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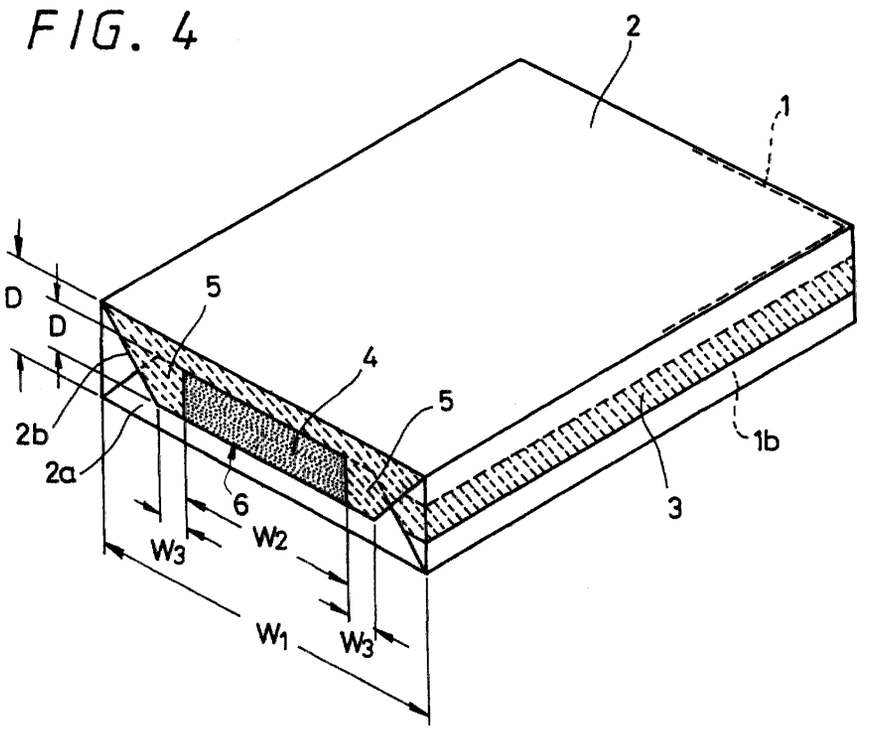
(54) Packing assembly

(57) A packing assembly in which a cassette case (1), having a tape cassette stored therein, is wrapped by a transparent outside wrapping film (2) having a front seal portion (3) in which the outside wrapping film (2) is overlapped at the body front (1b) of the cassette case (1) and sealed by melt-welding. A solid-printed portion (4) formed on the film fold upper member (2b) of one side portion, serves as a tear-strip portion (6) to open the outside wrapping film. The remaining portion of the film fold upper member (2b) forms a side seal portion (5) in which the film fold upper member (2b) except the solid-printed portion (4) is sealed to the outside wrapping film of the lower layer by melt-welding.

FIG. 4



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Description

BACKGROUND OF THE INVENTION

Field of the Invention:

[0001] The present invention relates to a packing assembly for wrapping a packed object such as a box-like plastic case in which a tape cassette or a disk is stored, for example. More particularly, the present invention relates to a packing assembly in which a packed object is folded and wrapped by a transparent outside wrapping film and sealed by melt-welding and in which a folded and wrapped packed object has on its side portion a non-seal portion serving as a tear-strip portion used when the packed object is opened.

Description of the Related Art:

[0002] Heretofore, when audio tape cassettes, video tape cassettes and the like are sold as goods, they are usually sold in the state in which this kind of tape cassette is stored in a plastic box-like cassette case and the cassette case is wrapped by an outside wrapping film (decorative wrapping film).

[0003] FIG. 7 is a perspective view of an outward appearance showing the conventional wrapping manner in which a cassette case 10 is wrapped by an outside wrapping film 11. The outside wrapping film 11 is formed of a strong transparent film such as polypropylene (PP) having excellent heat-shrink property and excellent heat-seal property, and the cassette case 1 is wrapped automatically.

