

Description

[0001] The present invention relates to a stack of bags. **[0002]** It is common practice for supermarkets and other retail outlets to provide plastic bags at the checkout, or other suitable location, into which customers may pack their shopping. The most common type of bag is the so-called T-shirt type bag which comprises a bag portion, formed by front and rear walls having a closed bottom and an open mouth, and two looped side handles extending therefrom. Typically the bags are provided in the form of a stack of bags, with, for example, 50 bags in a stack. The bags in the stack may be connected together by a variety of means, such as, but not limited to, heat bonding, tying or other suitable means.

[0003] Stacks of bags are well known in which the handle portions of each bag are bridged by bridging webs of plastic connected to the handle portions at each end by lines of weakness (e.g. defined by perforations). The bridging webs are held together (e.g. by heat bonding, taping, wrapping, clipping and/or tying) to form a so-called block header between the handle portions of the stack. This provides a large through-channel in the stack in the region of the mouth of the bags.

[0004] Generally the stack of bags is mounted on a dispenser from which the customer may ideally remove one bag at a time. A variety of different bags and dispensers are known, all of which set out to achieve two main objectives: to dispense individual bags one at a time and to dispense the bag to the customer in a partially open condition.

[0005] In order to dispense a bag in a partially open condition it has become common to provide a region of adhesion between adjacent bags in the stack. The region of adhesion may suitably be in the form of a "glue spot" provided near the mouth of adjacent bags. US 5,421,803 discloses the use of such glue spots. As the first bag in the stack is removed from the dispenser by the customer the front wall of the next bag in the stack is pulled forward. The glues used are typically contact adhesives or hot melt adhesives and are selected to have a breaking point in the region of about 4 to about 9 Newtons. It is intended that the connection between the first bag in the stack and the next bag will be broken as the first bag is pulled away, leaving the next bag partially open and ready to use. However, it has been found that when the first bag on the stack is removed, not merely the next bag but the next three or four bags are pulled forward and opened to some extent. This effect is known as "daisy chaining" and is an undesirable consequence of providing regions of adhesion.

[0006] In order to overcome the undesirable effects of "daisy chaining" bag dispensers may be provided with a restraining means which ensures that only the next bag in the stack is pulled forward. One such dispenser is disclosed in GB-A-2 309 957. This document teaches a dispenser comprising a body part and an anchor part for the stack of bags. The anchor part includes a catch means

for engaging the stack, whereby the stack of bags depends from the catch means, and may be grasped for removal. A stack restraining member bears against the stack to restrain the stack of bags, but can be deflected against a gravitational restoring force when the front wall of the first bag of the stack is drawn past it to open the first bag for loading prior to removal from the stack. As the first bag is removed from the stack the rear wall of the bag is drawn past the restraining member as is the front wall of the next bag. The restraining member then comes to bear against the rear wall of the next bag and the force is sufficient to break the region of adhesion between the first bag and the next bag. The next bag is left in a partially open condition and becomes the first bag in the stack.

[0007] The dispenser disclosed in GB-A-2 309 957 functions satisfactorily. However, there are a number of drawbacks associated with conventional "glue spot" bags. It has been shown that customers tend to grasp the bags from the bottom and, rather than pulling the first bag away from the stack, pull the bag downwards. This makes it more difficult to remove the bag from the stack and results in little or no opening of the next bag in the stack. Furthermore, the provision of a glue spot between each pair of adjacent bags in the stack results in a substantial increase in the costs of production. One further disadvantage of the conventional "glue spot" bags is that the glues may leave a sticky residue on the bags which may be undesirable.

[0008] An alternative to the use of "glue spots" is disclosed in US 5,087,234. This document discloses that adjacent bags in a stack can be caused to adhere to one another in the mouth region by a combination of corona discharge treatment and pressure. As disclosed in US 5,087,234 the mechanism for this adhesion is not fully understood. However, it has been shown that the combination of the corona discharge treatment and the pressure applied by the cutter during the formation of the handles, mouth and centre tab results in the formation of an area of adhesion between the outer surfaces of adjacent bags.

[0009] Conventionally, corona discharge treatment has been used to treat the surface of polyethylene bags to make them receptive to ink. This procedure is done in order to apply logos and the like to the bags. In its natural state, polyethylene has a surface energy of approximately 30 dynes/cm. In order to make it receptive to ink the surface energy must be raised to about 38 dynes/cm. This is known as increasing the "wettability" of the polyethylene and this can be done using corona discharge treatment.

