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(54) **RECOLSABLE GUSSET BAG**

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(57) **ABSTRACT**

A bag has two flexible face panels and a pair of gussets each having a crease and two generally parallel side edges flanking the crease and joined to side edge of the panels. The face panels both have extensions extending upward past at least one of the gussets and of a horizontal width measured perpendicular to the side edges that is substantially less than a width of the face panels perpendicular to the side edges. A reclosable fastener extends along the upper edges only at the extensions and forms therewith a spout that can be folded over and juxtaposed with one of the face panels. The spout can be releasably secured to the one face when folded over the one face panel. This side gusset bag is intended, in particular, for packaging lumpy, granular, and pourable bulk material.

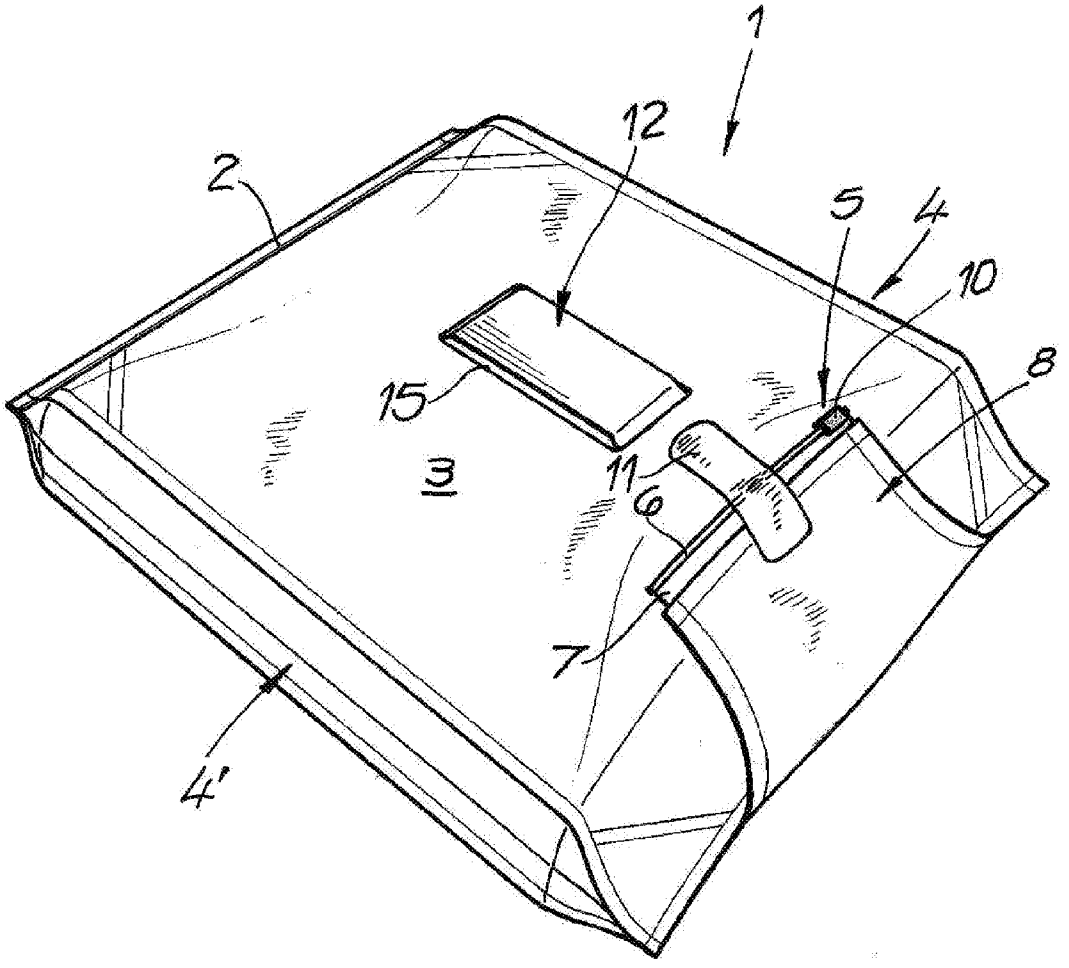


Fig.1

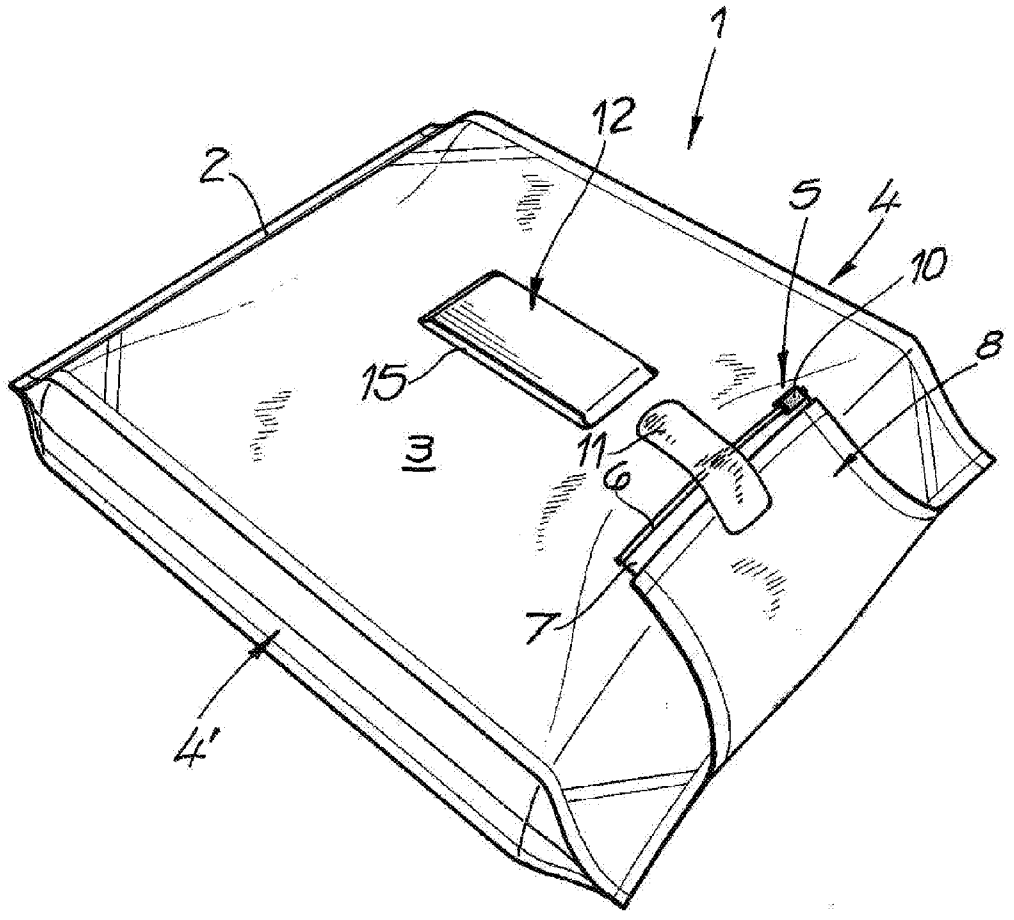


Fig. 2A

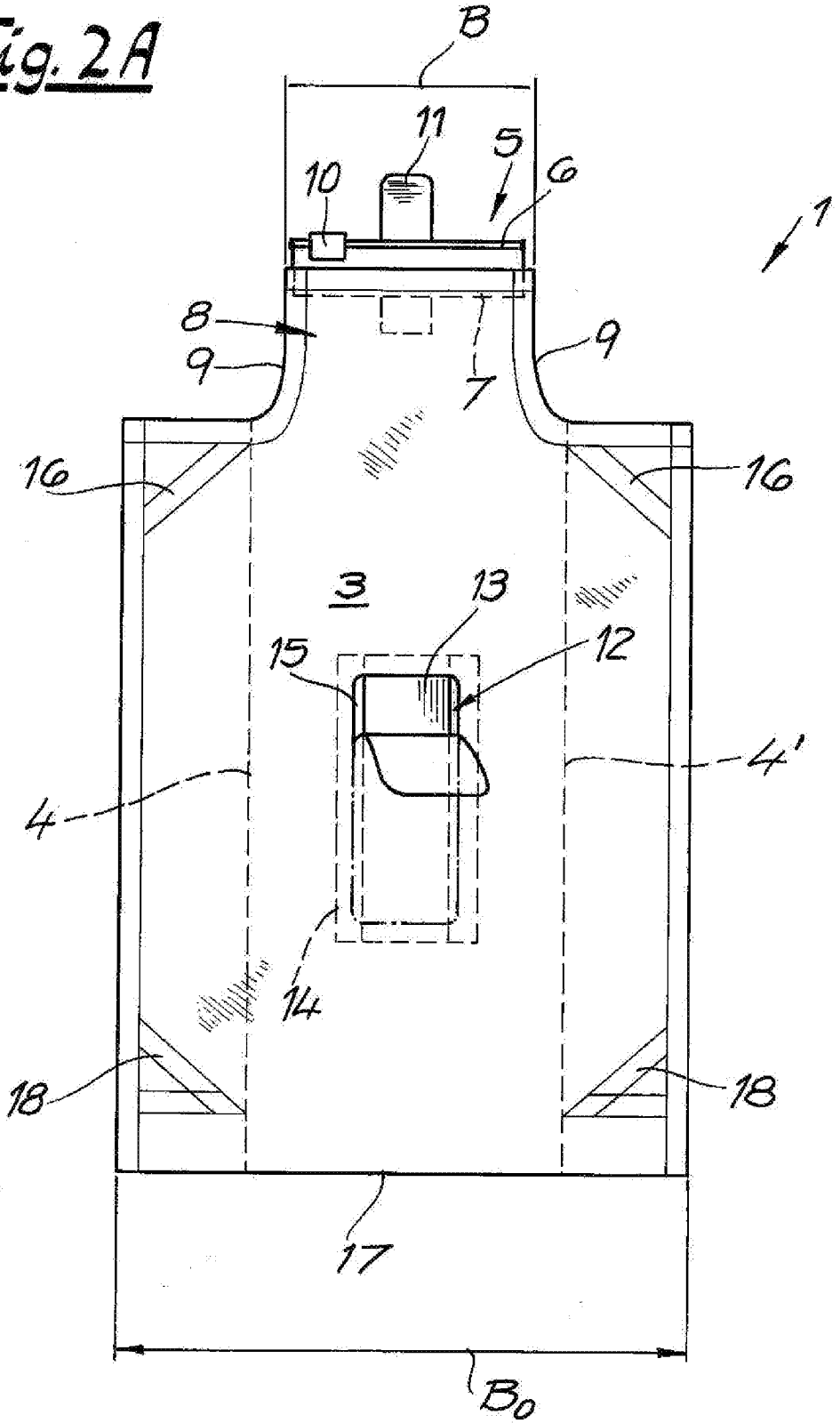


Fig. 2B

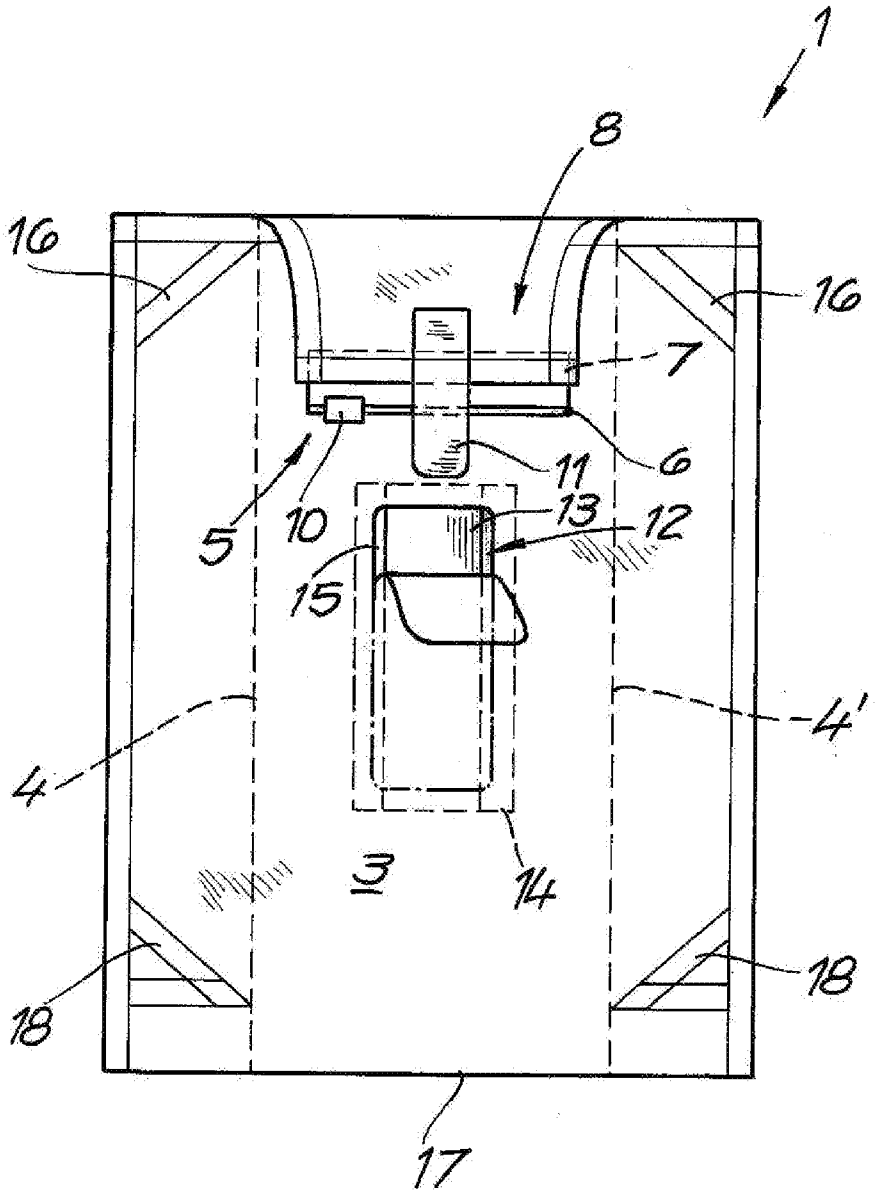
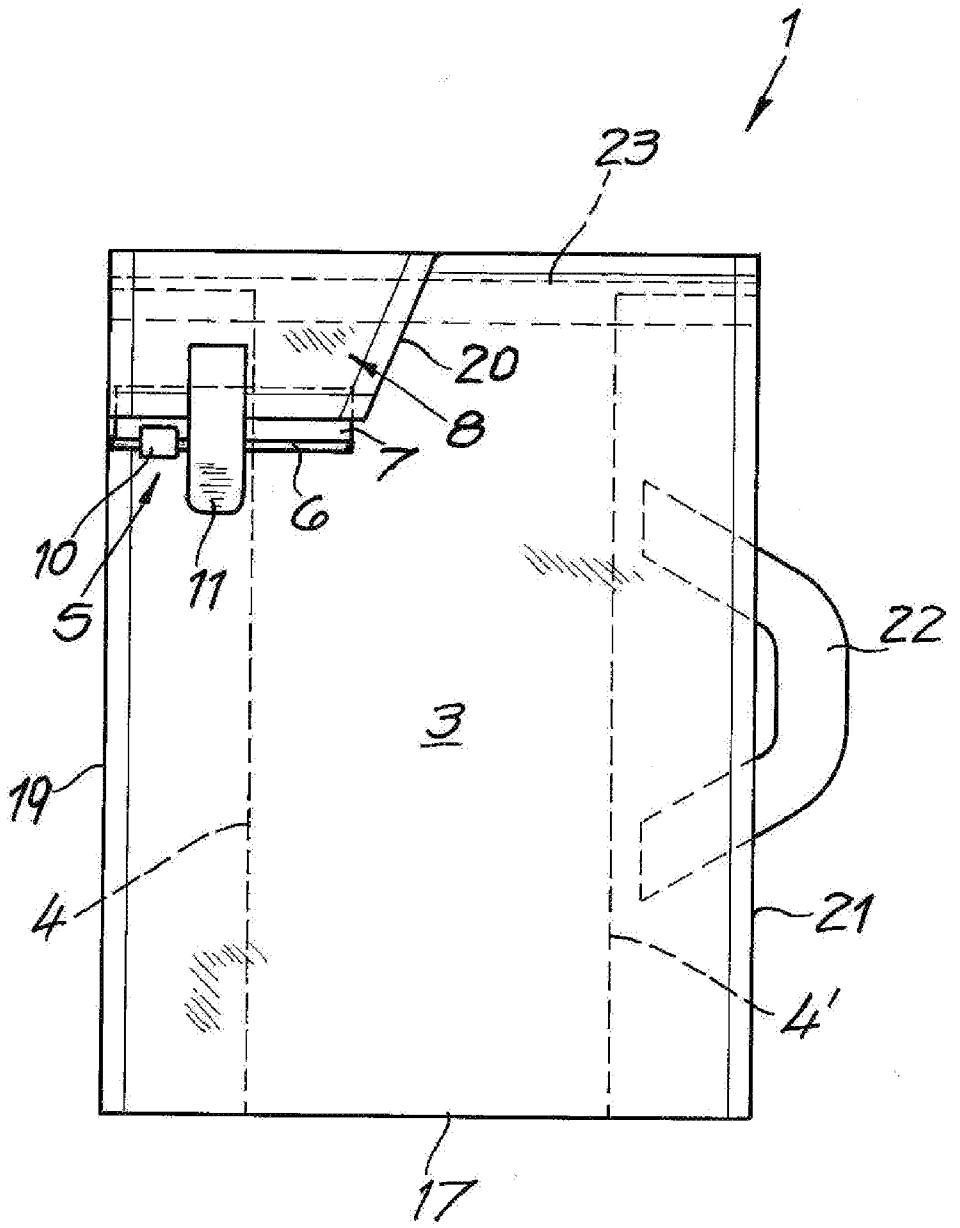


