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(54) **Title**: BREAKABLE CIGARETTE AND METHOD FOR ITS MANUFACTURE

(57) **Abstract**: A breakable cigarette (80) and a method for manufacturing a breakable cigarette are provided. The breakable cigarette (80) comprises a paper body (82) containing a tobacco roll (100) having at least two separate tobacco sections (102) positioned in end-to-end abutment in a breaking plane (104) so that essentially no tobacco strands span the breaking plane. The paper body in turn defines a line of weakness (108) intermediate its ends and lying in the breaking plane (104). The breakable cigarette (80) may be broken into two discrete cigarette portions (90) at the breaking plane, which, due to the presence of the break between the tobacco sections (102), result in two separately smokable cigarette portions (90) with no loose tobacco strands protruding from the broken end after breaking.

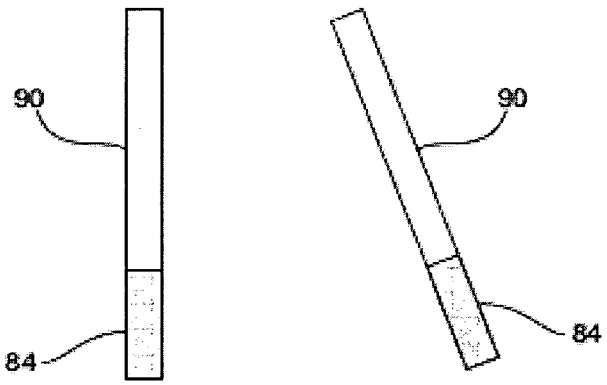

FIGURE 3

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BREAKABLE CIGARETTE AND METHOD FOR ITS MANUFACTURE

FIELD OF THE INVENTION

This invention relates to a breakable cigarette. In particular, the invention relates to a breakable cigarette and a method for its manufacture.

BACKGROUND TO THE INVENTION

A cigarette is broadly defined as a roll of tobacco capable of being smoked as it is and which is not a cigar or cigarillo; a roll of tobacco which, by simple non-industrial handling, is inserted into a cigarette-paper tube; or a roll of tobacco which, by simple non-industrial handling, is wrapped in smoking paper. Cigarettes and methods for their manufacture are widely known.

The length of the most commonly available cigarette including its filter, if one is provided, is approximately 83 millimetres, although cigarettes of different lengths are available. In the remainder of this specification a cigarette having a length of approximately 83 millimetres, including its filter, will be referred to as a "conventional length cigarette". Cigarettes that are longer than 83 millimetres are known, and are commonly referred to as king size cigarettes.

Cigarette boxes containing 30 cigarettes are often sold in differently shaped boxes. An example of a box (60) containing 30 cigarettes is shown in Figure 1. The box (60) is also rectangular but has a larger top (62) and bottom (64) and is flatter than a standard cigarette box described above. The top (62) and bottom (64) of the box (60) are attached along one, long edge (66), allowing the box to open in a hinged fashion. In the remainder of this specification a cigarette box as described here with reference to Figure 1 will be referred to as a "standard flat cigarette box". The dimensions of a standard flat cigarette box (l x d x w) are typically 122 x 20 x 87 millimetres.

The applicant is aware of United States patent publication number 2005/006134 to Wojcik ("Wojcik"), which relates to a breakable cigarette. The cigarette in Wojcik includes a tear line midway between its ends and possibly two additional tear lines, one at each filter attached at its ends. The cigarette in Wojcik can be broken at the tear line midway between its ends to provide two shorter cigarettes or may be smoked as a whole by breaking off one of the filters at the additional tear line.

The applicant is further aware of United States patent publication number 2004/0237977 to Nandram ("Nandram"), which relates to cigarette-type articles having filters attached at both ends enabling them to be broken into two separate cigarettes that may be smoked individually. The cigarette articles may be broken at variable locations between the filters to produce cigarettes of varying length. The cigarettes in Nandram do not have a tear line as in Wojcik to facilitate the breaking thereof.

The applicant is still further aware of United States patent number 5,564,563 to Focke ("Focke"). Focke discloses, amongst others, a box for receiving a cigarette group, in particular dividable cigarettes. The box defines a cavity in its lid for storing a part-cigarette resulting from breaking a dividable cigarette into smaller, individually smokable cigarettes. The dividable cigarettes are preferably dividable at their centres and may include a weakened line in the smoking paper at which the cigarette may be divided.

The breakable cigarettes disclosed in each of the aforementioned patent and patent applications, however, suffer one major disadvantage in that the breaking of the cigarettes cannot and do not result in clean breaks. This is as a result of tobacco strands that inevitably span across the breaking zone. When the disclosed breakable cigarettes are broken, loose strands of tobacco inevitably protrude and fall from the broken ends. These loose strands, apart from giving a messy appearance to the cigarette, make it difficult to light the broken cigarette and also cause a potential burn risk as

the loose strands may light up quickly and then fall from the tip of the cigarette while still smouldering. A breakable cigarette (1) in accordance with the disclosed patent and patent applications is shown in Figure 2. The cigarette (1) includes a cigarette rod (2) which comprises a tobacco roll wrapped in smoking paper (3). In the most advance embodiment disclosed by the prior art, the smoking paper (3) includes a weakened line (4) on the paper alone at which the cigarette (1) may be broken in two, thus providing two individually smokable cigarette portions (5) each having its own filter (6). As can be seen from Figure 2, loose strands of tobacco (7) protrude from the non-filtered ends (8) of the cigarette portions (5) after breaking the cigarette (1), thus resulting in the messy appearance.

Due to restrictions that have been placed on smoking in the majority of countries around the world, the time a smoker has to smoke a cigarette may be limited. A smoker may therefore wish to smoke a shorter than conventional length cigarette in some circumstances. Cigarettes have, however, become an expensive commodity due to, amongst other factors, import duties that are imposed on them by the majority of countries around the word. These duties are normally levied on a per cigarette basis. As a result smokers cannot afford to waste cigarettes or to only smoke portions of cigarettes and discard the remainders thereof. If a cigarette is only partially smoked and then extinguished, the unsmoked tobacco remaining in the cigarette can develop an unpleasant taste when the cigarette is re-lit at a later stage and smoked further. The odour that a partially smoked cigarette gives off can also be very unpleasant to the smoker if carried on his or her person, not to mention to non-smokers with whom the smoker interacts.

It is therefore very desirable to produce a cigarette that is breakable into at least two individually smokable cigarette portions. More importantly, it is desirable that the breaking of such cigarettes result in neat, cleanly broken portions that do not have tobacco strands protruding or falling from their broken ends.