[0010] Stacks of bags are disclosed in GB-A-2 391 538 and GB-A-2 395 938. Each bag comprises a front layer and a rear layer of flexible plastics material joined at the base and sides and defining an open mouth end. Handles extend from the open mouth end and tabs extend from each ply of material between the handles. An attachment block is provided between the handles and the handles

are separably attached to the block by perforated lines of weakening. The tabs are also separably attached to the attachment block. In use, the bags are mounted on a suitable bag dispenser. When the bags are removed from the stack the attachment block is left behind. This can be untidy and messes up the checkout area.

[0011] It is the object of the present invention to alleviate some of the problems of the prior art, or at least to provide an alternative to them.

[0012] According to the present invention there is provided a stack of pre-formed bags, each bag of the stack comprising: a body portion formed by front and rear walls having closed sides, a closed bottom and an open mouth; first and second spaced apart handles extending from the body portion; and front and rear tabs extending from the front and rear walls respectively, the tabs being located between the first and second handles, wherein the front and rear tabs are separably attached to the first and second handles at attachment points spaced from the mouth of the bag, the arrangement being such that a bag can be removed from the stack without leaving any waste material behind.

[0013] The tabs are preferably located midway between the first and second handles. On each side of the tabs a through channel is defined by one side of the tabs, one of the handles and a portion of the mouth of the bag. In use, the stack of bags may be mounted on a dispenser, with the prongs of the dispenser being received in the through channels. A suitable dispenser is disclosed in GB-A-2 397 748.

[0014] The bags may be conventional carrier bags or they may be smaller produce bags. When mounted on a dispenser the front tab of the first bag in the stack hangs forward. When the stack is loaded onto the dispenser it may be necessary for the operator, who may be a shop assistant to break the separable attachment between the handles and the front tab of the first bag in the stack to allow the tab to hang forward. In order to remove the top bag from the stack a user simply grasps the front tab and pulls in a direction away from the stack. This pulls the front wall away from the rear wall, causing the bag to be dispensed in a partially open condition. The tab provides an easily identifiable pulling point and simplifies the removal of a single bag from the stack in a partially open condition.

[0015] A particular advantage of the present invention is that no waste material is left behind on the dispenser. This has not previously been possible in stacks of bags with central tabs as they have all required some means to keep the tabs up. For example, in GB-A-2 391 538 and GB-A-2 395 938, the central tabs are separably attached to an attachment block. When the bags are removed from the stack the attachment block is left behind on the dispenser. This is untidy and the discarded attachment blocks must be tidied up by the checkout assistant. The stack of bags according to the present invention avoids this problem by having the tabs attached directly to the first and second handles.

[0016] The tabs are preferably separably attached to the first and second handles at lines of weakening. The lines of weakening may be formed by perforations or they may be formed by cuts in the bag material. Alternatively, they may be formed by any other suitable means which enables the tabs to be detached from the handles by a user pulling the front tab. However, the separable attachment must be strong enough to support the weight of the stack if necessary.

[0017] The tabs may conveniently be generally "T" shaped, having a stem extending from the body portion and a cross bar attached to the handles. Alternatively, the tabs may comprise two arms, a first one of which is attached to the first handle and a second one of which is attached to the second handle. It is preferred that the tabs comprise a base, adjacent the mouth of the bags, from which the two arms extend. This helps to reduce the material required to manufacture the bags and is therefore desirable in environmental terms.

[0018] The handles preferably comprise inward projections which are attached to the tabs. A number of basic configurations of the tabs and handles are envisaged. Firstly, the tabs may be "T" shaped with the cross bar being attached to the handles and no inward projections on the handles. Alternatively, the tabs may comprise no cross bar and the inward projections of the handles may extend across to the tabs. As a further alternative, the tabs may be "T" shaped and the handles may have inward projections separably attached to the cross bar. In this case the inward projections preferably extend inwards beyond the depth of the bag gusset. This feature allows for easier manufacture of the stack of bags. Finally, as described above, the tabs may comprise a base, adjacent the mouth of the bags, from which two arms extend. In this case the bags may also comprise inward projections which may preferably extend beyond the depth of the bag gusset. The bag gusset is the material provided between the front and rear walls of the bag, which enables the bag to expand to accommodate a volume of goods. The depth of the bag gusset is defined as the inward extension of the gusset material toward the centre of the bag when the bag is laid flat in the stack.

[0019] It is preferred that a portion of the tabs in the region of the mouth of the bag is cut-away. The term "cut-away" as used herein refers to the fact that a portion of the tabs in the region of the mouth of the bag is of a reduced width, such that the width of the tabs at the mouth of the bags is narrower than the width of the tabs at at least one point remote from the mouth. It is most preferred that a portion on each side of the tabs is cut away. The cut-away portion offers two main benefits. Firstly, it reduces the material required to form the bag. Secondly, and more importantly, it encourages the front tab of the top bag of the stack to hang forward.

