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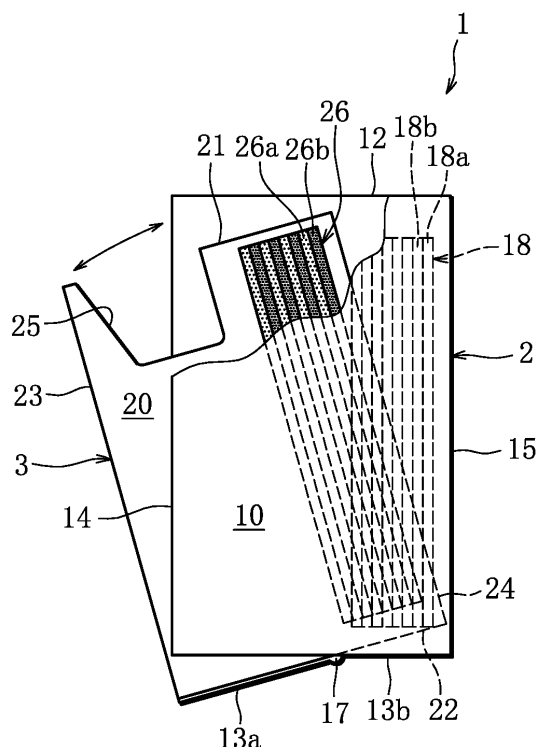
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(54) **PACKAGE**

(57) A package of the present invention includes: a cigarette box (1) which opens and closes and includes front walls (10, 20) of an outer case (2) and an inner case (3) that overlap with each other, the cigarette box (1) further including a removal opening (25) that is opened as a result of the inner case (3) sliding from a closed position to an open position with respect to the outer case (2) and thereby decreasing a degree of overlap between the respective front walls (10, 20); an outer-side magnetic pole group (19) provided on the front wall (10) of the outer case (2) and having an arrangement pattern including S poles (19a) and N poles (19b); and an inner-side magnetic pole group (26) provided on the front wall (20) of the inner case (3) and having an arrangement pattern in which, at the closed position, the positions of S poles (26a) and N poles (26b) are reversed relative to the arrangement pattern of the outer-side magnetic pole group (19).

FIG. 3



Description

Technical Field

[0001] The present invention relates to a package.

Background Art

[0002] Packages of various kinds which take into consideration the properties of articles are being developed as packages for housing articles. In a case where an article is, for example, a tobacco product such as a filter cigarette or a cigarette, a cigarette box is known as such a package. Packages used as cigarette boxes include a so-called "hinged lid type package" and "tongue lid type package", and further include a pull-out type package in which an inner box that is housed in an outer box is caused to swing around a self-hinge or to slide in a longitudinal direction or a lateral direction.

[0003] For example, a package described in Patent Document 1 has been proposed as one form of such a package. The package described in Patent Document 1 is a hinged lid type package that includes a lid and a box main body, and the box main body operates in conjunction with an inner frame to form an opening portion, and the opening portion is opened and closed by the lid. In addition, in the aforementioned package, magnets are provided on a rear face at a lower portion of a front wall of the lid and on a front wall surface of the inner frame, and when the lid is closed, the pair of magnets come in contact to generate a closing attractive force with respect to the lid. Thus, according to Patent Document 1, a closed state realized by the lid is maintained by utilizing the closing attractive force of the magnets.

Prior Art Document

Patent Document

[0004] Patent Document 1: International Publication No. WO 2014/096427

Summary of the Invention

Problems to be solved by the Invention

[0005] However, in order to obtain a sufficient closing attractive force by means of a pair of magnets as described in Patent Document 1, it is necessary to adequately secure an area that is occupied by the magnets. On the other hand, for example, in a slide type package, in a case where a magnet is provided on a sliding contact face of an inner box and an outer box, respectively, because a closing attractive force continues to act during a period in which the magnets are overlapping with each other, the problem arises that operations to open and close the inner box cannot be performed smoothly.

[0006] An object of the present invention is to provide

a package in which, on the one hand, a closed state of a box can be adequately maintained, and on the other hand a lid or an inner box can be smoothly opened and closed.

Means for Solving the Problems

[0007] The aforementioned object is achieved by a package of the present invention, the package including:

a box which opens and closes and includes a fixed wall and a movable wall that overlap with each other, and further includes an opening portion that is opened as a result of the movable wall sliding from a closed position to an open position with respect to the fixed wall and thereby decreasing a degree of overlap between the fixed wall and the movable wall, a fixed-side magnetic pole group provided on the fixed wall and having an arrangement pattern including an S pole and an N pole, and a movable-side magnetic pole group provided on the movable wall and having an arrangement pattern in which, at the closed position, positions of an S pole and an N pole are reversed relative to the arrangement pattern of the fixed -side magnetic pole group; wherein:

when the movable wall is at the closed position with respect to the fixed wall, the fixed-side magnetic pole group and the movable-side magnetic pole group generate a closing attractive force that retains the movable wall at the closed position, and

when the movable wall is at a transient position between the closed position and the open position with respect to the fixed wall, the fixed-side magnetic pole group and the movable-side magnetic pole group generate a transient attractive force that is weaker than the closing attractive force by magnetic poles of a same polarity among the fixed-side magnetic pole group and the movable-side magnetic pole group partially overlapping with each other in accordance with the degree of overlap.

[0008] According to the above described package, when the movable wall is at the closed position with respect to the fixed wall, magnetic poles of different polarities overlap as a result of the arrangement patterns of S poles and N poles of the fixed-side magnetic pole group and the movable-side magnetic pole group being in a reverse relation with respect to each other. Therefore, the fixed-side magnetic pole group and the movable-side magnetic pole group attract each other by magnetic force across the entire area, and this attractive force becomes a closing attractive force that retains the movable wall at the fixed wall, and a closed state of the box can be adequately maintained.

[0009] On the other hand, when the movable wall is at a transient position with respect to the fixed wall, the attractive force becomes a transient attractive force that is weaker than the closing attractive force as a result of magnetic poles of a same polarity among the fixed-side magnetic pole group and the movable-side magnetic pole group partially overlapping with each other in accordance with the degree of overlap between the fixed wall and the movable wall. Therefore, opening and closing of the box can be performed with ease.

Advantageous Effects of the Invention

[0010] According to the package of the present invention, a closed state of a box can be adequately maintained, and smooth opening and closing of the box can be performed.

Brief Description of the Drawings

[0011]

FIG. 1 is a perspective view illustrating a cigarette box of a first embodiment.

FIG. 2 is a front view of the cigarette box shown in FIG. 1 when the cigarette box is in a closed state.

FIG. 3 is a front view of the cigarette box shown in FIG. 1 when the cigarette box is in an open state.

FIG. 4 is a view illustrating an inner blank for forming an inner case shown in FIG. 1.

FIG. 5 is a view illustrating an outer blank for forming an outer case shown in FIG. 1.

FIG. 6 is a front view of a cigarette box as a comparative example.

FIG. 7 is a view illustrating the relation between a degree of opening of the cigarette box and an attractive force in the comparative example.

FIG. 8 is a view illustrating the relation between a degree of opening of the cigarette box and an attractive force in the first embodiment.

FIG. 9 is a front view of a cigarette box according to a second embodiment when the cigarette box is in an open state.

FIG. 10 is a front view of a cigarette box according to a third embodiment when the cigarette box is in an open state.

FIG. 11 is a view for describing a positional relationship between an outer-side magnetic pole group and an inner-side magnetic pole group in accordance with a degree of opening of an outer case shown in FIG. 10.

FIG. 12 is a perspective view of a cigarette box according to a fourth embodiment.

FIG. 13 is a front view of a cigarette box of a first modification.

FIG. 14 is a front view of a cigarette box of a second modification.

Mode for Carrying out the Invention

[0012] A perspective view and front views of a cigarette box 1 as a package according to a first embodiment are illustrated in FIG. 1 to FIG. 3. The cigarette box 1 of the first embodiment is described hereunder based on these views.

[0013] The cigarette box 1 of the first embodiment has a double structure, and includes an outer case 2 (outer box) and an inner case 3 (inner box). The outer case 2 is formed in a rectangular parallelepiped shape, and has a front wall 10, a back wall 11, a top wall 12 and a bottom wall 13. In addition, the outer case 2 is opened over an entire area on one side face thereof to form a pull-out opening 14 through which the inner case 3 can be pulled out, and the other side face of outer case 2 forms a side wall 15.

[0014] The side wall 15 has a push window 16 at an upper portion thereof. The push window 16 partially exposes the inner case 3. The push window 16 can have an arbitrary shape. In the present embodiment, a top end of the push window 16 is formed in a triangular shape that protrudes toward the top wall 12, with the push window 16 formed in a pentangular shape overall.

[0015] As illustrated in FIG. 1, the bottom wall 13 of the outer case 2 has a self-hinge 17 at approximately the center thereof. The self-hinge 17 extends across the bottom wall 13, with the bottom wall 13 being partitioned by the self-hinge 17 into a movable base 13a positioned on the pull-out opening 14 side, and a fixed remaining portion 13b positioned on the side wall 15 side. The movable base 13a is not connected to either of the front wall 10 and the back wall 11 of the outer case 2, and rotation of the movable base 13a around the self-hinge 17 is allowed.

[0016] An outer-side magnetic pole group 18 (fixed-side magnetic pole group) is provided in a region on the side wall 15 side on the inner surface of the front wall 10 (fixed wall, outside wall) of the outer case 2. The outer-side magnetic pole group 18 has an arrangement pattern that includes S poles 18a and N poles 18b. Specifically, the S poles 18a and N poles 18b of the outer-side magnetic pole group 18 form strips that extend linearly along the longitudinal direction of the front wall 10. These strips are disposed so that magnetic poles that are different to each other are alternately arranged side-by-side along the width direction of the front wall 10, to thereby form the arrangement pattern of the outer-side magnetic pole group 18. In the present embodiment, the arrangement pattern of the outer-side magnetic pole group 18 has eight strips, with the S pole 18a arranged as the furthest strip on the side wall 15 side.

[0017] The inner case 3 is formed in a similar rectangular parallelepiped shape as that of the outer case 2, and is of a size that can be housed inside the outer case 2. That is, the inner case 3 also has a front wall 20, a back wall, a top wall 21 and a bottom wall 22, and these walls overlap with the front wall 10, the back wall 11, the

top wall 12 and the bottom wall 13 of the outer case 2, respectively. The inner case 3 also has two side walls 23 and 24. As shown in FIG. 2, when the inner case 3 is at a closed position in which the inner case 3 is completely housed inside the outer case 2, one outer side wall 23 blocks the pull-out opening 14 of the outer case 2, and the other inner side wall 24 overlaps with the side wall 15 of the outer case 2. At this time, one part of the inner side wall 24 is exposed through the push window 16 of the side wall 15 of the outer case 2.

[0018] As shown in FIG. 3, with respect to the outer case 2, the bottom wall 22 of the inner case 3 is bonded to only the movable base 13a of the outer case 2. Therefore, the inner case 3 is rotatable together with the movable base 13a around the self-hinge 17. Consequently, when a user pushes the inner side wall 24 of the inner case 3 through the push window 16 of the outer case 2, the inner case 3 rotates around the self-hinge 17 together with the movable base 13a, and one part of the inner case 3, that is, a portion on the outer side wall 23 side of the inner case 3, projects outward in the lateral direction from the pull-out opening 14 of the outer case 2.