Fig.3



RECOLSABLE GUSSET BAG

FIELD OF THE INVENTION

[0001] The present invention relates to reclosable bag. More particularly this invention concerns such a bag that can be used to hold bulk material.

BACKGROUND OF THE INVENTION

[0002] A typical bag, such as used to hold bulk material like seed, foodstuff, food ingredients, dry dog food, or cat litter, has two similar flexible face panels each having a pair of generally parallel side edges and upper and lower edges bridging upper and lower ends of the side edges. The lower edges can be joined together to close the bottom of the bag after it is filled. A pair of gussets each have a crease and two generally parallel side edges flanking the crease, one of the side edges of each gusset being joined to the side edge of one of the panels and the other of the gusset side edges being joined to the side edge of the other panel. A reclosable fastener extends along the upper edges at the face panels.

[0003] Such a side gusset bag is known from DE 20 20076 002 916 U1. Its fastener is closable and openable by a slider mounted on the upper edge of the bag and extends over the entire width of the bag. The side gussets terminate below the reclosable fastener and are each closed by a sealable closable film that is attached to the inside of the front panel of the bag and covers the open end of the side gusset. Opening the reclosable fastener creates a large pouring opening. This makes controlled delivery of bulk material difficult.

[0004] A side gusset bag known from DE 10 2006 029 119 A1 closed at the upper edge of the bag by an upper sealing seam and has a reclosable fastener below the upper weld in the region of the side gusset. The reclosable fastener is a closure strip that is attached to the inner surface of a side gusset and to sections of the two face panels. A segment of the bag above the reclosable fastener must be detached in order to open the bag. As a result, the reclosable fastener is exposed in the region of the side gusset. The side gusset can be unfolded as a spout and is reclosable.

[0005] A bag known from US 2007/0230834 A1 comprises an upper reclosable fastener that extends over approximately half the width of the bag starting from one longitudinal edge of the bag. The reclosable fastener is mounted on the inner surfaces of the face panels of the bag below the upper weld. A section of the bag above the reclosable fastener must be detached when the bag is opened for the first time. The bag can also be designed as a side gusset bag.

[0006] U.S. Pat. No. 3,326,449 relates to a side gusset bag where the upper bag edge closed by a weld is stepped. The stepped edge borders a central two-layer region of the bag in which the face panels of the side gusset bag are directly attached by welds. Bordering this region on the right and left are four-layer edge regions each of which is composed of a segment of the two face panels and one inserted side gusset. The center two-layer bag region must be separated to open the bag. It is not possible to reclose the bag.

OBJECTS OF THE INVENTION

[0007] It is therefore an object of the present invention to provide an improved reclosable gusset bag.

[0008] Another object is the provision of such an improved reclosable gusset bag that overcomes the above-given disadvantages, in particular that enables bulk material to be effectively poured out in controlled fashion poured and where the pouring opening of the bag is reclosable.

[0009] The filled bag packaging according to the invention should also be of rectangular shape and stackable.

SUMMARY OF THE INVENTION

[0010] A bag that is normally manufactured and transported flat and then filled and sealed has according to the invention two similar and flexible face panels each having a pair of generally parallel side edges and upper and lower edges bridging upper and lower ends of the side edges. A pair of gussets each have a crease and two generally parallel side edges flanking the crease, one of the side edges of each gusset being joined to the side edge of one of the panels and the other of the respective side edges to one of the side edges of the other panel. The face panels both have extensions extending upward past at least one of the gussets and of a horizontal width measured perpendicular to the side edges that is substantially less than a width of the face panels perpendicular to the side edges at the level of the gussets. A reclosable fastener extends along the upper edges only at the extensions and forms therewith a spout that can be folded over and juxtaposed with one of the face panels. The spout can be releasably secured to the one face when folded over the one face panel. This side gusset bag according to the invention is intended, in particular, for packaging lumpy, granular, and pourable bulk material.