[0020] Each bag in the stack is preferably attached to the next bag in the stack. More preferably, the rear tab of one bag in the stack is attached to the front tab of the next bag in the stack. This ensures that when the top bag

is removed from the stack the front tab of the next bag in the stack is pulled forwards. As a user pulls the front tab of the top bag in the stack the front wall is pulled away from the rear wall, opening the mouth of the bag. Next, the cross bar and/or inward handle projections of the rear tab come under strain and detach at the separable attachment points. Finally, the rear wall is pulled away from the stack, with the rear tab following. The attachment between the rear tab of the top bag in the stack and the front tab of the next bag in the stack is stronger than the attachment between the front tab and the handle such that the attachment between the front tab and the handle of the next bag breaks before the attachment between tabs, causing the front tab of the next bag to fall forward as the top bag is removed. This bag now becomes the top bag in the stack.

[0021] The attachment may be effected by means of an adhesive. Alternatively, the attachment may be effected by means of corona discharge treatment. The process of corona discharge treatment is disclosed in US 5,087,234. The bag material is corona discharge treated before the handles, tabs and mouth are cut. The process of cutting the handles, tabs and mouth causes the rear wall of each bag to adhere to the front wall of the adjacent bag in the region of the cut. The bag material may be selectively treated to ensure optimum performance.

[0022] The first and second handles may conveniently be provided with apertures for receiving prongs of a bag dispenser therethrough. This improves the operational flexibility of the stack of bags as it enables the stack of bags to be used on more than one style of dispenser. This is particularly desirable as different countries tend to prefer different types of dispenser. The present invention permits a single stack of bags to be used on the two main types of dispenser most commonly found, that is dispensers with prongs which may be received in the through channel defined by the handles, tabs and mouth of the bag and dispensers of the rack-arm type where prongs are received in apertures in the handles of the bags. Previously it has been necessary to manufacture separate bags for each type of dispenser. The apertures may suitably be defined by slits in the bag material.

[0023] It is further preferred that the front and rear tabs are provided with apertures for receiving a portion of a bag dispenser therethrough. Typically this will be a hook member which engages with and supports a central portion of the bags. As before, the apertures may suitably be defined by slits in the bag material. A line of weakening is preferably provided between the apertures and an edge of the front and rear tabs. This serves to ensure that no waste material is left behind when the bags are removed from the dispenser. The line of weakening may comprise a cut in the bag material. Alternatively, the line of weakening may comprise perforations in the bag material.

[0024] When the stack of bags are being used on a dispenser of the rack-arm type the prongs of the dispenser are received in the apertures on the handles. A hook

of the dispenser may then be received in the apertures in the tabs. When it is desired to remove the top bag from the stack a user grasps the front tab and pulls in a direction away from the dispenser. The line of weakening between the apertures and an edge of the tab breaks and the bag slides along the prongs and can be removed.

[0025] As discussed above, most conventional stacks of bags are provided with blocks of bag material, known as a block header, which remains on the dispenser when the bags are removed. The block headers are conventionally hot pin welded together to retain the bags in the stack. A stack of bags will commonly comprise in the region of 50-250 bags.

[0026] The bags in the stack are preferably blocked together. Conventional hot pin welding melts the bag material causing it to fuse together. However, this form of attachment is not particularly suitable for blocking the bags together in the present invention as it does not permit easy removal of one bag at a time. Consequently, the bags are preferably blocked together by means of at least one cold pin weld. More preferably, the bags are blocked together by means of one cold pin weld on each handle. The cold pin welding causes adjacent bags in the stack to adhere together and ensures that the stack remains together. However, the cold pin welding permits individual bags to be removed from the stack as described. In addition, the stack of bags may be tied together using any suitable means.

[0027] The front tab of each bag may comprise markings to direct a user to grasp the tab in order to remove the bag from the stack. For example, the front tab of each bag may be a contrasting colour to the body portion of the bag. This helps to aid user recognition and ensures correct operation of the dispensing method.

[0028] The stack of bags may be housed in a container, the container having a dispensing aperture through which a single bag may be dispensed in a partially open condition. The container is preferably arranged such that the front tab of the top bag in the stack protrudes therefrom.

[0029] The dispensing aperture preferably comprises a removable cover, separably attached to the container. The cover may be attached to the container by lines of weakening, for example, defined by perforations.

