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(54) Title: PACKAGING MACHINE WITH A REEL WITH ANTI ROTATION MEANS

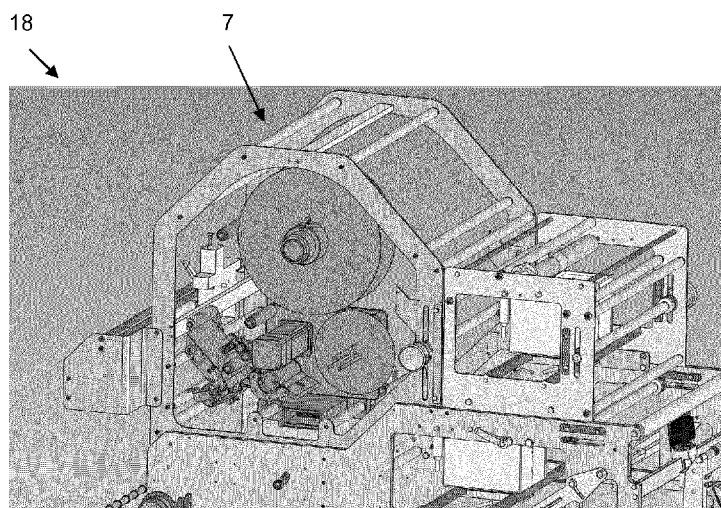
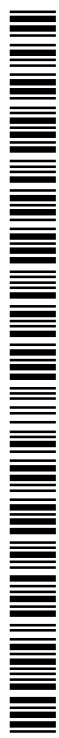


Fig. 1

(57) Abstract: The present invention relates to a packaging machine (1) comprising: - a film-feed (4), which feeds the film from a reel (2) to a forming-unit, - forming means (5) to form the film (3) - sealing means to close the film and the packages hermetically - cutting means to separate the individual packages, - wherein it preferably comprises means (7) to unwind a reel (12) on which labels are provided.



Packaging machine with a reel with anti rotation means

The present invention relates to a packaging machine comprising:

- a film-feed, which feeds the film from a reel to a forming-unit,
- forming means to form the film,
- sealing means to close the film and/or the packages hermetically,
- cutting means to separate the individual packages,
- wherein it preferably comprises means to unwind a reel on which labels are provided.

This packaging machine, for example a vertical flow wrapper, horizontal flow wrapper, a thermoformer, a tray-sealer or a packaging machine to wrap lollipops, is very well known to the person skilled of the art and is used, to form a web, for example a plastic film or a paper material, into a tube from which individual packages are produced or to form a cavity into a plane film, which is filled with a packaging item and subsequently closed with a top film or to close provided trays with a top film. The film used to produce the packages is for all packaging machines provided on a reel which is unwound during production of the packages. In many, if not all cases, the packages are each provided with a label, which is peeled from a film-strip, which is also provided on a reel. These reels have to be changed once in a while and this change has to be executed as fast as possible.

It was therefore the objective of the present invention to provide a packaging machine with means to change one or more reels easily.

This objective is attained by a packaging machine comprising:

- a film-feed, which feeds the film from a reel to a forming-unit,
- forming means to form the film
- sealing means to close the film and the packages hermetically
- cutting means to separate the individual packages and
- means to unwind a reel, wherein the means is a holder with an axis and a first and a second disk provided on and/or at that axis and anti-rotation means to avoid a rotation of the reel relative to the axis.

The present invention relates to packaging machine, for example a vertical flow wrapper, horizontal flow wrapper, a thermoformer, a tray-sealer or a packaging machine to wrap lollipops, particularly the head of the lollipop. These packaging machines are used, to form a web, for example a plastic film or a paper material, into a tube from which individual

packages are produced or to form a cavity into a plane film, which is filled with a packaging item and subsequently closed with a top film or to close a provided tray with a top film. The machines to wrap a lollipop wrap a film around the head of the lollipop and twist and/or seal it to protect the lollipop from environmental influences. The film used to produce the packages/wraps is provided on a reel, respectively, which is unwound during production of the packages. In many, if not all cases, the packages are each provided with a label, which is peeled from a film-strip, which is also provided on a reel.

