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(54) **Three-dimensional containers provided with relief decorations and a production method for such containers**

Dreidimensionale Behälter, die mit Reliefverzierungen versehen sind, und Produktionsverfahren für solche Behälter

Récipients tridimensionnels équipés de décorations en relief et procédé de production de ces récipients

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Description

[0001] The present invention relates to a method for producing three-dimensional containers provided with relief decorations.

[0002] Such a method is disclosed in US1793163, upon which the preamble of claim 1 is based.

[0003] Shopping bags of paper or combined paper/plastic are known, produced manually or by machine and provided or not provided with handles. They are used both for low cost products and for luxury products, depending on the bag finish.

[0004] These shopping bags are normally produced from a sheet of preprinted material which is glued and folded to form the bag. Further paper or cardboard pieces can be disposed or glued on particular regions of the sheet, for example that intended to form the base or the upper edge where the handles are attached, to provide greater strength.

[0005] An object of the invention is to produce a container provided with relief decoration able to increase its visual effect on the consumer.

[0006] Another object of the invention is to utilize reliefs obtained on deformable material to vary the mechanical properties of the articles formed from said material.

[0007] Another object of the invention is an automatic production process for such articles starting from materials either in sheet, in punched-out pieces or in rolls which uses traditional machines possibly modified to obtain said reliefs on the articles.

[0008] These objects are attained according to the invention by a method as described in claim 1.

[0009] The present invention is further clarified hereinafter with reference to the accompanying drawings in which:

Figure 1 is a schematic view showing a block scheme of a production method for shopping bags, which is however not according to the present invention

Figure 2 is a perspective view of the forming station of figure 1.

Figure 3 shows a shopping bag obtained by the method of the invention,

Figure 4 is a schematic view showing a manual production system, and

Figure 5 shows a further embodiment.

[0010] As can be seen from the figures, a method for producing shopping bags consists of unwinding from a reel 2 a web of papery material having plastic yielding characteristics, in both the transverse and longitudinal direction, of not less than 5%, then subjecting it in a suitable station 6 to the traditional operations of punching, crease-lining, folding and gluing to form a flattened tubular web comprising a plurality of pleats 7 along its longitudinal edges.

[0011] The tubular web is then fed to a forming unit 8 consisting of a roller 10 comprising on its lateral surface

one or more reliefs 12 corresponding to the design to be formed on the shopping bag, and a die 14 facing the roller and made of soft material.

[0012] By passage through the forming station, the two outer surfaces of the flattened tubular web become provided respectively with a depression 16 and a projecting portion corresponding to the roller motif.

[0013] The web is then cut in a cutting station 20 to form individual pieces which at one end are subjected to application of the support handles 28 and at the other end are folded to form the bag base 26.

[0014] The shopping bag obtained in this manner is then fed to a storage station 22 where the bags can be easily stacked on each other by virtue of the co-penetration of the deformations 16, 18 of superimposed bags.

[0015] In an embodiment of the present disclosure, which is however not shown in the drawings, the paper web can be advanced stepwise to enable a male/female deformation element to be used, with the male element consisting of a punch producing a positive of the three-dimensional form, or an elastic membrane extended and pressed onto the web and then subjected to an overpressure from the opposite side by a compressed fluid, for example air.

[0016] In a further embodiment of the method, the web leaving the roll is subjected, at least in a region which will later form the face of the shopping bag, to a deformation to create the desired motif.

[0017] According to the present invention (see Figure 4), the method comprises firstly completing the shopping bag 24 by applying the base 26 and the handles 28, and then subjecting the bag while in the flat configuration to plastic deformation with a deforming element consisting of a punch 30 and a die 32.

[0018] Figure 5 shows an additional step of the method of producing the shopping bag, which comprises ornamental relief motifs on both the opposing vertical walls. The method consists of firstly making the bag 24 and then inserting it into the cavity 34 of a mould 36 having the same shape and dimensions as the bag when completely unfolded, in which the two walls corresponding to those walls of the bag to be decorated comprise a depression 38 corresponding to the relief motif. Compressed air is then fed into the shopping bag while inserted in the mould, to urge the wall portion of the shopping bag made of yieldable papery material into the mould depression to create the final relief motif 40 in the shopping bag by stretch-moulding.