[0030] For a better understanding of the present invention reference will now be made to the accompanying drawings which shows, solely by way of example, two embodiments of the present invention, in which:

50 Fig. 1 shows a plan view of a stack of bags; and

Fig. 2 shows a plan view of a further stack of bags.

[0031] Referring firstly to Fig. 1, this shows a plan view of a stack of bags 2 of the type commonly provided at supermarket checkouts. The bags 2 may also be of the type commonly provided in supermarket produce aisles for fruit and vegetables.

[0032] The bags 2 are formed in the conventional way from a tube of plastic material, such as high density polyethylene (HDPE). Each bag 3 has a body portion 4 defined by a front wall 5 and a rear wall (not visible) having closed sides 6, a closed bottom 7 and an open mouth 8. The sides 6 are gusseted to allow expansion when the bag 3 is loaded with produce.

[0033] First and second side handles 10,12 extend away from the body portion 4 at opposite sides of the open mouth 8. The first and second handles 10,12 are in the form of conventional double ply looped handles. Front and rear tabs 14 extend from the front wall 5 and rear wall respectively. The tabs 14 extend from the centre of the mouth 8, mid-way between the first and second handles 10,12 and have a first end 15, which is integral with the body portion 4, and second end 16, spaced from the mouth of the bag 8.

[0034] The tabs 14 are tapered along their length in a direction away from the body portion 4. The first end 15 of the tabs 14 comprises cut away portions 17a, 17b which cause a narrowing of the tabs 14 in the region of the mouth 8 of the bag 3. This ensures that the front tab 14 of the top bag 3 on the stack 2 will fall forward as will be described in more detail below. The tabs 14 are generally "T" shaped, comprising a stem 14a extending away from the mouth 8 of the bag 3 and a cross bar 14b, extending perpendicularly to the stem 14a at the second end 16 of the tab 14.

[0035] The first and second handles 10,12 comprise inward projections 11,13 which extend perpendicularly to the main portion of the handles 10,12, towards the tabs 14. The inward projections 11,13 are located at the same distance from the mouth 8 of the bag 3 as the cross bar 14b of the tabs 14 and the two are separably attached at lines of weakening 18,19. The lines of weakening 18,19 comprise cuts in the bag material which causes these points to fail when the bag 3 is pulled from the stack 2. The lines of weakening 18,19 may be in any suitable form of weakening, such as, but not limited to, cuts, perforations, nicks and scores.

[0036] On each side of the tabs 14, the handles 10,12, tabs 14 and mouth 8 define a through channel 20,21. In use, these through channels 20,21 may receive a prong of a dispenser in order to support the stack 2 on the dispenser. Other means of supporting the stack on a dispenser are also possible. For example, the handles 10,12 may comprise apertures which receive the prongs of the dispenser.

[0037] The process of removing a bag 3 from the stack 2 will now be described in relation to a stack 2 mounted on a conventional dispenser, such as the one described in GB-A-2 397 748. The prongs of the dispenser are received in the through channels 20,21 and the body portion 4 of the bag 3 hangs free. The weight of the stack 2 is supported by the cross bar 14b and inward handle projections 11,13. In order to remove a single bag 3 from the stack 2 as user grasps the front tab 14 of the top bag 3 in the stack 2 and pulls in a direction away from the

stack 2. This causes the mouth 8 of the bag 3 to begin to open as the front wall 5 is pulled away from the rear wall. Next, the handles 10,12 are pulled forward such that the cross bar 14b and inward projections 11,13 are pulled against the prongs of the dispenser.

[0038] The strain exerted by the pulling action causes the lines of weakening 18,19 between the rear tab 14 and the handles 10,12 to break. The pulling force is now directed onto the rear tab 14 of the top bag, which is attached to the front tab 14 of the next bag in the stack by virtue of the corona discharge treatment. Continued pulling causes the lines of weakening 18,19 between the front tab and handles of the next bag 3 on the stack 2 to break and the front tab 14 is pulled forward. Finally, the attachment between the rear tab 14 of the top bag 3 and the front tab 14 of the next bag 3 is broken and the top bag 3 is fully removed in a partially open condition. The next bag 3 is now the top bag 3 in the stack 2. It is important that the attachment between the rear tab 14 of the top bag 3 and the front tab 14 of the next bag 3 remains in place until after the lines of weakening 18,19 between the front tab 14 and handles 10,12 of the next bag 3 has broken. This ensures that the front tab 14 is pulled forwards. The cut away portions 17a,17b at the mouth end 8 of the tabs 14 also facilitate the falling forwards of the front tab 14.