[0004] When the cassette case is wrapped by the outside wrapping film 11, the cassette case 10 is wrapped up from the body back side by one outside wrapping film 11 folded in two, the right and left side portions of the cassette case 10 are wrapped up by the outside wrapping film 11 and a side seal portion 12 is formed by heat-sealing an upper-layer outside wrapping film 11a and a lower-layer outside wrapping film 11b. The outside wrapping film 11 is overlapped on a body front 10a of the cassette case 10 and a front seal portion 13 is formed by heat-sealing this overlapping portion. The front seal portion 13 has at its central portion a non-seal portion 14 which is used as a tear-strip portion to open the outside wrapping film 11. A manner for forming this non-seal portion 14 will be described. The outside wrapping film 11 is solid-printed so that, when the front seal portion 13 is sealed, the portion of the non-seal portion 14 can be prevented from being sealed on the lower-layer outside wrapping film 11b.

[0005] At a time of the outside wrapping film being opened, a user performes opening operation while the non-seal portion 14 is in a state of being pinched. As a result, the left and right front seal portion 13 can be torn away from the non-seal portion 14.

[0006] Characters and the like for indicating the merchandise contents of the tape cassette stored with the cassette case are printed on the cassette case 10. Because it is customary that the cassette case 1 is exhibited with its body front toward users in a shop and then sold, characters and the like are also indicated on the body front 10a of the cassette case 10. For this reason, if the non-seal portion 14 formed by solid-printing and which serves as a tear-strip portion to open the outside wrapping film exists on the cassette case 10 at its position corresponding to the body front 10a, then indicated characters and the like printed on the body front 10a of the cassette case 10 cannot be partly read out by a user so that commercial value of the cassette case will be degraded.

[0007] When the outside wrapping film 11 is opened, a user has to pinch the non-seal portion 14 and tears the whole of the front seal portion 13 away from the cassette case. When the front seal portion 13 is high in sealing property, for example, opening operations become troublesome and complicated.

SUMMARY OF THE INVENTION

[0008] The present invention is intended to solve the above problems, and is also intended to provide a wrapping assembly in which a cassette case wrapped by an outside wrapping film can be improved in commerciality and in which the outside wrapping film can be opened with ease.

[0009] In order to attain the above objects, a packing assembly according to the present invention is comprised of a front seal portion in which the outside wrapping film is overlapped at a body front of the packed object and sealed by melt-welding, a non-seal portion of a solid-printed portion formed on a film fold upper member of one side portion, folded and wrapped, of the packed object and which serves as a tear-strip portion to open the outside wrapping film and a side seal portion in which remaining portions in which the film fold upper members of at least both end sides of the non-seal portion are sealed on a film fold lower member by melt-welding.

[0010] According to the above wrapping assembly, since the solid-printed non-seal portion which serves as the tear strip portion to open the outside wrapping film is formed on one side portion of the folded and wrapped packed object, the indication portion such as characters printed on the body front of the packed object can be easily read out from the indication portion through the transparent outside wrapping film.

[0011] Since the non-seal portion, which serves as the tear-strip portion to open the outside wrapping film, is formed on the side portion of the packed object thus folded and wrapped, the seal portion can be decreased and the outside wrapping film can be opened with ease.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

FIG. 1 is a perspective view illustrating the process in which a cassette case is being wrapped by an outside wrapping film according to the present invention;

FIG. 2 is a like perspective view illustrating the process in which a cassette case is being wrapped by an outside wrapping film according to the present invention;

FIG. 3 is a perspective view illustrating the manner in which an outside wrapping film is opened;

FIG. 4 is a perspective view of the state in which a cassette case is wrapped;

FIG. 5 is a front view illustrating a tear-strip portion according to other embodiment;

FIG. 6 is a front view illustrating a tear-strip portion according to a further embodiment; and

FIG. 7 is a perspective view illustrating the state in which a cassette case is wrapped by an outside wrapping film according to the prior art.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] A packing assembly according to an embodiment of the present invention will be described below with reference to the drawings, in which case a cassette case in which a tape cassette is stored is wrapped.

[0014] FIGS. 1 and 2 are perspective views showing an arrangement in which a cassette case 1 is wrapped by an outside wrapping film. FIG. 4 is a perspective view showing the state in which wrapping of the cassette case has been completed. An outside wrapping film 2 which wraps the cassette case 1 is formed of a strong transparent film made of polypropylene (PP) or the like having excellent heat-shrink property and heat-adhesion. The cassette case 1 is automatically wrapped by the outside wrapping film 2.