Claims

1. A method for producing a three-dimensional container consisting of papery material having plastic yielding characteristics, in both the transverse and longitudinal directions of the paper web through which the container is formed, of not less than 5 % and comprising on at least one portion of its lateral sur-

face at least one three-dimensional plastic deformation, **characterized in that** said papery material is subjected to, in sequence, the steps of punching, crease-lining, folding and stabilization in the folded configuration, to form the three-dimensional container, the papery material being subjected to, before or after any one of said steps, on at least one portion of the container lateral surface, plastic deformation in a flat mould comprising a punch and a die (30, 32) comprising reliefs/cavities corresponding to those which are to appear in the finished container (24) to obtain a three-dimensional deformation in the regions in which ornamental relief motifs are to be created.

2. A method as claimed in claim 1, **characterised by** subjecting the already formed container (28) to plastic deformation in a mould (34) having a cavity substantially corresponding to that of said container and presenting, in the walls corresponding to those of the finished container, cavities (38) corresponding to the ornamental relief motifs to be obtained on the container.

Patentansprüche

1. Eine Methode, einen dreidimensionalen Container aus Papiermaterial zu produzieren, das Plastikfließ-Eigenschaften von nicht weniger als 5% sowohl in Quer- als auch Längsrichtung der Papierrolle besitzt, durch die der Container geformt ist. Wenigstens ein Teil der Seitenfläche besitzt eine dreidimensionale Kunststoffverformung. Die Verformung ist **dadurch** charakterisiert, dass besagtes Papiermaterial einige sequenzielle Schritte durchläuft, Presse, Faltstation, Falt- und Stabilisierung/Festigung in gefaltetem Zustand, um den dreidimensionalen Container zu formen, wobei das Papiermaterial vor oder nach einem dieser besagten Schritte an zumindest einem Teil der seitlichen Fläche des Containers eine Plastikdeformation erfährt. Diese Deformation wird erzeugt durch eine flache Form bestehend aus Stanze und Form (30, 32), bestehend aus Reliefs/Vertiefungen, die denen entsprechen, die am fertigen Container (24) erscheinen, um eine dreidimensionale Verformung in den Regionen zu erhalten, in denen ornamentale Reliefsmotive erstellt werden sollen.
2. Eine Methode nach Anspruch 1, charakterisiert **dadurch**, dass der bereits geformte Container (28) eine Plastikdeformation in einer Form (4) erfährt, die eine Vertiefung besitzt, die der des besagten Containers entspricht, und auch in den Wänden, die denen des fertigen Containers entsprechen, Vertiefungen (8) besitzt, die den ornamentalen Reliefsmotiven entsprechen, die im Container erstellt werden sollen.

Revendications

1. Méthode pour produire un récipient tridimensionnel constitué de matériau de type papier dont les caractéristiques d'allongement plastique, dans le sens longitudinal aussi bien que dans le sens transversal de la feuille de papier dans laquelle est formé le récipient, ne sont pas inférieures à 5%, et comportant sur au moins une partie de sa surface latérale au moins une déformation plastique tridimensionnelle, **caractérisée en ce que** ledit matériau de type papier fait, successivement, l'objet d'étapes de poinçonnement, de rainurage, de pliage et de stabilisation dans la configuration pliée pour former le récipient tridimensionnel ; le matériau de type papier étant soumis, avant ou après l'une desdites étapes, sur au moins une partie de la surface latérale du récipient, à une déformation plastique dans un moule plat comportant un poinçon et une matrice (30, 31) avec des reliefs / cavités correspondant à ceux devant apparaître sur le récipient fini (24) pour obtenir une déformation tridimensionnelle dans les régions où les motifs ornementaux en relief doivent être créés.
2. Méthode selon la revendication 1, **caractérisée par** le fait de soumettre le récipient préalablement formé (28) à une déformation plastique dans un moule (4) muni d'une cavité correspondant de façon substantielle à celle dudit récipient et présentant, dans les parois correspondant à celles dudit récipient fini, des cavités (8) correspondant aux motifs ornementaux en relief devant être obtenus sur le récipient.