[0011] The face panels can be attached directly to each other along their upper edges by welds except at the reclosable fastener. This results in a pouring spout equipped with a reclosable fastener, where the length and width of the spout can be adjusted for the bulk material. The pouring spout enables material to be discharged very precisely and ensures accurate placement when the bulk material is poured out into, for example containers provided for this purpose. Due to the reclosable fastener, the bulk material stays fresh and no odors escape. The reclosable fastener also prevents spilling or infestation caused by the entry of moisture, animals, or pests. The pouring spout formed by two film layers can be easily folded and is held by the releasable attachment on the front face of the front panel of the side gusset bag. As a result, the filled package is rectangular so that can be stacked neatly.

[0012] The pouring spout is preferably at the center of the bag. The face panels of the bag can be of trapezoidal shape in the upper region, or form a surface bordered by arcuate edges and is narrower at the spout than in the base region.

[0013] The flow of product toward the pouring spout can be further improved if corner welds are provided at the upper ends of the side gussets. These welds or seams attach the flaps of the side gusset to the adjacent face panels, and, starting from the edge of the bag, extend at an acute angle to the upper edge of the side gussets. As a result of these welds, the cross-section of the bag tapers down in a funnel shape toward the pouring spout.

[0014] Handling of the side gusset bag according to the invention can be further improved by attaching a grip. Die-cut holes for finger or hand access as well as a handle can form the grip. The grip can in particular be made of film, molded components, the material of the face panels or gussets. The handle can be applied to the outer face of the bag, or be attached to the inside of the bag and extend out through a die-cut pattern or hole. In the above-described implementation, the grip is advantageously on one of the face panels. The grip can also be provided on one of the side gussets. If the

pour spout is offset inward from one of the side gussets, the grip is on the other side gusset. The pouring spout formed from the face panels of the bag can also be disposed off-center relative to the bag. It is within the scope of the invention for the face panels to extend continuously along a first longitudinal side of the bag up to the upper end of the bag, and for the face panels, which are narrower in the upper region of the bag than in the region of the inserted side gussets, to have an edge that extends continuously or arcuately up to the second longitudinal side of the bag. A grip can be provided on the side gusset and fitted into the longitudinal side of the bag between the face panels to improve handling.

[0015] The reclosable fastener provided on the pouring spout can be a press- or slide-type closure. In the case of a press-type, the strip-shaped locking elements are joinable manually by being pressed together. In the case of a slide-type closure, a slider is provided that can move along the strip-shaped elements.

[0016] The reclosable fastener is attached to the pouring spout formed by the two face panels. It can be mounted on the end of the pouring spout in such a way that the slider is freely accessible. However, it is also within the scope of the invention for the reclosable fastener to be recessed in the two-layer upper region, formed by the two face panels, at a certain distance from the upper edge of the pouring spout. The reclosable fastener is accordingly wholly or partially covered by the face panels and hence protected from damage or tampering. If the reclosable fastener is covered by the face panels, the pouring spout can be closed at its free end by an upper weld. Detaching a segment of the bag above the reclosable fastener enables the reclosable pouring opening to be exposed. The slider of the slide-type fastener is preferably completely exposed by detaching the segment of the bag above the fastener.

[0017] Since the pouring spout is composed of only two film layers, it is readily foldable and after being appropriately folded over rests against the front panel of the side gusset bag. A strap with an adhesive surface is preferably connected to the pouring spout for releasable attachment to the front panel of the bag. However, another possible approach is to releasably affix the folded-over pouring spout to the front panel of the bag by means of an adhesive, for example in the form of a hot-melt adhesive spot.

[0018] The side gusset bag is produced as a flat-laid bag and is subsequently filled in filling systems with bulk material that is preferably introduced through a bottom or side opening. After being filled, the initially open end of the bag is sealed by a base weld. Corner welds can be provided at the bottom end of the bag to restrict the filling opening, which seams attach the flaps of the side gussets to the face panels of the bag.

[0019] The side gusset bag is advantageously equipped with a flexible grip, in particular, when the side gusset bag has a large fill volume or high bulk density, the grip being on a front wall or in the region of the side gusset or in the base region. The grip can be a flexible strip made of a film or a, for example of a fabric-reinforced laminate. The grip can furthermore be composed of a flexible strip and a cover film, the cover film being fixed to the inside of the bag and the strip extending as a loop out through the opening of the bag panel.