United States patent number 4,483,349 entitled "Filter Cigarette Making Machine" in the name of Molins Limited ("Molins") discloses a cigarette filter attachment machine which includes a fluted drum which is arranged to receive double filters and double cigarette rods. A knife cuts the double cigarette rods through the middle to form smaller, separate cigarette rods and, with the aid of a further drum, the two smaller cigarette rods associated with each double filter are swopped in position so as to lie at opposite ends of the double filter, displacement of one of the cigarette rod portions being achieved preferably by displacing the associated double filter which in turn pushes the cigarette rod portion. The double cigarette rods may be delivered axially into the flutes of the first drum from a cigarette making machine, preferably after delivery of the double filters which can then serve as resilient buffers for the incoming double cigarette rods. The machine disclosed in Molins has been used extensively in cigarette production and, to the applicant's knowledge, is still being used today. It should be appreciated that the machine produces filtered cigarettes from double cigarette rods so that, after the double cigarette rods have been cut into smaller cigarette rods and the filters attached, the cut ends are positioned at the non-filtered ends thus providing cigarettes with neatly cut ends. The machine also provides a way of swopping the positions of two separate filtered cigarettes that are positioned end-to-end.

Machines capable of performing the functions of Molins and for making cigarettes in general are, however, expensive. It can therefore be assumed that machines capable of manufacturing cigarettes in accordance with the current invention will likewise be very expensive to manufacture. If breakable cigarettes in accordance with this invention are therefore to be manufactured it would be beneficial if currently available machines could be inexpensively adapted for this purpose.

In the remainder of this specification a cigarette in accordance with the invention will simply be referred to as a breakable cigarette and the smaller cigarettes resulting from breaking a breakable cigarette will be referred to as cigarette portions. Likewise, the term "tobacco roll" will refer to a roll of tobacco of an undefined length. A "cigarette rod", in turn, will refer to a tobacco roll which is wrapped in smoking paper.

OBJECT OF THE INVENTION

It is an object of this invention to provide a breakable cigarette and methods for its manufacture, which will at least partly alleviate the abovementioned problems.

SUMMARY OF THE INVENTION

In accordance with this invention there is provided a breakable cigarette comprising a paper body containing a tobacco roll, the cigarette being characterized in that the tobacco roll includes at least two separate tobacco sections positioned in end-to-end abutment in a breaking plane with essentially no tobacco strands spanning the breaking plane, and in that the paper body defines a line of weakness intermediate its ends and lying in the breaking plane, at which the cigarette may be split into two discrete cigarette portions.

A further feature of the invention provides for the tobacco roll to include more than two tobacco sections positioned in end-to-end abutment within the paper body with abutting ends between at least two adjacent tobacco sections lying in a breaking plane, and for the paper body to define a line of weakness corresponding with each breaking plane.

A still further feature of the invention provides for the breakable cigarette to include a filter attached co-axially with the body at an end thereof;

alternatively, two filters attached co-axially with the body, one at either end thereof.

The invention further provides a breakable cigarette comprising two cigarette rods in end-to-end abutment in a breaking plane, the cigarette being characterized in that the cigarette rods are joined end-to-end by means of a joining member, the joining member defining a breaking zone lying in the breaking plane.

Further features of the invention provide for the joining member to be a strip of smoking paper having perforations defining a line of weakness, the perforated strip of smoking paper being wrapped around the abutting ends of the cigarette rods with the line of weakness in alignment with the abutting ends forming the breaking zone; for the body to have a length not exceeding 90 millimetres; and for the length of the cigarette, including the body and two filters, to be such as to allow it to fit inside a standard flat cigarette box.

The invention further provides a method of manufacturing a breakable cigarette comprising the steps of cutting a tobacco roll into at least two separate tobacco sections; co-axially aligning the tobacco sections and positioning them in end-to-end abutment in a breaking plane; and wrapping the tobacco sections in a piece of smoking paper defining a line of weakness across it so that the line of weakness lies in the breaking plane, thus enabling the cigarette to be split into separate cigarette portions.

The invention still further provides a method of manufacturing a breakable cigarette, the method comprising the steps of co-axially aligning at least two cigarette rods in end-to-end abutment in a breaking plane and joining the aligned ends with a joining member defining a line of weakness such that the line of weakness lies in the breaking plane.

Further features of the invention provide for the step of joining the aligned ends of the cigarette rods to include joining them by means of a strip of paper defining the line of weakness; and for the method to include the steps of perforating the strip of paper to form the line of weakness and wrapping the strip of paper around the aligned ends of the cigarette portions at least once, thereby joining them together with the line of weakness positioned between or aligned with the joined ends.

The invention yet further provides a method of manufacturing a breakable cigarette, the method comprising the steps of cutting a double length cigarette rod into two cigarette rod sections; swopping the positions of the cigarette rod sections so that they are co-axially aligned with their cut ends directed away from each other; inserting a double length filter between the swopped cigarette rod sections; wrapping the double length filter and the ends of the cigarette rod sections adjacent the double length filter with tipping paper to create a double filtered double cigarette; and cutting the double filtered double cigarette midway along the double length filter to form two filtered cigarettes; the method being characterized in that it includes the steps of swopping the positions of the filtered cigarettes so that they are co-axially aligned with their non-filtered ends adjacent one another and joining the adjacent non-filtered ends of the filtered cigarettes with a strip of smoking paper.

Further features of the invention provide for the method to include the step of perforating the strip of paper so that it provides a line of weakness across it; and for the step of joining the adjacent non-filtered ends of the filtered cigarettes with a strip of smoking paper to include wrapping the strip of paper around the non-filtered ends at least once so that the line of weakness is positioned between or aligned with the joined ends, and securing it back onto itself.

The invention further provides a pack of cigarettes comprising a standard flat cigarette box having a long side and short side and containing breakable cigarettes according to the invention, orientated so that a longitudinal axis of each cigarette is parallel to the long side of the cigarette box.

Further features of the invention provide for each breakable cigarette to include a paper body containing a tobacco roll, the tobacco roll including at least two separate tobacco sections positioned in end-to-end abutment in a breaking plane with essentially no tobacco strands spanning the breaking plane, and the paper body defining a line of weakness intermediate its ends and lying in the breaking plane, at which the cigarette may be split into two discrete cigarette portions.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described, by way of example only, with reference to the accompanying representations in which:

Figure 1 is a perspective view of a standard flat cigarette box in accordance with the prior art;

Figure 2 is a side view of a breakable cigarette in accordance with the prior art before and after it has been split into cigarette portions;

Figure 3 is a side view of a breakable cigarette in accordance with the invention before and after it has been split into cigarette portions;

Figure 4 illustrates the sequence of events occurring during the manufacture of a breakable cigarette according to Figure 3.

Figure 5 is a breakable cigarette in accordance with an alternative embodiment of the invention including multiple tobacco sections and multiple breaking zones;

Figure 6 is a sequence illustrating the manufacture of the breakable cigarette of Figure 5 in accordance with a method of the invention;

Figure 7 is a side view of a breakable cigarette in accordance with a still further embodiment of the invention;

Figure 8 illustrates the sequence of events occurring during the manufacture of the breakable cigarette of Figure 7 in accordance with an alternative method of the invention;

Figure 9 illustrates a standard flat cigarette box containing breakable cigarettes in accordance with the invention.

DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

The prior art cigarette box shown in Figure 1 as well as the prior art breakable cigarette shown in Figure 2 are described in the background of the invention above and will accordingly not be described here.