[0039] Referring now to Fig. 2, this shows a further stack of bags 2. Many of the features of the stack of bags 2 are identical to those of the stack of bags in Fig. 1 and those parts will be numbered the same.

[0040] The bags 2 are formed in the conventional way from a tube of plastic material, such as high density polyethylene (HDPE). Each bag 3 has a body portion 4 defined by a front wall 5 and a rear wall (not visible) having closed sides 6, a closed bottom 7 and an open mouth 8. The sides 6 are gusseted to allow expansion when the bag 3 is loaded with produce. The side gussets are defined by the dotted lines in Fig. 2.

[0041] First and second side handles 10,12 extend away from the body portion 4 at opposite sides of the open mouth 8. The first and second handles 10,12 are in the form of conventional double ply looped handles. Each of the handles 10, 12 comprises an aperture 34, which, in use of the stack of bags 2, may receive the prong of a bag dispenser, for example a rack-arm dispenser. The apertures 34 are defined by cuts in the bag material. The cut on the first handle 10 is generally "C" shaped and the cut on the second handle 12 is a mirror image of the cut on the first handle 10, such that they define a flap of material which covers the aperture 34.

[0042] Front and rear tabs 14 extend from the front wall 5 and rear wall respectively. The tabs 14 extend from the centre of the mouth 8, mid-way between the first and second handles 10,12 and are integral with the body portion 4. The tabs 14 comprise a base portion 30, adjacent the mouth of the bag 8. As with the stack of bags in Fig. 1 the tabs 14 comprise cut away portions 17a, 17b which cause a narrowing of the tabs 14 in the region of the

mouth 8 of the bag 3. This helps to encourage the front tab 14 of the top bag 3 on the stack 2 to fall forward. Extending away from the base portion 30, in a direction away from the body portion 4 of the bag 3, are a pair of arms 32 which are separably attached to inward projections 11,13 on the first and second handles 10, 12 at lines of weakening 18, 19. The lines of weakening 18, 19 comprise cuts in the bag material which causes these points to fail when the bag 3 is pulled from the stack 2. The lines of weakening 18, 19 may be in any suitable form of weakening, such as, but not limited to, cuts, perforations, nicks and scores. The inward projections 11, 13 extend inwards from the handles 10, 12 towards a centre line of the bags. The inward projections 11, 13 extend beyond the depth of the side gussets, which is defined by the dotted lines. This facilitates easier manufacture of the bags 2.

[0043] The base portion 30 of the tabs 14 comprises apertures 36, which, in use of the stack of bags 2, may receive the prong of a bag dispenser, for example a hook member of rack-arm dispenser. The apertures 36 are defined by cuts in the bag material. The cuts are generally "C" shaped, such that they define a flap of material which covers the aperture 36. A line of weakening 38 is defined between the apertures 36 and an edge of the base portion 30 remote from the mouth 8 of the bag 3. The line of weakening 38 comprise cuts in the bag material which causes this point to fail when the bag 3 is pulled from the stack 2. The line of weakening 38 may be in any suitable form of weakening, such as, but not limited to, cuts, perforations, nicks and scores.

[0044] The bag illustrated in Fig. 2 is described as being multi-functional as it may be used on more than one type of bag dispenser. On each side of the tabs 14, the handles 10,12, tabs 14 and mouth 8 define a through channel 20,21. In use, these through channels 20,21 may receive a prong of a dispenser in order to support the stack 2 on the dispenser. Alternatively, the prongs of a rack-arm type dispenser may be received in the apertures 34, 36 in the handles 10, 12 and tabs 14 of the bags 2.

[0045] The stacks of bags 2 illustrated in Figs. 1 and 2 are blocked together by means of a cold pin weld 22 in each of the handles 10,12. The pre-formed bags 3 are stacked together in a uniform bundle and a cold pin is punched through the bag material. This may take place at the same time as the handles 10,12, mouth 8 and tabs 14 are formed. The cold pin weld ensures that the bags 3 remain together in the stack 2, but also allows a single bag 3 to be removed from the stack 2 by a user. When the cold pin pierces the bag material it causes adjacent bags 3 to adhere together. Cold pin welding is preferred to hot pin welding as the heat involved in hot pin welding causes the bags 3 to fuse together, making it difficult to remove a single bag 3 from the stack 2. As an alternative to cold pin welding, any suitable blocking means may be used which secures the bags 3 in the stack 2 but permits removal of a single bag 3 at a time.