[0019] Further, an inner-side magnetic pole group 26 (movable-side magnetic pole group) is provided in a region on the inner side wall 24 side on the outer surface of the front wall 20 (movable wall, inside wall) of the inner case. The inner-side magnetic pole group 26 has an arrangement pattern that includes S poles 26a and N poles 26b. Specifically, the inner-side magnetic pole group 26 has an arrangement pattern in which, when the inner case 3 is at the closed position as shown in FIG. 2, the arrangement of the S poles 26a and N poles 26b is opposite to the arrangement of the S poles 18a and N poles 18b of the arrangement pattern of the outer-side magnetic pole group 18 of the outer case 2. That is, the S poles 26a and N poles 26b of the inner-side magnetic pole group 26 also form strips that extend linearly along the longitudinal direction of the front wall 20, and these strips are disposed so that magnetic poles that are different to each other are alternately arranged side-by-side along the width direction of the front wall 20. The arrangement pattern of the inner-side magnetic pole group 26 has eight strips, with the N pole 26b arranged as the furthest strip on the inner side wall 24 side.

[0020] The inner case 3 houses an inner pack (not illustrated in FIG. 1 to FIG. 3) therein. The inner pack includes a bundle of articles for smoking that consist of filter cigarettes or cigarettes, and a wrapping material in which the bundle is wrapped.

[0021] In addition, the top wall 21 of the inner case 3 is opened at a region on the outer side wall 23 side, and the front wall 20 and the back wall of the inner case 3 each have an access notch in the respective upper edges thereof. These access notches are positioned on the outer side wall 23 side of the inner case 3, and form an approximately "U" shape that extends toward the bottom wall 22 of the inner case 3 from the upper edges of the corresponding walls. Together with the pull-out opening

14 formed in the top wall 21 of the inner case 3, these access notches form a removal opening 25 (opening portion) for taking out articles from inside the inner case 3.

[0022] FIG. 4 is a diagram illustrating the surface of an inner blank 30 for forming the inner case 3. FIG. 5 is a diagram illustrating a rear face of an outer blank 40 for forming the outer case 2. The blanks for the inner case 3 and the outer case 2 are described hereunder based on FIG. 4 and FIG. 5.

[0023] First, as shown in FIG. 4, the inner blank 30 includes a plurality of panels and flaps. Adjoining panels or adjoining flaps, or adjoining panels and flaps are marked off from each other by dashed folding lines.

[0024] Specifically, the inner blank 30 has a front panel 31, a bottom panel 32 and a rear panel 33 that are arranged side-by-side on a longitudinal axis line thereof. Inner bottom flaps 34 are connected to two side edges of the bottom panel 32, respectively. The panels 31, 32 and 33 are portions for forming the front wall 20, the bottom wall 22 and the back wall of the inner case 3, respectively, and the inner bottom flaps 34 form reinforcing members of the bottom wall 22.

[0025] Outer side flaps 35a and 35b are connected to the two side edges of the front panel 31, respectively. Inner side flaps 36a and 36b are connected to the two side edges of the rear panel 33, respectively. The outer and inner side flaps 35a and 36a on one side are portions for forming the outer side wall 23 of the inner case 3. The outer and inner side flaps 35a and 36a on the other side are portions for forming the inner side wall 24 of the inner case 3.

[0026] An approximately U-shaped access notch 37 is formed in a left half of the upper edge of the front panel 31 and a left half of a lower edge of the rear panel 33, respectively, as seen in FIG. 4. An outer top flap 38 and an inner top flap 39 are connected to the remaining portions on the upper edge and lower edge of the front panel 31, respectively. The outer top flap 38 and inner top flap 39 are portions for forming the top wall 21 of the inner case 3, and the aforementioned removal opening 25 is secured between the top wall 21 and the outer side wall 23. The removal opening 25 includes the access notches 37.

[0027] Further, the inner-side magnetic pole group 26 is provided at a portion on the inner side flap 35b on the front panel 31, that is, a right-side portion of the front panel 31 as seen in FIG. 4. Although a magnetic body that is magnetized in advance to have the aforementioned arrangement pattern of the S poles 26a and N poles 26b may be used as the inner-side magnetic pole group 26, preferably the inner-side magnetic pole group 26 is obtained by coating a magnetizable magnetic material on the relevant portion of the front panel 31 in advance, and thereafter forming the aforementioned arrangement pattern of S poles 26a and N poles 26b using a magnetizing apparatus such as a magnetizing roller. At such time, by using a magnetic body that serves as an isotropic magnet, a degree of freedom can be provided

with respect to magnetization directions at the time of magnetization, thereby facilitating magnetization during a packaging process. The width of the respective strips of the arrangement pattern of the S poles 26a and the N poles 26b is within a range of 0.1 mm to 5 mm, and preferably is within a range of 0.4 mm to 0.6 mm. By adopting such a range, a closing attractive force that is preferable for opening and closing operations can be generated.

[0028] Further, glue is applied at a predetermined location on the rear face of the aforementioned blank 30, and an inner pack IP is placed on the rear side of the front panel 31 of the blank 30. Thereafter, the blank 30, that is, the flaps and panels thereof, are folded inward in sequence around the inner pack IP, and the inner case 3 illustrated in FIGS. 1 to 3 is thereby formed. Note that, the side flaps 35a, 35b, 36a and 36b which form the outer side wall 23 and the inner side wall 24 of the inner case 3 are bonded in a state in which the side flaps 35a, 35b, 36a and 36b are superposed on each other, and the front panel 31 and the rear panel 33 are bonded to the inner pack IP.

[0029] As shown in FIG. 5, the outer blank 40 also includes a plurality of panels and flaps. Adjoining panels or adjoining flaps, or adjoining panels and flaps are marked off from each other by dashed folding lines.

[0030] Specifically, the outer blank 40 includes a side panel 41 at the center on a longitudinal axis line thereof. The side panel 41 is a portion for forming the side wall 15 of the outer case 2, and has the aforementioned push window 16 at an upper part thereof as seen in FIG. 5.

[0031] A front panel 42 and a rear panel 43 are connected to two side edges of the side panel 41, respectively. These panels 42 and 43 are portions for forming the front wall 10 and the back wall 11 of the outer case 2, respectively. An inner top flap 44 and an inner bottom flap 45 are connected to the upper edge and the lower edge of the side panel 41, respectively. The inner top flap 44 forms a reinforcing member of the top wall 12 of the outer case 2. The inner bottom flap 45 forms a reinforcing member of the bottom wall 13 of the outer case 2.

[0032] A folding flap 46 is connected to the other side edge of the front panel 42 and the rear panel 43, respectively. These folding flaps 46 are portions for forming a liner of the front wall 10 and the back wall 11 in the outer case 2.

[0033] An outer bottom flap 47 is connected to one part of the lower edge of the rear panel 43. The outer bottom flap 47 is positioned adjacent to the aforementioned inner bottom flap 45. An extension flap 48 is connected through the self-hinge 17 to a side edge of the outer bottom flap 47. The extension flap 48 extends along a remaining portion of the lower edge of the rear panel 43. The extension flap 48 is a portion for forming the movable base 13a that is one part of the bottom wall 13 in the outer case 2. The outer bottom flap 47 is a portion for forming the fixed remaining portion 13b of the bottom wall 13 of the outer case 2.

[0034] An intermediate bottom flap 49 is connected to

one part of the lower edge of the front panel 42. The intermediate bottom flap 49 is positioned adjacent to the inner bottom flap 45. Hence the inner bottom flap 45 is disposed so as to be sandwiched between the outer bottom flap 47 and the intermediate bottom flap 49. The respective bottom flaps 45, 47 and 49 have approximately the same shape and size as each other.

[0035] In addition, an inner top panel 50 is connected to the upper edge of the rear panel 43, and an outer top panel 51 is connected to the upper edge of the front panel 42.

[0036] The outer-side magnetic pole group 18 is provided at a portion on the side panel 41 side of the front panel 42, that is, a portion on the left side of the front panel 42 as seen in FIG. 5. The outer-side magnetic pole group 18 is obtained by coating a magnetizable magnetic material on the relevant portion of the front panel 42 in advance, and thereafter forming the aforementioned arrangement pattern of S poles 18a and N poles 18b using a magnetizing apparatus such as a magnetizing roller. Although a magnetic body that is magnetized in advance to have the aforementioned arrangement pattern of the S poles 18a and N poles 18b may be used as the outer-side magnetic pole group 18, preferably the outer-side magnetic pole group 18 is obtained by coating a magnetizable magnetic material on the relevant portion of the front panel 42 in advance, and thereafter forming the aforementioned arrangement pattern of S poles 18a and N poles 18b using a magnetizing apparatus such as a magnetizing roller. At such time, by using a magnetic body that serves as an isotropic magnet, a degree of freedom can be provided with respect to magnetization directions at the time of magnetization, thereby facilitating magnetization during a packaging process. The width of the respective strips of the arrangement pattern of the S poles 18a and the N poles 18b is within a range of 0.1 mm to 5 mm, and preferably is within a range of 0.4 mm to 0.6 mm. By adopting such a range, a closing attractive force that is preferable for opening and closing operations can be generated.

[0037] Further, glue is applied at a predetermined location on the rear face of the aforementioned outer blank 40, and thereafter the outer blank 40 is folded inward in accordance with a predetermined folding procedure to form the outer case 2 that houses the inner case 3.

[0038] In the case of the cigarette box 1 of the first embodiment that is described above, the cigarette box 1 is opened and closed by the inner case 3 rotating around the self-hinge 17 with respect to the outer case 2, that is, by side-swinging of the inner case 3.

[0039] According to the aforementioned cigarette box 1, as illustrated in FIG. 2, when the inner case 3 is at the closed position at which the inner case 3 is housed inside the outer case 2, the removal opening 25 of the inner case 3 is positioned on the inner side of the outer case 2, and thus the cigarette box 1 is in a closed state. At this time, the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 completely overlap so

that the external shapes thereof coincide. In this case, because the arrangement patterns of the S poles 18a and 26a and the N poles 18b and 26b of the respective magnetic pole groups 18 and 26 are opposite to each other, magnetic poles of different polarities overlap with each other. Consequently, the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 attract each other by magnetic force over the whole area, and this attractive force serves as a closing attractive force that retains the inner case 3 inside the outer case 2.

[0040] On the other hand, as illustrated in FIG. 3, when the inner case 3 is at an open position at which the inner case 3 projects outward from the outer case 2, the removal opening 25 of the inner case 3 is positioned on the outside of the outer case 2, and thus the state is an open state in which the cigarette box 1 is open. When the cigarette box 1 is in the open state, a user can take out an article for smoking from the inner pack through the removal opening 25 and can smoke the article for smoking that is taken out.

[0041] At such time, the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 are in a positional relationship in which the magnetic pole groups 18 and 26 intersect with each other as a result of rotation of the inner case 3, and thus the degree of overlap between the magnetic pole groups 18 and 26 changes. Specifically, the degree of opening of the inner case 3 with respect to the outer case 2 increases and the degree of overlap between the front wall 10 of the outer case 2 and the front wall 20 of the inner case 3 decreases, and in accompaniment therewith the degree of overlap between the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 also decreases. On the other hand, the region at which the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 are overlapping includes a portion at which magnetic poles of different polarities overlap with each other and generate an attractive force and a portion at which magnetic poles of the same polarity overlap with each other and generate a repulsive force. Thereby, since the attractive force between the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 is cancelled out by the repulsive force therebetween, when the inner case 3 is at a transient position between the closed position and the open position with respect to the outer case 2, the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 operate in conjunction to generate a transient attractive force that is weaker than the closing attractive force. Note that, the transient position does not include the closed position (fully closed) at which the inner case 3 is completely housed inside the outer case 2, but does include the open position (fully open) at which the inner case 3 is drawn out to the limit.