In the embodiment of the invention shown in Figure 3, a breakable cigarette (80) is shown that includes a generally cylindrical tobacco filled paper body (82) (also referred to as a cigarette rod) and two cigarette filters (84) connected co-axially with the body (82), one at either end (86) thereof. The cigarette rod includes two separate sections of tobacco (not shown), abutting midway between the ends (86) of the cigarette. The tobacco has been severed so that essentially no tobacco strands span from one section to the

other. The body (82) has a line of weakness (88) midway between its ends (86) in alignment with the abutting ends of the tobacco sections, thus allowing the cigarette to be split in two at the line (88) thereby yielding two shorter cigarettes (90) (also referred to as cigarette portions), each having its own filter (84).

The tobacco roll (not shown) inside the body (82) was cut in a plane (92) prior to being wrapped in the paper body (82) so that tobacco strands on either side of the plane (92) do not span across it. The line of weakness (88) also lies in the plane (92) so that, when the cigarette is split, a clean break is accomplished with no tobacco strands being pulled from the open ends of either of the shorter cigarettes (90).

The external length of the body (82) is approximately 80 millimetres and the filters 20 millimetres each. This implies that the total length of the cigarette (80) is approximately 120 millimetres. It should be appreciated that this length enables the cigarette to fit into a standard flat cigarette box as shown in Figure 1, parallel to the long edge (66) of the box.

A method of manufacturing a breakable cigarette as shown in Figure 3 is illustrated in Figure 4. It should be appreciated that, even thought the cigarette of Figure 4 is shown without filters; such filters may be added to the breakable cigarette shown by conventional methods at one or both ends of the cigarette. An unwrapped tobacco roll (100) is shown at a stage (A). At stage (B), the tobacco roll (100) is cut into two separate tobacco sections (102). After cutting, the tobacco sections (102) abut on a breaking plane (104) so that essentially no tobacco strands span the breaking plane. A piece of smoking paper (106) having a line of weakness (108) across its width is then wrapped around the tobacco sections (102) at stage (C) so that the line of weakness (108) lies in the breaking plane (104). The breakable cigarette (110) thus formed is shown at stage (D), and can be split at the

breaking plane (104) coinciding with the line of weakness (108) into two separate cigarette portions (112).

It should be appreciated that the cutting of the tobacco roll could be achieved by any standard means such as by means of a blade or laser. It is also foreseeable that the cut may be achieved by means of a pulsing laser after the tobacco roll has been wrapped in the paper body, in which case the line of weakness on the paper body may be formed simultaneously. In the latter case the tobacco would be at least partly cut and although some tobacco strands may still span the breaking plane, the majority of strands will have been severed. It should also be appreciated that the method described here with reference to Figure 4 could be part of a continuous process, where a continuous length of tobacco roll is fed through the machine, cut at the required places and wrapped with smoking paper around the tobacco sections.

An alternative embodiment of a breakable cigarette in accordance with the invention is shown in Figure 5, in this embodiment, the breakable cigarette (120) includes a cigarette rod (122) (a cylindrical paper body containing a tobacco roll) and one cigarette filter (124) connected co-axially with the rod (122) at an end (126) thereof. The cigarette rod has three separate sections (130), abutting end-to-end in two breaking planes (128) between the ends (126) of the cigarette. A joining member (132), in the form of a strip of smoking paper, is wrapped around each pair of abutting ends of the cigarette rod sections (130) to join them together. Each joining member (132) also defines a line of weakness (134) which, after joining the cigarette rod sections together, lies in the breaking plane.

The breakable cigarette (120) may therefore be selectively broken at each breaking plane, thus giving the smoker the choice of smoking one, two or all three sections of the cigarette.

Steps involved in a method of manufacturing a breakable cigarette as shown in Figure 5 are illustrated in Figure 6. As before, it should be appreciated that even thought the breakable cigarette of Figure 5 is shown without filters in Figure 6; such filters may be added to the breakable cigarette shown by conventional methods at one or both ends of the cigarette. A cigarette rod (140) is shown at a stage (A). At stage (B), the cigarette rod (140) is cut into three separate cigarette rod sections (142) at two cut lines (144). After cutting, the cigarette rod sections (142) are positioned in end-to-end abutment, each pair of ends (146) abutting on a breaking plane as shown at stage (C). Two joining members (150) in the form of strips of smoking paper are then wrapped about the abutting ends (146) at stage (D), thereby joining the cut cigarette rod sections (142) together again. Each joining member (150) defines a line of weakness (152) across its length and is wrapped about the abutting ends (146) so that the line of weakness (152) lies in a breaking plane. The breakable cigarette (154) thus formed is shown at stage (D). The cigarette (154) may be broken at any one or both of the breaking planes, as the user prefers.

As before, it should be appreciated that the cutting of the cigarette rod could be achieved by any standard means such as by means of a blade or laser. It is also foreseeable that the cut may be achieved by means of a pulsing laser after the tobacco roll has been wrapped in the paper body, in which case the line of weakness on the paper body may be formed simultaneously. In the latter case the tobacco would be at least partly cut although some tobacco strands may still span the breaking plane. It is also foreseeable that the line of weakness in the joining members may be formed prior to wrapping by, for example, pulsed laser cutting, punching, pressing or the like. The line of weakness may also be in the form of a series of pressed indentations. It should also be appreciated that there is no limit to the number of cuts that can be made through the cigarette rod and that any number of cigarette rod sections may subsequently be rebound, thus allowing for a breakable cigarette having any number of breakable sections. The cuts through the

cigarette rod may also be made only partly therethrough. In which case the tobacco strands will be completely severed in a portion of the rod and spanning the breaking plane in another portion. Such a partial cut, while still resulting in superior breaking to the prior art, may allow for greater rigidity of the cigarette and may also ensure a more uniform dropping of burnt cigarette ash.

A still further embodiment of a breakable cigarette (160) in accordance with the invention is shown in Figure 7. A method of manufacturing a breakable cigarette in accordance with this embodiment will now be described with reference to Figure 8, which illustrates the sequence of events occurring during the manufacture of the breakable cigarette. At stage (A), a double length cigarette rod (162) is cut into two separate cigarette rod sections (164) by means of a cutting mechanism (not shown) along a cutting line (166). The positions of the cigarette rod sections (164) are then swopped at a stage (B), so that they are again aligned co-axially with their cut ends (168) directed away from each other. The tobacco rod portions are then separated at a stage (C) and a double length filter rod (170) is inserted between the cigarette rod sections (164). At this stage, the cigarette rod sections (164) and double filter rod (170) should be next to each other with little or no gaps between the various parts.

The double filter rod (170) and the ends of the cigarette rod sections next to it are then wrapped with tipping paper (172) at a stage (D) so as to join the double filter and the ends of the cigarette rod sections together. As is common practice in the industry, glue is applied to at least one end region of the tipping paper before the tipping paper is wrapped around the double filter and ends of the cigarette rod sections and glued back onto itself. The cigarette rod section/double filter/cigarette rod section combination at this stage forms a double filtered double cigarette (174). The double filtered double cigarette (174) is then cut into two separate, filtered cigarettes (176) at a stage (E). Up to this stage, the method for manufacturing the breakable

cigarette of Figure 7 corresponds to that disclosed in the prior art and, in particular, in Molins' patent referred to in the background section of this specification. The distinguishing features of the current invention are embodied in steps F and G, as described below.

