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BAG WITH CRIMPED PORTION TO RETAIN SLIDERTechnical Field

5 This invention relates to improvements in
reclosable plastic bags and slider assemblies, that is,
plastic bags which can be repeatedly opened and closed to
receive and retrieve contents, and sometimes known as
"zipper bags", whilst a plastic slider is used for opening
10 and closing such reclosable plastic bags. Such bags are
formed from a pair of flexible plastic sheets or panels
having top edges with separable fastening means extending
along the lengths of the top edges and therefore at the
opening of the bag with the slider straddling the
15 separable fastening means.

Background Art

Such bags conventionally are of rectangular
configuration formed from an elongate plastic sheet or
20 film folded upon itself to form two panels and sealed
together along their opposite side edges with an opening
defined by the free edges of the panels. The opening is
adapted to be repeatedly opened and closed by fastening
means formed from a rib extending across one of the panels
25 below the opening of the bag and interengaging in a groove
formed between, and therefore defined by, two ribs
extending across the other panel and also below the
opening of the bag. Two parallel extending ribs on either
sides of the rib which engages within the groove serve to
30 capture the ribs within the defined groove.

The ribs and grooves are shaped and dimensioned
so that the rib fits tightly within its associated groove
and the ribs defining the associated groove deform to
35 allow the rib to enter and to be captured within its
associated groove.

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The sliders conventionally have a separator finger carried by a complimentary structure which has a transverse finger support member from which legs depend and with lower inwardly directed flanges which engage
5 beneath the separable fastener means to hold the slider on the bag and around the fastener. The finger serves to separate the fastener as the slider is moved in one direction along the separable fastener means, whilst the legs of the slider press the rib and groove of the
10 fastener means together to close the fastener when the slider is moved in the opposite direction.

However, such bag/slider assemblies are subject to difficulties with holding the slider in position when
15 moved to its bag closed position, and it is an object of the present invention to minimise, if not eliminate, this difficulty.

Disclosure of the Invention

20 In accordance with the present invention there is envisaged a reclosable plastic bag having at least two panels of plastics sheet or film joined to, or integral with, each other, or a combination of both, to define a bag with an opening, separable fastening means of one or
25 more interengagable elongate rib/groove configurations to close said opening, a slider positioned in straddling relationship to said fastening means, said slider including a support member overlying the opening to the bag and straddling said fastening means, and also carrying
30 a separating finger to engage with and separate said fastening means when said slider is moved to a first end of said fastening means in a bag opened condition, and a pair or legs extending from said support member to force said fastening means into interengaging relationship when
35 the said slider is moved to a second end of said fastening means in a bag closed condition, means on said legs and extending beneath said fastening means to retain said

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slider on said bag, and wherein the edges of said panels of said bag adjacent said second end of fastening means are bonded together with a portion thereof between said bonding and said fastening means being crimped to define a torturous path between said panels into which path part of the slider is received to be gripped by the portions of said panels on either side of said torturous path to thereby retain said slider in the bag closed condition.

10 Preferably at least one elongate strengthening rib is provided adjacent, and parallel, to said fastening means and on one or each of the panels of the bag inwardly from said fastening means.

15 Preferably the, or each, elongate strengthening rib cooperates with said slider retaining means extending beneath said fastening means to align the slider with said fastening means.

20 Preferably the, or each, said elongate strengthening rib and said slider retaining means are configured to produce an audible sound and/or tactile feel as said slider is moved along said bag opening.

25 Preferably the part of said slider which is received within the torturous path is said separating finger.

Brief Description of the Drawings

30 One preferred embodiment of the invention will now be described with reference to the accompanying drawings, in which;

35 Figure 1 is a perspective view of the slider/bag assembly in the bag closed condition,

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Figure 2 is a perspective view of the slider/bag assembly in the bag opened condition,

5 Figure 3 is a perspective view of the slider/bag assembly during the process of moving to or from the bag closed condition,

10 Figure 4 is a side view of the slider/bag assembly of Figures 1 to 3,

Figure 5 is a transverse cross-sectional view of the assembly of Figure 4, and

15 Figure 6 is a view from beneath of the assembly of Figures 4 and 5.

Best Mode for Carrying Out the Invention

In this preferred embodiment, the reclosable plastic bag after assembly, is generally indicated as 10.

20 The plastic bag is formed from an extruded tube of plastic sheet or film which when flattened produces a fold line 11 which will define the bottom of the bag, and which therefore produces a pair of panels 15 which are thereafter sealed along their opposite side edges 12 to

25 provide a plastic bag having an opening 13 at the top of the bag when the other side of the tube is slit. The opening 13 is adapted to be repeatedly opened and closed by an extruded fastening means 14, and consisting of a rib 14a extending across the width of one panel at the opening

30 of the bag and below the opening of the bag, and also engaging and captured within a groove 14b defined by a pair of ribs 14c extending across the width of the other panel of the bag at its opening. A pair of ribs on either side of the rib 14a, which engages within the groove 14b,

35 serves to also capture the ribs 14c which define the grooves.

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A plurality, in this preferred embodiment two, parallel strengthening ribs 18 are also extruded beneath the fastening means 14, to in effect bear some of the forces applied to the fastening 14 and thus minimise the possibility of splitting or breaking of the bag inwardly of the fastening means, whilst at the same time strengthening the panels of the bag adjacent the fastening means to provide additional rigidity to assist in aligning the interengaging rib/groove configuration when closing the bag.

The fastening means 14, and the strengthening ribs 18, are all extruded when the tube from which the bag will be formed is extruded and before the tube is slit.

The strengthening ribs 18 may be formed by altering the profile of the extrusion die, or by injecting plastics material directly onto the surface of the tube as it is being extruded, or by a forming process through a grooved die head also when the tube for the bag is being extruded. A more manufacturing and material costly laminating process could also be used if necessary. In the case of laminated profiles, multi-layers could be laminated which makes the bag more suitable for freezer and cold storage applications.

Both ends of the upper edges of the panels are bonded together at 19 such as by heat and pressure welding, whilst in accordance with the invention a portion 20 of the upper edge of the panels between the bonded portion 19 at the bag closed end of the fastening means, and the adjacent end of the fastening means, is configured by crimping to define a torturous path 20a between the edges of the panels over the length of the portion 20 and adapted to receive and retain the separating finger 112 of the slider 100 (to be later described) in the bag closed condition. The portion 20 and the adjacent bonded portion

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19 also serve to prevent the slider moving off the end of the opening of the bag without the need for raised end portions or cut-outs that have had to be used with some known assemblies.

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The slider of this preferred embodiment is moulded as a one piece plastic component. Alternatively the slider could be made from a plurality of separate parts which are clipped together.

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The slider, generally indicated as 100, of this preferred embodiment of the invention includes a support member 111 to the underside of which is moulded the separating finger 112, and may be of any number of types of configurations, and which would normally be moulded with the remainder of the slider. The support member on opposite side edges thereof has depending legs or panels 113 extending along the opposite longitudinal sides respectively. A multiplicity of ribs (not shown) may be formed on the outsides of the panels 113 to assist in finger gripping during movement of the slider during opening and closing the fastener means of the plastic bag.

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An end stop 121 formed on the support member 111 engages the bonded end 19 at the bag open position of the slider to prevent the slider from moving off that end of the bag opening, once again without the need for raised end portions or cut-outs that have had to be used with some known assemblies. The lower ends of the panels towards one end thereof carry flanges 119 which engage beneath ledges 120 formed beneath the fastening means 14 of the plastic bag, whilst the cooperation of flanges 119 of the slider with the strengthening ribs 18 of the bag serves to align the slider with the fastening means.

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In addition the, or each, strengthening rib 18 and the flanges 119 may be configured, such as by spaced apart ribs along one interengaging with spaced apart grooves on the other, and such that when the flanges 119
5 are moved relative to the strengthening ribs 18 an audible sound and/or tactile feel is produced as the slider is moved along the bag opening.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A reclosable plastic bag having at least two panels of plastics sheet or film joined to, or integral with, each other, or a combination of both, to define a bag with an opening, separable fastening means of one or more interengagable elongate rib/groove configurations to close said opening, a slider positioned in straddling relationship to said fastening means, said slider including a support member overlying the opening to the bag and straddling said fastening means, and also carrying a separating finger to engage with and separate said fastening means when said slider is moved to a first end of said fastening means in a bag opened condition, and a pair or legs extending from said support member to force said fastening means into interengaging relationship when the said slider is moved to a second end of said fastening means in a bag closed condition, means on said legs and extending beneath said fastening means to retain said slider on said bag, and wherein the edges of said panels of said bag adjacent said second end of fastening means are bonded together with a portion thereof between said bonding and said fastening means being crimped to define a torturous path between said panels into which path part of the slider is received to be gripped by the portions of said panels on either side of said torturous path to thereby retain said slider in the bag closed condition.

2. A reclosable plastic bag as claimed in Claim 1, wherein at least one elongate strengthening rib is provided adjacent, and parallel, to said fastening means and on one or each of the panels of the bag inwardly from said fastening means.

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3. A reclosable plastic bag as claimed in Claim 2,
wherein the, or each, elongate strengthening rib
cooperates with said slider retaining means extending
beneath said fastening means to align the slider with said
5 fastening means.

4. A reclosable plastic bag as claimed in Claim 1 or
2, wherein the, or each, said elongate strengthening rib
and said slider retaining means are configured to produce
10 an audible sound and/or tactile feel as said slider is
moved along said bag opening.

5. A reclosable plastic bag as claimed in any one of
Claims 1 to 4, wherein the part of said slider which is
15 received within the torturous path is said separating
finger.

6. A reclosable plastic bag, substantially as
hereinbefore described with reference to the accompanying
20 drawings.

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