According to the present invention, the packaging machine comprises means, for example a fixed or rotatable, even driven, axis to unwind the reel, respectively. This axis is fixed to the packaging machine. Inventively, these means comprise a holder, which comprises an axis, preferably a hollow axis, which can be reversibly mounted on the axis attached at the packaging machine. During operation, the holder bears the reel with the film and/or the labels and rotates around the axis at the packaging machine. Attached to the holder is a first and a second disk provided on or at that axis and anti-rotation means to avoid a rotation of the reel relative to the axis and hence the holder.

According to a preferred embodiment, the packaging machine is vertical flow wrapper with:

- a forming-tube and a forming-shoulder, which form a film into a film-tube,
- a longitudinal sealing means to seal the longitudinal edges of the film-tube together,
- a cross-sealing means to provide a cross-seal to the film-tube to produce individual packages and
- a cutting means to separate the individual packages from the film-tube.

According to a preferred embodiment of the present invention, the anti-rotation means is at least one leaf-spring, which is mounted at the circumference of the axis of the holder. The leaf-spring is preferably made from steel, more preferably a spring steel. Preferably, two leaf springs are provided and even more preferably opposite of each other, with the axis in between. Each leaf spring is preferably located adjacent to one of the disks.

Preferably, the spring leaf is permanently bent so that at least one edge extends out of the circumference of the axis. In case it is not bent, also preferably at least one edge extends out of the circumference of the axis. In case a reel is put on the holder, the reel is pushed axially along the axis of the holder until it hits the leaf spring. This leaf spring is then reversibly bent and consequently tensioned against the inner circumference of the reel. Due to the friction and/or the form fit between the reel and the leaf spring, rotation of the reel relative to the holder is avoided.

According to a preferred embodiment of the present invention, each spring leaf is reversibly fixed to the axis. This facilitates an easy replacement of the leaf spring in case its flexibility is reduced or it is damaged.

As already mentioned, the holder of the packaging machine comprises two disks attached on or at the axis of the holder. The reel is placed between these disks during operation of the packaging machine. While one disk is preferably permanently fixed to the axis, more preferably the other disk is easily detachable from the axis and even more preferably reversibly adjustable in its axial position relative to the axis of the packaging machine. This allows not only a simple assembly of the reel between the two disks but the holder is also adjustable to different thicknesses, i.e. axial extensions of the reel.

Preferably, at least one disk is provided with a collar in which a lever is movably, preferably pivotably provided. This lever can preferably be moved from a fixing- to a release-position and vice versa. In the fixation position, one end of the lever is in form- and friction-fit-connection with the axis. More preferably, the holder comprises a spring that biases the lever into the fixation position.

The invention is now explained according to figures 1 – 5. These explanations do not limit the scope of protection. The explanations are applicable for all inventions of the present application, respectively.

Figure 1 shows the inventive packaging machine, here a vertical flow wrapper.

Figures 2 – 5 show the means to unwind the reel with the labels.

Figure 1 shows the inventive packaging machine, here a vertical flow wrapper. A film, for example a plastic film or a paper material is unrolled from a reel and transported by means of a film feed to a forming unit, which forms the plane film into a tube, which is subsequently longitudinally sealed, filled with the packaging-item and provided with cross seals. These packages are then cut apart by a cutting unit. Prior or during forming, a label is applied to the film, which is usually peeled from a tape which is provided as a coil. The person

Figures 2 – 5 show means to unwind a reel 17 on which labels are provided. These means comprise an axis 8 on or to which a first disk 9 and a second disk 10 are attached. The axis rotates on an axis 19 provided at the packaging machine. While the second disk 10 is

preferably permanently attached to the axis 8, the first disk 9 is preferably reversely connected to this axis. Therefore, disk 9 comprises a collar 14 with a lever 15 which is pilotable around a pivot from a release- to a fixation position and vice versa.

In the fixation position the lever fixes the first disk 9 to the axis 8. Preferably, the lever is biased via a spring 16 into the fixation position.