At a stage (F), the positions of the two separate, filtered cigarettes (176) are again swopped around so that they are again co-axially aligned but this time with their non-filtered ends (178) adjacent one another. This may be done by any of the conventional methods known for swapping ends. The filtered cigarettes (176) are then joined to one another at stage (G) by wrapping a narrow strip of smoking paper or any other joining member (180), perforated across its length, around the adjacent, non-filtered ends. The perforations (182) on the strip of paper are orientated to form a line of weakness (184) positioned between the joined ends (178) of the filtered cigarettes (176) after wrapping. The described method therefore produces a single breakable cigarette (160) which may be broken into two, separately smokable, filtered cigarettes (176) at the line of weakness (184).

It should again be appreciated that the method described here with reference to Figure 8 could be part of a continuous process wherein a continuous length of cigarette rod is fed through the machine, cut at the required places, filters inserted, sections rotated and sections joined at the required places.

While not being a requirement of the current invention, it is foreseen that the double length cigarette rod (162) may be approximately 90 millimetres long, thereby providing two shorter than normal length cigarette portions (164) of approximately 45 millimetres each, after being cut.

It should be understood that the described method allows conventional cigarette making machines, as for example referred to in the background to the invention section, to be adapted by means of a few simple modifications and additions. The second swopping of the positions of the filtered cigarettes

(176) at stage (F) may, for example, be achieved by the same means used to swop the positions of the cigarette rod sections (164) at stage (B), a function which is already performed in conventional prior art machines. Likewise, the machine used in known machines for joining the double filter and separated tobacco rod portions with tipping paper at stage (D), could be adapted to also join the filtered cigarettes (176) at stage (G), but this time using perforated smoking paper.

It should be understood that numerous variations may be made to the embodiment of the method described above without departing from the scope thereof. Indeed, that embodiment may be adapted by not performing the second swop at stage (F), but simply joining the filtered cigarettes (176) at their filtered ends. It is also foreseeable that the invention may be used to manufacture a breakable cigarette without filters.

In the box of breakable cigarettes (200) in accordance with the invention as shown in Figure 9, breakable cigarettes (202) are packed inside a standard flat cigarette box (204) having a long side (206) and short side (208). Each of the breakable cigarettes (202) comprises two separate sections of tobacco (not shown) in end-to-end abutment on a breaking plane so that no tobacco strands span the breaking plane. The cigarettes are orientated so that a longitudinal axis (210) of each cigarette is parallel to the long side (206) of the cigarette box (204).

It should be appreciated that the cigarette box shown in Figure 9 provides a very convenient packaging solution for smokers who wish to buy breakable cigarettes and smoke shorter than conventional length cigarettes.

The embodiments of the invention described above are by way of example only. Numerous changes and modifications may be made the embodiments without departing from the scope of the invention.

CLAIMS:

1. A breakable cigarette (80) comprising a paper body (82) containing a tobacco roll, the cigarette being characterized in that the tobacco roll includes at least two separate tobacco sections positioned in end-to-end abutment in a breaking plane (92) with essentially no tobacco strands spanning the breaking plane, and in that the paper body defines a line of weakness (88) intermediate its ends and lying in the breaking plane at which the cigarette may be split into two discrete cigarette portions (90).

2. A breakable cigarette as claimed in claim 1 in which the tobacco roll includes more than two tobacco sections positioned in end-to-end abutment within the paper body with abutting ends between at least two adjacent tobacco sections lying in a breaking plane, the paper body defining a line of weakness corresponding with each breaking plane.

3. A breakable cigarette as claimed in claim 1 or claim 2 which includes a filter (84) attached co-axially with the body at an end thereof.

4. A breakable cigarette as claimed in claim 1 or claim 2 which includes two filters (84) attached co-axially with the body, one at each end thereof.

5. A breakable cigarette (160) comprising two cigarette rods (176) in end-to-end abutment in a breaking plane, the cigarette being characterized in that the cigarette rods are joined end-to-end by means of a joining member (180), the joining member defining a breaking zone (184) lying in the breaking plane.

6. A breakable cigarette as claimed in claim 5 in which the joining member is a strip of smoking paper (180) having perforations defining a line of weakness (184), the perforated strip of smoking paper being wrapped around the abutting ends of the cigarette rods with the line of weakness in alignment with the abutting ends forming the breaking zone.

7. A cigarette as claimed in any one of the preceding claims in which the body has a length not exceeding 90 millimetres.

8. A cigarette as claimed in any one of the preceding claims in which the length of the cigarette, including the body and two filters, is such as to allow it to fit inside a standard flat cigarette box.

9. A method of manufacturing a breakable cigarette (110) comprising the steps of cutting a tobacco roll (100) into at least two separate tobacco sections (102); co-axially aligning the tobacco sections and positioning them in end-to-end abutment in a breaking plane; and wrapping the tobacco sections in a piece of smoking paper (106) defining a line of weakness (108) across it so that the line of weakness lies in the breaking plane, thus enabling the cigarette to be split into separate cigarette portions.

10. A method as claimed in claim 9 which is part of a continuous process.

11. A method of manufacturing a breakable cigarette (154) comprising the steps of co-axially aligning at least two cigarette rods (142) in end-to-end abutment in a breaking plane and joining the aligned ends (146) with a joining member (150) defining a line of weakness (152) such that the line of weakness lies in the breaking plane.

12. A method as claimed in claim 11 in which the step of joining the aligned ends of the cigarette rods includes joining them by means of a strip of paper defining the line of weakness.

13. A method as claimed in claim 12 which includes the steps of perforating the strip of paper to form the line of weakness and wrapping the strip of paper around the aligned ends of the cigarette portions at least once, thereby joining them together with the line of weakness positioned between or aligned with the joined ends.

14. A method of manufacturing a breakable cigarette (160) comprising the steps of cutting a double length cigarette rod (162) into two cigarette rod sections (164); swopping the positions of the cigarette rod sections so that they are co-axially aligned with their cut ends (168) directed away from each other; inserting a double length filter (170) between the swopped cigarette rod sections; wrapping the double length filter and the ends of the cigarette rod sections adjacent the double length filter with tipping paper (172) to create a double filtered double cigarette (174); and cutting the double filtered double cigarette midway along the double length filter to form two filtered cigarettes (176); the method being characterized in that it includes the steps of swopping the positions of the filtered cigarettes (176) so that they are co-axially aligned with their non-filtered ends (178) adjacent one another, and joining the adjacent non-filtered ends (178) of the filtered cigarettes with a strip of smoking paper (180).

15. A method as claimed in claim 14 which includes the step of perforating the strip of paper (180) so that it provides a line of weakness (182) across it; and in which the step of joining the adjacent non-filtered ends of the filtered cigarettes with a strip of smoking paper includes wrapping the strip of paper around the non-filtered ends at least once

so that the line of weakness is positioned between or aligned with the joined ends, and securing it back onto itself.

16. A pack of cigarettes (200) comprising a standard flat cigarette box (204) having a long side (206) and short side (208) and containing breakable cigarettes (202) as claimed in any one of claims 1 to 8 therein, orientated so that a longitudinal axis (210) of each cigarette is parallel to the long side of the cigarette box.