[0015] The manner in which the cassette case is wrapped by the outside wrapping film 2 will be described. As shown in FIG. 1, the cassette case 1 is wrapped by one outside wrapping film 2 in two from the body back 1a side in the upper and lower direction. Thereafter, the outside wrapping film 2 is overlapped on the body front 1b of the cassette case 1, and a front seal portion 3 is formed by sealing this overlapping portion according to melt-welding. A solid-printed portion 4 is formed on the outer edge portion of the outside wrapping film 2 in advance. While the cassette case is being wrapped by the outside wrapping film 2 as shown in FIG. 1, the solid-printed portion 4 is protruded from one upper side portion of the cassette case 1.

[0016] Next, the outside wrapping film 2 protruded to the right and left side portions from the state shown in FIG. 1 is folded from the body back 1a and the body front 1b to the side wall sides of the cassette case 1 as shown in FIG. 2. Simultaneously, a trapezoid-like film fold lower member 2a is first folded on which a trapezoid-like film fold upper member 2b is folded, i.e., the cassette case is folded and wrapped. Thereafter, the film fold upper member 2b serving as the upper layer is sealed to the outside wrapping film including the film fold lower member 2a serving as the lower layer according to melt-welding, thereby resulting in a side seal portion 5 being formed. Thus, wrapping of the cassette case 1 is completed as shown in FIG. 4 .

[0017] When the film fold upper member 2b is sealed to the outside wrapping film according to melt-welding, the portion of the solid-printed portion 4 is not fusion-bonded to the film fold lower member 2a of the lower layer and thereby formed as a non-seal portion. This non-seal portion becomes a tear-strip portion 6 which is used to open the outside wrapping film 2. Accordingly, in the side seal portion 5, the portion of the film fold upper member 2b, except the tear-strip portion 6 on which the solid-printed portion 4 is formed, is sealed by melt-welding. The tear-strip portion 6 can form a non-seal portion by increasing a thickness of the solid-printed portion.

[0018] If the above solid-printed portion 4 is too large, then the sealed portion of the side seal portion 5 is decreased so that the film fold upper member 2b becomes easy to be torn away from the outside wrapping film. Conversely, if the solid-printed portion 4 is too small, then the sealed portion of the side seal portion 5 is increased so that the film fold upper member 2b becomes difficult to be torn away from the outside wrapping film. Therefore, according to the specification under which the cassette case 1 is wrapped by the outside wrapping film 2 of this embodiment, by way of example, while a width W1 is set to be 60 mm, a thickness D1 is set to be 16 mm, a horizontal width W_2 of the tear-strip portion 6 is set to be 30 mm, a longitudinal width D_2 is set to be 8 mm and widths W_3 of the film fold upper members 2b sealed to the left and right of the tear-strip portion 6 according to melt-welding are set to be 5 mm, respectively. The outside wrapping film 2 has a thickness of 30 μm, by way of example. While the widths W_3 of the film fold upper members 2b, which are the side seal portion 5, are respectively set to be 5 mm, if the width W_3 of the side seal portion 5 is selected to be less than 5 mm, there is then the risk that reliability of adhesion of the side seal portion 5 will be degraded and the side seal portion will be torn away of itself. If the width W_3 of the side seal portion 5 is selected to be greater than 10 mm, then the side seal portion has a too large adhesive area and becomes difficult to be torn away. Accordingly, the tear-strip portion 6 should not have the large horizontal width W_2 so that it may not be twisted and may be prevented from degrading the outward appearance of the packed object. Alternatively, the tear-strip portion 6 is requested to have a width such that a user can pick the tear-strip portion with finger tips or nails and can easily open the outside wrapping film. Therefore, according to

the present invention, the most suitable width W_3 of the side seal portion 5 falls within a range of from 5 mm to 10 mm.

[0019] In the cassette case wrapped by the outside wrapping film 2 as described above, since the tear-strip portion 6 which is solid-printed on the outside wrapping film 2 is formed on the body side of the cassette case 1, only the front seal portion 3 exists on the body front 1b of the cassette case 1 so that characters and the like indicated on the body front 1b of the cassette case 1 can be visually confirmed by a user through the transparent outside wrapping film. Therefore, it is possible to improve commercial value of the cassette case while the cassette case is being exhibited in the shop.