Furthermore, the axis comprises anti rotations means 11, here leaf springs which are attached to the circumference of the axis 8, preferably in indentations. These spring leaf are provided such that at least one of its edges extends out of the circumference of the axis 8. Preferably, each leaf spring is, preferably reversibly, fixed to the axis with a holder 13. Preferably, there are two leaf springs provided which are connected opposite of each other to the circumference of the axis 8. The edges of the spring interact with the inner diameter of the reel and hence, prohibit rotation of the reel relative to the axis 8.

List of reference signs:

- 7 Means to unwind a reel on which labels are provided
- 8 Axis
- 9 First disk
- 10 Second disk
- 11 Anti-rotation means. Leaf spring
- 12 Reel with labels
- 13 Holder
- 14 Collar
- 15 Lever
- 16 Spring
- 17 Reel with labels
- 18 Packaging machine, vertical flow wrapper
- 19 Axis provided at the packaging machine

Patent claims:

1. Packaging machine (1) comprising:
 - a film-feed (4), which feeds the film from a reel (2) to a forming-unit,
 - forming means (5) to form the film (3),
 - sealing means to close the film and the packages hermetically,
 - cutting means to separate the individual packages andcharacterized in that it comprises means (7) to unwind a reel (12) are provided, wherein the means is a holder (13) with an axis (8) and a first and a second disk (9, 10) provided on or at that axis and anti-rotation means (11) to avoid a rotation of the reel relative to the axis.
2. Packaging machine (1) according to claim 1, characterized in, that the anti-rotation means (11) is at least one leaf-spring.
3. Packaging machine (1) according to claim 2, characterized in, that the spring leaf (11) is bent so that at least on edge extends out of the circumference of the axis (8).
4. Packaging machine (1) according to claims 2 or 3, characterized in, that each spring leaf (11) is reversibly fixed to the axis (8).
5. Packaging machine (1) according to one of the preceding claims, characterized in, that at least one disk (9, 10) is reversibly adjustable in its axial position relative to the axis (8).
6. Packaging machine (1) according to claim 5, characterized in, that one disk (9) is provided with a collar (14) in which a lever (15) is movably, preferably pivotably provided.
7. Packaging machine (1) according to claim 6, characterized in, that the lever can be moved from a fixing- to a release-position and vice versa.
8. Packaging machine (1) according to claim 7, characterized in, that in the fixation position, one end of the lever is in form- and friction-fit-connection with the axis (8).

9. Packaging machine (1) according to claims 7 or 8, characterized in, that the holder comprises a spring (16) that biases the lever into the fixation position.

