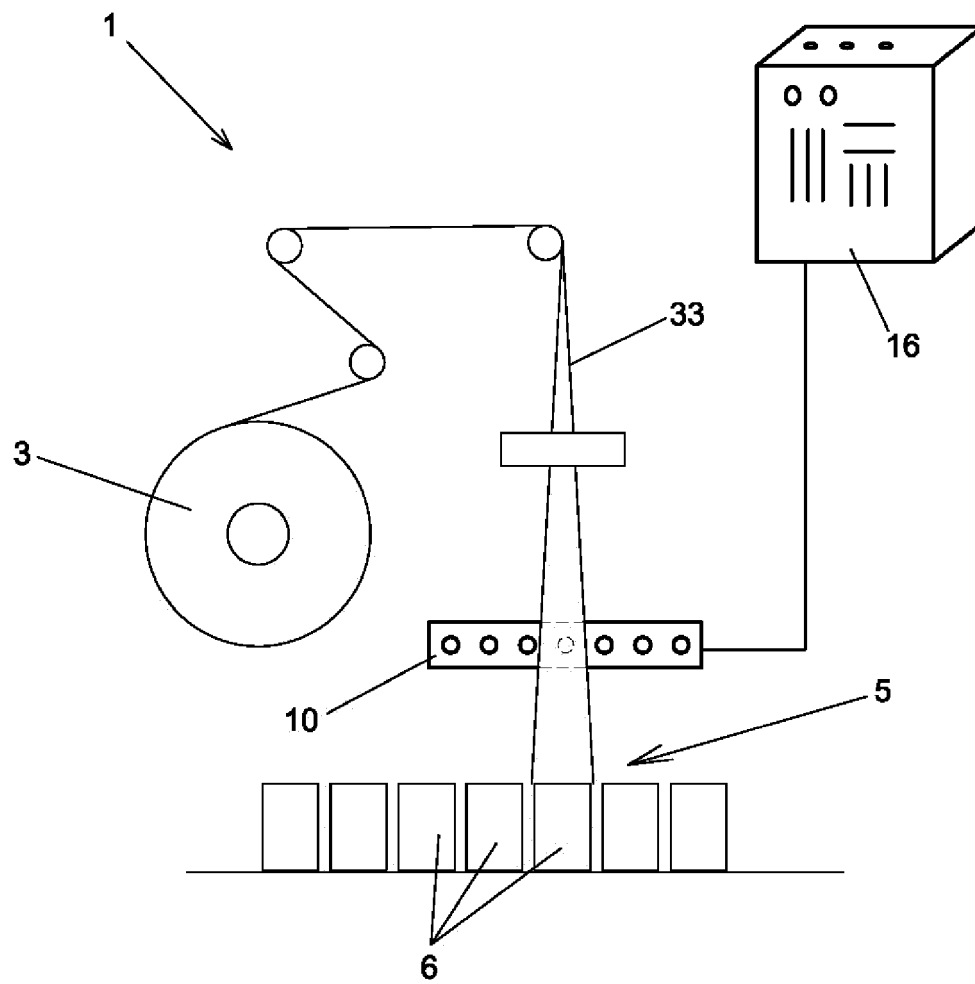


Fig 2

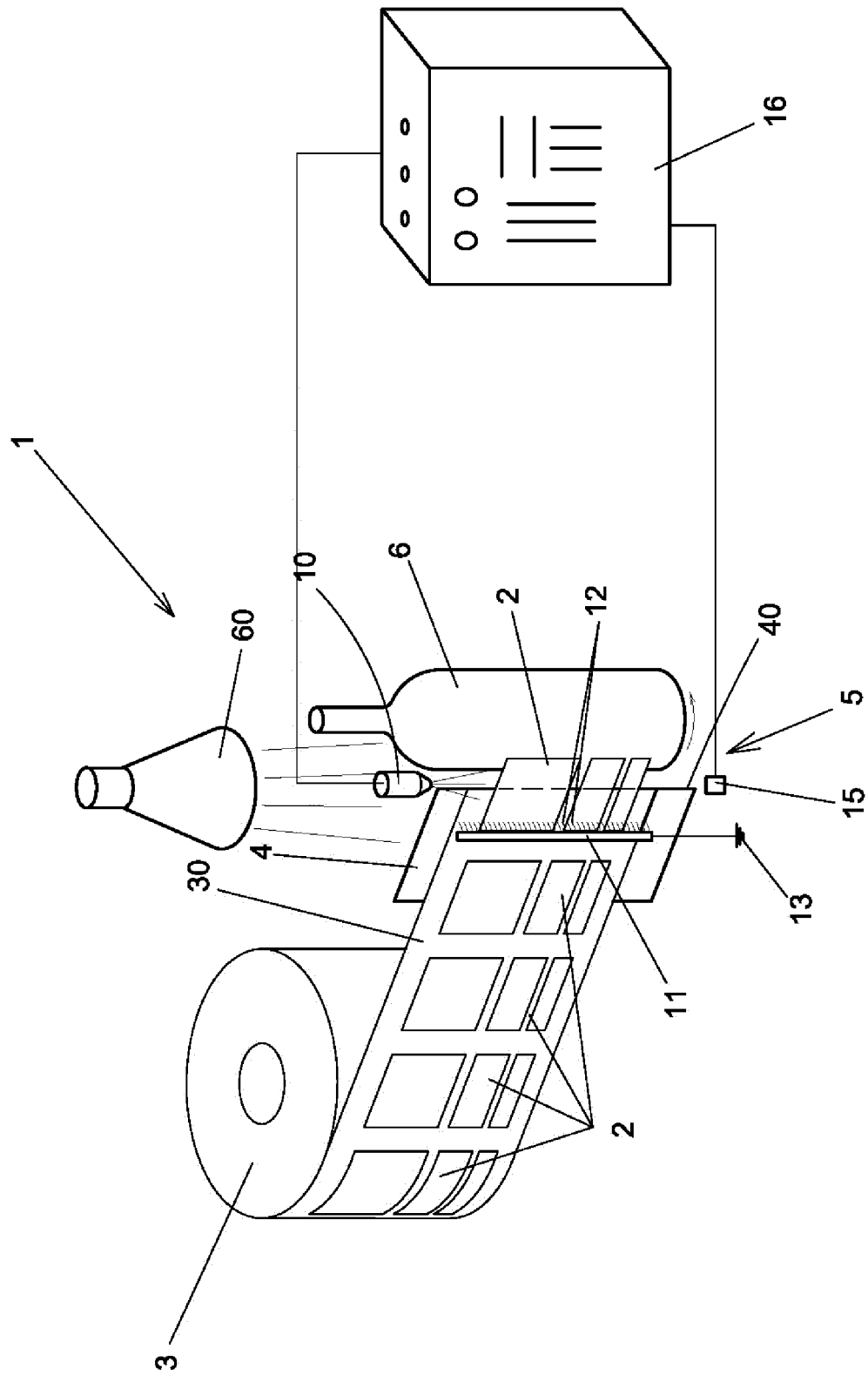


Fig 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070539

A. CLASSIFICATION OF SUBJECT MATTER

B65C3/14 (2006.01)**B65C9/18** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1268275 A (KRONSEDER) 29/03/1972, Page 3, lines 48 - 59; figure 4	1-10
A	WO 9967139 A1 (HEINEKEN TECHNICAL SERVICES) 29/12/1999, Page 5, lines 7 - 15; figures 1-3	1-10
A	JPS 6123050 A (FUJI XEROX) 31/01/1986, Figures; abstract from DataBase EPODOC, retrieved from EPOQUE	1-10
A	US 8064184 B2 (AUF DER MAUR) 22/11/2011, Abstract; figures	1-10
A	US 4115179 A (CARTER) 19/09/1978, Column 4, line 59 - column 5, line 4; figures	1-10

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance.

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure use, exhibition, or other means.