[0046] As mentioned above, the stacks of bags 2 are formed in a conventional manner. A thermoplastic tube is collapsed, sealed transversely along its length and cut into individual bag forming portions. The tube is corona discharge treated, either before or after cutting. It is preferred that the tube is selectively corona discharge treated in the region of the bag forming portion which will eventually form the tabs 14 of the bag 3. Next, a plurality of bag forming portions are stacked one upon the other - the number of bags in a stack will typically be between 50-250, but may be more or less - and a suitably designed cutting die cuts through the stack 2, simultaneously forming the handles 10,12, the mouth 8, the tabs 14 and the lines of weakening 18,19. The cold pin welds 22 may be formed during this step or in a subsequent step.

[0047] The combination of the corona discharge treatment and the pressure applied by the cutting die causes adjacent bags 3 in the stack 2 to adhere to one another in the region of the cuts. When the bags have been selectively corona discharge treated in the region of the tabs 14 then only the tabs 14 of adjacent bags 3 will adhere to one another, as indicated by the bold lines 23 in Figs. 1 and 2.

Claims

1. A stack of pre-formed bags, each bag of the stack comprising:

a body portion formed by front and rear walls having closed sides, a closed bottom and an open mouth;
first and second spaced apart handles extending from the body portion; and
front and rear tabs extending from the front and rear walls respectively, the tabs being located between the first and second handles,

wherein the front and rear tabs are separably attached to the first and second handles at attachment points spaced from the mouth of the bag, the arrangement being such that a bag can be removed from the stack without leaving any waste material behind.

2. A stack of bags according to claim 1, wherein the tabs are separably attached to the first and second handles at lines of weakening.

3. A stack of bags according to claim 2, wherein the lines of weakening are formed by perforations.

4. A stack of bags according to claim 2, wherein the lines of weakening are formed by cuts in the bag material.

5. A stack of bags according to any preceding claim,

wherein the tabs are generally "T" shaped, having a stem extending from the body portion and a cross bar attached to the first and second handles.

6. A stack of bags according to any one of claims 1-4, wherein the tabs comprise two arms, a first one of which is attached to the first handle and a second one of which is attached to the second handle. 5

7. A stack of bags according to any preceding claim, wherein the handles comprise inward projections which are attached to the tabs.

8. A stack of bags according to any preceding claim, wherein a portion of the tabs in the region of the mouth of the bag is cut away.

9. A stack of bags according to any preceding claim, wherein each bag in the stack is attached to the next bag in the stack. 10

10. A stack of bags according to claim 9, wherein the rear tab of one bag in the stack is attached to the front tab of the next bag in the stack. 20

11. A stack of bags according to claim 9 or claim 10, wherein the attachment is effected by means of an adhesive.

12. A stack of bags according to claim 9 or claim 10, wherein the attachment is effected by means of corona discharge treatment.

13. A stack of bags according to any preceding claim, wherein the first and second handles are provided with apertures for receiving prongs of a bag dispenser therethrough. 30

14. A stack of bags according to claim 13, wherein the apertures are defined by slits in the bag material.

15. A stack of bags according to any preceding claim, wherein the front and rear tabs are provided with apertures for receiving a portion of a bag dispenser therethrough. 35

16. A stack of bags according to claim 15, wherein the apertures are defined by slits in the bag material.

17. A stack of bags according to claim 15 or claim 16, wherein a line of weakening is provided between the apertures and an edge of the front and rear tabs. 50

18. A stack of bags according to claim 17, wherein the line of weakening comprises a cut in the bag material. 55

19. A stack of bags according to claim 17, wherein the line of weakening comprises perforations in the bag

material.

20. A stack of bags according to any preceding claim, wherein the bags in the stack are blocked together.

21. A stack of bags according to claim 20, wherein the bags are blocked together by means of at least one cold pin weld.

22. A stack of bags according to any preceding claim, wherein the front tab of each bag comprises markings to direct a user to grasp the tab in order to remove the bag from the stack.

23. A stack of bags according to claim 22, wherein the front tab of each bag is a contrasting colour to the body portion of the bag.

24. A stack of bags according to any preceding claim, wherein the stack of bags is housed in a container, the container having a dispensing aperture, through which a single bag may be dispensed in a partially open condition, which is arranged such that the front tab of the top bag in the stack protrudes therefrom. 25

25. A stack of bags according to claim 24, wherein the container is a bag.

26. A stack of bags according to claim 24, wherein the container is a box.

27. A stack of bags according to any one of claims 24-26, wherein the dispensing aperture comprises a removable cover, separably attached to the container.

