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(54) Device for automatically attaching food bags to bunches of flowers

(57) The invention relates to a device (1) for attaching food bags (2) during the process of the known wrapping unit (10), in which the food bags (2) are wrapped together

with an elastic band to the stems of the bunches of flowers (9, 19), in which the whole is mutually adapted by means of electronics and software, so that a great reduction in labour is obtained.

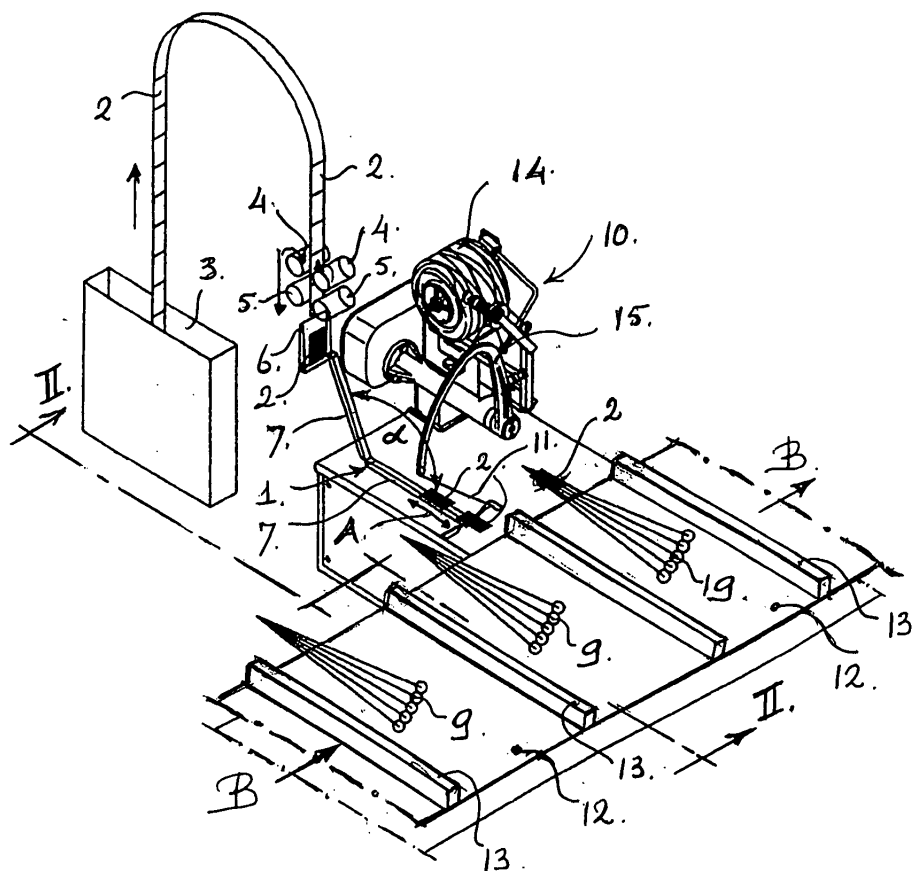


FIG. 1.

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Description

[0001] The present invention relates to a device for automatized attaching food bags to the stems of bunches of flowers during the binding process, in which the known strapping unit with elastic thread is used.

[0002] A suitable unit or device for binding the stems of flower bouquets with elastic band is, for example, known from the Dutch patent document number 9400078, submitted on 17-01-94, titled: "omsnoerinrichting" of CYCLOP Transportverpakkingen b.v. in ZWOLLE, The Netherlands.

[0003] With the mentioned strapping device or unit one can knot binding material around one or more products, in which the binding material is an elastic band, in which the unit consist of a drive, a supply needle for the binding material, a revolving beak, an at least double clamping device, cutting means and driving means for driving these elements, in which the clamping device consists of a revolving disc with recesses which lay tensioned against a counter place.

[0004] With the described strapping unit one can only apply an elastic band around the stems of the flower bouquet and not simultaneously a food bag, which is a great disadvantage due to the amount of extra work.

[0005] A specific wrapping for applying a knot in an elastic band wrapped around the stems is described in the Dutch patent document number 1000753, submitted 07-07-95 of the Exploatiemaatschappij Van den BERG BLOKKER B.V. in Oosterblokker with the inventors F.C.J. Beers, C.J.M. Timmerman and R.J. Heibloem.

[0006] This invention has the aim to make a knot with a specific knotting unit, through which the knotting is improved, but this patent document does not give a solution to attach simultaneously a food bag.