17. A pack of cigarettes as claimed in claim 16 in which each breakable cigarette includes a paper body containing a tobacco roll, the tobacco roll comprising at least two separate tobacco sections positioned in end-to-end abutment in a breaking plane with essentially no tobacco strands spanning the breaking plane, and the paper body defining a line of weakness intermediate its ends and lying in the breaking plane, at which the cigarette may be split into two discrete cigarette portions.

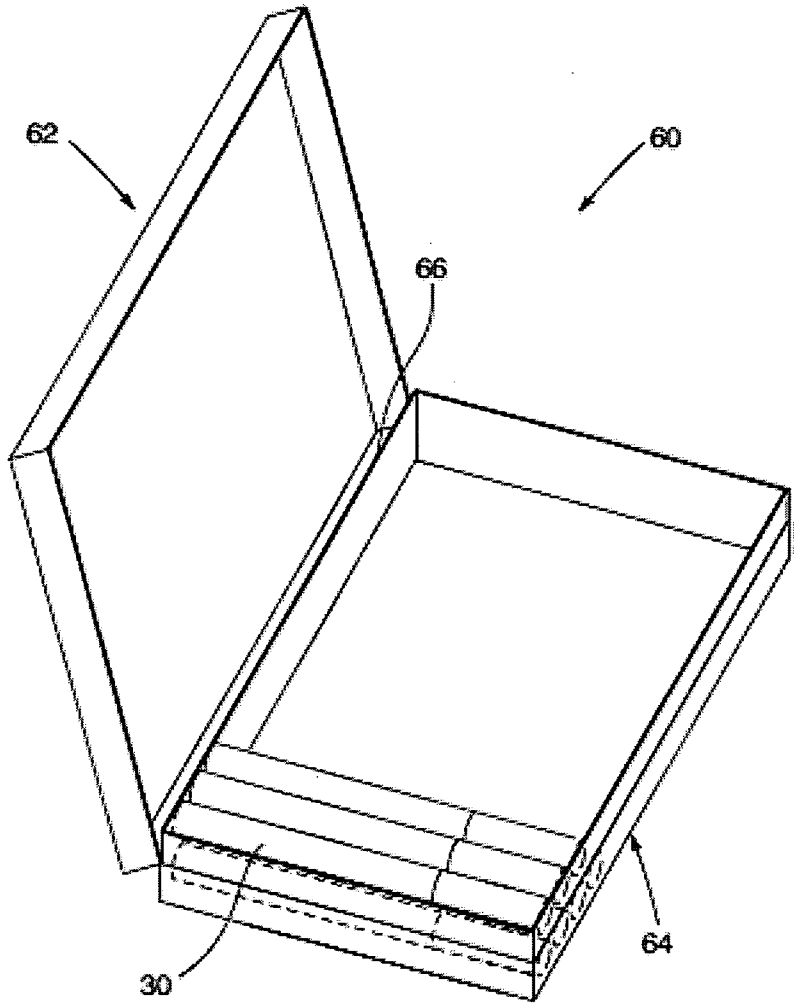

FIGURE 1

PRIOR ART

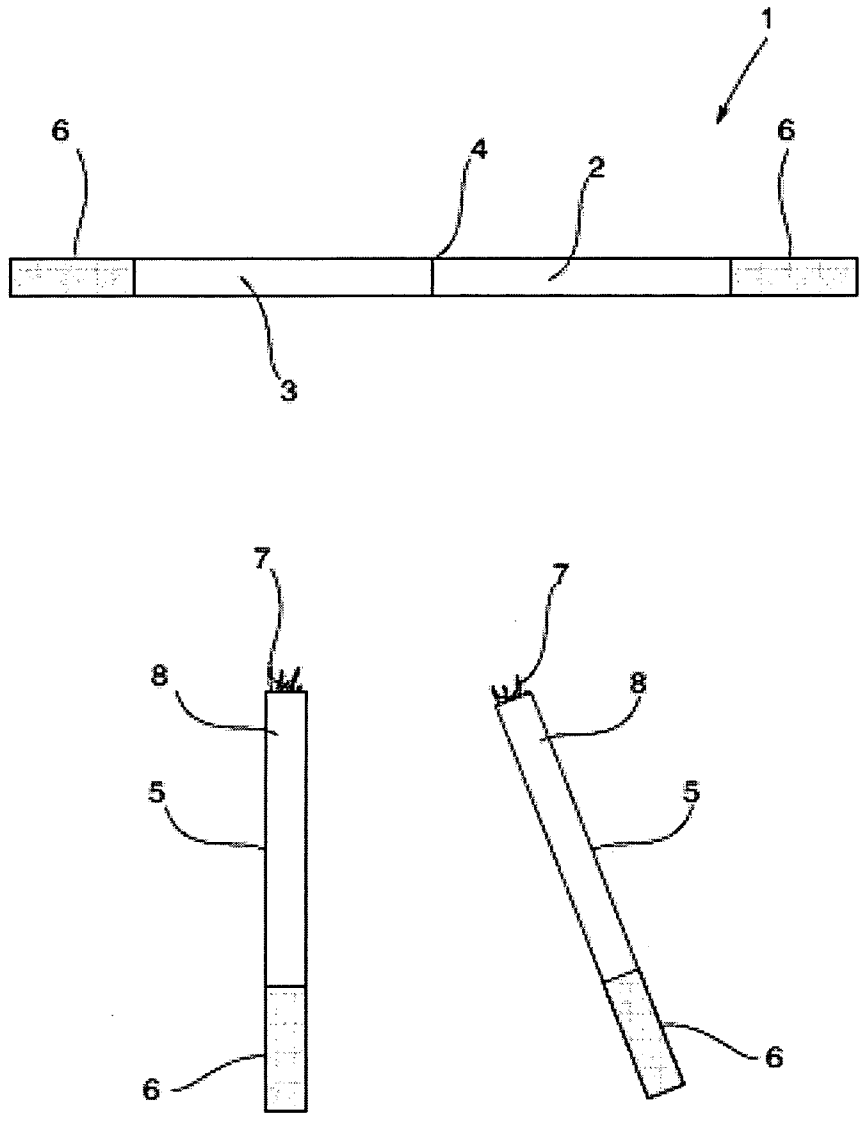

FIGURE 2

PRIOR ART

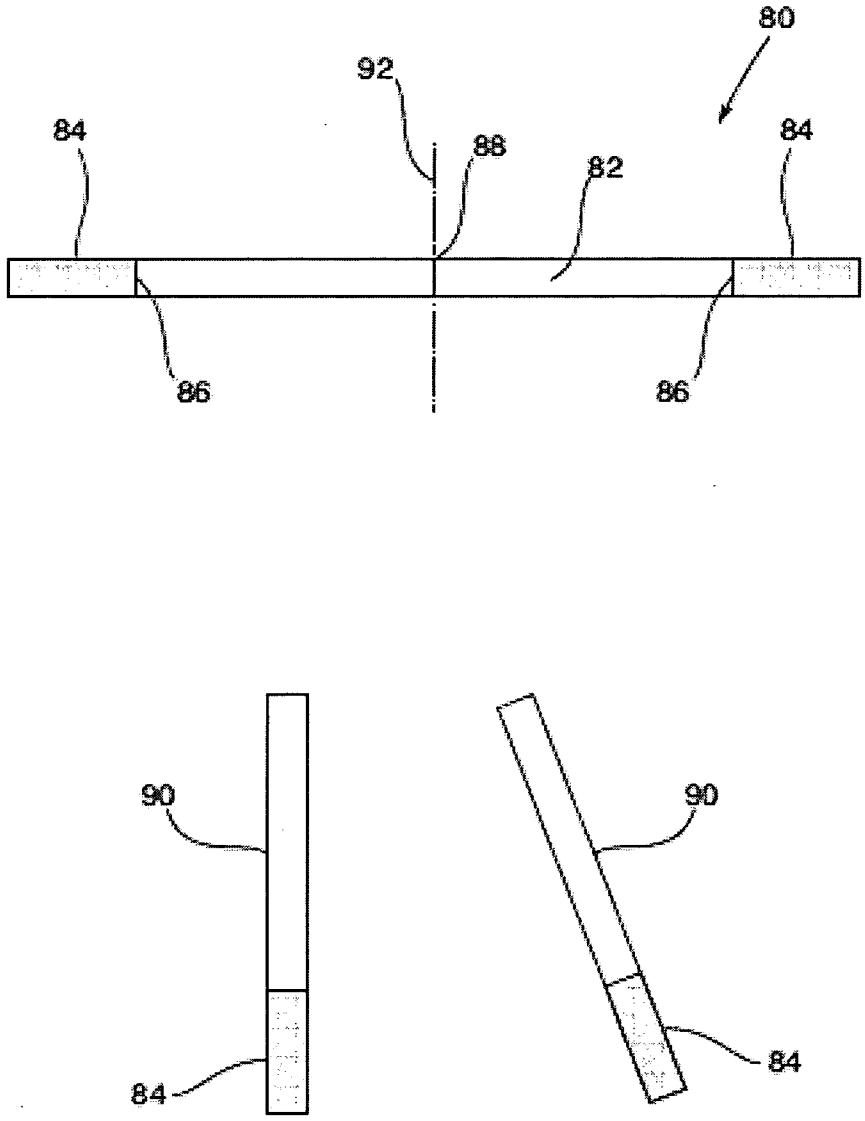