[0042] When the inner case 3 is pushed into the inside of the outer case 2 by the user, during the course of the inner case 3 transitioning from the open position to the closed position, the aforementioned weak transient at-

tractive force continues to act from the open state of the cigarette box 1 illustrated in FIG. 3 until reaching the completely closed position. Upon the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 matching entirely when the closed position is reached, a closing attractive force arises sharply and the closed state of the cigarette box 1 is maintained.

[0043] The relation between the degree of opening of the cigarette box and the attractive force will now be described in more detail.

[0044] FIG. 6 illustrates a cigarette box 1' as a comparative example. FIG. 7 illustrates a relational diagram representing the relation between a degree of opening and an attractive force in the comparative example.

[0045] As shown in FIG. 6, an inner case 3' slides in the width direction relative to an outer case 2' to thereby open or close the cigarette box 1' according to the comparative example. An outer-side magnetic pole group 18' is provided at a lower part of an inside surface of a front wall 10' of the outer case 2', and an inner-side magnetic pole group 26' is provided at a lower part of an outer surface of a front wall 20' of the inner case 3'. The outer-side magnetic pole group 18' includes four S poles 18a' and four N poles 18b' and the inner-side magnetic pole group 26' similarly includes four S poles 26a' and four N poles 26b'. The S poles 18a' and 26a' and N poles 18b' and 26b' extend linearly in the width direction of the cigarette box 1'. These magnetic poles form arrangement patterns in which mutually different magnetic poles are alternately arranged in the longitudinal direction of the cigarette box 1'. Specifically, in the arrangement pattern of the outer-side magnetic pole group 18', four each of the S poles 18a' and the N poles 18b' are adjacently arranged in an alternating manner from a bottom wall 13' toward a top wall 12'. On the other hand, in the arrangement pattern of the inner-side magnetic pole group 26', the arrangement of the S poles 26a' and the N poles 26b' is reversed relative to the arrangement pattern of the outer-side magnetic pole group 18', with four each of the N poles 26b' and the S poles 18b' being adjacently arranged in an alternating manner from a bottom wall 22' toward a top wall 21'.

[0046] When the inner case 3' is pulled out from the outer case 2' in the cigarette box 1' according to the comparative example, the degree of overlap between the outer-side magnetic pole group 18' and the inner-side magnetic pole group 26' decreases accompanying a decrease in the degree of overlap between the front wall 10' of the outer case 2' and the front wall 20' of the inner case 3'. However, in a region in which the outer-side magnetic pole group 18' and the inner-side magnetic pole group 26' are overlapping, magnetic poles that are of different polarities are all overlapping with each other and generate an attractive force. Accordingly, in the cigarette box 1' according to the comparative example as shown in FIG. 7, the attractive force between the outer-side magnetic pole group 18' and the inner-side magnetic pole group 26' increases or decreases in proportion to the

amount by which the inner case 3' is pulled out, that is, in proportion to the degree of opening.

[0047] In contrast, as shown in FIG. 8, in the case of the cigarette box 1 according to the first embodiment, at transient positions from the fully open position until the fully closed position, because the degree of overlap increases or decreases while the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 are intersecting, even though the transient attractive force between the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 does not become 0, the transient attractive force hardly increases until immediately prior to complete closing of the cigarette box 1. On the other hand, the attractive force increases sharply when the cigarette box 1 completely closes, and a closing attractive force composed of 100% of the attractive force arises.

[0048] The cigarette box 1 according to the first embodiment configured as described above can adequately maintain a closed state by means of the above described closing attractive force at a time of complete closing when the inner case 3 is completely housed inside the outer case 2. On the other hand, if the inner case 3 is drawn out even a little from inside the outer case 2 by pushing out the inner case 3 through the push window 16 or the like, the attractive force between the outer-side magnetic pole group 18 and the inner-side magnetic pole group 26 becomes a transient attractive force that is significantly decreased relative to the closing attractive force, and therefore pulling out and pushing in of the inner case 3 can be smoothly performed, and opening and closing of the cigarette box 1 can be performed with ease.

[0049] Next, FIG. 9 illustrates a front view of a cigarette box 61 as a package according to a second embodiment. The second embodiment is described hereunder based on FIG. 9.

[0050] As shown in FIG. 9, the cigarette box 61 of the second embodiment has a double structure, and includes an outer case 62 (outer box) and an inner case 63 (inner box). The cigarette box 61 opens and closes by the inner case 63 sliding relative to the outer case 62 in the width direction. In the cigarette box 61, a front wall 70 (fixed wall, outside wall), a back wall, a top wall 72, a pull-out opening 74, a side wall 75, and a push window of the outer case 62, as well as a front wall 80 (movable wall, inside wall), a back wall, a top wall 81, an outer side wall 83, an inner side wall 84 and a removal opening 85 of the inner case 63 are the same as in the cigarette box 1 of the first embodiment, and hence a detailed description of these parts is omitted here.

[0051] On the other hand, in the cigarette box 61 of the second embodiment, the respective bottom walls 73 and 82 of the outer case 62 and the inner case 63 are different from the bottom walls 13 and 22 of the first embodiment. The bottom wall 73 of the outer case 62 and the bottom wall 82 of the inner case 63 in the second embodiment are each a flat single surface, and slidably contact with each other.

[0052] The outer-side magnetic pole group 78 (fixed-side magnetic pole group) is provided at a lower portion region on the inner surface of the front wall 70 of the outer case 62. On the other hand, the inner-side magnetic pole group 86 is provided at a lower portion region on the outer surface of the front wall 80 of the inner case 63. The magnetic pole group 78 has an arrangement pattern that includes S poles 78a and N poles 78b, and the magnetic pole group 86 has an arrangement pattern that includes S poles 86a and N poles 86b. In these arrangement patterns, the S poles 78a and 86b and the N poles 78b and 86b form downwardly convex arcuate strips that extend in the width direction of the front walls 70 and 80. These strips are disposed so that mutually different magnetic poles are alternately arranged side-by-side along the longitudinal direction of the front walls 70 and 80, thereby forming the arrangement patterns of the respective magnetic pole groups 78 and 86. Further, the inner-side magnetic pole group 86 has an arrangement pattern in which the arrangement of the S poles 86a and N poles 86b is opposite to the arrangement of the S poles 78a and N poles 78b of the arrangement pattern of the outer-side magnetic pole group 78 when the inner case 63 is at a closed position. In the present embodiment, in the arrangement pattern of the outer-side magnetic pole group 78, the S pole 78a is arranged as the strip that is furthest on the bottom wall 73 side, and in the arrangement pattern of the inner-side magnetic pole group 86 the N pole 86b is arranged as the strip that is furthest on the bottom wall 82 side. The magnetic pole groups 78 and 86 have six strips, respectively. Note that, there is a slight gap between the N poles 78b and S poles 78a of the magnetic pole group 78, and between the N poles 86b and S poles 86a of the magnetic pole group 86.

[0053] The cigarette box 61 of the second embodiment that is described above is opened and closed by the inner case 63 sliding in the width direction relative to the outer case 62, that is, by side-sliding of the inner case 63.

[0054] According to the aforementioned cigarette box 61, when the inner case 63 is at a closed position at which the inner case 63 is housed inside the outer case 62, the removal opening 25 of the inner case 63 is positioned on the inner side of the outer case 2, and thus the cigarette box 61 is in a closed state. At this time, the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 completely overlap so that the external shapes thereof coincide. In this case, because the arrangement patterns of the S poles 78a and 86a and N poles 78b and 86b of the respective magnetic pole groups 78 and 86 are opposite to each other, magnetic poles of different polarities overlap with each other. Consequently, the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 attract each other by magnetic force over the whole area, and this attractive force serves as a closing attractive force that retains the inner case 63 inside the outer case 62.

[0055] On the other hand, as illustrated in FIG. 9, when the inner case 63 is at an open position at which the inner

case 63 projects out from the outer case 62, the removal opening 85 of the inner case 63 is positioned on the outside of the outer case 2, and thus the state is in an open state in which the cigarette box 61 is open. When the cigarette box 1 is in the open state, a user can take out an article for smoking from the inner pack through the removal opening 85 and can smoke the article for smoking that is taken out.

[0056] At such time, the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 are in an intersecting positional relationship as a result of the S poles 78a and 86a and the N poles 78b and 86b each forming an arcuate curve, and the degree of overlap between the magnetic pole groups 78 and 86 changes. Specifically, the degree of opening of the inner case 63 with respect to the outer case 62 increases and the degree of overlap between the front wall 70 of the outer case 62 and the front wall 80 of the inner case 63 decreases, and in accompaniment therewith the degree of overlap between the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 also decreases. On the other hand, the region at which the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 are overlapping includes a portion at which magnetic poles of different polarities overlap with each other and generate an attractive force and a portion at which magnetic poles of the same polarity overlap with each other and generate a repulsive force. Thereby, since the attractive force between the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 is cancelled out by the repulsive force therebetween, when the inner case 63 is at a transient position between the closed position and the open position with respect to the outer case 62, the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 operate in conjunction to generate a transient attractive force that is weaker than the closing attractive force.

[0057] When the inner case 63 is pushed into the inside of the outer case 62 by the user, during the course of the inner case 63 transitioning from the open position to the closed position, the aforementioned weak transient attractive force continues to act from the open state of the cigarette box 61 illustrated in FIG. 9 until reaching a completely closed position. Upon the outer-side magnetic pole group 78 and the inner-side magnetic pole group 86 matching entirely when the closed position is reached, a closing attractive force arises sharply and the closed state of the cigarette box 61 is maintained.

[0058] Similarly to the first embodiment, the cigarette box 61 according to the second embodiment configured as described above can adequately maintain the closed state by means of the above described closing attractive force at a time of complete closing when the inner case 63 is completely housed inside the outer case 62. On the other hand, if the inner case 63 is drawn out even a little from inside the outer case 62 by pushing out the inner case 63 through the push window or the like, the attractive force between the outer-side magnetic pole group 78 and

the inner-side magnetic pole group 86 becomes a transient attractive force that is significantly decreased relative to the closing attractive force, and therefore pulling out and pushing in of the inner case 63 can be smoothly performed, and opening and closing of the cigarette box 61 can be performed with ease.

[0059] Next, FIG. 10 illustrates a front view of a cigarette box as a package according to a third embodiment. The third embodiment is described hereunder based on FIG. 10.

[0060] As shown in FIG. 10, similarly to the cigarette box 61 of the second embodiment, a cigarette box 91 of the third embodiment has a double structure, and includes an outer case 92 (outer box) and an inner case 93 (inner box). The cigarette box 91 is opened or closed as a result of the inner case 93 sliding relative to the outer case 92 in the width direction. In the cigarette box 91, a front wall 100 (fixed wall, outside wall), a back wall, a top wall 102, a bottom wall 103, a pull-out opening 104, a side wall 105 and a push window of the outer case 92, as well as a front wall 110 (movable wall, inside wall), a back wall, a top wall 111, a bottom wall 112, an outer side wall 113, an inner side wall 114 and a removal opening 115 of the inner case 93 are the same as in the cigarette box 61 of the second embodiment, and hence a detailed description of these parts is omitted here.

