

12

EUROPEAN PATENT APPLICATION

21 Application number: 88301282.5

61 Int. Cl.4: **B 65 D 33/20**
B 65 D 33/16

22 Date of filing: 16.02.88

30 Priority: 16.02.87 GB 8703508
 06.11.87 GB 8726038

43 Date of publication of application:
 24.08.88 Bulletin 88/34

84 Designated Contracting States:
 AT BE DE ES FR GB IT NL SE

71 Applicant: **INTERPOLY LIMITED**
 91 - 93 Parkhurst -Road
 London N7 0LP (GB)

72 Inventor: **Baldwin, Paul Richard**
 11, Blenheim Close
 Louth Lincs. (GB)

74 Representative: **Shindler, Nigel**
BACHELLOR, KIRK & EYLES 2 Pear Tree Court
Farringdon Road
London EC1R 0DS (GB)

54 Closable bag.

57 A bag of sheet material having a seal at one end thereof, side gussets and an open end, the bag having a closure strip of sheet material having a first portion secured across one outer face of the bag and a second portion overlying said face adjacent the open end of the bag, said second portion carrying pressure sensitive adhesive and said overlaid area of said face carrying a layer of silicone so that said pressure sensitive adhesive adheres temporarily to the overlaid area to allow the open end of the bag to be folded so that the edges underlie and are sealed by said second portion.

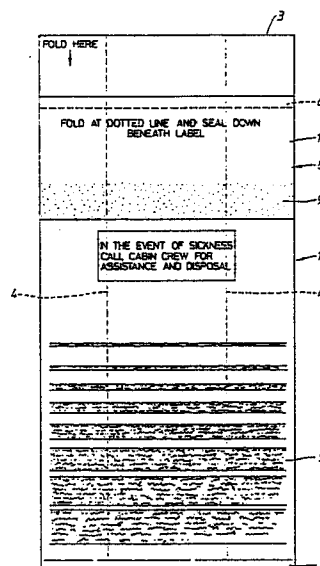


Fig. 1.

Description

"Closable Bag"

This invention relates to bags of sheet material such as paper and/or plastics which can be closed after use prior to disposal. The invention is particularly directed to disposable bags used for example for travel sickness, although the bags can be used for other purposes, such as refuse disposal or for storage purposes.

The provision of disposable bags, usually of plastics - lined paper or entirely of plastics, for coping with travel sickness is commonplace. Such bags should be easy to use, with a wide opening and capable of being closed as conveniently and hygienically as possible prior to disposal.

Although travel sickness bags have been proposed with a strip of adhesive protected by a peelable cover strip adjacent the top of the bag, thus allowing the bag to be folded over onto the adhesive after removal of the peelable cover strip, such bags do not give a satisfactory sealing of the mouth of the bag. Furthermore such strips of adhesive can only be conveniently applied in a continuous process to bags having side welds, optionally with a bottom gusset, and such side welded bags do not present a satisfactory wide open mouth for use by a person afflicted with travel sickness.

Side gusseted bags have also been proposed, which do open sufficiently widely for use. However the proposed closures for such bags are not entirely satisfactory. One solution is the provision of a separate closure, such as a wire-reinforced tie strip, temporarily secured to the bag. The closure operation thus involves removal of the tie and its use to close the bag, a troublesome operation with ample opportunity to drop and lose the tie. Another solution which has been proposed is the provision of an adhesive strip on one face at the mouth of the bag and projecting beyond the bag mouth, the adhesive being temporarily protected by a peelable cover strip. After use, the cover strip is removed and the adhesive face folded down over the mouth. As the peelable strip has been exposed during bag use, this is an unhygienic procedure. Furthermore the provision of such adhesive strips projecting from the bag mouth does not lend itself to rapid production.

The present invention seeks to provide an improved closable bag, and a convenient method for manufacture of such bags.