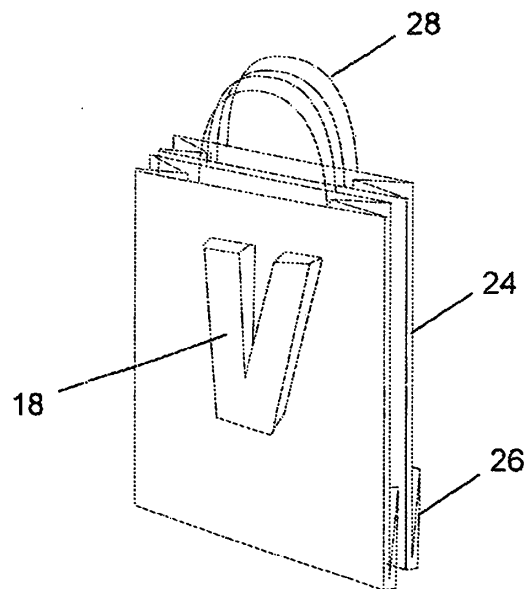
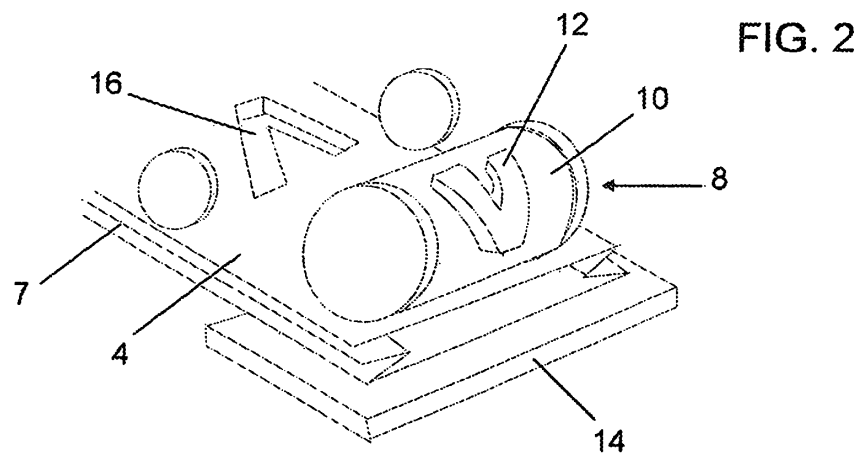
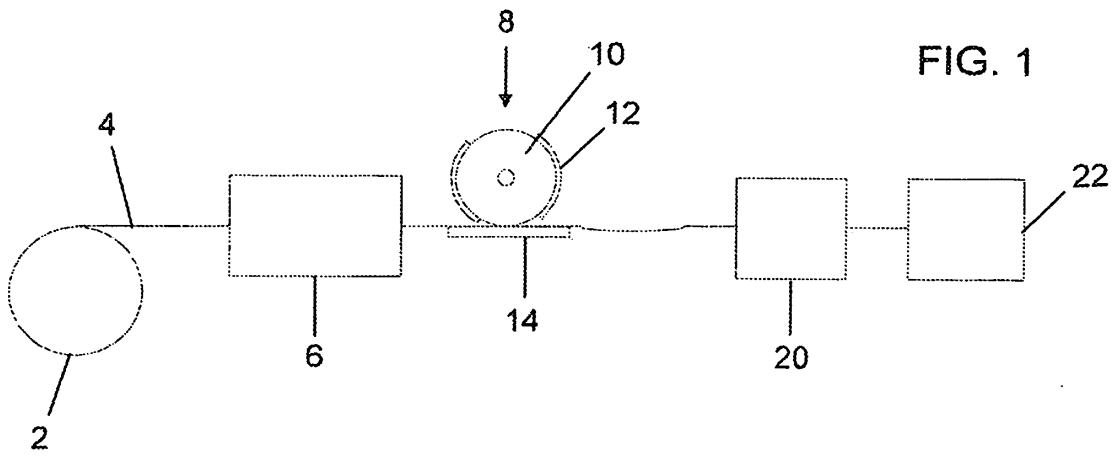