[0007] Further, for example, special food bags designed as a strip or sheet are known from the Dutch patent document number 1015423, submitted 13-06-2000. Here, it concerns a closed bag, made from water porous filter paper and containing a partly in water soluble solid material, which consists of a preparation for cut flowers. The preparation especially consists of food and/or conditioner and/or disinfectant and/or biocide and/or growth inhibition.

[0008] Further, food bags from other suppliers are also known, which are designed as a strip and which bags can be separated by pulling or tearing, which process is described in the European Patent application number 04075769.2 from the present applicant/inventor P.M. van der LAAN, titled: "Food Bag Applicator for Flower Bouquets Packed or Not".

[0009] With this device the food bags are fed automatically with a single swivelling arm to a levelled tray, on which the stems of the flower bouquets are laid. Under this tray is placed a subunit, the so called taper, which wraps the whole through an opening with a tape provided with an adhesive. In practice, in this way many mostly packed flower bouquets are wrapped together with the

food bag, which is located on the outside of the mostly transparent packaging of the flower bouquet. So, the described device tapes from below. Now, in practice, also many devices are known, which especially wrap the stems of the flower bouquets with an elastic band, in which the flower bouquets are not yet packed. The food bag must then be added by hand and often the flower bouquets are then provided with a decorative packing. Then the food bag is located inside the decorative packing. Applying food bags to the stems of flower bouquets by hand is therefore very time consuming and expensive. The known machines (the binders) for wrapping elastic bands around the stems of flower bouquets work satisfactorily in practice, so that these, due to the high cost for the client or user, cannot be replaced.

[0010] In order to limit the cost for applying the food bags to the existing machines or binders, which work from the top side, they must be supplied by a device in a very inventive way for further automatized attaching food bags simultaneously when wrapping the stems of flower bouquets.

[0011] For this, a device according to the invention is developed in a very inventive way for automatized attaching food bags from the top side and wrapping the stems of bunches of flowers with an elastic band, characterized in that, the mentioned device consists of a special swivelling and translatory arm for placing the mentioned food bag near the rising elastic thread or elastic band on the work table of the strapping unit just before the feed of mentioned flower bouquet, after which strapping the stems of the flower bouquet together with the food bag takes place.

[0012] The advantage is, that the food bags are attached to the stems of the flower bouquets with elastic band in an automatized way by the device according to the invention.

[0013] Further, the device according to the invention is developed in such a way, that the mentioned special swivelling and translatory arm is provided with a suction cup at the end for picking up a torn off food bag from the funnel.

[0014] The advantage is, that the food bags can be slid on the correct place in order to be taken along smoothly when attached to the flower bouquets by the strapping unit according to an existing type.

[0015] Further, the device according to the invention is developed in such a way, that the mentioned swivelling and translatory arm rotates or swivels at an angle α around a horizontal axis parallel to the conveyor belt for the flower bouquets and after that translates or extends at a length x to enter the working area of the strapping unit.

[0016] The advantage is that the device according to the invention can be added in a very suitable way to the existing strapping device or unit, in which each time suitable values for α and x can be chosen.

[0017] The preferred construction of the invention will be described by way of example, and with reference to

the accompanying drawing.
In which:

- Fig. 1 shows a view in oblique projection of the device for attaching food bags according to a preferred embodiment of the invention, coupled to a known wrapping device, the so called binder; and
- Fig. 2 shows a cross-section over the line II-II indicated in figure 1.

[0018] Figure 1 shows in oblique projection the device 1 for applying food bags 2. The food bags 2, according to the aforementioned European Patent Application number 04075769.2, also from the present applicant/inventor P.M. van der LAAN, are lead through a supply box 3 by means of rolls 4 and 5 with different turning speeds and are ripped off and next fall as loose food bags, which are also indicated with 2, in a funnel 6. With a special swivelling and translatory arm 7 with a suction cup 8, the food bag 2 is picked up and turned over at an angle α (also see figure 2) in the horizontal position. In the horizontal position the swivelling and translatory arm 7 is extended according to arrow A (figure 2) and in this way lays below the stems of the flower bouquets 9 path and the wrapping unit 10 with elastic band then encloses the stems with an elastic band together with the food bag 2 and so the tied together flower bouquet 19 arises.