According to this invention, we provide a bag of sheet material having a seal at one end thereof, side gussets and an open end, the bag having a closure strip of sheet material having a first portion secured across one outer face of the bag and a second portion overlying said face adjacent the open end of the bag, said second portion carrying pressure sensitive adhesive and said overlaid area of said face carrying a layer of silicone so that said pressure sensitive adhesive adheres temporarily to the overlaid area to allow the open end of the bag to be folded so that the edges underlie and are sealed by said second portion.

Instead of applying a layer of silicone to the

surface of the bag to protect the pressure sensitive adhesive on the closure strip, it is alternatively possible to apply a peelable strip to the area of the pressure sensitive adhesive which is required to be adhered to the bag to close it, so that removal of the peelable strip uncovers the adhesive. However, it will be appreciated that this requires at least one additional manufacturing step as well as additional material, and is not as convenient in use since the peelable strip must be completely removed before the closure strip can be used.

Preferably the closure strip is so positioned on the outer face of the bag that, after the open end of the bag is folded under said second portion, the second portion extends beyond the fold so that it can be turned over around the fold. Preferably the entire closure strip carries pressure sensitive adhesive on its underside.

The bag may be of plastics material such as high density polyethylene. Alternatively it may be of paper or plastics - coated paper dependent on the intended use of the bag.

The bag conveniently carries printed matter on the face of the bag and/or the closure strip. The printed matter suitably comprises instructions for use and includes a fold line adjacent the open end of the bag positioned to bring the edges of the bag beneath the second portion of the closure strip.

According to a further aspect of the invention we provide a method of manufacturing bags as defined above, comprising supplying surface treated sheet material in laid flat tube form, before or after formation of said gussets and/or said end seals, to a coating station, coating selected areas of the film with a silicone layer and curing the silicone, supplying said coated film to a labelling station, supplying said closure strips to said labelling station carried on a peelable backing strip, removing said peelable backing strip and securing part of each closure strips to an uncoated portion of the sheet material at suitably spaced locations adjacent a coated area in such a way that the other part of the strip overlies the coated area. The closure strips may be secured to the sheet material by means of air pressure blowing or other suitable means.

The invention also extends to a method of applying a silicone release layer to a plastics material including the steps of:

- (a) pre-treating the material by corona discharge;
- (b) blending the silicone with a catalytic photo-initiator;
- (c) applying the silicone to the plastics material;
- (d) curing the silicone layer using UV radiation.

One form of the invention will now be described with reference to the accompanying drawings, wherein:

Figure 1 is a plan view of a travel sickness bag; and

Figure 2 is a plan view of closure strips carried on a peelable backing strip.

Figure 1 shows a bag 1, of plastics material such as high density polyethylene, which has a welded end seal 2 at one end and an opposite open end 3 and side gussets, the extremities of which are indicated by dotted lines 4. The outer face of the bag carries any desired printing matter at 5 and also an indication 6 of a fold line adjacent the open end 3. A cover strip 8 is attached to the outer face of one side of the bag via a first portion 9, secured to the bag across its entire width. The second, unsecured portion 10 of the cover strip 8 overlies a co-extensive adjacent area of the bag which is coated with silicone. The portion 10 carries on its underside a layer of pressure sensitive adhesive, but the layer is prevented from permanently adhering to the bag by the silicone layer. The front of cover strip 8 suitably carries instructions for use.

After the bag has been used by an unfortunate traveller the user folds the top of the bag down on line 6 beneath the overlying portion 10 of cover strip 8 and presses to seal the turned over edges. The portion 10 then projects beyond the fold 6 and can itself be turned over the fold to produce additional security. The contents are then hygienically sealed off and the bag can be disposed of.

It will be seen that the presence of side gussets allows the user to open the bag widely for use. The method of bag closure is quick, hygienic and effective and the user is not required to touch any surfaces which may have become contaminated during use.

The bag as described above can be conveniently manufactured from a continuous tube of plastics material, which may be preformed with end welds 2 and side gussets.

The material is pre-treated usually during manufacture by subjecting its surface by corona discharge to a level of 32 dynes/cm². Immediately before printing further discharge is applied to boost the level to 50 dynes/cm² (the level is likely to have fallen to about 25 dynes/cm² during storage in any case). The material then passes into the print unit.