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search
28/08/2019

Date of mailing of the international search report
(29/08/2019)

Name and mailing address of the ISA/

OFICINA ESPAÑOLA DE PATENTES Y MARCAS
Paseo de la Castellana, 75 - 28071 Madrid (España)
Facsimile No.: 91 349 53 04

Authorized officer
F. Monge Zamorano

Telephone No. 91 3495541

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070539

C (continuation).	DOCUMENTS CONSIDERED TO BE RELEVANT	
Category *	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ES 395166 A (JAGENBERG-WERKE) 01/11/1974, Page 6, lines 27 - 30; figures	1-10
A	WO 9511832 A1 (KHS CARMICHAEL) 04/05/1995, Abstract; figure	1-10

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

Information on patent family members

PCT/ES2019/070539

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
GB1268275 A	29.03.1972	US3567551 A SE377685 B NL6910749 A NL139708B B JPS4926877B B1 JPS4926875B B1 FR1586099 A FR2017752 A6 DE2108255 A1 DE1786283 A1 DE1761837 A1 DE1761837 B2 CH521886 A CH493372 A BE729488 A BE725820 A AT299004B B	02.03.1971 21.07.1975 14.01.1970 17.09.1973 12.07.1974 12.07.1974 06.02.1970 22.05.1970 24.08.1972 20.01.1972 27.05.1971 26.04.1973 30.04.1972 15.07.1970 18.08.1969 29.05.1969 15.04.1972
WO9967139 A1	29.12.1999	YU82100 A YU49285B B CU22963 A3 IL140444 A ZA200007699 B US6401785 B1 TR200100344T T2 SK19962000 A3 SK285758B B6 SI1089910T T1 PT1089910E E PL345065 A1 PL198926B B1 OA11774 A NZ509107 A NO318205B B1 NO20006564L L NL1009473C C2 JP2002518261 A HU0102603 A2 HU0102603 A3 HK1036260 A1 ES2193720T T3 EP1089910 A1 EP1089910 B1 EE200000773 A EE04269 B1 EA200100068 A1 EA002396 B1 DK1089910T T3 DE69905886T T2 CZ20004851 A3	31.01.2003 15.03.2005 21.06.2004 31.12.2006 21.01.2002 11.06.2002 23.07.2001 03.12.2001 06.07.2007 30.06.2003 31.07.2003 19.11.2001 29.08.2008 26.07.2005 28.06.2002 19.02.2001 19.02.2001 27.12.1999 25.06.2002 28.11.2001 29.07.2002 29.08.2003 01.11.2003 11.04.2001 12.03.2003 15.04.2002 15.04.2004 25.06.2001 25.04.2002 02.06.2003 20.11.2003 12.09.2001

Form PCT/ISA/210 (patent family annex) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

Information on patent family members

PCT/ES2019/070539

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
		CZ299335 B6	25.06.2008
		CN1306488 A	01.08.2001
		CN1213905C C	10.08.2005
		CA2335612 A1	29.12.1999
		CA2335612 C	30.08.2005
		BR9911483 A	20.03.2001
		BG105070 A	30.11.2001
		BG64229B B1	30.06.2004
		AU4658799 A	10.01.2000
		AU748292B B2	30.05.2002
		AT234225T T	15.03.2003
		AP1501 A	18.12.2005
-----	-----	-----	-----
JPS6123050 A	31.01.1986	NONE	
-----	-----	-----	-----
US2009195631 A1	06.08.2009	DK2086292T T3	15.08.2011
		AT509505T T	15.05.2011
		AU2008261184 A1	20.08.2009
		CA2650179 A1	31.07.2009
		US8064184 B2	22.11.2011
		EP2086292 A1	05.08.2009
		EP2086292 B1	11.05.2011
-----	-----	-----	-----
US4115179 A	19.09.1978	NONE	
-----	-----	-----	-----
ES395166 A1	01.11.1974	GB1339292 A	28.11.1973
		FR2108575 A5	19.05.1972
		DE2047481 A1	30.03.1972
		CA932703 A	28.08.1973
		BE772693 A	17.01.1972
-----	-----	-----	-----
WO9511832 A1	04.05.1995	EP0724529 A1	07.08.1996
		CA2173835 A1	04.05.1995
		BR9407890 A	29.10.1996
		AU7817494 A	22.05.1995
-----	-----	-----	-----

Form PCT/ISA/210 (patent family annex) (January 2015)