[0019] The flower bouquets 9, 19 are transported on the conveyor belt 12 in arrow direction B. Partitions or ribs 13 are mounted on the conveyor belt 12 to keep the flower bouquets at a regular distance along the device 1 and strapping unit 10. The strapping unit 10 is further described in the aforementioned Dutch Patent document 9400078 and consists of a supply bobbin 14 with a attachment lever 15 for the elastic thread 11.

[0020] The whole is built together in a harmonic way and mutually adapted by means of electronics and software, so that the best adaptation is reached.

[0021] Finally it has to be emphasized, that the above description constitutes preferred embodiments of the invention, but that also other modifications are possible which are especially dependant on the concerning wrapping unit, without departing the scope of this patent document.

of the mentioned flower bouquet (9, 19), after which strapping the stems of the flower bouquet (9, 19) together with the food bag (2) takes place.

2. Device as claimed in claim 1, **characterized in that**, the mentioned special swivelling and translatory arm (7) is provided with a suction cup (8) at the end for picking up a torn off food bag (2) from the funnel (6).
3. Device as claimed in claim 2, **characterized in that**, the mentioned swivelling and translatory arm (7) rotates or swivels at an angle α around a horizontal axis parallel to the conveyor belt (12) for the flower bouquets (9, 19) and after that translates or extends at a length x to enter the working area of the strapping unit (10).
4. Device as claimed in claim 3, **characterized in that**, the mentioned angle α is larger than 90 degrees, and preferably approximately 110 degrees and that the length x is approximately 75 mm.
5. Device as claimed in aforementioned claims, **characterized in that**, the swivelling and translatory movement of the swivelling and translatory arm (7) is controlled or powered electrically, or otherwise pneumatically or hydraulically.
6. Device as claimed in aforementioned claims, **characterized in that**, the mentioned control is a specific programmed microprocessor, or otherwise a PLC.

Claims

1. Device for attaching food bags on the stems of bunches of flowers during the binding process, in which the known strapping unit with elastic thread is used, **characterized in that**, the mentioned device (1) consists of a special swivelling and translatory arm (7) for placing the mentioned food bag (2) near the rising elastic thread (11) or elastic band on the work table of the strapping unit (10) just before the feed