A silicone layer is then applied to the film in selected areas to prevent the closure strip from permanently adhering to these areas, the silicone liquid having been previously blended with a catalytic photo-initiator. This renders it unstable so that it can be applied to the film surface in an even layer at the rate of one gram/m². The silicone is then cured by passing the film across a source of UV radiation at a rate of 250 watts per linear inch and a web speed of 60 metres/min. The curing process is assisted by the presence of a nitrogen blanket which serves as a catalyst.

The material is then supplied to a labelling station to which is also supplied, a supply of separate closure strips 8 mounted on a continuous peelable backing strip 12 as shown in Figure 2. At the labelling station, means, such as knife means, are used to lift strips 8 from the peelable backing thus revealing the pressure sensitive adhesive on the underside. The portions 9 then contact and attach themselves to the tube of plastics material at the desired locations, and

may be assisted by air pressure blowing the portions onto the face of the tube. Portions 10 overlie the bag, and are prevented from permanently bonding to it by the silicone layer.

As an alternative to the use of a silicone layer to prevent the closure strip from permanently adhering to the bag, the peelable backing strip may carry additional score lines which enable a part of the backing strip to be left on the closure strip when it is applied to the web, so that in use, the part of the backing strip must be peeled off by the user, before the closure can be effected.

Any remaining steps in bag manufacture, including, for example, printing, gusseting, end seal formation and securing of the bags, can then be carried out.

Claims

1. A bag of sheet material having a seal at one end thereof, side gussets and an open end, the bag having a closure strip of sheet material having a first portion secured across one outer face of the bag and a second portion overlying said face adjacent the open end of the bag, said second portion carrying pressure sensitive adhesive and said overlaid area of said face carrying a layer of silicone so that said pressure sensitive adhesive adheres temporarily to the overlaid area to allow the open end of the bag to be folded so that the edges underlie and are sealed by said second portion.

2. A bag of sheet material having a seal at one end thereof, side gussets and an open end, the bag having a closure strip of sheet material having a first portion secured across one outer face of the bag and a second unsecured portion overlying said face adjacent the open end of the bag, said second portion carrying pressure sensitive adhesive protected by a peelable cover strip, whereby on removal of the peelable strip the open end of the bag can be folded so that the edges underlie and are sealed by said second portion.

3. A bag according to claim 1 or claim 2 in which the closure strip is so positioned on the outer face of the bag that, after the open end of the bag is folded under the said second portion, the second portion extends beyond the fold so that it can be turned over around the fold.

4. A bag according to any preceding claim comprising high density polyethylene.

5. A bag according to any of claims 1 to 3 comprising plastics coated paper.

6. A method of manufacturing bags according to claim 1 comprising supplying surface treated sheet material in laid flat tube form, before or after formation of said gussets and/or said end seals, to a coating station, coating selected areas of the film with a silicone layer and curing the silicone, supplying said coated film to a labelling station, supplying said closure strips to said labelling station carried on a

peelable backing strip, removing said peelable backing strip and securing part of each closure strips to an uncoated portion of the sheet material at suitably spaced locations adjacent a coated area in such a way that the other part of the strip overlies the coated area.

5

7. A method of manufacturing bags according to claim 2 comprising supplying sheet material in laid flat tube form, before or after formation of said gussets and/or said end seals, to a labelling station, supplying said closure strips to said labelling station carried on a peelable backing strip, removing said peelable backing strip except from the second portions of the closure strips and securing the closure strips to the sheet material at suitably spaced locations via the exposed first portions.

10

15

8. A method of manufacturing bags according to claim 6 or claim 7 in which the closure strips are secured to the sheet material by air pressure.

20

9. A method of applying a silicone release layer to a plastics material including the steps of:

(a) pre-treating the material by corona discharge;

25

(b) blending the silicone with a catalytic photo-initiator;

(c) applying the silicone to the plastics material;

30

(d) curing the silicone layer using UV radiation.

10. A method according to claim 10 in which the curing takes place in a nitrogen atmosphere which acts as a catalyst.

35

11. A plastics bag or container including a release layer produced by the method of claim 9 or claim 10.

12. A plastics bag or container including a closure strip carrying a pressure sensitive adhesive and at least partially releasably mounted on an area of the bag or container which carries a silicone release layer.

40

45

50

55

60

65

4

08.04.88

0279632

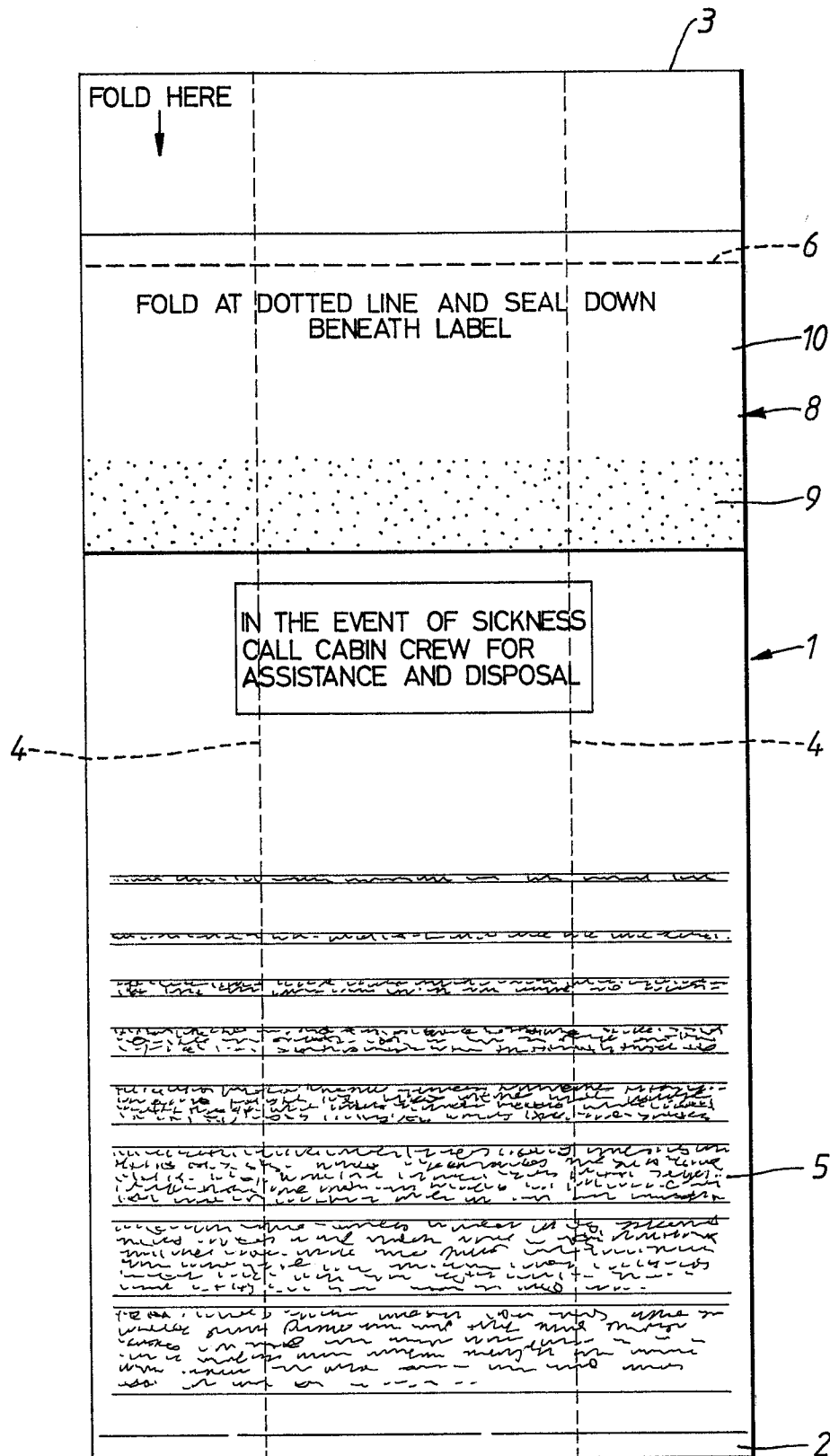
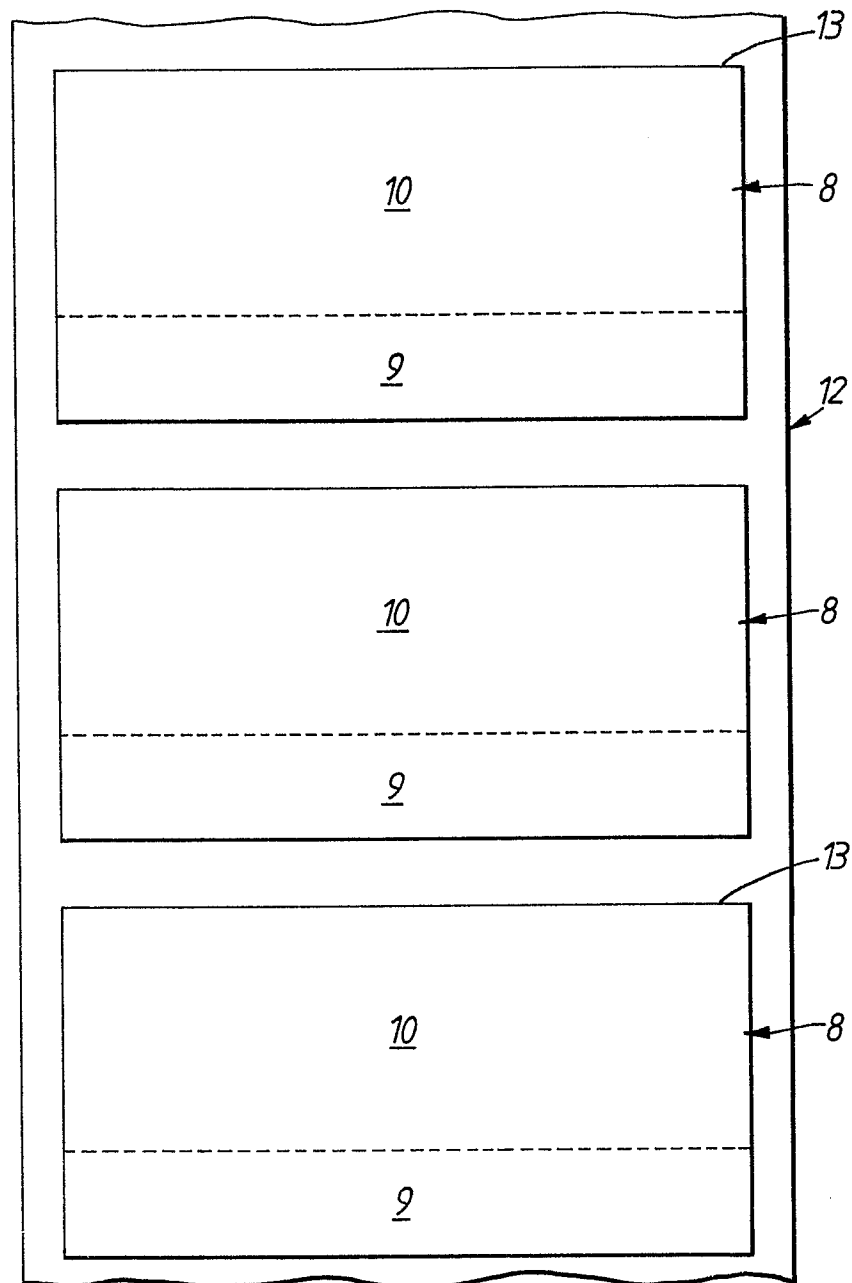


FIG. 1.

0279632

*FIG. 2.*