[0061] In the cigarette box 91 of the third embodiment, an outer-side magnetic pole group 108 is provided at a lower portion region on the inner surface of the front wall 100 of the outer case 92, and an inner-side magnetic pole group 116 is provided at a lower portion region on the outer surface of the front wall 110 of the inner case 93. The magnetic pole group 108 has an arrangement pattern that includes S poles 108a and N poles 108b, and the magnetic pole group 116 has an arrangement pattern that includes S poles 116a and N poles 116b. In these arrangement patterns, the S poles 108a and 116a and the N poles 108b and 116b form linear strip that extend along the longitudinal direction of the front walls 100 and 110. These strips are disposed so that mutually different magnetic poles are alternately arranged side-by-side along the width direction of the front walls 100 and 110, to thereby form the arrangement patterns of the respective magnetic pole groups 108 and 116. Further, the inner-side magnetic pole group 116 has an arrangement pattern in which the arrangement of the S poles 86a and N poles 86b is opposite to the arrangement of the S poles 78a and N poles 78b of the arrangement pattern of the outer-side magnetic pole group 78. In the present embodiment, in the arrangement pattern of the outer-side magnetic pole group 108 the S pole 108a is arranged as the strip that is furthest on the side wall 105 side, and in the arrangement pattern of the inner-side magnetic pole group 116 the S pole 116a is arranged as the strip that is furthest on the outer side wall 113 side. The magnetic pole groups 108 and 116 include 12 strips, respectively.

[0062] Similarly to the cigarette box 61 of the second

embodiment, the cigarette box 91 of the third embodiment that is described above is opened and closed by the inner case 93 sliding in the width direction relative to the outer case 92, that is, by side-sliding of the inner case 93.

[0063] According to the above described cigarette box 91, when the inner case 93 is at a closed position at which the inner case 93 is housed inside the outer case 92, the removal opening 115 of the inner case 93 is positioned on the inner side of the outer case 92, and thus the cigarette box 91 is in a closed state. At this time, the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 completely overlap so that the external shapes thereof coincide. In this case, because the arrangement patterns of the S poles 108a and 116a and N poles 108b and 116b of the respective magnetic pole groups 108 and 116 are opposite to each other, magnetic poles of different polarities overlap with each other. Consequently, the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 attract each other by magnetic force over the whole area, and this attractive force serves as a closing attractive force that retains the inner case 93 within the outer case 92.

[0064] On the other hand, as illustrated in FIG. 10, when the inner case 93 is at an open position at which the inner case 93 projects out from the outer case 92, the removal opening 115 of the inner case 93 is positioned on the outside of the outer case 92, and thus the state is an open state in which the cigarette box 61 is open. When the cigarette box 91 is in the open state, a user can take out an article for smoking from the inner pack through the removal opening 115 and can smoke the article for smoking that is taken out.

[0065] At such time, the degree of opening of the inner case 93 with respect to the outer case 92 increases and the degree of overlap between the front wall 100 of the outer case 92 and the front wall 110 of the inner case 93 decreases, and in accompaniment therewith the degree of overlap between the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 also decreases. On the other hand, the region at which the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 are overlapping includes, in a stepwise manner depending on the degree of opening of the inner case 93 with respect to the outer case 92, a portion at which magnetic poles of different polarities overlap with each other and generate an attractive force, and a portion at which magnetic poles of the same polarity overlap with each other and generate a repulsive force.

[0066] More specifically, FIG. 11 is a view that illustrates the positional relationship between the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 in accordance with the degree of opening of the outer case 92 of the third embodiment. In FIG. 11, the outer-side magnetic pole group 108 is shown on the lower side and the inner-side magnetic pole group 116 is shown on the upper side, and the positional relationship between the respective S poles 108a and 116a and N

poles 108b and 116b is conceptually illustrated.

[0067] At a time when the inner case 93 is completely housed inside the outer case 92 and the cigarette box 91 is thus fully closed, a closing attractive force of 100% is generated by magnetic poles of different polarities overlapping with each other over the whole area of the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 as in the state illustrated in (a) of FIG. 11.

[0068] When the inner case 93 is pulled out slightly from the outer case 92, as in the state illustrated in (b) of FIG. 11, portions at which magnetic poles of different polarities overlap with each other and generate an attractive force and portions at which magnetic poles of the same polarity overlap with each other and generate a repulsive force arise in the region in which the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 are overlapping. As a result, the attractive force between the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 is cancelled out by the repulsive force, and hence the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 operate in conjunction to generate a transient attractive force that is weaker than the closing attractive force.

[0069] When the inner case 93 is pulled out further from the outer case 92 as shown in the state illustrated in (c) of FIG. 11, magnetic poles of different polarities overlap with each other in the region in which the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 overlap. At this time, since portions corresponding to two strips located at one end of each of the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 do not overlap, a transient attractive force (hereunder, this transient attractive force is referred to as a "retentive attractive force") is generated which is weaker than the closing attractive force in the state illustrated in (a), but is at least stronger than the attractive force in the state illustrated in (b) due to the absence of portions at which a repulsive force arises.

[0070] Thus, in the cigarette box 91 of the third embodiment, a retentive attractive force arises each time the inner case 93 is pulled out by a fixed amount that corresponds to two strips, and it is therefore possible to open and close the cigarette box 91 in stages. The retentive attractive force weakens as the amount by which the inner case 93 is pulled out increases, because the degree of overlap between the outer-side magnetic pole group 108 and the inner-side magnetic pole group 116 decreases.

[0071] In the cigarette box 91 according to the third embodiment configured as described above also, similarly to the first and second embodiments, a closed state can be adequately maintained by the closing attractive force at a time that the inner case 93 is completely housed inside the outer case 92 and the cigarette box 91 is fully closed. On the other hand, when the inner case 93 is drawn out by even a small amount from the outer case

92 by pushing out the inner case 93 through the push window or the like, the attractive force between the outer-side magnetic pole group 108 and the inner-side magnetic pole group 106 becomes a transient attractive force that is reduced relative to the closing attractive force, and pulling out and pushing in of the inner case 93 can be performed smoothly, and on the other hand a predetermined amount by which the inner case 93 has been pulled out can be maintained by the retentive attractive force.

[0072] Next, FIG. 12 is a perspective view of a cigarette box 121 as a package according to a fourth embodiment. The fourth embodiment is described hereunder based on FIG. 12.

[0073] As shown in FIG. 12, the cigarette box 121 of the fourth embodiment is a hinged lid type package. The cigarette box 121 includes a box main body 122 having an opening 122a in a top end, an inner frame 123 that extends upward relative to the box main body 122 and forms a removal opening 123a (opening portion) at a top end, and a lid 125 that is connected through a hinge 124 to the cigarette box 120. An inner pack IP is housed inside the cigarette box 121.

[0074] Specifically, the lid 125 is hinge-connected to a rear edge of the opening 122a in the box main body 122, and at an unshown closed position the lid 125 encompasses and covers the removal opening 123a of the inner frame 123, and at the open position illustrated in FIG. 12 the lid 125 opens the removal opening 123a. Accordingly, the inner frame 123 is not exposed to outside when the lid 125 is at the closed position, and when the lid 125 is at the open position the lid 125 exposes the inner frame 123 including the removal opening 123a.

[0075] The box main body 122 has a front wall 130, a back wall 131, a bottom wall 132 and side walls 133 and 134. The inner frame 123 has a front wall 140, and side walls 141 and 142 (fixed walls). The lid 125 has a front wall 150, a back wall 151, a top wall 152, and side walls 153 and 154 (movable walls).

[0076] An inner-side magnetic pole group 143 (fixed-side magnetic pole group) is provided at an upper portion region of the outer surface of one side wall 142 of the inner frame 123. The inner-side magnetic pole group 143 has an arrangement pattern that includes S poles 143a and N poles 143b. Specifically, the S poles 143a and N poles 143b of the inner-side magnetic pole group 143 form strips that extend rectilinearly along the depth direction of the side wall 142, and these strips are disposed so that different magnetic poles are alternately arranged side-by-side along the longitudinal direction of the side wall 142. In the case of the present embodiment, the arrangement pattern of the inner-side magnetic pole group 142 has four strips, with the S pole 143a arranged as the strip on the topmost side.

[0077] Further, an outer-side magnetic pole group 155 (movable-side magnetic pole group) is provided in an upper portion region of the inner surface of one side wall 154 of the lid 125. The outer-side magnetic pole group 155 also has an arrangement pattern that includes S

poles 155a and N poles 155b. Specifically, the outer-side magnetic pole group 155 has an arrangement pattern in which, when the lid 125 is at a closed position that is not illustrated in the drawing, the arrangement of the S poles 155a and the N poles 155b is the opposite to the arrangement of the S poles 143a and N poles 143b of the arrangement pattern of the inner-side magnetic pole group 143. That is, the S poles 155a and N poles 155b of the outer-side magnetic pole group 155 also form strips that extend rectilinearly along the depth direction of the side wall 154, and these strips are disposed so that different magnetic poles are alternately arrangement along the longitudinal direction of the side wall 154. In the case of the present embodiment, the arrangement pattern of the outer-side magnetic pole group 155 has four strips, with the N pole 155b arranged as the furthest strip on the top wall 152 side.

[0078] In the case of the cigarette box 121 of the fourth embodiment, the cigarette box 121 is opened and closed by the lid 125 rotating with respect to the box main body 122 around the hinge 124.

[0079] That is, in the cigarette box 121 of the fourth embodiment, when the lid 125 is at the closed position, the removal opening 123a of the inner frame 123 is positioned on the inner side of the lid 125, and thus the cigarette box 121 is in a closed state. At such time, the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 completely overlap with each other so that the external shapes thereof coincide. In this case, because the arrangement patterns of the S poles 143a and 155a and N poles 143b and 155b of the respective magnetic pole groups 143 and 155 are opposite to each other, magnetic poles of different polarities overlap with each other. Consequently, the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 attract each other by magnetic force over the whole area, and this attractive force serves as a closing attractive force that holds the lid 125 to the inner frame 123.

[0080] On the other hand, as illustrated in FIG. 12, when the lid 125 is at the open position, the removal opening 123a of the inner frame 123 is open, and thus the state is an open state in which the cigarette box 121 is opened. When the cigarette box 121 is in the open state, a user can take out an article for smoking from the inner pack IP through the removal opening 123a and can smoke the article for smoking that is taken out.

[0081] During a process in which the lid 125 is opened and closed, the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 are in an intersecting positional relationship as a result of the lid 125 rotating around the hinge 124, and the degree of opening of the lid 125 with respect to the inner frame 123 increases and the degree of overlap between the side wall 142 of the inner frame 123 and the side wall 154 of the lid 125 decreases, and in accompaniment therewith the degree of overlap between the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 also

decreases. Further, a region at which the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 overlap includes a portion at which magnetic poles of different polarities overlap with each other and generate an attractive force and a portion at which magnetic poles of the same polarity overlap with each other and generate a repulsive force. Consequently, the attractive force between the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 is cancelled out by the repulsive force therebetween, and when the lid 125 is at a transient position between the closed position and open position with respect to the inner frame 123, an attractive force that is generated is a transient attractive force that is weaker than the closing attractive force.

[0082] When the lid 125 is pushed downward by the user from the open state of the cigarette box 121 illustrated in FIG. 12, while the lid 125 is moving from the open position to the closed position, the aforementioned weak transient attractive force continues to act until reaching the completely closed position. Subsequently, upon the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 coinciding entirely when the closed position is reached, a closing attractive force arises sharply and the closed state of the cigarette box 121 is maintained.

[0083] The cigarette box 121 according to the fourth embodiment that is configured as described above can adequately maintain a closed state by means of the closing attractive force when the lid 125 is fully closed. On the other hand, if the lid 125 is opened even a little, because the attractive force between the inner-side magnetic pole group 143 and the outer-side magnetic pole group 155 becomes a transient attractive force that is significantly decreased relative to the closing attractive force, opening and closing of the lid 125 can be smoothly performed, and thus opening and closing of the cigarette box 121 can be performed with ease.