28. A stack of bags according to claim 27, wherein the cover is attached to the container by at lines of weakening.

29. A stack of bags substantially as hereinbefore described, with reference to the accompanying drawings. 40

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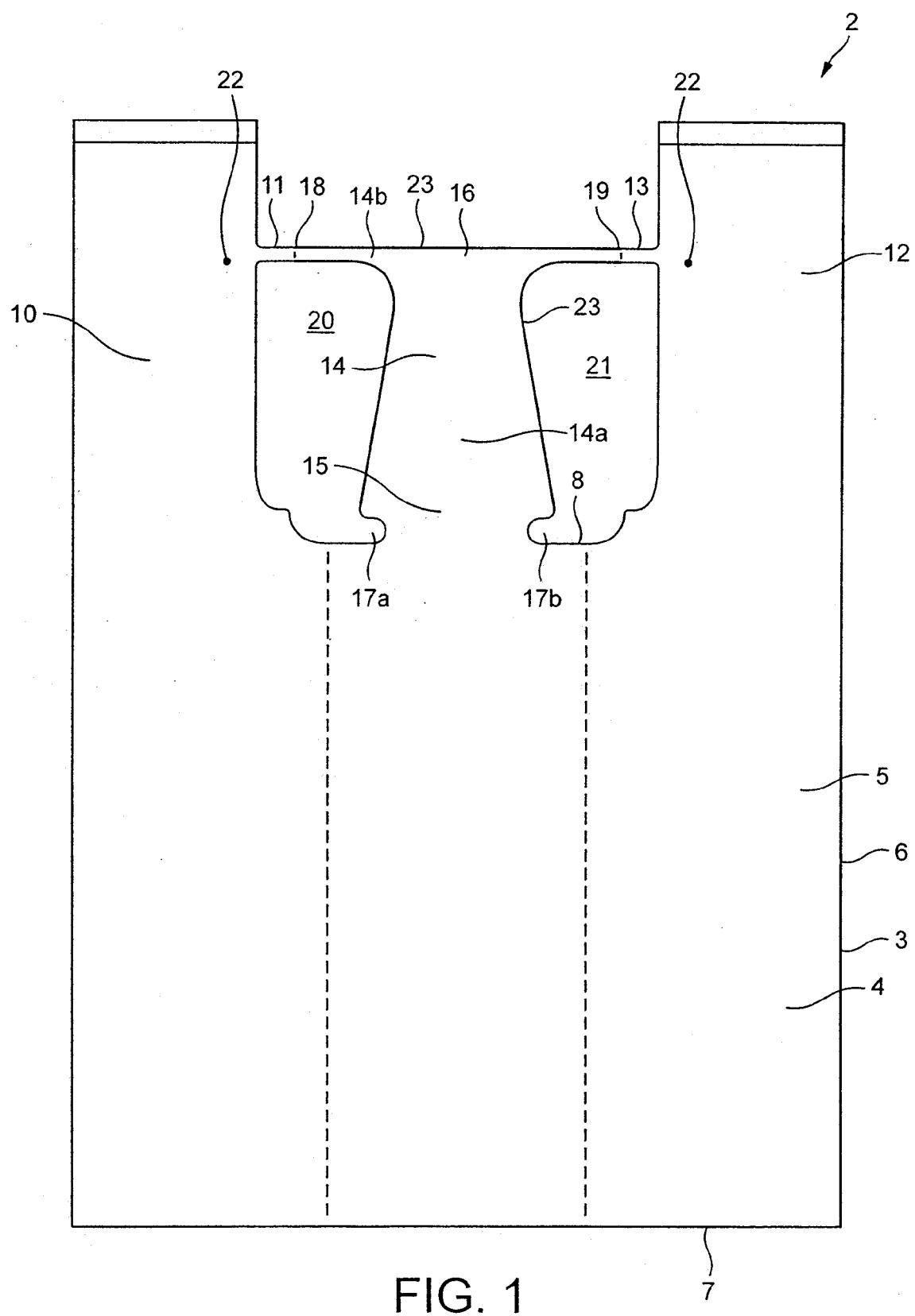