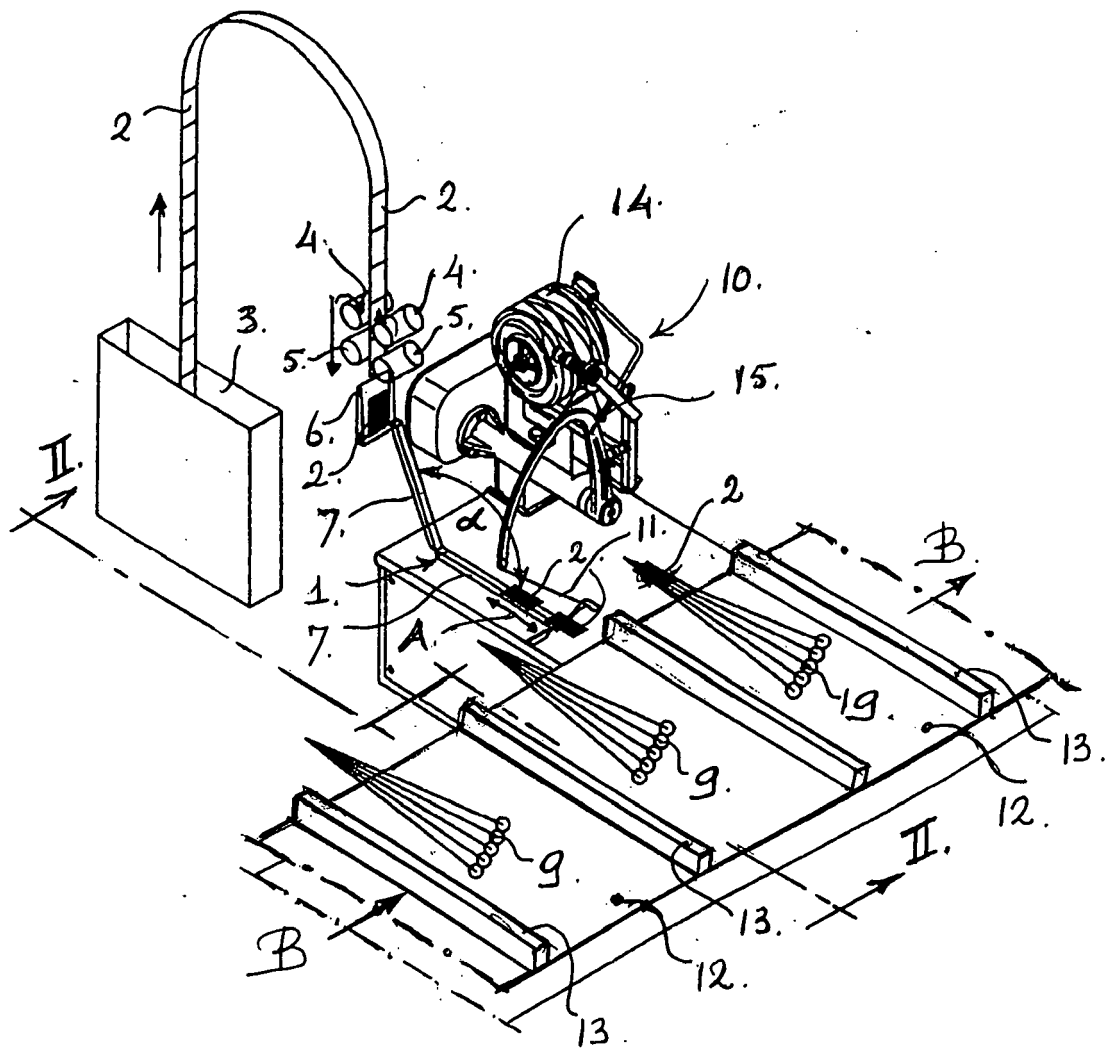


FIG. 1.

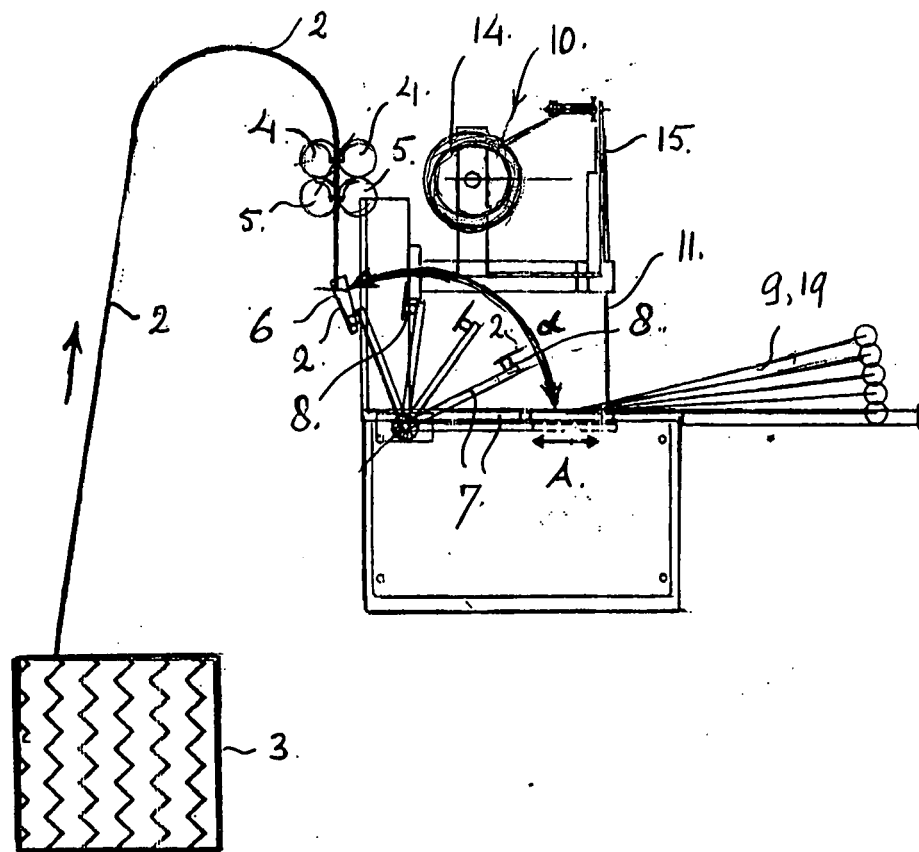


FIG. 2.



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 07 5233

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B65B
Place of search		Date of completion of the search	Examiner
The Hague		3 May 2006	Vigilante, M
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 07 5233

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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03-05-2006

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Patent documents cited in the description

- NL 9400078 [0002] [0019]
- NL 1000753 [0005]
- NL 1015423 [0007]
- EP 04075769 A [0008] [0018]