

PATENT SPECIFICATION

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(54) PLASTIC BAG

(71) I, SPENCER BING-TANG LIN, a citizen of the Republic of China, of 3F, No. 5, Lane 4, Chin Chou Street, Taipei, Taiwan, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a plastic bag.

Plastic bags have been widely used for packaging. In particular, polyethylene bags have various advantages such as neat appearance, transparency, non-toxicity, and low manufacturing cost; in addition, polyethylene bags are impermeable to water and are therefore suitable for use in packing foods such as vegetables, fruits, fish and meals, and have consequently become an indispensable packaging material used in markets or stores.

However, plastic bags containing goods have to be tightened by a band, rope or string to prevent the goods from falling out of the bag. This tightening operation takes time, which in turn requires an increase in the working capacity.

There are several kinds of plastic bags having a quick tightening means, for example the so-called union bag. The latter provides a tongue and groove structure along the entire transverse length near the bag opening, and it is merely necessary to apply a slight pressure to a portion of the tongue and groove structure to connect them, so as to readily tighten the opening. This tightening operation is quite simple, but the production cost of such a bag is relatively high. In addition, the strength of the fastening between the tongue and groove is insufficient for a bag containing heavy goods or one that is full of goods and consequently the fastening may become unfastened. Moreover, the union bag has no means for carrying the bag by hand. Therefore, the union bag is generally limited to a size smaller than the hand and usually used for holding medicine or flower seeds.

Another kind of conventional plastic bag is provided with a tube-like annular passage by holding the top edge of the bag opening and hot sealing it on the bag. The annular passage has a cut for introducing a band therethrough. The band can be fastened to close the opening and can be carried by hand. However, when the bag is filled with heavy goods and carried by the band, the weight of the contents tends to concentrate at the bag opening and the annular passage which receives the band is subjected to great stress. The tensile strength of the plastic film decreases at the hot sealed portion, and as a result the portion is easily torn off or broken under the increased stress.

The invention provides a plastic bag comprising a bag body, at least one retention member which does not extend around the entire circumference of the bag body, the or each retention member being formed adjacent a bag opening by hot sealing a plastic sheet or film at least at two points to the said bag body to define in each retention member at least one passage between adjacent sealing points, and an endless band movably retained in the said passage(s).

The plastic bag according to the invention provides a quick tightening operation. Furthermore, when the bag is tightened, the stress is applied to the bag body, and the hot sealed portion will not be subjected to stress and hence suffer damage. The fastened band can be readily carried by hand.

The invention will be further described, by way of example only, with reference to the accompanying drawings, in which:—

Figure 1 is a front view of a plastic bag;

Figure 2 is a perspective view of the bag shown in Figure 1 and illustrates the bag opening when tightened by means of the tightening band attached thereto;

Figures 3 to 6 are front views of various modified forms of the plastic bag shown in Figure 1.

Figure 1 shows a plastic bag comprising a bag body 1 which is hot sealed at a suitable portion 2 at the bottom of the bag body. The bag is filled through an opening 3. The bag is provided with two retention members 4 near the opening 3, each retention member being secured to the bag body at three hot sealing points 41, 41' and 41''. A passage is formed between two adjacent hot sealing points, such as between 41 and 41' and between 41' and 41''. An endless band 5 can be freely moved through these passages.

The plastic bag is preferably made of polyethylene, and the retention members 4 are preferably polyethylene plastic sheet or film which may be readily hot sealed to the bag body 1. The tightening band 5 is preferably made of polypropylene.

The length of band 5 is suitably from about one to two times of the bag width. The distance between the two retention members 4 is slightly less than twice the length of the band 5 so that when the band 5 is moveably retained in the two members 4 the bag body 1 will have uniform appearance.