FIG. 4

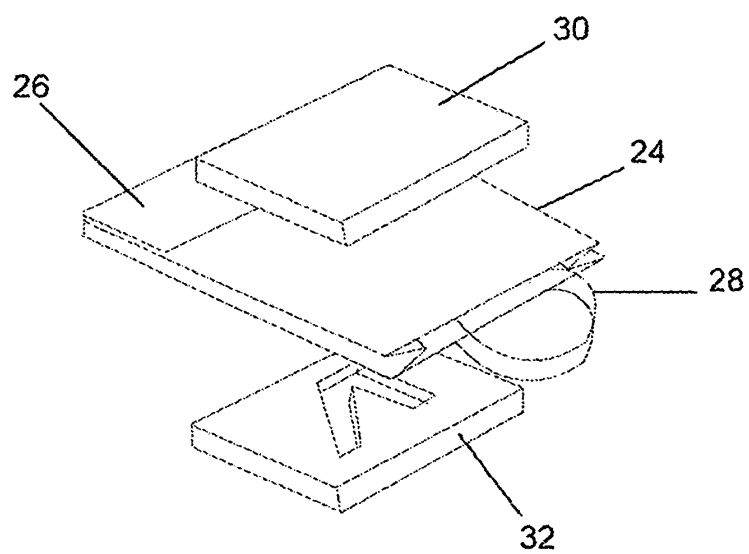
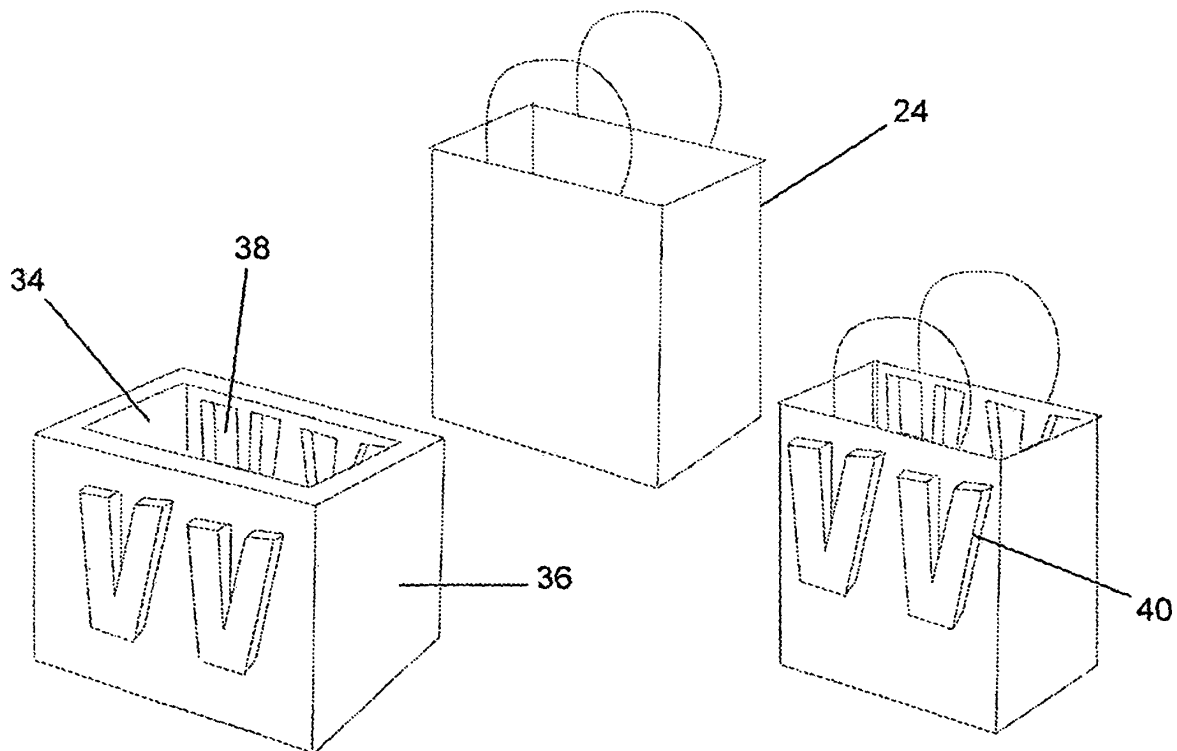


FIG. 5



REFERENCES CITED IN THE DESCRIPTION

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