

METHOD OF PREPARING A PACKAGE OF PRODUCTS
WHICH ARE AVAILABLE IN AN IMBRICATED FORMATION

The present invention relates to a method of preparing a package of products such as printed products which are available in an imbricated formation. The present invention also relates to a package
5 produced by the method.

One method of forming packages from printed products arriving in an imbricated formation is known from German O L S 2 752 514 and the corresponding United States Patent No 4 140 052. The printed
10 products are stacked in a vertical stacking compartment or chute. During formation of the stack, sub-stacks are placed cross-wise upon one another. To obtain sufficient stability the stack must be compressed. There is accomplished an intermediate
15 transport of the stack to a packing station at which the product package is provided with a protective cover constituted by, for example, a plastic foil by means of a wrapping machine. Then, the package is provided with a strapping band. For the strapping
20 operation, which is frequently performed in a cross-wise configuration, there is preferably used a cord or plastics strap or band.

As will be readily recognised, such a formation requires a considerable expenditure of apparatus and time. Also, the compression mentioned is undesirable because there is the danger of smearing the printing ink.

5 The eventual user has to open the package for removal of individual printed products therefrom. This requires release of the strapping band and in most cases, also, removal of the protective cover. Apart from the work connected therewith, the opening of the product package is
10 associated with the disadvantage that the printed products are no longer held together in the product package which thus tends to fall apart. Furthermore, transporting the opened printed product package to a different location may be quite troublesome.

15 According to the present invention, there is provided a method of preparing a package of products which are available in an imbricated formation, by winding-up said imbricated formation from one end thereof to form a package roll, the roll comprising only the said products
20 for all or substantially all its radial thickness from its inside to its outside; said winding-up operation being started by turning the exposed edge of the product which is at said one end towards that of its sides which is not covered by the next following product, and said winding-up
25 operation being continued in the same direction, and a cover element or strapping band being provided around said roll to hold said roll together and thereby provide a manually handleable package ready for shipment from which products can be individually withdrawn from the inside.

30 The invention can allow products provided in an imbricated formation to be made up into packages in a

simple manner. The package can be conveniently handled and individual printed products can be removed easily. The imbricated formation can be preserved during the wind-up operation. The package formation can thus be effected in a simple and product-protective manner. A cover or strapping band is provided around the roll. This may be effected in such a way that the cover or strapping band is assembled with the imbricated formation, so as to protrude beyond the end thereof, and be wound-up therewith.

Preferably, this protruding end section of the cover or strapping band is connected with another section thereof which it overlaps. Thus, the covering or strapping of the roll-shaped package can be effected during the course of the wind-up operation of the printed products.

The cover can be designed such as additionally to give protection to the printed products.

The invention also provides a package of imbricated products formed in a roll with the leading edge of the leading product turned towards that of its sides which the next product in the formation does not contact and subsequent products being wound in the same direction, the roll comprising only the said products for all or substantially all its radial thickness from its inside to its outside, and a cover element or strapping band being provided around said roll to hold said roll together so that the package is ready for shipment and so that the innermost product is removable without disturbing other products.

The products are individually removable from the centre of the product roll. The package is easily

handled. Due to the particular manner of wind-up of the imbricated formation, the package can be disassembled without any great effort from the inside of the product roll without the wound product package having to be opened. The products are thus not damaged and can only be withdrawn one at a time. The cover or strapping band element can be used up to the last product.

In order that the invention may be more clearly understood, the following description is given by way of example with reference to the accompanying drawings wherein:

Figures 1 to 4 illustrate in schematic side views successive phases of the method of the invention;

Figures 5 and 6 are respective schematic end views, shown to different scales, of a package of products, such as printed products, produced according to the invention and ready for shipment; and

Figure 7 is a perspective view illustrating the removal of an individual printed product from a roll-shaped product package such as is shown in Figures 5 and 6.

Turning attention now specifically to Figures 1 to 4 there will be explained in conjunction therewith the formation of a ready-for-shipment package of printed products 2 arriving in an imbricated product formation 1 during different phases of the package forming process.