[0020] In order to open the outside wrapping film 2, when a user picks the tear-strip portion 6, which is not sealed, with fingers and tears the film fold upper member 2b away from the outside wrapping film in the opening direction as shown in FIG. 3, the side seal portion 5 is torn away from the outside wrapping film and thereby the outside wrapping film can be opened. In that case, since the side seal portion 5 has a proper dimension as described above, when the film fold upper member 2b is torn away from the outside wrapping film, the film fold upper member can be torn away from the outside wrapping film relatively easily and the outside wrapping film can be opened reliably.

[0021] While the whole of the film fold upper member 2b around the portion except the tear-strip portion 6 is sealed to the side seal portion 5 in this example, the present invention is not limited thereto and only the portion of the film fold lower member 2a which overlaps the film fold upper member 2b may be sealed. According to the above arrangement, the film fold upper member 2b can be torn away from the outside wrapping portion more easily.

[0022] If the tear-strip portion is modified as a tear-strip portion 6a which is designed to be arrow-like shape so that the opening position can be visually identified by a user, then the opening position can be made clearer so that a user can open the outside wrapping film quickly.

[0023] When the width of the side wall of the cassette case wrapped by the outside wrapping film 2 is long, if the width of the tear-strip portion is increased in proportion to the width of the side wall, then the tear-strip portion is twisted and commerciality of the cassette case is degraded unavoidably. In this case, as shown in FIG. 6, the width of the tear-strip portion 6 is selected to be similar to that of the case shown in FIG.4 , and a weak seal portion 7, which is sealed by weak melt-welding force, is formed adjacent to this tear-strip portion 6. When this weak seal portion 7 is formed, the size of this weal seal portion can be adjusted by decreasing printing thickness of a solid-printed portion.

[0024] According to the above arrangement, the tear-strip portion 6 can be prevented from being twisted and commercial value of the cassette case can be improved. Further, the weak seal portion 7 is weak in sealing force and hence it can easily be torn away when the outside wrapping film is opened.

[0025] The present invention is not limited to the above embodiment which is also illustrated in the sheets of drawings and can variously be modified without departing from the gist of the present invention.

[0026] While the packing assembly in which the cassette case in which the tape cassette is stored is wrapped by the outside wrapping film has been described so far in this embodiment, the present invention is not limited thereto and can also be applied to a packing assembly in which a disk case in which a disk is stored is wrapped by an outside wrapping case. In this case, while the disk case is substantially square in shape, a tear-strip portion of a solid-printed portion is formed on the side of the disk case which is folded and wrapped by an outside wrapping film.

[0027] As described above, since the packing assembly according to the present invention is comprised of the front seal portion in which the outside wrapping film is overlapped and sealed on the body front of the packed object by melt-welding, the non-seal portion of the solid-printed portion formed on the film fold upper member of one side of the folded and wrapped packed object and which serves as the tear-strip portion to open the outside wrapping film and the side seal portion in which the film fold upper member portions of at least both end sides of the non-seal portion are sealed on the film fold lower member by melt-welding, characters and the like indicated on the front of the body of the cassette case can be visually confirmed by a user through the transparent outside wrapping film, and hence commercial value of the cassette case can be improved while the cassette case is being exhibited in the shop. Further, the outside wrapping film can be opened easily.

[0028] Since the whole surface of the side seal portion except the non-seal portion is sealed by melt-welding, the outside wrapping film thus folded and wrapped can be sealed with high stability and can be opened with ease.

[0029] Since the weak seal portion which is sealed to the film fold lower member by weak melt-welding force is formed on a part of the width direction of the non-seal portion which serves as the tear-strip portion, the tear-strip portion can be prevented from being twisted and hence commerciality of a packed object can be improved.

[0030] Furthermore, since the non-seal portion and the weak seal portion can be adjusted by the degree of the printing thickness, the non-seal portion and the weak seal portion can easily be adjusted by the difference of the printing thickness.

[0031] Having described preferred embodiments of the present invention with reference to the accompanying drawings, it is to be understood that the present invention is not limited to the above-mentioned embodiments and that various changes and modifications can

be effected therein by one skilled in the art without departing from the scope of the present invention.

Claims

1. A packing assembly in which a packed object (1) is wrapped by a transparent outside wrapping film (2), said packing assembly being **characterized by** :

   a front seal portion (3) in which said outside wrapping film (2) is overlapped at a body front (1b) of said packed object and sealed by fusion-bonding;
   a non-seal portion of a solid-printed portion (4) formed on a film fold upper member (2b) of one side portion, folded and wrapped, of said packed object and which serves as a tear-strip portion (6) to open said outside wrapping film; and
   a side seal portion (5) in which remaining portions in which said non-seal portion is not formed being left on said film fold upper members of at least both end sides of said non-seal portion and in which said remaining portions are sealed on a film fold lower member by melt-welding.