[0084] The present invention is not restricted to the above described embodiments, and various modifications are possible. For example, FIG. 13 illustrates a first modification in which magnetic pole groups are formed that are different to the magnetic pole groups in the above described embodiments.

[0085] A cigarette box 161 of the first modification illustrated in FIG. 13 is the same as the cigarette box 1 of the first embodiment with the exception of outer-side magnetic pole groups 162 and inner-side magnetic pole groups 163, and elements that are the same as in the cigarette box 1 of the first embodiment are assigned the same reference numerals as in the first embodiment and a description of such elements is omitted here.

[0086] The first modification differs from the first embodiment in the respect that the outer-side magnetic pole groups 162 and the inner-side magnetic pole groups 163 are formed in circular shapes.

[0087] Specifically, four outer-side magnetic pole groups 162 are provided on the outer surface of the front

wall 10 (fixed wall, outside wall) of the outer case 2. The four outer-side magnetic pole groups 162 are disposed side-by-side in the longitudinal direction in a region on the side wall 15 side of the front wall 10. Each of the outer-side magnetic pole groups 162 has an arrangement pattern in which S poles 162a and N poles 162b are alternately arranged side-by-side concentrically. In the case of the first modification, the arrangement pattern of each outer-side magnetic pole group 162 has four concentric circles in which the S pole 162a is arranged as a central circle.

[0088] Further, four of the inner-side magnetic pole groups 163 are provided on the inner surface of the front wall 20 (movable wall, inside wall) of the inner case 3.

The four inner-side magnetic pole groups 163 are disposed side by side in the longitudinal direction in a region on the side wall 15 side of the front wall 20. Each of the inner-side magnetic pole groups 163 has an arrangement pattern in which S poles 163a and N poles 163b are alternately arranged side-by-side concentrically. The arrangement of the S poles 163a and N poles 163b of this arrangement pattern is opposite to the arrangement of the S poles 162a and N poles 162b of the outer-side magnetic pole group 162. Further, in the case of the first modification, the arrangement pattern of each inner-side magnetic pole group 163 has four concentric circles in which the N pole 163b is arranged as a central circle.

[0089] In the cigarette box 161 of the first modification also, similarly to the first embodiment, when the inner case 3 is at the closed position with respect to the outer case 2, a closing attractive force that holds the inner case 3 at the closed position is generated between the outer-side magnetic pole groups 162 and the inner-side magnetic pole groups 163. Further, when the inner case 3 is at a transient position between the closed position and the open position, in accordance with the degree of overlap between the front wall 20 of the inner case 3 and the front wall 10 of the outer case, magnetic poles of the same polarity partially overlap with each other in a region in which the outer-side magnetic pole groups 162 and the inner-side magnetic pole groups 163 overlap, and generate a transient attractive force that is weaker than the closing attractive force. Thereby, similar advantageous effects as those of the above described first embodiment can be achieved.

[0090] The shape and number of the magnetic pole groups described above are not particularly limited. For example, as another shape, the S poles and N poles may be formed as wave-like strips. Further, for example, in the case of a cigarette box in which the inner case rotates with respect to the outer case around a self-hinge as in the first embodiment, the arrangement pattern of the respective magnetic pole groups may be a pattern in which the S poles and N poles are formed as strips that extend in the width direction of the front wall, and the strips are arranged side-by-side along the longitudinal direction of the front wall. In addition, the S poles and N poles of the magnetic pole group need not necessarily contact, and

each magnetic pole group may include a gap between each N pole and S pole as in the second embodiment.

[0091] The arrangement of the magnetic pole groups is also not limited to the arrangements in the above described embodiments and modification. For example, the circular shaped magnetic pole groups of the first modification may be randomly arranged on the relevant wall. Furthermore, although in the above described embodiments and modification a fixed wall or a movable wall on which a magnetic pole group is provided is a single fixed wall or a single movable wall, as in the case of the front walls of the outer case and inner case, respectively, and one side wall of the inner frame and the lid, respectively, the positions and numbers of fixed walls and movable walls is not limited thereto. For example, a magnetic pole group may be provided on not only the front wall of the outer case and inner case of the first embodiment, but also on the back wall of each case.

[0092] Further, magnetic pole groups as a stopper that maintains the cigarette box in an open state may also be provided in addition to the magnetic pole groups that generate a closing attractive force in the cigarette boxes of the above described embodiments and modification. For example, FIG. 14 illustrates a front view of a cigarette box 171 of a second modification in which second magnetic pole groups as a stopper are added to the cigarette box 61 of the second embodiment. Note that, in FIG. 14, elements that are the same as in the second embodiment are assigned the same reference numerals as in the second embodiment and a description of such elements is omitted here.

[0093] In the cigarette box 171 of the second modification, a second outer-side magnetic pole group 172 is provided on the inner surface of the front wall 70 of the outer case 62. Specifically, the second outer-side magnetic pole group 172 is provided at a central portion in the longitudinal direction in a region on the pull-out opening 74 side of the front wall 70. The second outer-side magnetic pole group 172 is formed in a circular shape, and has an arrangement pattern in which an S pole 172a and an N pole 172b are arranged side-by-side concentrically. In the second modification, the arrangement pattern of the second outer-side magnetic pole group 172 has two concentric circles in which the S pole 172a is arranged as the central circle.

[0094] On the other hand, a second inner-side magnetic pole group 173 is provided on the outer surface of the front wall 80 of the inner case 63. Specifically, the second inner-side magnetic pole group 173 is provided at a central portion in the longitudinal direction in a region on the inner side wall 84 side of the front wall 80. The second inner-side magnetic pole group 173 is also formed in a circular shape, and has an arrangement pattern in which an S pole 173a and an N pole 173b are concentrically disposed. The arrangement of the S pole 173a and N pole 173b of this arrangement pattern is opposite to the arrangement of the S pole 172a and N pole 172b of the second outer-side magnetic pole group 172.

The arrangement pattern of the second outer-side magnetic pole group 173 has two concentric circles in which the N pole 173b is arranged as the central circle.

[0095] In the cigarette box 171 of the second modification, when the inner case 63 is pulled out to a fully open position, the second outer-side magnetic pole group 172 and the second inner-side magnetic pole group 173 completely overlap so that the external shapes thereof coincide. As a result, a retentive attractive force that retains the open state of the cigarette box 171 arises between the second outer-side magnetic pole group 172 and the second inner-side magnetic pole group 173. On the other hand, if the inner case 63 is pushed inward even a little from the fully open position, the retentive attractive force weakens rapidly and the inner case 63 can be pushed inward smoothly.

Explanation of Reference Signs

[0096]

- 1, 61, 91, 121, 161, 171 Cigarette Box
- 2, 62, 92 Outer Case
- 3, 63, 93 Inner Case
- 10, 70, 100 Front Wall (Fixed Wall, Outside Wall)
- 15, 75, 105 Side Wall
- 19, 78, 108, 162 Outer-side Magnetic Pole Group (Fixed-side Magnetic Pole Group)
- 20, 80, 110 Front Wall (Movable Wall, Inside Wall)
- 23, 83, 113 Outer Side Wall
- 24, 84, 114 Inner Side Wall
- 25, 85, 115 Removal Opening (Opening Portion)
- 26, 86, 116, 163 Inner-side Magnetic Pole Group (Movable-side Magnetic Pole Group)
- 122 Box Main Body
- 123 Inner Frame
- 123a Removal Opening
- 125 Lid
- 142 Side Wall (Fixed Wall)
- 143 Inner-side Magnetic Pole Group (Fixed-side Magnetic Pole Group)
- 154 Side Wall (Movable Wall)
- 155 Outer-side Magnetic Pole Group (Movable-side Magnetic Pole Group)
- 172 Second Outer-side Magnetic Pole Group (Stopper)
- 173 Second Inner-side Magnetic Pole Group (Stopper)

Claims

1. A package comprising:

a box which opens and closes and includes a fixed wall and a movable wall that overlap with each other, and further includes an opening portion that is opened as a result of the movable

wall sliding from a closed position to an open position with respect to the fixed wall and thereby decreasing a degree of overlap between the fixed wall and the movable wall,
 a fixed-side magnetic pole group provided on the fixed wall and having an arrangement pattern comprising an S pole and an N pole, and
 a movable-side magnetic pole group provided on the movable wall and having an arrangement pattern in which, at the closed position, positions of an S pole and an N pole are reversed relative to the arrangement pattern of the movable-side magnetic pole group;
 wherein:

when the movable wall is at the closed position with respect to the fixed wall, the fixed-side magnetic pole group and the movable-side magnetic pole group generate a closing attractive force that retains the movable wall at the closed position, and
 when the movable wall is at a transient position between the closed position and the open position with respect to the fixed wall, the fixed-side magnetic pole group and the movable-side magnetic pole group generate a transient attractive force that is weaker than the closing attractive force by magnetic poles of a same polarity among the fixed-side magnetic pole group and the movable-side magnetic pole group partially overlapping with each other in accordance with the degree of overlap.

2. The package according to claim 1, wherein the box comprises:

an outer box having an outside wall as the fixed wall; and
 an inner box which is housed in a withdrawable manner inside the outer box and which has the opening portion, and having, as the movable wall, an inside wall that overlaps with the outside wall, and in which the inside wall is positioned at the closed position when the inner box is housed in the outer box, and the inside wall is positioned at the open position when the inner box is pulled out from the outer box.

3. The package according to claim 2, wherein:

the box further comprises a hinge that connects a bottom of the outer box and a bottom of the inner box to each other; and
 the hinge allows rotation of the inner box in order to pull out the inner box from the outer box.

4. The package according to claim 3, wherein an ar-

rangement pattern of the fixed-side magnetic pole group and of the movable-side magnetic pole group is an arrangement pattern in which the S pole and N pole that are a plurality of strips are alternately arranged side-by-side.

5. The package according to claim 2, wherein the inner box slides in a width direction of the box to be pulled out from the outer box.

6. The package according to claim 5, wherein an arrangement pattern of the fixed-side magnetic pole group and of the movable-side magnetic pole group includes each of the S pole and N pole that are a plurality of curved strips that extend in the width direction of the box, and the strips are arranged side-by-side along a longitudinal direction of the box that intersects with the width direction of the box.

7. The package according to claim 5, wherein an arrangement pattern of the fixed-side magnetic pole group and of the movable-side magnetic pole group includes each of the S pole and N pole that are a plurality of strips that extend in a longitudinal direction of the box that intersects with the width direction of the box, and the strips are arranged side-by-side along the width direction of the box.

8. The package according to claim 1, wherein:

the box includes a box main body, an inner frame forming the opening portion that is not exposed at the closed position and is exposed at the open position, and a lid which is connected through a hinge to the box and which encompasses and covers the opening portion of the inner frame at the closed position and opens the opening portion at the open position;
 the fixed wall is a wall that forms the inner frame; and
 the movable wall is a wall of the lid that slidingly contacts the fixed wall of the inner frame.

9. The package according to claim 2, further comprising a stopper that magnetically couples the outer box and the inner box when the inside wall is at the open position.

