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(54) **Method for wrapping horticultural products.**

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US-A- 2 872 768
US-A- 4 525 983

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Description

SUBJECT OF THE INVENTION

The present invention relates to a novel method for wrapping horticultural products, specifically horticultural products of round shapes tending to a spherical configuration, such as, for example, Iceberg-type lettuces, which packaging is achieved with a plastic sheet such as, for example, a sheet of polypropylene or polyethylene which is preferably perforated.

The method recommended aims to achieve mechanisation of the covering operation such as is known from US-A-4 525 983 and GB-A-2 214 154 and, consequently, with a high operating rate, to achieve such packaging under conditions of intimate adaptation of the cover sheet to the horticultural product in question without the product suffering damage, due to the actual wrapping operation, which may become apparent immediately or after a period of time.

BACKGROUND OF THE INVENTION

The increasingly demanding hygiene requirements of the market in the area of food mean that certain products which conventionally reached the consumer unpackaged must now arrive completely wrapped and protected, that is to say in optimum hygiene conditions.

This applies to certain horticultural products such as, for example, lettuces, cabbages, cauliflowers and the like.

These products are currently marketed protected by a sheet-type plastic wrapper which, as stated previously, is generally perforated polypropylene and forms an integral covering for each product unit.

For the most part, wrapping of these products is currently performed manually, specifically by using bags of a volume size suitable for the type of product in question, which bags, after receiving the product in their inside, are manually adapted to the product by their opening being closed with the collaboration of adhesive strips suitably fastened to the bag after folding over thereof.

Obviously, this solution is slow and, consequently, costly and, moreover, the closure leaves much to be desired.

Contrasting with this manual system, there is a mechanised system which consists in passing the product units along a conveyor belt, specifically over a continuous web based on the plastic material with which the packagings will be fashioned, on which conveyor belt are installed lateral folder devices which convert the continuous web into a tubular body and which, in turn, weld it via its longitudinal joining edges, there also being transverse jaws which, in turn, perform welds and cuts in order to separate the packs and bags thus obtained.

Although it permits considerable acceleration of the process and enables it to be automated as much as possible, this solution nevertheless, by contrast, poses the problem of the plastic packaging not being intimately adapted to the product, as required by the market, farming a rectangular bag whose sectors corresponding to the corners project considerably with respect to the horticultural product contained therein.

A suitable solution to this problem would be to next subject the assembly immediately to a phase of shrinking, which is valid in certain cases, but in others, such as, for example, in the case of lettuces, a field to which the method of the invention is especially applicable, such a phase of shrinking cannot be applied since this would damage the product, whose outer leaves blacken after a very short period of time and as a result of the heat applied thereto during heat shrinkage, and this would occur before they reached the consumer, who would reject them.

DESCRIPTION OF THE INVENTION

The method proposed by the invention provides a completely satisfactory solution to the problem set forth above such that, permitting optimum mechanisation of the method, the plastic wrapper sheet is perfectly adapted to the horticultural product in question and is perfectly fastened to the latter without the product suffering the least damage.

To this end and more specifically, said method begins with the use of a plastic sheet, preferably of perforated polypropylene, preferably of quadrangular configuration and also preferably obtained by cutting from a reel or continuous web, said plastic sheet being applied aver the product via the centre point of the sheet and opposite the stalk of said product, it being adapted immediately and progressively to the entire surface of said product until said sheet is drawn aver or is folded over on itself in the zone corresponding to the stalk and beyond the latter.

The folding-over of the plastic sheet is temporarily kept in this zone by any means such as, for example, with the collaboration of a diaphragm-type jaw, and immediately afterwards the excess material of the plastic sheet is removed by means of a blade, shears or by any other suitable means, with simultaneous supply of heat, that is to say the cutting element being suitably heated.

In this manner, in correspondence with the cutting plane defined by the cutting element and in addition to the separation or the removal of the excess plastic material, production of a welding plane is achieved in which the various folds of the plastic sheet are stabilised via the edges defined during the actual cutting.

PREFERRED EMBODIMENT OF THE INVENTION

In accordance with a preferred practical illustrative embodiment of the invention, the horticultural products such as, for example, Iceberg-type lettuces, will be supplied by any means to a conveyor belt where they will be individually and uniformly distributed and via which they will be fed, also individually and sequentially, to a work zone to which the plastic sheet of polypropylene, polyethylene or any other suitable product in question will simultaneously gain access in the form of a continuous web.

In this work zone and by appropriate means, such as, for example, a pusher and an annular brush, the product unit will be pushed against the corresponding sector of plastic film which, in turn, will be suitably cut so that as product and plastic sheet pass via the annular brush said plastic sheet is progressively and perfectly adapted to the surface of the product until the zone close to the edges of the plastic sheet is drawn over a paint of the periphery of the product, specifically the zone corresponding to the stalk thereof, at which moment a jaw, preferably of the diaphragm type, which temporarily and suitably stabilises the plastic sheet with respect to the product, acts on this zone.

