A bag of paper or plastic with a grooved closure (III) fastened at the upper ends of the front and rear bag walls (103, 105) is provided. The closure is covered by a section (119) which projects beyond the rear bag wall (105) and which is applied over the closure (III). A breaking location is provided in the section (119) in order to create access to the grooved closure (III) or the contents of the bag.
PAPER OR PLASTIC BAG

BACKGROUND

[0001] The subject-matter of the invention is a bag of paper, plastic or paper/plastic laminate.

[0002] Bags or sacks of the above-noted type have been known for years in many embodiments. They serve for accommodating foodstuffs and other products, wherein after the first opening by the consumer, they may be closed again. Many of the known bags also comprise an indicator of the first opening, which indicates to the user as to whether the bag has already been opened once or not. The means for indicating the first opening are mostly expensive in manufacture and/or they often detract from the aesthetic appearance of the bag.

SUMMARY

[0003] An object of the present invention is the provision of an inexpensively manufactureable bag with a reclosable closure and a means for displaying the first opening of the bag.

[0004] This objective is achieved by a bag having the features of the invention. Particular advantageous designs of the invention are described in the dependent claims.

[0005] The connection of the fastening tabs of the closure to the front and rear bag wall permits a continuously running manufacture of the bags with the closures. The bags, lying next to one another on a transport means, may be connected without interruption to the closures which extend parallel thereto, and are initially not yet cut to size with regard to the length. The closures may be completely integrated into the bag and are not visible from the outside, or only in the groove region. On account of the complete integration of the closures into the inside of the bag, these are insensitive to pressure of the filled goods acting from the inside.

[0006] By way of turning up the longer bag wall, the closure may be completely covered until opening for the first time, and be protected from damage and of course from unintended opening for the first time. Furthermore, the appearance of a bag with a covered closure is significantly better than with a visible closure. The covered closure is furthermore protected from becoming dirty.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The invention is explained in more detail by way of illustrated exemplary embodiments. Shown are:

[0008] FIG. 1 a perspective representation of a bag according to the first exemplary embodiment (left half closed; right half open).

[0009] FIG. 2 a cross-sectional view taken along line II-II in FIG. 1.

[0010] FIG. 3 a longitudinal cross-sectional view taken along line III-III in FIG. 1.

[0011] FIG. 4 a perspective representation of a bag from the rear, according to the second exemplary embodiment of the invention.

[0012] FIG. 5 a cross-sectional view taken along line V-V in FIG. 4.

[0013] FIG. 6 a cross-sectional view along line VI-VI in FIG. 4, in a further formation of the invention.

[0014] FIG. 7 a schematic representation of a manufacturing installation for inserting the closures into the bags.

[0015] FIG. 8 a cross-sectional view along line VIII-VIII through the manufacturing installation in FIG. 7.

[0016] FIG. 9 a cross-sectional view along line IX-IX through the manufacturing installation in FIG. 7.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] In the first embodiment of the invention according to the FIGS. 1 to 3, the bag or sack is indicated in its entirety as 1, and comprises a front bag wall 3, a rear bag wall 5, the two intermediate walls 7 connecting the bag walls 3, 5, and a base 9. A closure 11 in the form of an extruded grooved closure, which is known per se, is arranged at the upper edges 3' and 5' of the two bag walls 3 and 5 which lie opposite the base 9. The connection between the two bag walls 3, 5 and the two fastening tabs 11a and 11b attached on the grooved closure 11 is effected at the inner sides of the bag walls 3, 5 along the edges 3', 5'. The connection may be effected by way of a fluid adhesive deposited on the closure 11 before manufacture, a preapplied hot-melt adhesive or by way of a welding/sealing. A slider 13 may be displaceably placed on/over the two cooperating parts of the grooved closure 11, which are adapted to engage into one another. This simplifies the opening and closure of the bag 1. The two bag walls 3, 5 are cut open along the edges over a length laterally in the transition to the intermediate walls 7, to the extent they are present (compare FIG. 3). This permits the endless supply of the closures 11 (compare FIGS. 7 to 9) and the insertion of the closures 11 between the edges 3', 5'. Thereby, the rear bag wall 5 coming to lie at the top, or its edge 5' is slightly lifted by suitable means. After the insertion of the closure 11, the two bag walls 3, 5 are bonded to one another outside the ends of the fastening tabs 11a, 11 b in the regions 15. In order to achieve a favourable bonding surface, the length L of the fastening tabs 11a, 11b is smaller than the width B of the bag walls 3, 5. The part of the grooved closure 11 carrying the grooves has a length which corresponds at least to the width B of the bag walls 3, 5. In order to permit a continuous manufacture, punch-outs 12 are incorporated on the endlessly supplied closure 11 or on its fastening tabs 11a, 11b. The welding (ultrasound, bonding etc.) which undetachably connect the two bag walls 3, 5 to one another, are incorporated in the regions which lie laterally outside the fastening tabs 11a, 11b, i.e. in the region of the punch-outs 12 which come to lie laterally of the fastening tabs 11a, 11b. The elements carrying the connection elements of the closure 11 are also undetachably connected to one another at the ends. In this way, one prevents the slider 13 from being able to laterally depart from the grooved closure 11. The ends of the closure 11 may also remain open, i.e. they are not connected to one another.

[0018] As an integrity guarantee, a film 17 may be fastened or integrally formed between the two fastening tabs 11a, 11b, i.e. the edges of this foil are connected to the fastening tabs 11a, 11b. On opening the grooved closure 11, the contents of the bag 1 are only accessible if the film 17 is broken through with a knife, or if a perforation is present, by way of pressing in the film 17.
[0019] The attachment or connection of the fastening tabs 11a, 11b to the upper ends 3, 5 of the side walls 3, 5 may be effected in a fully automatic manner with simple means. Firstly, punch-outs 12 are carried out at distances L on the endlessly supplied profile closures 11, which is an endlessly manufactured extrusion product, in order to shorten the fastening tabs 11a, 11b with respect to the length of the grooved closure 11, and to permit the closure prepared manufactured in such a manner, to be inserted between the bag walls 3, 5. The welding/bonding of the closure 11 to the bag walls 3, 5 as well as the connection of the sections of the bag walls 3, 5 located outside the fastening tabs 11a, 11b may be carried out afterwards in the known manner.

[0020] FIG. 7 shows bags 11 lying next to one another on a table or conveyor belt 19, whose folds have already been cut open in the region of the edges 3, 5. The closure 11 is supplied endlessly (see FIG. 8) parallel to the upper ends of the bag 1 and between the edges 3, 5. By way of slightly lifting the edge 3 with a suitable means, the closure 11 may be positioned exactly between the side wall 3, 5 in a simple manner. After introducing the closure between the edges 3, 5, a bonding/welding of the fastening tabs 11a and 11b to the inner surfaces of the edges 3, 5 is carried out (compare FIG. 9) with a connection device, for example with an ultrasonic welding device 21. The regions of the bag walls 3, 5 lying outside the ends of the fastening tabs 11a, 11b are welded/bonded to one another with the same welding device 21 or another suitable device producing heat. Hot-melt adhesive or liquid adhesive applied onto the fastening tabs 11a, 11b may be used for bonding. Alternatively, coatings may be deposited onto the bag walls 3, 5 which permit a bonding/welding of the bag walls 3, 5 to the closure 11.

[0021] In a further preferred embodiment of the invention according to FIGS. 4 to 6, again a bag with a front bag wall 103 and a rear bag wall 105 as well as intermediate walls 107 is shown schematically with the reference numeral 101. The front bag wall 103 in the bag 101 represented here has a greater height than the rear bag wall 105, so that its upper section 119 projects beyond the upper end of the rear bag wall 105 by the amount h.

[0022] The upper end 105' of the rear bag wall 105 is either fastened on the fastening tab 11a at the outer side of the bag wall 105 or the inner side of the bag wall 105 (see FIG. 6, shown in broken lines). The second fastening tab 11b of the grooved closure 111 is fastened at a distance h to the upper end of the front bag wall 103 on its inner side. The connection between the grooved closure 111 and the bag walls 103, 105 is effected analogously to those as are described in the first exemplary embodiment according to the FIGS. 1 to 3. Again a slider 113 may be arranged on the grooved closure 111.