FIG. 1

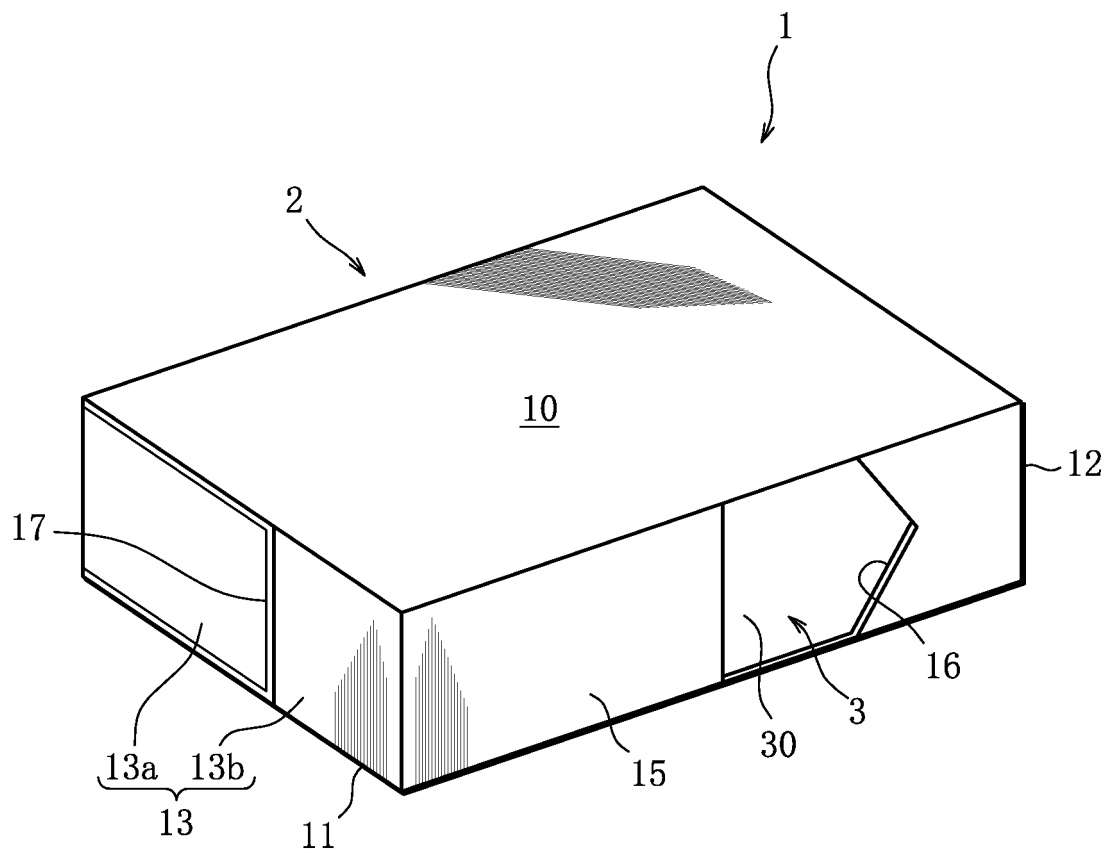


FIG. 2

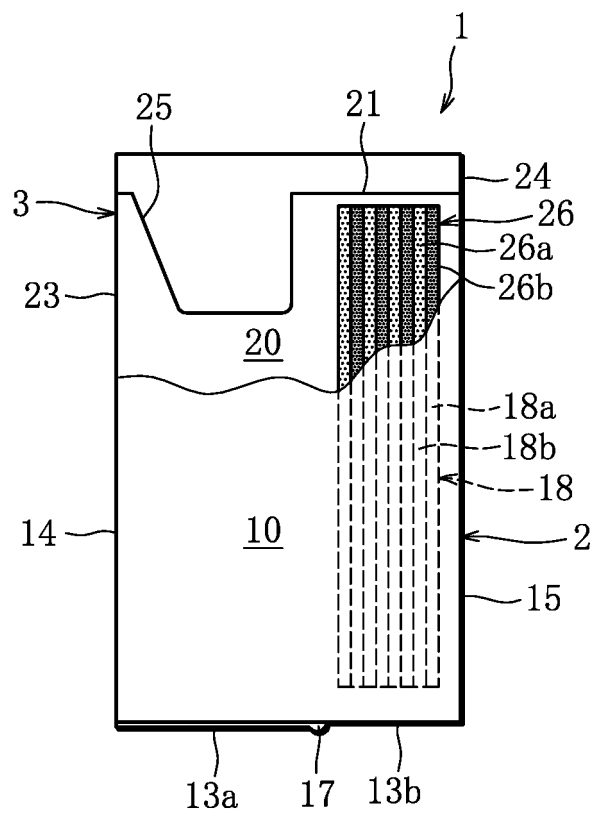


FIG. 3

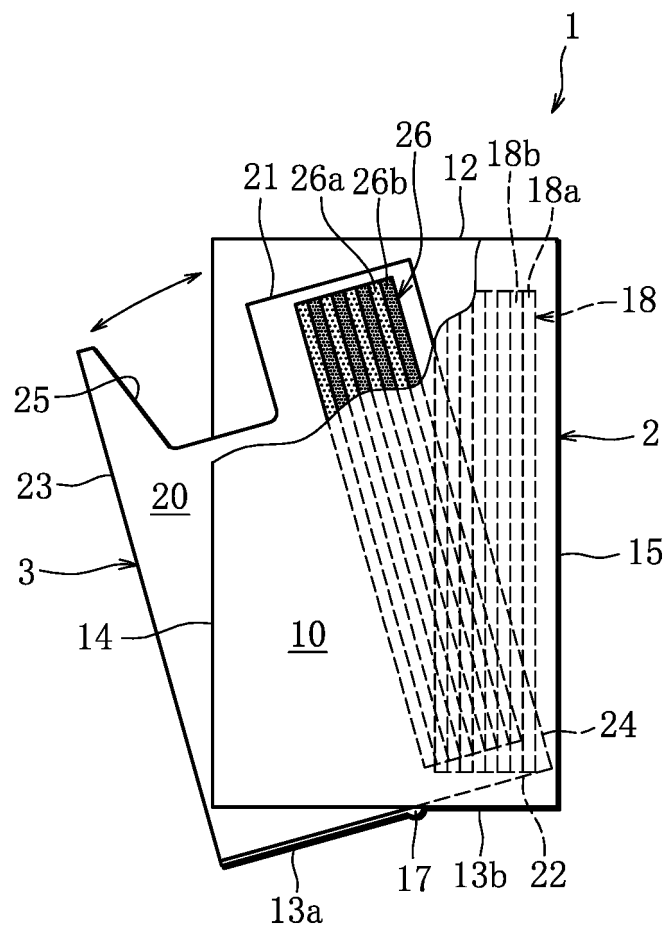


FIG. 4

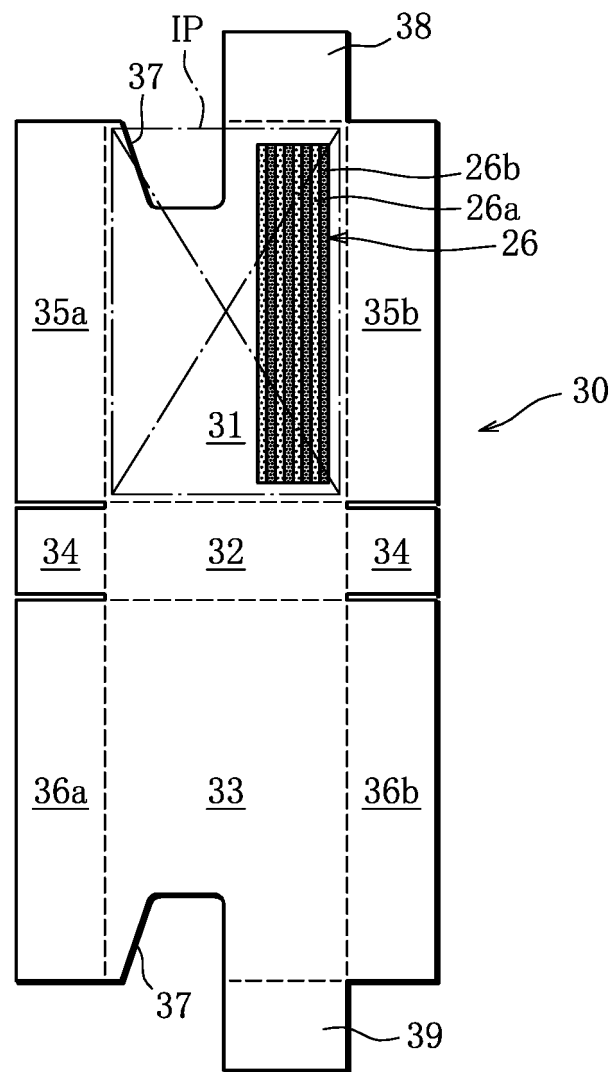


FIG. 5

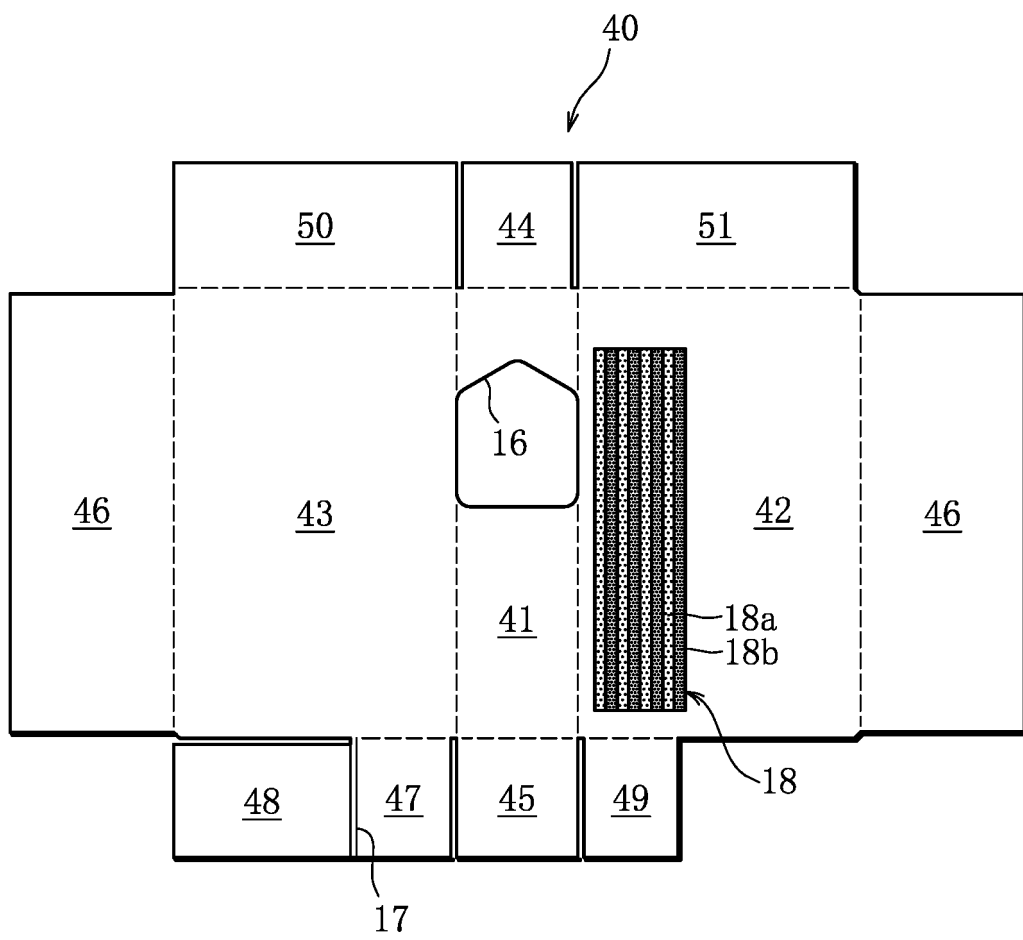


FIG. 6

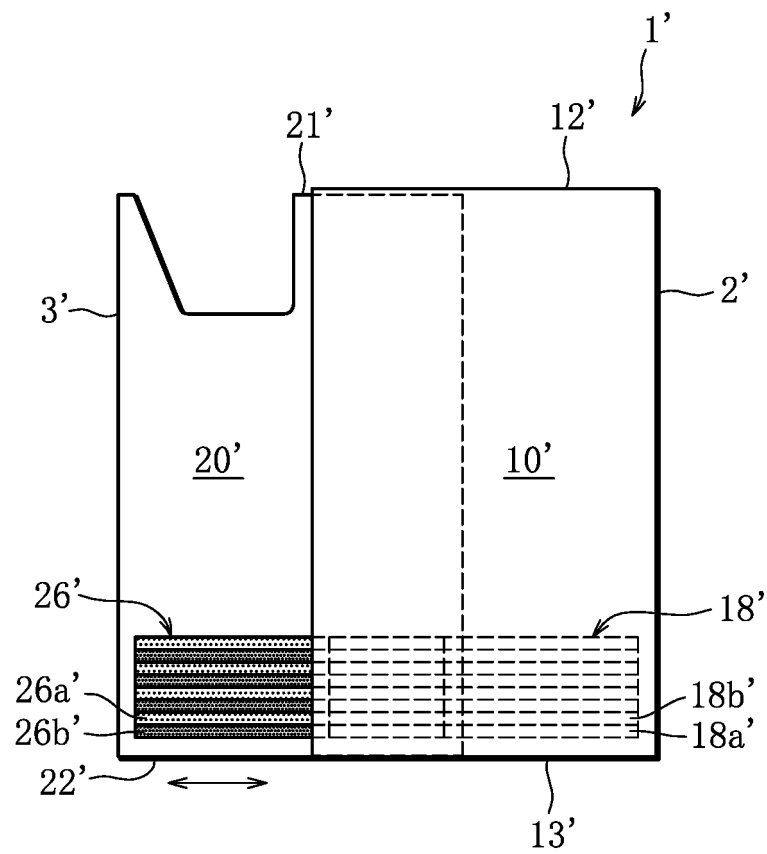


FIG. 7

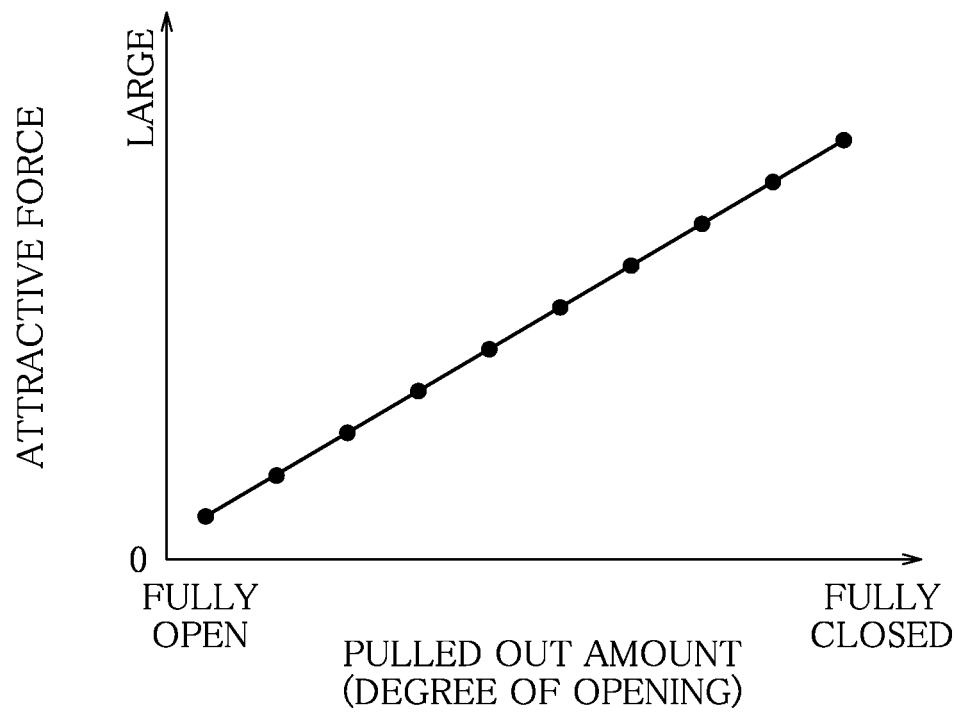


FIG. 8

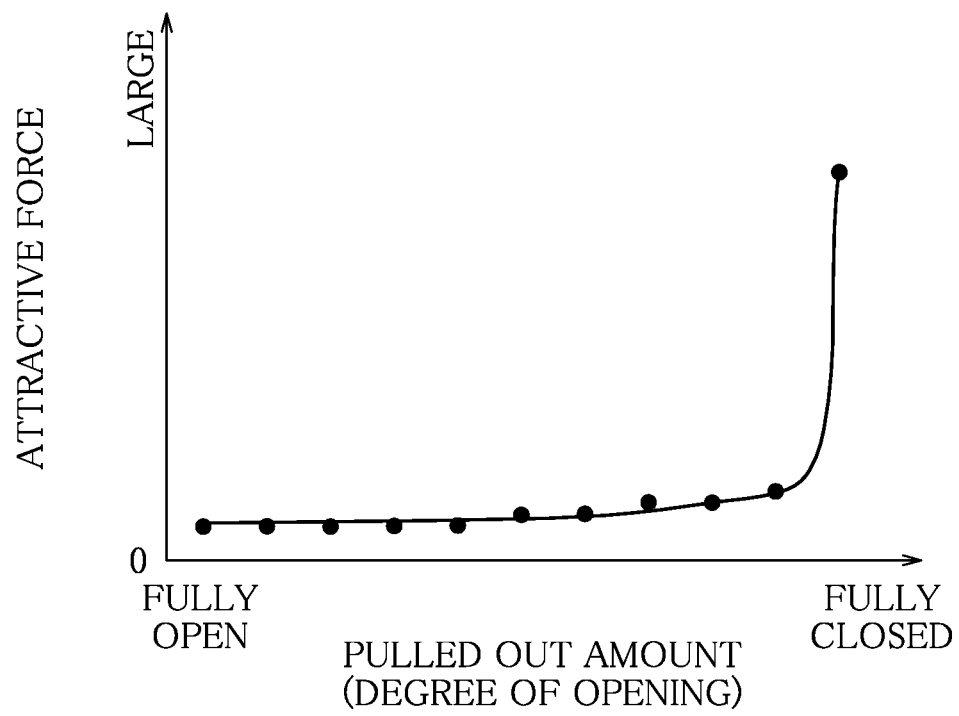


FIG. 9

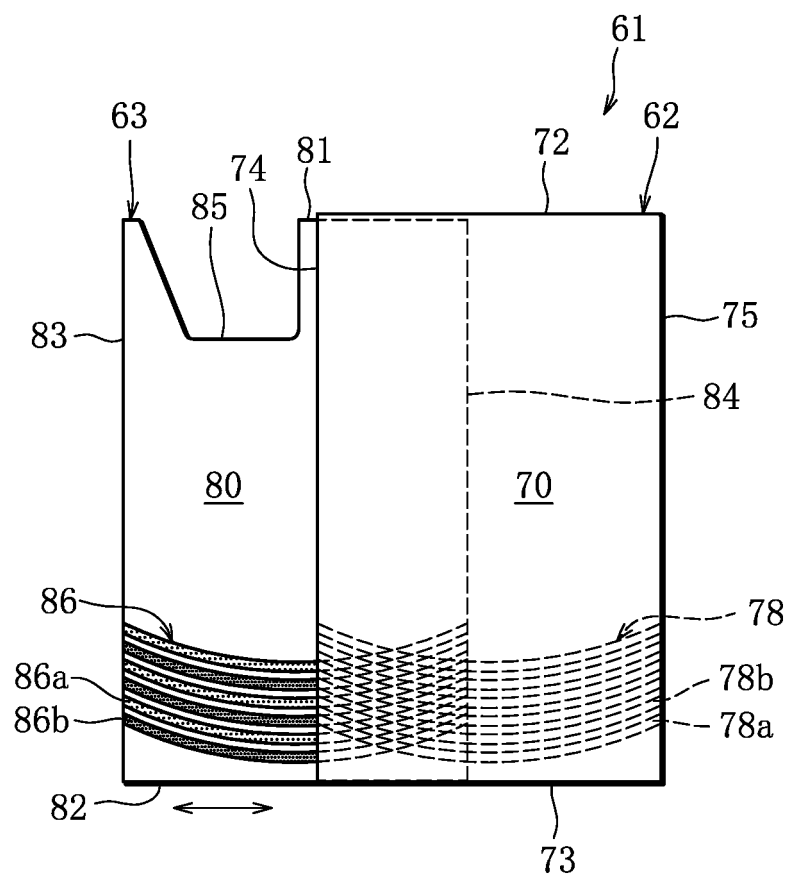


FIG. 10

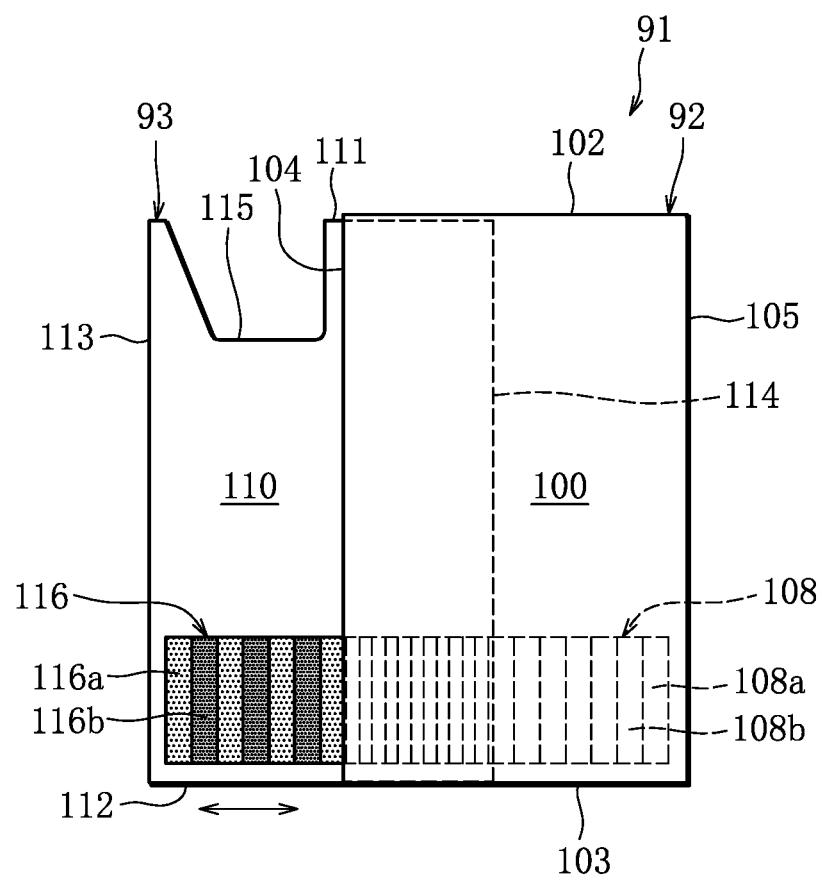


FIG. 11

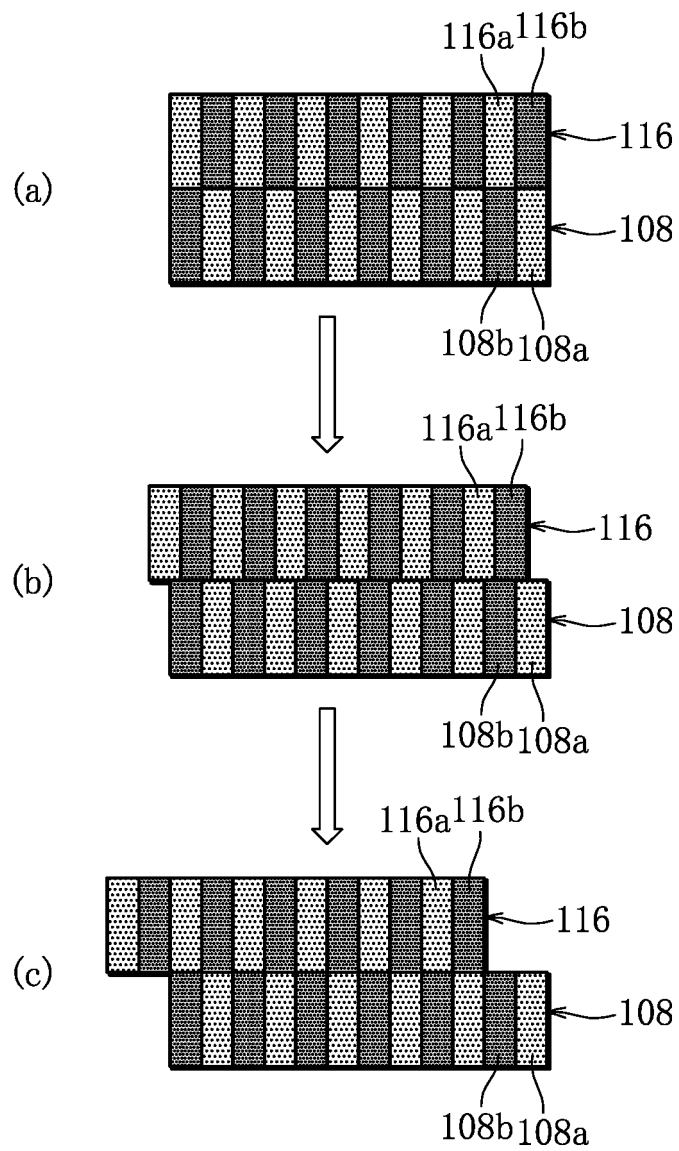


FIG. 12

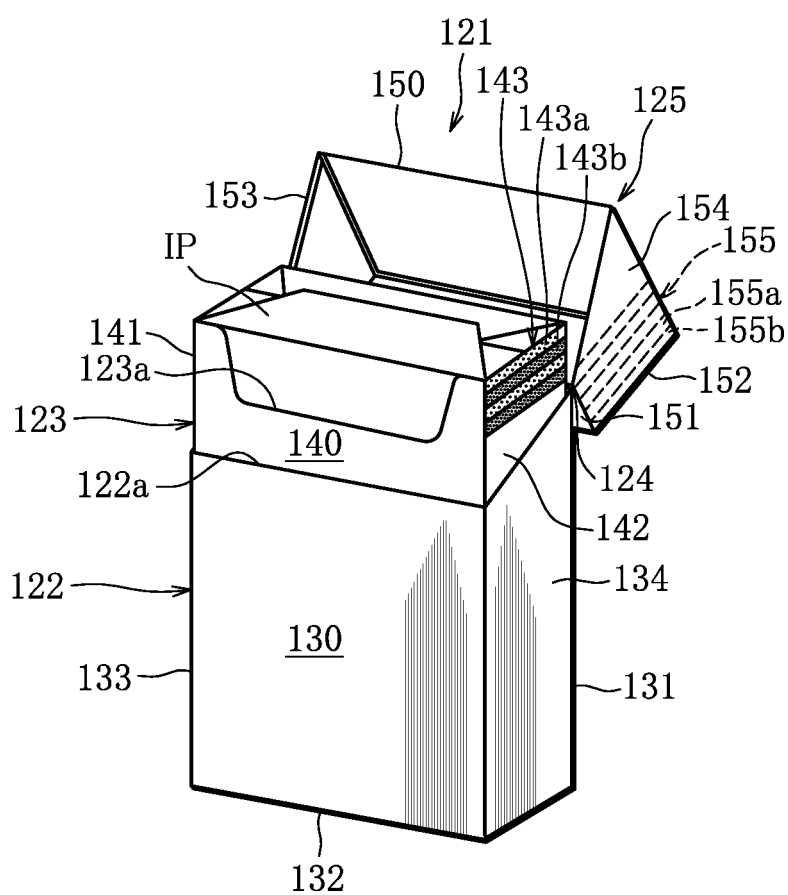


FIG. 13

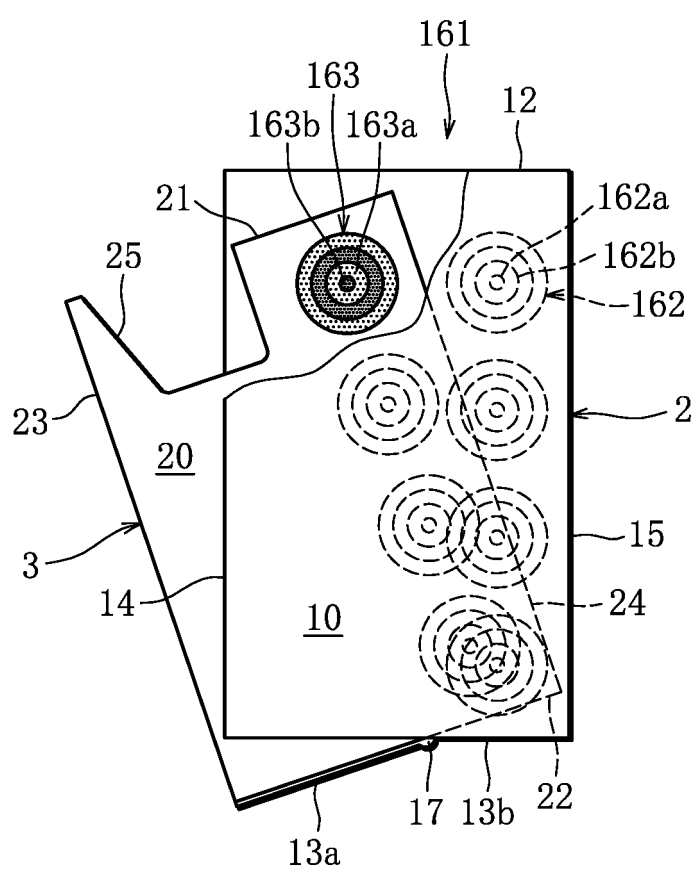
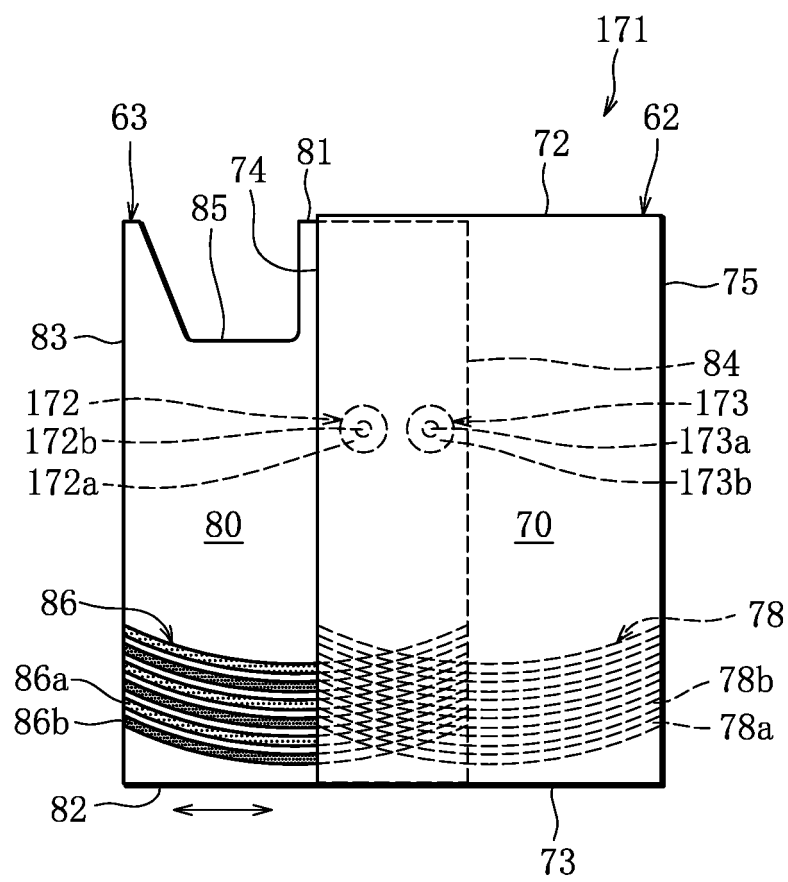


FIG. 14



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/084249

A. CLASSIFICATION OF SUBJECT MATTER

B65D85/10(2006.01)i, H01F7/02(2006.01)i

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)

B65D85/10, H01F7/02

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

Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2015

Kokai Jitsuyo Shinan Koho 1971-2015 Toroku Jitsuyo Shinan Koho 1994-2015

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 2147872 A1 (JAPAN TABACCO INC.), 27 January 2010 (27.01.2010), paragraphs [0016] to [0017], [0022] to [0023]; fig. 2 & JP 2010-58845 A & US 2008/0164158 A1 & KR 10-2008-0034184 A & CN 101291858 A	1-4, 9
Y	WO 2007/081830 A2 (SMARTCAP, LLC), 19 July 2007 (19.07.2007), description, page 2, line 28 to page 3, line 7; page 5, line 21 to page 13, line 23; fig. 9 & US 2008/0282517 A1	1-9
Y	EP 2716564 A1 (JT INTERNATIONAL SA), 09 April 2014 (09.04.2014), paragraphs [0030] to [0031]; fig. 1A to 1B & WO 2014/053340 A1	1-2, 5-7, 9

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Date of the actual completion of the international search
06 March 2015 (06.03.15)Date of mailing of the international search report
24 March 2015 (24.03.15)Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/084249

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2014/096427 A1 (PHILIP MORRIS PRODUCTS S.A.), 26 June 2014 (26.06.2014), description, page 9, lines 4 to 17; fig. 1 (Family: none)	1, 8
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 120757/1985 (Laid-open No. 29110/1987) (Yoshida Kogyo Co., Ltd.), 21 February 1987 (21.02.1987), specification, page 3, line 5 to page 6, line 12; fig. 1 to 4 (Family: none)	1, 6
A	US 2009/0261093 A1 (CEDAR RIDGE RESEARCH, LLC), 22 October 2009 (22.10.2009), entire text; all drawings & WO 2009/124030 A1	1
A	US 2011/0018663 A1 (CEDAR RIDGE RESERCH, LLC), 27 January 2011 (27.01.2011), entire text; all drawings & WO 2009/124030 A1	1-3, 8
A	JP 2011-213395 A (Kinoshita & Co., Ltd.), 27 October 2011 (27.10.2011), paragraphs [0016] to [0019]; fig. 3 (Family: none)	1-4, 8

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Patent documents cited in the description

- WO 2014096427 A [0004]