At this moment, the elements which are acting on the product may be displaced to a second work zone, for example by means of a rotation through 180°, and in this second work zone the cutting/welding operation will take place by means of a heated cutting element, so that, in this second work zone, the excess plastic sheet is removed while a wide central sector forming the greater part thereof is perfectly adapted to the product and fastened to the latter they actual self-fastening via the folding edges thereof defined on the cutting plane.

At this moment, the product will be released in order, via the corresponding collection ramp, to gain access to any type of collector or the packaging boxes, where the product is ready for transportation or distribution.

It is considered unnecessary to enlarge upon this description for an expert in the field to appreciate the scope of the invention arid the advantages derived therefrom.

The materials, shape, size and arrangement of the elements may be varied.

Claims

1. Method for mechanically wrapping horticultural products, especially horticultural products of round configuration with a tendency to the spherical, such as, for example, Iceberg-type lettuces, which begins with a plastic sheet as covering plastic, such as polypropylene, polyethylene or another material, preferably perforated and in the form of a reel or continuous web, the method consisting, after division of the plastic sheet into quadrangular sectors whose size is in accordance with the unit size of the product in question, in applying said plastic sheet sector, at its central zone, to a point of the surface of the product, to the zone thereof opposite its stalk, said sector of the plastic sheet being adapted progressively to the surface of the product until it reaches the zone corresponding to the stalk, where folding together of the plastic sheet is at a maximum and where said plastic sheet is temporarily kept constricted with the collaboration of a jaw, preferably of diaphragm type, followed immediately afterwards by the removal of the excess material from said plastic sheet sector by cutting and heat-welding, characterised in that said cutting operation is achieved with simultaneous supply of heat preferably by means of the use of heated blades or shears, such that a heat-welding plane is defined across the folds of the plastic sheet, in correspondence with the edges of said sheet which are included in the cutting plane.

Patentansprüche

1. Eine Methode für das mechanische Einwickeln von Gartenbauprodukten, speziell rundliche Gartenbauprodukte, mit einer Neigung zur Kugelförmigkeit, wie zum Beispiel Eissalatköpfe, eine Methode, bei der man mit einer Plastikfolie als Verdeckungsmaterial beginnt, wie zum Beispiel Polypropylen, Polyaethylen oder andere Materialien, die vorzugsweise gelocht sind und in Form einer Rolle oder als fortlaufende Plastikbahn benutzt werden, wobei die Methode darin besteht, nach der Aufteilung der Plastikfolie in quadratische Abschnitte, deren Grösse mit der Einheitsgrösse des infrage kommenden Produktes übereinstimmt, diesen Plastikfolienabschnitt in seinem mittleren Bereich auf einem Punkt der Produktoberfläche aufzubringen, d.h. auf dem Bereich, der gegenüber dem Stumpf liegt, wobei dieser Bereich der Plastikfolie nach und nach der Produktoberfläche angepasst wird, bis sie den Stumpfbereich erreicht, wo das Zusammenfalten der Plastikfolie den Höchstgrad erreicht, und wo diese Plastikfolie vorläufig mit Hilfe einer Klemme, vorzugsweise vom Blendentyp, zusammengepresst wird, wonach sofort das überschüssige Material dieses Plastikfolienbereiches durch Abschneiden und Wärmeschweissung entfernt wird, dadurch gekennzeichnet, dass dieses Abschneiden mit gleichzeitiger Wärmezufuhr, bevorzugt mittels des Gebrauches von heissen

Messern oder Scherungsvorrichtungen erfolgt, so dass eine Wärmefläche zur Schweissung quer über die Faltungen der Plastikfolie definiert wird, entsprechend den Kanten dieser Folie, die in der Schnittfläche eingeschlossen sind.

Revendications

1. Procédé pour emballer mécaniquement des produits horticoles, en particulier des produits horticoles de forme arrondie tendant à être sphérique, comme par exemple des laitues du genre "Iceberg" dans lequel on les recouvre tout d'abord d'une feuille de matière plastique, par exemple de polypropylène, polyéthylène, ou autre matière, de préférence perforée et sous forne de bobine ou feuille continue, ce procédé consistant, après division de la feuille de matière plastique en secteurs quadrangulaires de dimensions en accord avec les dimensions de chaque unité du produit en question, à appliquer progresivement la zone centrale de l'un des secteurs, sur un point de la surface du produit, dans la zone de ce dernier opposée à son trognon (ou tige), ledit secteur de la feuille de matière plastique étant adapté de façon progressive à la surface du produit jusqu'à atteindre la zone qui correspond au trognon, où la feuille de matière plastique est resserée sur elle même au maximum et est maintenue ainsi à l'aide d'une mâchoire, de préférence du genre diaphragme, après quoi on élimine la matière en excès du secteur de la feuille de matière plastique en question, par sectionnement et soudure thermique, ce procédé étant caractérisé en ce que ce sectionement est effectué avec apport simultané de chaleur, de préférence en utilisant des couteaux ou des ciseaux chauffés, et un plan de soudure thermique est défini transversalement aux plis de la feuille de matière plastique, en correspondance avec les bords de cette feuille qui sont inclus dans le plan de sectionnement.