[0024] A breaking location 121 is formed in the upper section 119 of the front bag wall 103, which for example is formed by two perforation lines 123 lying parallel. Alternatively or additionally to the perforation lines 123, a protective film 125 which may be peeled from the bag may be attached (compare FIG. 6) over the breaking region. The insertion and connection of the closure 11 to the bag 101 is effected as with the first exemplary embodiment according to FIGS. 7 to 9. The section 119 projecting beyond the rear bag wall 105 does not interfere with the manufacture (compare FIGS. 8 and 9).

[0025] The upper section 119 of the front bag wall 103 projecting beyond the closure 11 is turned up after the fastening of the closure 111, i.e. the connection of the closure 111 to the bag walls 103, 105, and is bonded to the rear bag wall 105 at its end 127 (FIG. 6). After turning up the upper section 119, on the one hand the upper opening of the bag 101 is completely closed and furthermore the grooved closure 111 is covered. The breaking region for this reason lies over the closure 11. Of course, the upper section 119, also called a tag, may also alternatively be attached on the rear bag wall 105.

[0026] With the second exemplary embodiment too, additionally a film 117 may be fastened to the fastening tabs 11a, 11b of the closure 111 as an integrity guarantee, analogously to the first exemplary embodiment, inasmuch as both fastening tabs 11a and 11b are in each case fastened on the inner side of the bag walls 103, 105.

[0027] The opening of the bag 101 according to the invention and according to FIGS. 4 to 6 is affected by way of tearing open the breaking region 121 along the perforation lines 123 or by way of peeling off the protective film 125 which releases the breaking region 121. After this, the grooved closure 111 is freely accessible and in the case that a film 117 is additionally present as an integrity guarantee, this has yet to be broken open, in order to get to the contents of the bag.

LIST OF REFERENCE NUMERALS

[0028] 1 bag
[0029] 3 front bag wall
[0030] 5 rear bag wall
[0031] 7 intermediate walls
[0032] 9 base
[0033] 11 closure
[0034] 11a fastening tabs
[0035] 11b fastening tabs
[0036] 12 punch-outs
[0037] 13 sliders
[0038] 15 bonding regions
[0039] 17 film
[0040] 19 table/conveyor belt
[0041] 21 ultrasonic welding device
[0042] 119 upper section of 103
[0043] 121 breaking region
[0044] 123 perforation line
[0045] 125 protective film
[0046] 127 end of 119

1. A bag (1, 101) of paper, plastic or a plastic/paper laminate comprising a front bag wall (3, 103), a rear bag wall (5, 105), a reclosable closure (11, 111) and with a means (17, 117) for indicating a first opening thereof, the closure comprises a profile grooved closure and is undetachably fastened to the front (3, 103) and the rear bag walls (5, 105) at the upper bag end with fastening tabs (11a, b, 11a, b) a length (L) of the fastening tabs (11a, b, 11a, b) is smaller than a width (B) of the bag walls (3, 103; 5, 105).

2. A bag according to claim 1, wherein the two bag walls (3, 5) are undetachably connected to one another outside of ends of the fastening tabs (11a, 11b).

3. A bag according to claim 1, wherein the length (L) of a profile part of the grooved closure (11) is equal or larger than the width (B) of the bag walls (3, 5), and the fastening tabs (11a, b) at inner sides and/or outer sides of the bag walls (3, 5) are undetachably connected thereto.

4. A bag according to claim 1, wherein the front bag wall (103) has a greater height than the rear bag wall (105), a first one of the fastening tabs (111a) of the closure (111) at an inner side of the front bag wall (103) and at a distance to an upper edge thereof is connected to the inner side,

a second one of the fastening tabs (111b) is connected to an outer- or inner side of the rear bag wall (105) in a region of an upper edge thereof and

a section (119) of the front bag wall (103) projects beyond the rear bag wall (105) and lies above the closure (111) and can be turned up over the closure (111) and can be bonded to an outer side of the rear bag wall (105).

5. A bag according to claim 4, wherein a breaking region (121) is incorporated on the section (119) projecting beyond the rear bag wall (105), and the section (119) is bonded to the rear bag wall (105) and lies over the grooved closure (111).

6. A bag according to claim 5, wherein the breaking region (121) comprises two perforation lines (123) extending parallel to one another.

7. A bag according to claim 6, wherein a protective film (125) is attached over the breaking region (121).

8. A bag according to claim 1, wherein the fastening tabs (111a, 111b) are undetachably connected to the bag walls (103, 105) by bonding, sealing or welding.

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