FIGURE 3

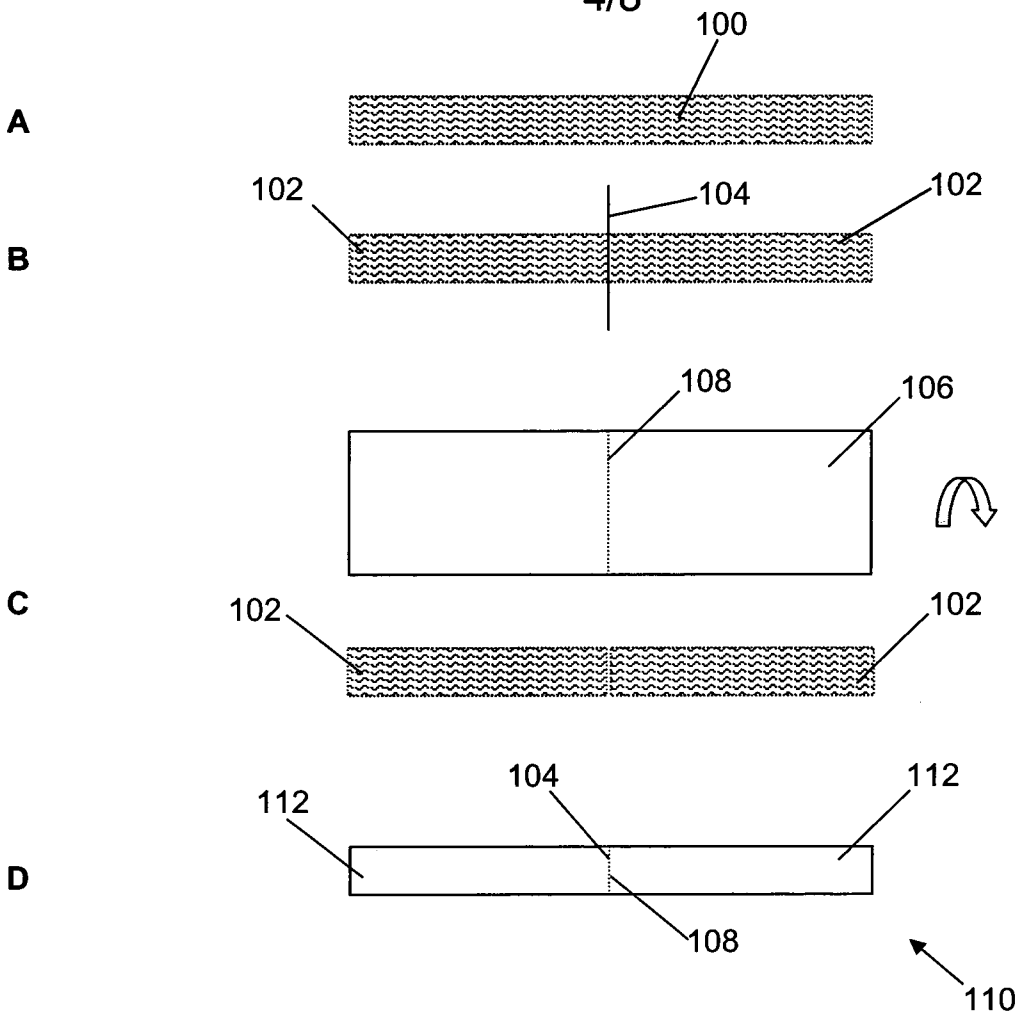

FIGURE 4

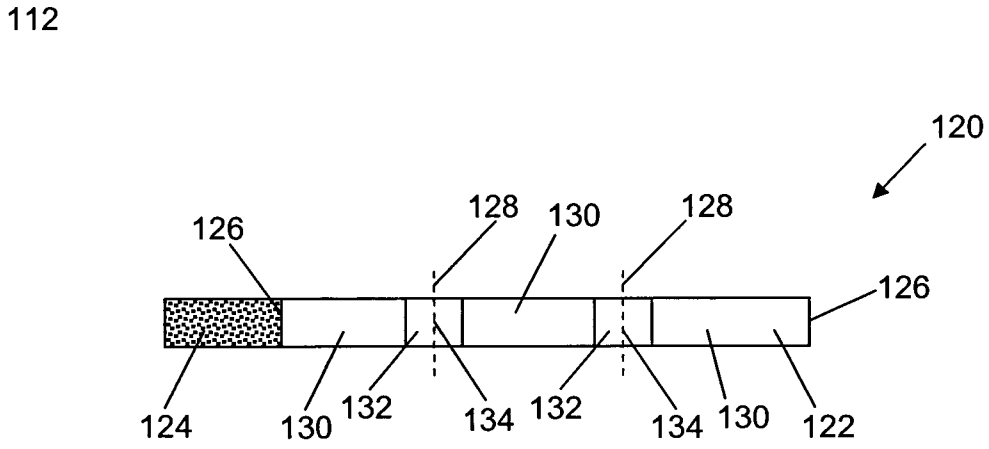

FIGURE 5

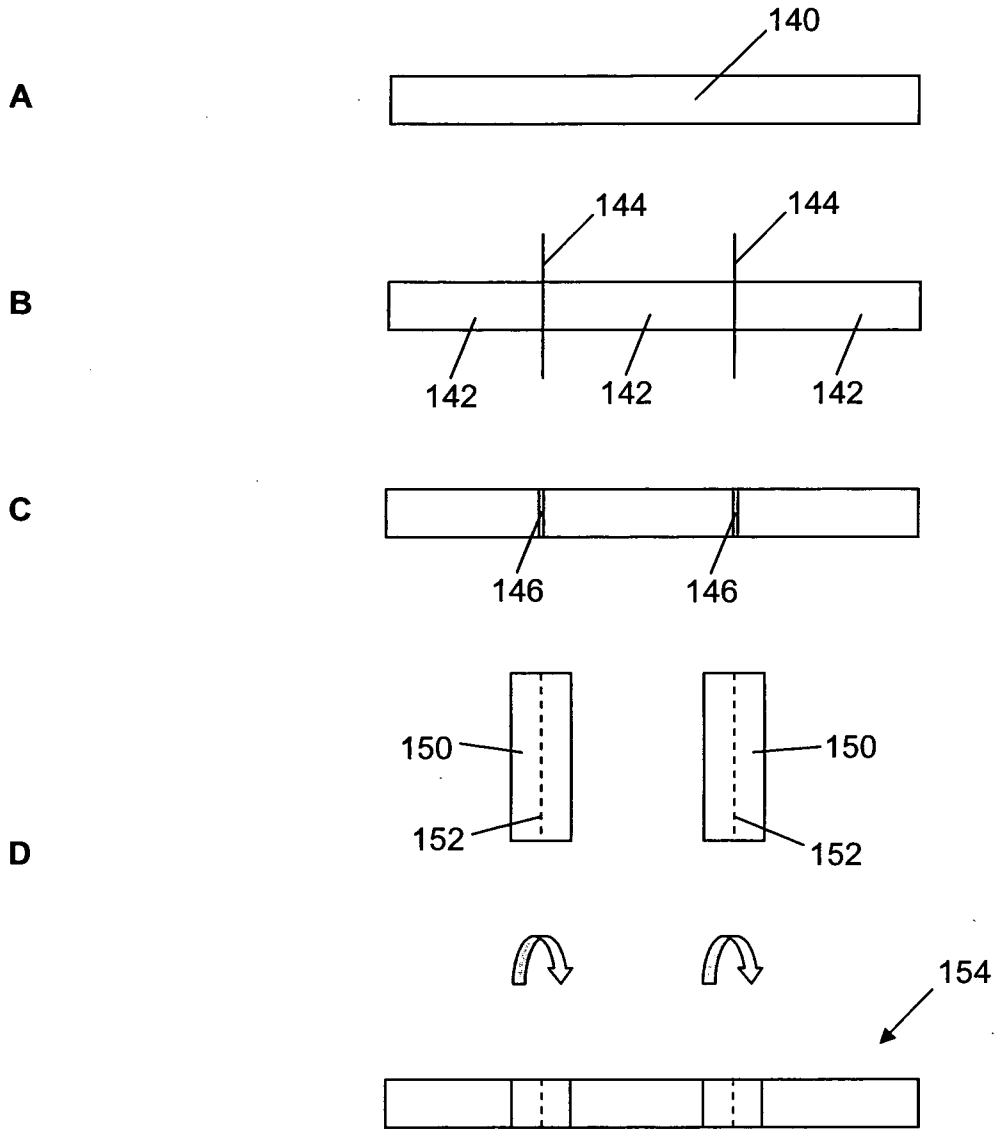

FIGURE 6

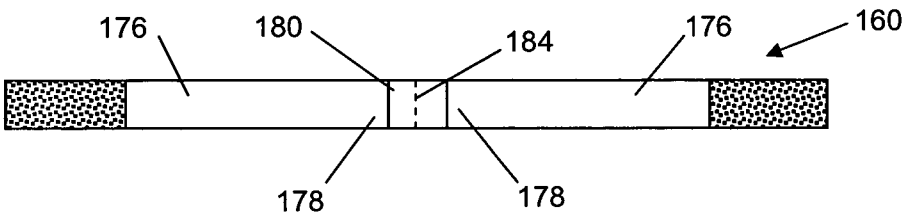

FIGURE 7

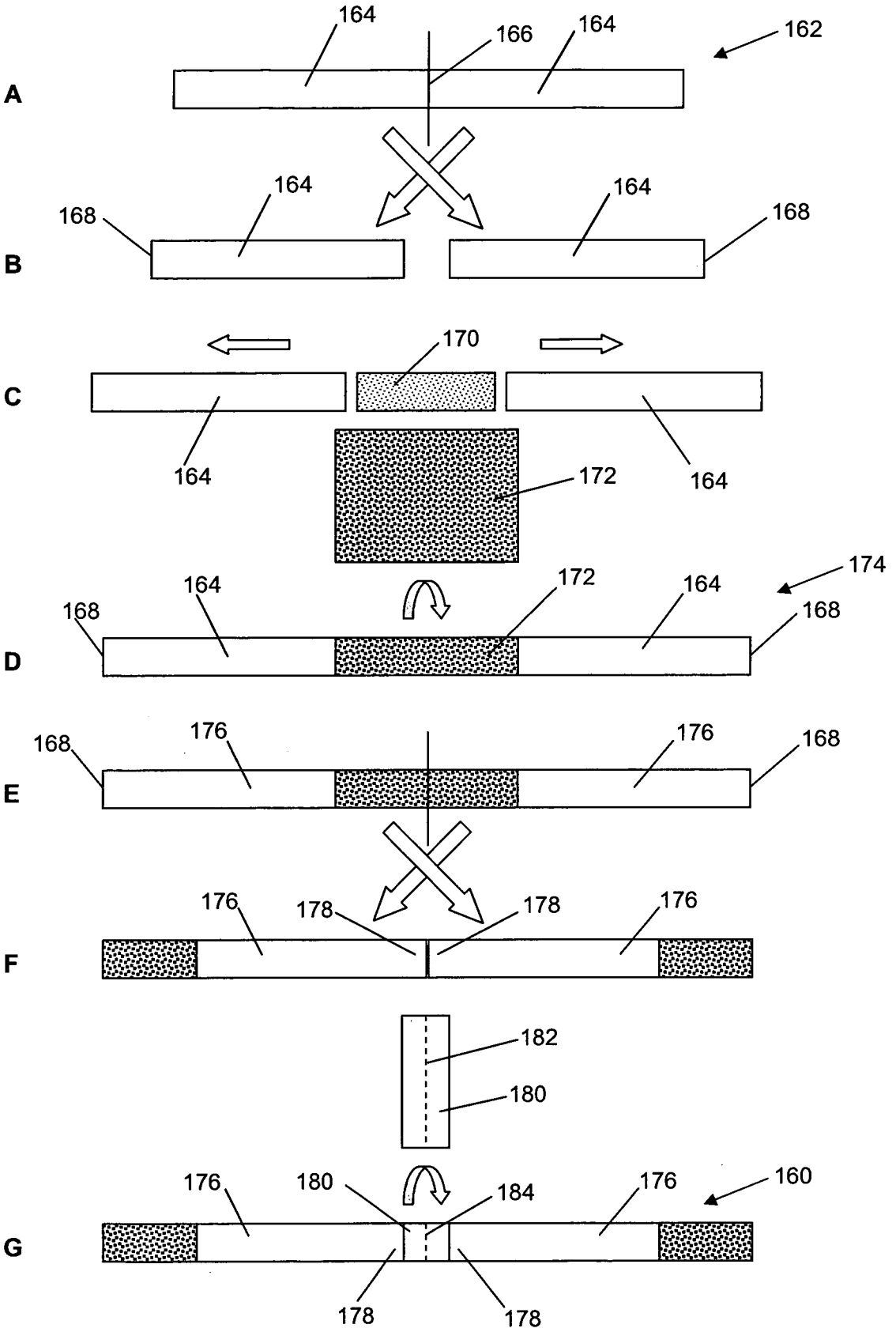
A
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FIGURE 8