To tighten the bag after filling the latter with its contents it is merely necessary to take both extending return ends 51 and 51' of the band 5 to another side of the bag, so that the band 5 surrounds the body 1. One end 51 or 51' is then passed through the other end 51' or 51 to fasten the ends together. The opening 3 is thus tightly closed, and the extending end 51 as shown in Figure 2 may be carried by hand. When the bag is tightened, the stress is mostly applied to the bag body 1 at the portion corresponding to the retention members 4 and will not affect the hot sealed points 41, 41' or 41''.

The plastic bag shown in Figure 3 has only one retention member 4. Two passages are formed between three hot sealed points, and the band 5 may be moved through these two passages.

The plastic bag shown in Figure 4 has two retention members 4 each hot sealed at two points 41 and 41' to each form only one passage. Furthermore, the distances between the retention members 4 and top edge of the opening 3 are different.

The plastic bag shown in Figure 5 is similar to that shown in Figure 4, except that the distances between the retention

members 4 and the top edge of the opening 3 are the same.

Figure 6 shows a plastic bag having only one retention member 4 with two hot sealed points defining a single passage for the band.

WHAT I CLAIM IS:—

1. A plastic bag comprising a bag body, at least one retention member which does not extend around the entire circumference of the bag body, the or each retention member being formed adjacent a bag opening by hot sealing a plastic sheet or film at least at two points to the said bag body to define in each retention member at least one passage between adjacent sealing points, and an endless band movably retained in the said passage(s).

2. A plastic bag as claimed in Claim 1 wherein there are two said retention members each sealed to the bag body at three points to define two said passages in each retention member.

3. A plastic bag as claimed in Claim 1 wherein there are two said retention members each sealed to the bag body at two points to define a single said passage in each retention member.

4. A plastic bag as claimed in Claim 1 wherein there is a single retention member sealed to the bag body at three points to define two said passages in the retention member.

5. A plastic bag as claimed in Claim 1 wherein there is a single retention member sealed to the bag body at two points to define a single said passage in the retention member.

6. A plastic bag as claimed in any of Claims 1 to 5 wherein the bag is made of polyethylene.

7. A plastic bag as claimed in any of Claims 1 to 6 wherein the said hot sealed plastic sheet or film is made of polyethylene.

8. A plastic bag as claimed in any of Claims 1 to 7 wherein the said band is made of polypropylene.

9. A plastic bag substantially as herein described with reference to, and as shown in, the accompanying drawings.

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The plastic bag is preferably made of polyethylene, and the retention members 4 are preferably polyethylene plastic sheet or film which may be readily hot sealed to the bag body 1. The tightening band 5 is preferably made of polypropylene.

The length of band 5 is suitably from about one to two times of the bag width. The distance between the two retention members 4 is slightly less than twice the length of the band 5 so that when the band 5 is moveably retained in the two members 4 the bag body 1 will have uniform appearance.

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The plastic bag shown in Figure 5 is similar to that shown in Figure 4, except that the distances between the retention

members 4 and the top edge of the opening 3 are the same.

Figure 6 shows a plastic bag having only one retention member 4 with two hot sealed points defining a single passage for the band.

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2. A plastic bag as claimed in Claim 1 wherein there are two said retention members each sealed to the bag body at three points to define two said passages in each retention member.

3. A plastic bag as claimed in Claim 1 wherein there are two said retention members each sealed to the bag body at two points to define a single said passage in each retention member.

4. A plastic bag as claimed in Claim 1 wherein there is a single retention member sealed to the bag body at three points to define two said passages in the retention member.

5. A plastic bag as claimed in Claim 1 wherein there is a single retention member sealed to the bag body at two points to define a single said passage in the retention member.

6. A plastic bag as claimed in any of Claims 1 to 5 wherein the bag is made of polyethylene.

7. A plastic bag as claimed in any of Claims 1 to 6 wherein the said hot sealed plastic sheet or film is made of polyethylene.

8. A plastic bag as claimed in any of Claims 1 to 7 wherein the said band is made of polypropylene.

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