The depicted imbricated product formation 1 may constitute part of a longer or more extensive imbricated formation as, for example, outputted by a rotary printing press. This imbricated formation 1 is appropriately moved in the direction of the arrow A in a manner not here shown in any particular detail for example, by means of any suitable band conveyor or the like. Within the imbricated formation 1 the printed products 2 are superimposed in the manner of tiles on a roof, each printed product 2 resting with its bottom side or surface 4 upon the top side or surface 3 of the immediately preceding or leading printed product 2. Thus, the leading edge 2a, which in the present case is the folding edge of the printed products 2, is exposed or free while the trailing edge 2b of the printed products 2 is covered by the next following or trailing printed product 2.

The imbricated formation 1 is conveyed in the direction of the arrow A towards a wind-up location, generally



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indicated by reference character 5. At the wind-up location 5 the imbricated formation 1 is wound-up starting with the leading end 1a thereof, in order to form a product roll. As shown in Figures 1 and 2, the winding operation is started in such a way that the leading and exposed or free edge 2a of the foremost printed product 2' is rolled-up in the direction towards the bottom side or surface 4 of this first and forwardmost located printed product 2'. As will be evident from Figure 3, the further winding operation is effected in the same direction or sense. This winding direction is indicated in Figures 1 to 4 by the arrow B. Thus, the imbricated formation 1 is wound-up in such a manner that the leading edge 2a of each printed product 2 is rolled-back towards the bottom side or surface 4 thereof, and thus, away from the trailing printed products 2', 2".

As will still be explained in greater detail hereinafter, the winding-up of the imbricated formation 1 in the direction B, as explained heretofore, is a precondition that the printed products 2 can be readily removed from the completed product package or product roll 7.

Towards the end of the wind-up or winding operation a band-shaped cover or strapping band element 6 is applied to the trailing end section 1b of the imbricated formation 1. This cover or strapping band element 6 is advantageously formed

of a suitable material like, for example, kraft paper or plastics. The width of the cover or strapping band element 6 approximately corresponds to the width of the printed products 2; however, the width thereof may also be smaller than the width of the printed products 2. The cover or strapping band element 6 has a length which is greater by a certain amount than the circumferential length or circumference of the completed product roll 7 of printed products 2.

As will be evident from Figure 4, the cover or strapping band element 6 is applied to the trailing end section 1b of the imbricated formation 1 in such a way that the end section 6b of the cover or strapping band element 6 protrudes to the rear beyond the trailing end section 1b of the imbricated formation 1. The cover or strapping band element 6 is wound-up conjointly with the trailing end section 1b of the imbricated formation 1, and during this operation the cover or strapping band element 6 comes to rest on the outer side or surface of the roll 7. As shown in Figure 5 the trailing end 6b of the completely wound-up cover or strapping band element 6 overlaps the front end 6a of such cover or strapping band element 6. The two overlapping sections 6a and 6b are then interconnected in any suitable manner. For example, when one or both of the sections 6a, 6b are provided with a suitable self-adhesive prior to applying the cover or strapping band element 6 to the imbricated formation 1, the two sections 6a

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and 6b can be interconnected during the course of the wind-up operation without requiring any significant additional expense. It will be self-evident that the connection between the two sections 6a and 6b of the cover or strapping band element 6 can also be effected in a different manner as, for example, by welding or heat sealing in case that a plastic foil is used.

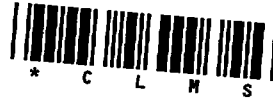
The cover or strapping band element 6 also can be designed to have such a length and also can be applied to the trailing end section 1b of the imbricated formation 1 in such a manner that the cover or strapping band element 6 is wound-up with its front end 6a between the last individual wound layers or plies of the wound-up printed products 2. Figures 5 and 6 show, in different scales, the roll-shaped package or package roll 7 which is ready for shipment. As will be evident therefrom, the cover or strapping band element 6 encircling the roll 7 of printed products 2 not only serves to hold the package roll 7 together, but also to protect the wound-up printed products 2. However, the cover or strapping band element 6 may also be designed such as to perform only a protective function, an additional strapping banding element or ligature, for example, a plastic band or a cord being used to hold the package roll 7 together. In case that no protection is required for the printed products 2, it will be sufficient to apply a strapping band or the like to the package roll 7 to form a completed package.