BRIEF DESCRIPTION OF THE DRAWING

[0020] The above and other objects, features, and advantages will become more readily apparent from the following description, reference being made to the accompanying drawing in which:

[0021] FIG. **1** is a perspective view of a closed bag according to the invention;

[0022] FIGS. **2***a* and **2***b* are front elevational views of the bag of FIG. **1** in use and storage positions; and

[0023] FIG. **3** is a view like FIG. **2***b* showing an alternative bag in the storage position.

SPECIFIC DESCRIPTION

[0024] As seen in FIG. **1** a bag **1** according to the invention for lumpy, granular or powdered bulk material, has an essentially parallepipedal shape and is stackable when fill. The composed of the bag **1** is filled from the bottom and is then sealed at the bottom by a base weld **2**. The following discussion describes the features of the bag **1** in more detail based on FIGS. **2***a* and **2***b*.

[0025] The bag **1** comprises two face panels **3** that form front and back walls, side gussets **4** and **4'** that each have front flap bordering the front wall and a back flap attached to the back wall, as well as an upper reclosable fastener **5** that has matable strips **6** for attachment to the inside faces of the bag **1**. The gussets **4** and **4'** terminate at a level below the fastener **5** that is in a two-layer upper region of the bag formed only from the is two panels **3**. The panels **3** are of a smaller width in the upper region than in the region of the gussets **4** and **4'**, with the result that the upper region forms a pouring spout **8** that is can be folded over against the front face panel **3**.

[0026] In the position shown in FIG. **2***a*, the spout **8** allows for a very precise controlled discharge during pouring and ensures good placement accuracy when the purpose of pouring is, for example, to fill a bowl or a small container. For transport purposes and after pouring has ended, the spout **8** can be applied to the front panel **3** of the side gusset bag and affixed there, as shown in FIGS. **1** and **2***b*. As a result, the filled bag can be easily transported. Due to the fact that the spout **8** is attached to the front panel **3**, the rectangular shape is maintained such that stackability of the packaging is not impaired by the spout **8**.

[0027] In the embodiment shown in FIGS. **1**, **2***a* and **2***b*, the spout **8** is at the center of the bag. The panels **3** here form a surface bordered by arcuate connecting edges **9**, this surface being narrower at the spout **8** in the rectangular base region. A trapezoidal shape for the face panels in the upper region is also possible. A width B of the pouring spout at the pouring end depends on the product inside the bag **1**. Its width can measure, for example, 25% to 75% of a total width B**0** of the bag.

[0028] The fastener **5** is a slide-type closure and has a slider **10** that can shift along the strips **6**. The fastener **5** is here mounted the outer end of the spout **8** such that the slider **10** is freely accessible. Additionally, a recessed mounting is possible.

[0029] A tab or strap **11** with an adhesive patch is provided for the releasable attachment of the spout **8** to the panel **3** of the bag **1**. It is also within the scope of the invention for the folded-over spout **8** to be fixed to front panel **3** of the bag by an releasable adhesive.

[0030] A grip **12** is on the one front panel **3** of the bag **1** to make the package easier to handle. This grip **12** can be a flexible strip that is attached to the front wall. One preferred type of attachment is illustrated in FIGS. **2***a* and **2***b*. The grip **12** is composed here of a flexible strip **13** and a cover film **14**, the latter being attached to the inner face of the bag so the strip **13** can project as a loop an opening **15** in the front bag panel **3**.

[0031] FIGS. **2***a* and **2***b* show corner welds **16** provided at the upper ends of the side gussets **4** and **4'**. These welds **16** attach the flaps of the gussets **4** and **4'** to the side edges of the respective panels **3** and extend at an acute angle from the edge of the bag to the upper edge of the side gussets. The corner welds **16** allow the flow of product within the packaging to be controlled. A bottom end **17** of the flat-laid side gusset bags is open to allow them to be filled. To enable the filling opening to be restricted, corner welds **18** are also provided at the bottom end **17** of the bag. These welds **18** also attach the flaps of the is gussets **4** and **4'** to the panels **3**.