FIG. 1

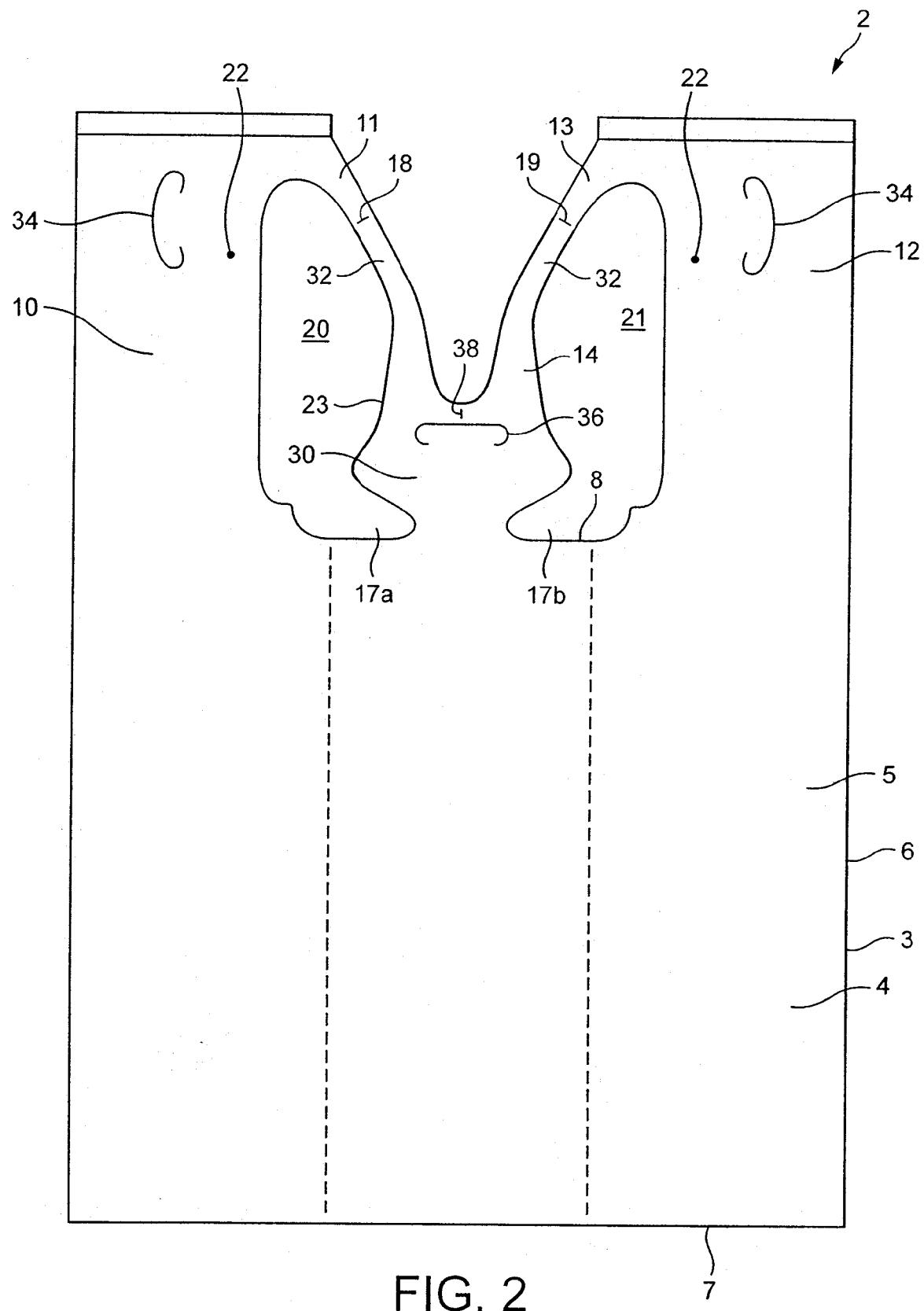


FIG. 2



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 2005/103679 A1 (SMITHSON MARTIN D) 19 May 2005 (2005-05-19) * page 3, paragraphs 32,33,40,41; figures * -----	1-7, 9-12,15, 16,20	INV. B65D33/00 B65D33/14
A	WO 99/30985 A (EURO PACKAGING PLC; BOLTON, SIMON, MARK; WILLIAMS, ALEXANDER, JOHN) 24 June 1999 (1999-06-24) * abstract; figures *	1-6,20, 24,26	
A	US 5 562 580 A (BEASLEY ET AL) 8 October 1996 (1996-10-08) * abstract; figures * * column 5, line 19 - line 23 *	1,9,10, 12-16, 20,21	
A	US 6 325 214 B1 (SMITHSON MARTIN DOMINIC) 4 December 2001 (2001-12-04) * column 9, line 9 - line 43; figures 4,5 * -----	1,15-18	
D,A	GB 2 395 938 A (* EPS) 9 June 2004 (2004-06-09) * page 4, paragraph 3 - paragraph 4 * * page 5, paragraph 4 - page 6, paragraph 3 * -----	1,22-26	TECHNICAL FIELDS SEARCHED (IPC) B65D
The present search report has been drawn up for all claims			
3	Place of search The Hague	Date of completion of the search 27 September 2006	Examiner Gino, Christophe
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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

EP 06 11 5102

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