In Figure 6 the structure of the roll-like package 7 will be recognised in greater detail. Due to the selected winding direction B, as explained with reference to Figures 1 to 4, the side or surface 4' of the innermost printed product 2' facing the center of the package roll 7 does not contact any one of the following printed products 2" or 2''' . The second printed product 2" only engages the innermost printed product 2' at its inner side or surface 4" facing the center of the roll 7. This is similarly the case for the remaining printed products as illustrated by the printed product designated by the reference numeral 2''' . Such arrangement of the printed products 2 within the package roll 7 now permits the roll-shaped package to be disassembled from the interior thereof. This means that the innermost printed product 2 may be withdrawn from the roll 7 without entraining any further printed products 2 as will be evident from Figure 7. It will be readily recognised from Figure 6 that after removal of the innermost printed product 2' the next printed product 2" in the series no longer contacts any other printed product with its inner side or surface 4" facing the center of the package roll 7. Consequently, also the second printed product 2" can be withdrawn without any great effort from the package roll 7 without entraining a further printed product. This is also true throughout for the remaining printed products.

Such a disassembly or build-off of the package from the interior thereof which, as explained, is effected without any great effort and without damage to individual printed products 2, renders superfluous the opening of the package.

5 This means that the cover or strapping band element 6 may remain present until the end of the disassembling operation. The printed products 2 are thus still held together in their rolled-up shape even when individual specimens or copies have already been removed from the package.

10 It is also possible that the printed products 2 assume a mutual position within the imbricated product formation which is different from the one shown in Figures 1 to 4. By suitably selecting the wind-up direction, however, it is also possible in such case to obtain a roll-shaped package
15 which corresponds in structure to the package shown in Figure 6. In case that in the arriving imbricated formation each printed product rests with its bottom side or surface 4 on the top side or surface 3 of the following printed product, then the imbricated formation would have to be wound-up in a
20 direction which is opposite to the winding direction B as shown in Figures 1 to 4. Consequently, the leading edge 2a of the first printed product 2' would have to be rolled back upwardly towards the exposed top side or surface 3 of this first printed product 2'.



C L A I M S

1. A method of preparing a package of products which are available in an imbricated formation, by winding-up said imbricated formation from one end thereof to form a package roll, the roll comprising only the said products
5 for all or substantially all its radial thickness from its inside to its outside; said winding-up operation being started by turning the exposed edge of the product which is at said one end towards that of its sides which is not covered by the next following product, and said winding-up
10 operation being continued in the same direction, and a cover element or strapping band being provided around said roll to hold said roll together and thereby provide a manually handleable package ready for shipment from which products can be individually withdrawn from the inside.
- 15 2. A method according to claim 1, including the steps of conveying said imbricated formation with said one end leading.
3. A method according to claim 1 or 2 wherein the cover element or band is fed with the trailing end of
20 the imbricated formation of products, so as to extend beyond such trailing end, and is then wound up around the roll.
4. A method according to claim 3, wherein the free end of the cover or band is connected to an earlier
25 exposed part thereof to complete the cover or band.
5. A method according to claim 4, wherein the leading end of the strap or band is outside the roll.
6. A method according to claim 4 wherein the leading end of the strap or band extends between the last
30 layers of the roll.
7. A method of preparing a package of products substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.



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8. A package of products made by the method of any preceding claim.

5 9. A package of imbricated products formed in a roll with the leading edge of the leading product turned towards that of its sides which the next product in the formation does not contact and subsequent products being wound in the same direction, the roll comprising only the said products for all or substantially all its radial thickness from its inside to its outside, and a cover
10 element or strapping band being provided around said roll to hold said roll together so that the package is ready for shipment and so that the innermost product is removable without disturbing other products.

15 10. A package according to claim 9, wherein said cover element or band has a length exceeding the circumference of said product package roll and overlaps itself.

20 11. A package substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.