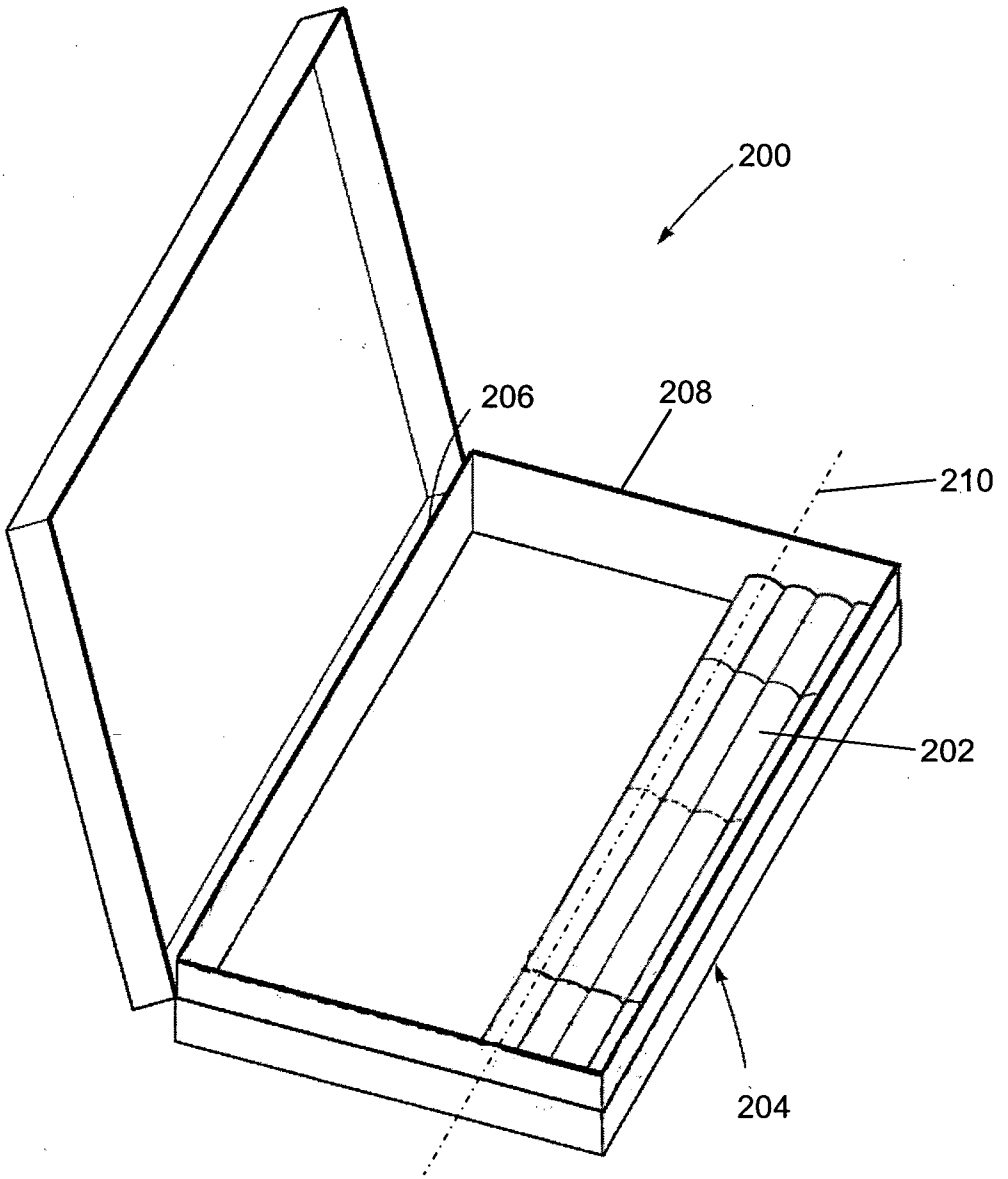

FIGURE 9

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
P1991PC00/EV		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IB2010/001018	4 May 2010	8 June 2009

Applicant

QUINLAN, Stephen John

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ The international application in the language in which it was filed.

☐ A translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II).

3. ☐ **Unity of invention is lacking** (See Box No. III).

4. With regard to the **title,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings,**

a. the figure of the **drawings** to be published with the abstract is Figure No. **3**

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2010/001018

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

A24D 1/04 (2006.01) *A24D 1/00 (2006.01)* *A24C 5/52 (2006.01)* *A24C 5/47 (2006.01)*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, EPODOC: IPC, ECLA A24C OR A24D & keywords: breakable, divisible, split, cigarette and like terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA2338831 A1 (HEMMINGS) 09 August 2002 Abstract, Figures 1-6	1-13, 16-17
X	US 2389104 A (BAUER et al.) 13 November 1945 Figures 1, 7, 8, 12	1-13, 16-17
A	US 2004/0237977 A1 (NANDRAM et al.) 2 December 2004 Abstract and Figures 1-2	1, 16
A	US 2005/0061340 A1 (WOJCIK) 24 March 2005 Abstract and Figures 1-2	1-13

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 July 2010	2 - AUG 2010
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer **SHUIWEI XIE** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : +61 2 6283 7942

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2010/001018

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2005/089576 A1 (MAIDA and MOLINARI) 29 September 2005 Abstract and Figures 1-7	1-13
A	US 4483349 A (DYETT et al.) 20 November 1984 Abstract and Figures 1-2	14, 15
A	DE 1105330 B (HAUNI WERKE KOERBER & CO KG) 20 April 1961 Figures 1-7 and accompanying descriptions	14, 15
A	EP 1493341 B1 (HAUNI MASCHINENBAU AG) 02 November 2006 Figures 1-2 and accompanying descriptions	14, 15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/IB2010/001018

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
CA	2338831	NONE					
US	2389104	NONE					
US	2004237977	NONE					
US	2005061340	CA	2456401				
WO	2005089576	NONE					
US	4483349	CH	644739	DE	3107315	FR	2476451
		GB	2073003	JP	56134981		
DE	1105330	NONE					
EP	1493341	CN	1575671				

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX