

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

(To be lodged in duplicate)

PUBLICATION PARTICULARS AND ABSTRACT

(Section 32(3)(a) - Regulations 22(1)(g) and 31)

REFERENCE : P22139ZA00

OFFICIAL APPLICATION NO.		LODGING DATE	ACCEPTANCE DATE
21	01	22/23	6 January 2000
20015581			43

INTERNATIONAL CLASSIFICATION		NOT FOR PUBLICATION
51	B31B, B65B	CLASSIFIED BY :

FULL NAME(S) OF APPLICANT(S)	
71	IMPERIAL TOBACCO LIMITED

FULL NAME(S) OF INVENTOR(S)	
72	HOLLOWAY, Stephen, John

EARLIEST PRIORITY CLAIMED	COUNTRY	NUMBER	DATE
NOTE : The country must be indicated by its International Abbreviation - see Schedule 4 of the Regulations.	33	GB	31
		EP 99300091.8	32
			6 January 1999

TITLE OF INVENTION	
54	METHOD FOR PRODUCING A RESEALABLE POUCH

57	ABSTRACT (NOT MORE THAN 150 WORDS)	NUMBER OF PAGES
----	------------------------------------	-----------------

FOR ABSTRACT SEE THE NEXT SHEET

18



PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : B65B 61/18, B31B 19/90		A1	(11) International Publication Number: WO 00/40465
			(43) International Publication Date: 13 July 2000 (13.07.00)
(21) International Application Number: PCT/GB00/00020 (22) International Filing Date: 6 January 2000 (06.01.00) (30) Priority Data: 99300091.8 6 January 1999 (06.01.99) EP (71) Applicant (for all designated States except US): IMPERIAL TOBACCO LIMITED [GB/GB]; P.O. Box 244, Southville, Bristol BS99 7UJ (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): HOLLOWAY, Stephen, John [GB/GB]; 14 Kilburn Close, Bramcote Moor, Beeston, Nottingham NG9 3FG (GB). (74) Agent: WILKINSON, Stephen, John; Stevens, Hewlett & Perkins, 1 St. Augustine's Place, Bristol BS1 4UD (GB).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: METHOD FOR PRODUCING A RESEALABLE POUCH

(57) Abstract

A method of producing resealable filled pouches comprises the steps of (i) folding across part of its original width a length of thermoplastics sheet to produce a folded sheet having a fold portion running lengthways of the sheet having a folded edge which fold portion extends across part of the original width of the sheet and a non fold portion extending from the fold portion to the other edge of the sheet; (ii) in a direction at right angles to the folded edge and at regular intervals along the folded edge, welding the fold portion together to form individual pockets of equal size having welded wall edges along the length of the sheet; (iii) cutting the sheet, across the width of the sheet and along the line of the welds, to produce individual pouches each having a mouth, welded edges and an extended flap portion, and (iv) filling each pouch, through its mouth, with desired contents and folding the extended flap over the mouth so as to form the flap around the pouch. At the time of forming the fold portion of the sheet, a resealable fastener is located on the sheet in a direction parallel to the edges of the sheet and in a position predetermined to be immediately below the mouths of the pouches wherein the resealable fastener comprises two interengaging closure strips in engaged position, each closure strip of which having a base portion. The base portions of each of the two interengaging closure strips are, while the strips are engaged with each other, welded to the facing surfaces of the sheet respectively in the fold portion, and after welding of the resealable fastener the closure strips are disengaged from each other, the closure strips being made to engage with each other after the filling of the pouch and before forming the extended flap over the pouch.

METHOD FOR PRODUCING A RESEALABLE POUCH

The present invention relates to a method for producing a resealable pouch such as that used for storing tobacco. The invention further relates to a method for inserting a resealable fastener into a pouch during the forming process of a standard tobacco pouch from a continuous reel of material.

A pouch for tobacco is conventionally formed from a thermoplastic material, capable of being welded to itself using a combination of heat and pressure. Typically, the continuous material, or web, is folded on itself along the length of the web from one side towards the other side, the fold being approximately a third the way along the width of the web, thus forming a double thickness web with a fold at one side and an extension of single thickness material extending from the double thickness to the opposite side of the web.. Thus, the distance from the folded edge to the extremity of the double thickness will be approximately the same as the distance from the double thickness part of the web to the other edge. The double thickness part of the folded web is then welded, at fixed intervals across the width of the web, forming a continuous length of folded material formed into individual pockets of equal size, by the welds. The welds formed are of a reasonable thickness. The continuous length of formed pockets are cut by a knife along the welds, forming individual pouches welded at each side, with an extended flap approximately equal in length to the depth of the pouch. The individual pouches are filled with the product, tobacco, through the mouth of the pouch. The extended flap of the pouch is folded below the mouth of the pouch, but over the pouch mouth, so as to form the flap around the pouch. A second fold of the flap is made around the base of the pouch to form a completely wrapped pouch. This method of wrapping does not prevent loss of moisture from the contents, or spillage of the contents, before and during use.

The object of the present invention is to provide a method of producing a resealable pouch by inserting a resealable fastener into the pouches during the forming process so as to enable enhanced moisture retention of the product, or perceived moisture retention by the user, and to enable a reduction in spillage of the product before and during the use of the pouch.

The present invention provides a method of producing resealable filled pouches comprising the steps of

folding across part of its original width a length of thermoplastics sheet to produce a folded sheet having a fold portion running lengthways of the sheet having a folded edge which fold portion extends across part of the original width of the sheet and a non fold portion extending from the fold portion to the other edge of the sheet;

in a direction at right angles to the folded edge and at regular intervals along the folded edge, welding the fold portion together to form individual pockets of equal size having welded wall edges along the length of the sheet;

cutting the sheet, across the width of the sheet and along the line of the welds, to produce individual pouches each having a mouth, welded edges and an extended flap portion;

filling each pouch, through its mouth, with desired contents and folding the extended flap over the mouth so as to form the flap around the pouch;

characterised in that, at the time of forming the fold portion of the sheet, a resealable fastener is located on the sheet in a direction parallel to the edges of the sheet and in a position predetermined to be immediately below the mouths of the pouches wherein the resealable fastener comprises two interengaging closure strips in engaged position, each closure strip of which having a base portion, and in that the base portions of each of the two interengaging closure strips are, while the strips are engaged with each other, welded to the facing surfaces of the

sheet respectively in the fold portion, and wherein after welding of the resealable fastener the closure strips are disengaged from each other, the closure strips being made to engage with each other after the filling of the pouch and before forming the extended flap over the pouch.

The fastener is supplied in the form of two interengaging closure strips, supplied in the engaged position. Each strip is typically formed with a protrusion, designed to engage with the complimentary strip, and flanges extending from the sides of the protrusion. It is a requirement that the closure strips are introduced and fixed into position, whilst engaged, so as to ensure perfect alignment between the two complimentary strips to ensure resealability. Any misalignment between the two complimentary strips will act so as to prevent full re-closure of the fastener or render the resealing action unworkable by the user. It is also a requirement of the process to ensure the closure is in the unengaged position when the pouch reaches the filling position. Both these actions are achieved in the manner described below.

The pouch is formed in the manner described for a standard pouch, the resealable fastener, in its engaged position, being introduced into the forming process as the thermoplastic sheet is folded. The fastener is guided into the folded sheet into the position at which it is to be secured, i.e., immediately below what will become the mouth of the pouch, and the flanges of the closure strips are then welded to the pouch material in the correct position. Welding the fastener into the pouch while engaged ensures alignment is maintained between the complimentary strips. Care should be taken to ensure that the flanges from opposing complimentary closure strips do not become welded together. Subsequent to the closures being welded to the pouch material the material and closure strips may be chilled, by a cooling mechanism, so as to prevent stretching or puckering of the material, which may occur due to retained heat.

Subsequent to the fasteners being welded, and chilled if required, to the pouch material the closure strips which up to this point in time are

engaged together are disengaged, whilst maintaining the positioning of the complimentary strips relative to each other. The opposing closure strips are welded together using a high-energy method of welding, such as ultra-sonic welding, at fixed points along their lengths which points coincide with the positions at which the side welds, to form the pouches, will be made. These welds are generally of a similar width as the side welds and act to ensure proper location of the opposing closures by closing the closures at the point of the weld, and "crushing" the closure with the ultra-sonic weld, or similar high-energy weld. The use of an ultra-sonic weld, or similar high-energy weld, ensures the opposing closures are securely welded together, such that the weld will not break under normal use of the pouch, and also acts to produce a thin weld, which does not adversely affect the visual impact of the pouch. It is important to note that, at this point, the closure, welded into mouth of the pouch, is in the unengaged position, and that the closure has to remain generally unengaged for the remainder of the forming and filling process. Also note that the ultra-sonic weld is designed to extend slightly beyond the width of the fastener for reasons that will become apparent.

When the fastener has been welded in the position, relating to the width of the pouch, welds are made from the weld at the closure to the fold in the web, in the same manner as for the standard side weld. However, the side weld preferably does not extend to the same distance as the original weld, as the closure weld would cause adverse interference with side weld. Therefore, the side weld preferably welds from the fold in the web to immediately below the closure flanges, and acts to interfere with the extension of the closure weld below the flanges. This interference is important to ensure an airtight weld is maintained from the web fold to above the fastener. The guide strip used preferably extends throughout the pouch forming process up to the point the side welds are made, thus aiding with positive location and tracking of the closure and material.

The continuous web of formed pouches, with the resealable fastener secured into the mouths of the pouches, is cut down the centre of the weld to form individual pouches sealed at each side, the resealable fastener remaining generally open. Any partial closing of the fastener that may have occurred can be eliminated by a blast of compressed air aimed at the mouth of the pouch. The individual pouches are then filled, subsequent to all formation of the individual pouches, through the mouth of the pouch. Although the preferred application of the invention is in the production of resealable pouches of tobacco, it is possible to fill the pouches with different products, such as food products.

The above description does not preclude the side weld and cutting action occurring simultaneously to produce a very thin side seal whilst still producing a thin weld through the closure.

After deposition of the product into the pouch, the fastener is closed by means of pressure exerted onto the fastener. The pouch is preferably folded in a similar manner to that used in conventional pouch production; the first fold occurring between the filled pouch and the bottom of the fastener. The fastener is positioned such that the fold occurs in the same place as it does in a conventional pouch and hence does not affect the capacity of the pouch. A second fold of the flap around the base of the pouch can be made as in the conventional pouch.

CLAIMS

1. A method of producing resealable filled pouches comprising the steps of

 folding across part of its original width a length of thermoplastics sheet to produce a folded sheet having a fold portion running lengthways of the sheet having a folded edge which fold portion extends across part of the original width of the sheet and a non fold portion extending from the fold portion to the other edge of the sheet;

 in a direction at right angles to the folded edge and at regular intervals along the folded edge, welding the fold portion together to form individual pockets of equal size having welded wall edges along the length of the sheet;

 cutting the sheet, across the width of the sheet and along the line of the welds, to produce individual pouches each having a mouth, welded edges and an extended flap portion;

 filling each pouch, through its mouth, with desired contents and folding the extended flap over the mouth so as to form the flap around the pouch;

 characterised in that, at the time of forming the fold portion of the sheet, a resealable fastener is located on the sheet in a direction parallel to the edges of the sheet and in a position predetermined to be immediately below the mouths of the pouches wherein the resealable fastener comprises two interengaging closure strips in engaged position, each closure strip of which having a base portion, and in that the base portions of each of the two interengaging closure strips are, while the strips are engaged with each other, welded to the facing surfaces of the sheet respectively in the fold portion, and wherein after welding of the resealable fastener the closure strips are disengaged from each other, the closure strips being made to engage with each other after the filling of the pouch and before forming the extended flap over the pouch.

2. A method according to claim 1, wherein the thermoplastics sheet is a sheet of polyethylene.
3. A method according to either claim 1 or claim 2, wherein the sheet is a laminate of a thermoplastics material with one or more layers of similar or different thermoplastics material, a metalised or metal coated sheet material or a paper web.
4. A method according to any one of claims 1 to 3, wherein welding is carried out by ultra-sonic welding.
5. A method according to any one of claims 1 to 5, wherein the base of each of the closure strips is provided with one or more flanges.
6. A method according to claim 5, wherein the folded portion of the sheet is welded up to immediately below the flanges on the closure strip.
7. A method according to any one of claims 1 to 6, wherein the resealable fastener is cooled immediately following welding to the thermoplastic sheet.
8. A method according to any one of claims 1 to 7, wherein the extended flap of each individually formed pouch is folded over the pouch, after filling thereof, at a position between the filled pouch and the bottom of the fastener.
9. A method according to any one of claims 1 to 8, wherein the flap, after being folded over the mouth of the flap, is folded around the base of the pouch.
10. A method according to any one of claims 1 to 9, wherein the pouches are filled with tobacco.
11. A method according to any one of claims 1 to 10, wherein the thermoplastics sheet is supplied from a continuous reel.
12. A method according to any one of claims 1 to 11, wherein the thermoplastic sheet is folded such that the distance from the folded edge to the mouth of the pouch is equal to the distance from the mouth of the pouch to the edge of the extended flap.