[0032] In the embodiment of FIG. **3**, the spout **8** is off-center on the bag **10**. The panels **3** of the bag **1** extend along a first longitudinal side edge **19** of the bag **19** continuously up to the upper edge of the bag. They furthermore have an edge **20** that extends is stepped or arcuate curvature up to the second longitudinal side of the bag **21**. A grip **22** is provided on one of side gussets **4** and is recessed this side of the bag **21** between the panels **3**. The grip **22** fits into the respective gusset **4** and does not normally protrude from the package. Shown simply to illustrate the functional principle and to provide better understanding is a tubular grip **22** that projects from the outer contour of the bag. The gussets **4** and **4'** terminate below the edge of the bag **20** and are sealed at their ends by a tape that is sealed onto the inner surface of the side gusset bag.

We claim:

1. A bag comprising:

two similar and flexible face panels each having a pair of generally parallel side edges and upper and lower edges bridging upper and lower ends of the side edges;

a pair of gussets each having a crease and two generally parallel side edges flanking the crease, one of the side edges of each gusset being joined to the side edge of one of the panels and the other of the respective side edges being joined to one of the side edges of the other panel, the face panels both having extensions extending upward past at least one of the gussets and of a horizontal width measured perpendicular to the side edges that is substantially less than a width of the face panels perpendicular to the side edges level with the gussets;

a reclosable fastener extending along or next to the upper edges only at the extensions and forming therewith a spout that can be folded over and juxtaposed with one of the face panels; and

means for releasably securing the spout when folded over to the one face panel.

2. The bag defined in claim **1** wherein the extensions are generally central in the respective face panels and extend past both of the side edges.

3. The bag defined in claim **2** wherein the upper edges each comprise a pair of connecting portions extending at least partially nonparallel to the side edges and each connecting an end of a respective side edge with an end of a respective center portion extending generally perpendicular to the side edges.

4. The bag defined in claim **3** wherein the connecting portions are generally straight and impart a trapezoidal shape to the extensions.

5. The bag defined in claim **3** wherein the connecting portions are generally L-shaped and have a lower part extending generally perpendicular to the respective side edge and an upper part extending generally parallel thereto.

6. The bag defined in claim **5** wherein each connecting portion has an arcuate intermediate part between the respective lower and upper parts.

7. The bag defined in claim **2** wherein the gussets each have two flaps extending from the respective crease to a respective one of the side edges, each gusset having an angled seal fixing together the respective flaps and extending from the respective side edges to the respective crease.

8. The bag defined in claim **1**, further comprising

a grip fixed to one of the face panels.

9. The bag defined in claim **1** wherein the extensions project noncentrally from one side edge of the respective face panels, the upper edges each being comprised of a connecting portion extending at least partially nonparallel to the respective side edges between an upper end of the other side edge of the respective face panel and a respective outer portion extending generally perpendicular to the side edges and terminating at the respective one side edge.

10. The bag defined in claim **9** further comprising

a grip fixed to the gusset on the other side of the face panels.

11. The bag defined in claim **1** wherein the reclosable fastener has a pair of matable strips extending along the extensions and a slider movable along the strips in one direction to couple the strips together and in an opposite direction to separate the strips.

12. The bag defined in claim **11** wherein the strips are at an outer end of the spout.

13. The bag defined in claim **11** wherein the strips are recessed in the spout.

14. The bag defined in claim **1** wherein the means for releasably securing is a strap secured to one of the extensions and means for adhering it to the face panel of the other of the extensions.

15. The bag defined in claim **14** wherein the means for adhering is an adhesive.

16. A bag comprising:

two similar flexible face panels each having a pair of generally parallel side edges and upper and lower edges bridging upper and lower ends of the side edges, the lower edges being joined together;

a pair of gussets each having a crease and two generally parallel side edges flanking the crease, one of the side edges of each gusset being joined to the side edge of one of the panels and the other of the gusset side edges being joined to the side edge of the other panel, the face panels both having at the upper edges extensions extending upward past at least one of the gussets and of a width measured perpendicular to the side edges that is substantially less than a width of the face panels perpendicular to the side edges;

a reclosable fastener extending along the upper edges at the extensions and forming therewith a spout that can be folded over and juxtaposed with one of the face panels;

a flexible grip secured to at least one of the face panels or gussets offset from the extension; and

means for releasably securing the spout when folded over to the one face panel.

17. The bag defined in claim **16** wherein the grip is secured to one of the face panels.

18. The bag defined in claim **17** wherein the grip includes a reinforcement patch secured to an inner face of the one face panel and a loop extending outward though a slot in the one face panel.

* * * * *