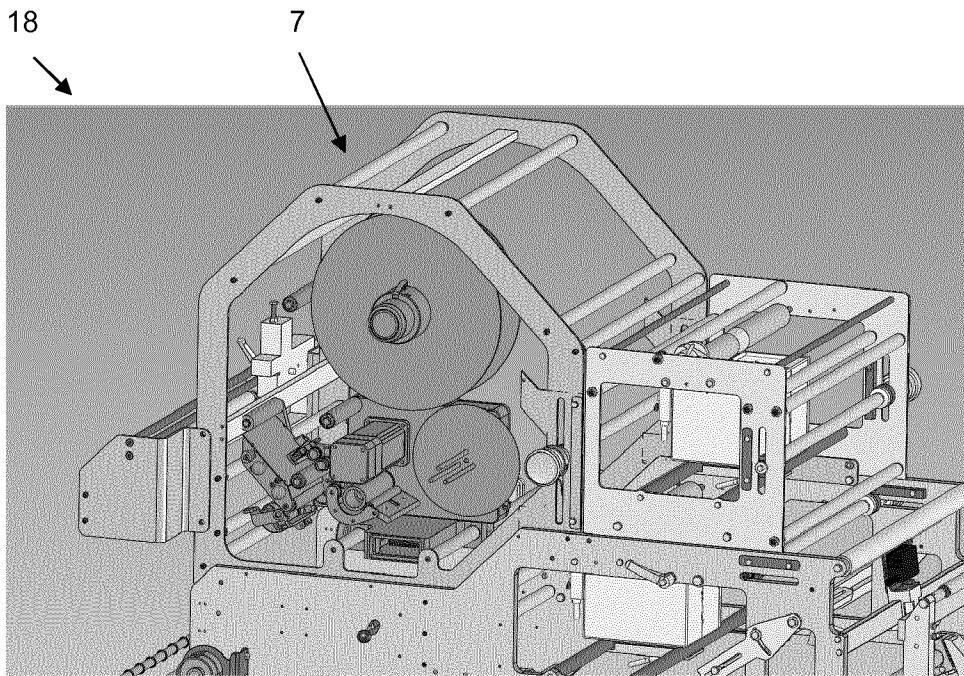


Fig. 1

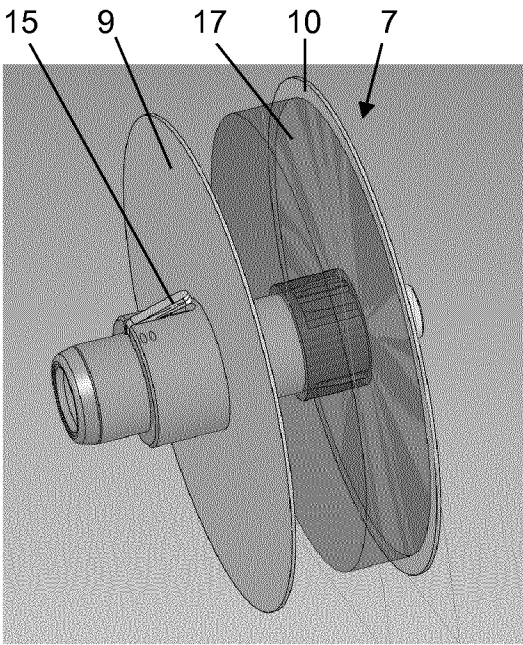


Fig. 2

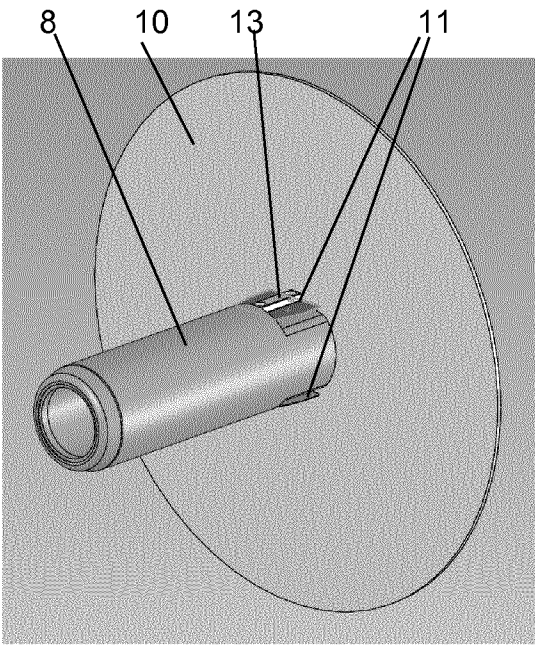


Fig. 3

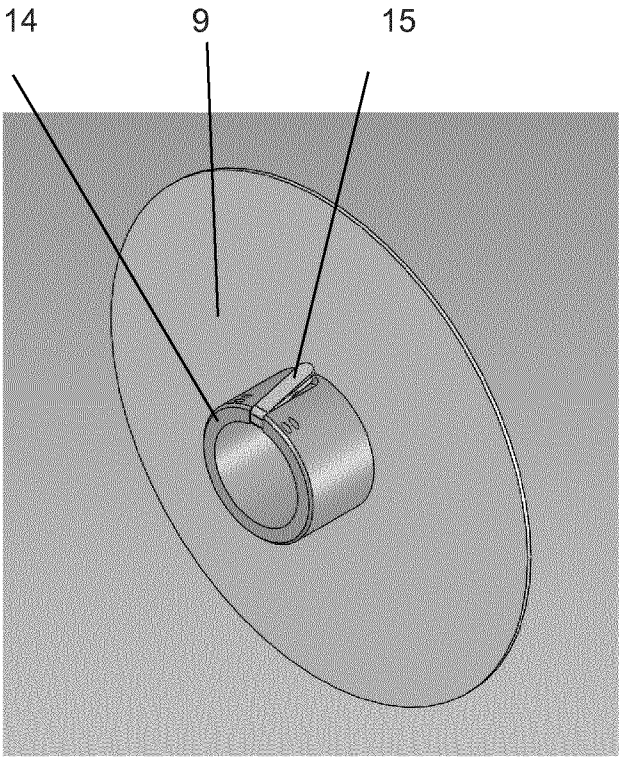


Fig. 4

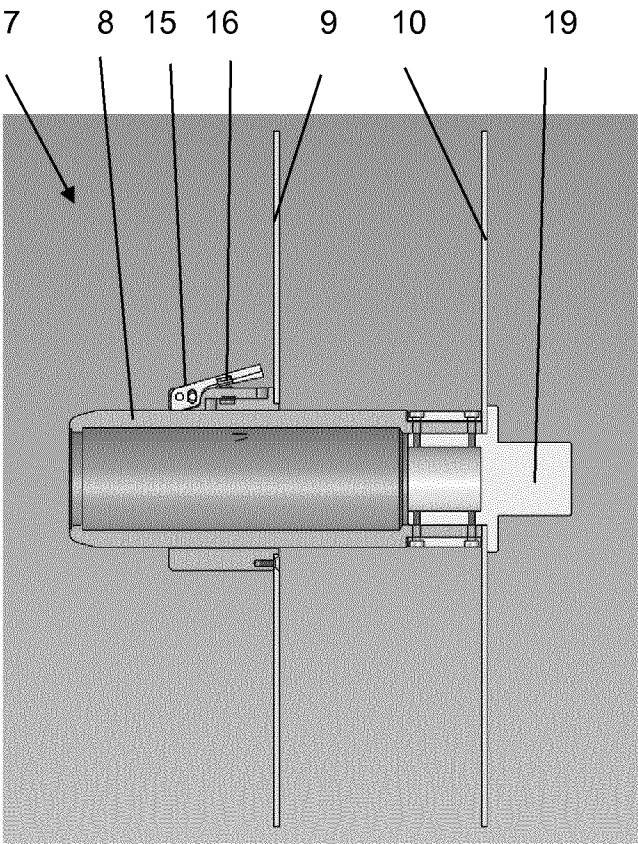


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. B65H16/04 B65B41/12 B65C9/18
ADD.

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)

B65H B65B 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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3 000 155 A (GAUSMAN ALFRED P) 19 September 1961 (1961-09-19) column 1, lines 1-41 column 2, line 18 - column 3, line 8; figures	1-9
Y	DE 10 2006 014544 A1 (HERMA GMBH [DE]) 19 October 2006 (2006-10-19) paragraphs [0001], [0002], [0006], [0024] - [0027], [0039], [0044] - [0047]; figures	1,5
Y	JP S58 123850 U (-) 23 August 1983 (1983-08-23) figures	2-4
	-/-	



Further documents are listed in the continuation of Box C.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2017/074025

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP H09 232063 A (SUMITOMO WIRING SYSTEMS) 5 September 1997 (1997-09-05) figures 5-8 -----	6-9
Y	EP 2 497 716 A1 (GEA CFS WEERT B V [NL]) 12 September 2012 (2012-09-12) paragraph [0001]; claim 1; figures -----	1,5
Y	DE 10 2015 101127 A1 (WEIGAND KURT [DE]) 28 July 2016 (2016-07-28) paragraphs [0029], [0031], [0035], [0036]; figures -----	1,5
A	DE 20 2008 014008 U1 (LINK STEFFEN [DE]) 12 February 2009 (2009-02-12) paragraphs [0001], [0003], [0008], [0013] - [0015], [0023], [0025]; figures -----	1,5

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2017/074025

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3000155	A	19-09-1961	NONE
DE 102006014544	A1	19-10-2006	NONE
JP S58123850	U	23-08-1983	JP S6219635 Y2 20-05-1987 JP S58123850 U 23-08-1983
JP H09232063	A	05-09-1997	NONE
EP 2497716	A1	12-09-2012	NONE
DE 102015101127	A1	28-07-2016	NONE
DE 202008014008	U1	12-02-2009	NONE