2. The packing assembly according to claim 1, **characterized in that** said side seal portion (5) has its hole surface except said non-seal portion sealed to an outside wrapping film of a lower layer (2a) by melt-welding.

3. The packing assembly according to claim 1, **characterized by** a weak seal portion (7) sealed on said film fold lower member (2a) by small melt-welding force while said weak seal portion is adjoining to the width direction of said non-seal portion.

4. The packing assembly according to claim 3, **characterized in that** said non-seal portion and said weak seal portion are adjusted by a thickness of printing.

5. The packing assembly according to claim 1, **characterized in that** said packed object (1) is a box-like case in which a tape cassette or a disk is stored.

FIG. 1

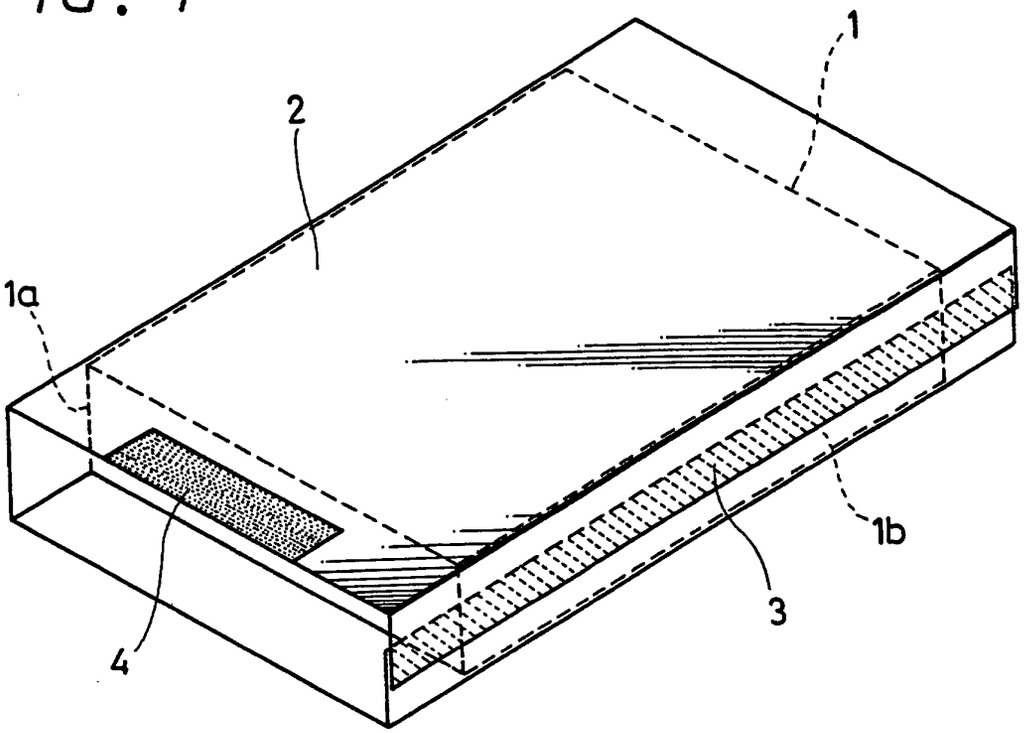

FIG. 2

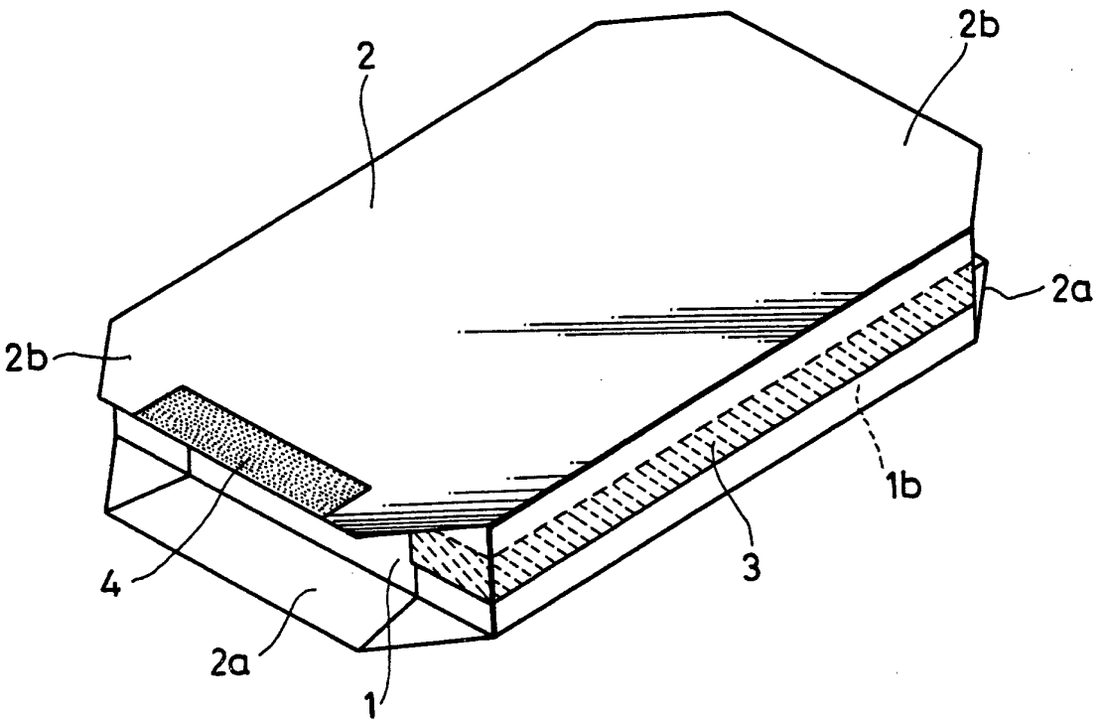

FIG. 3

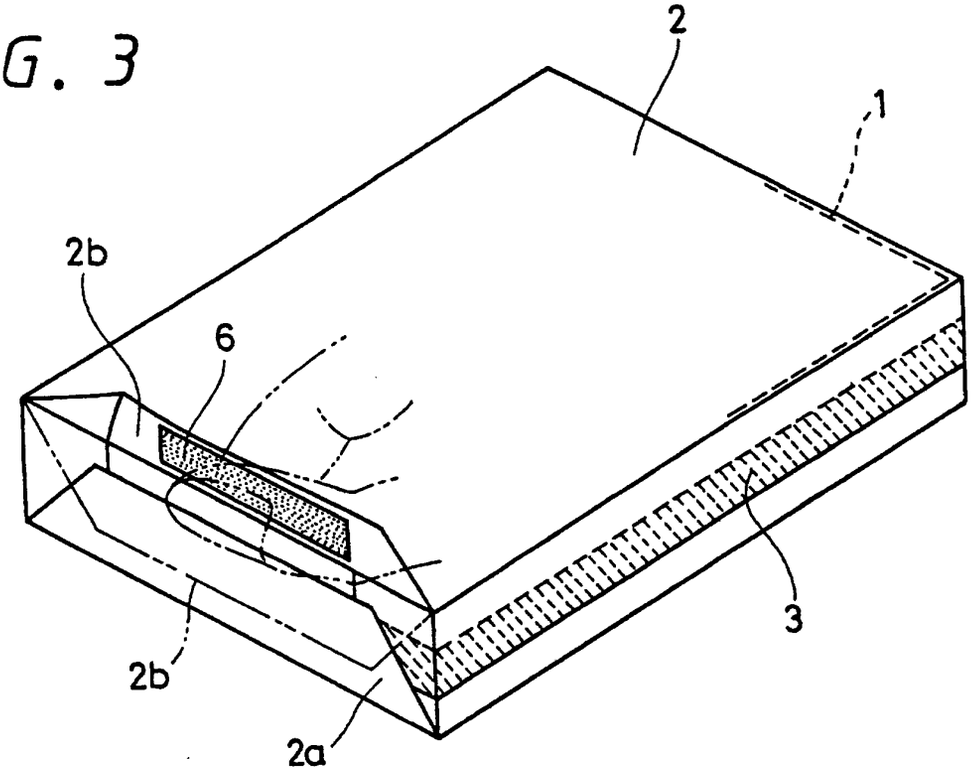

FIG. 4

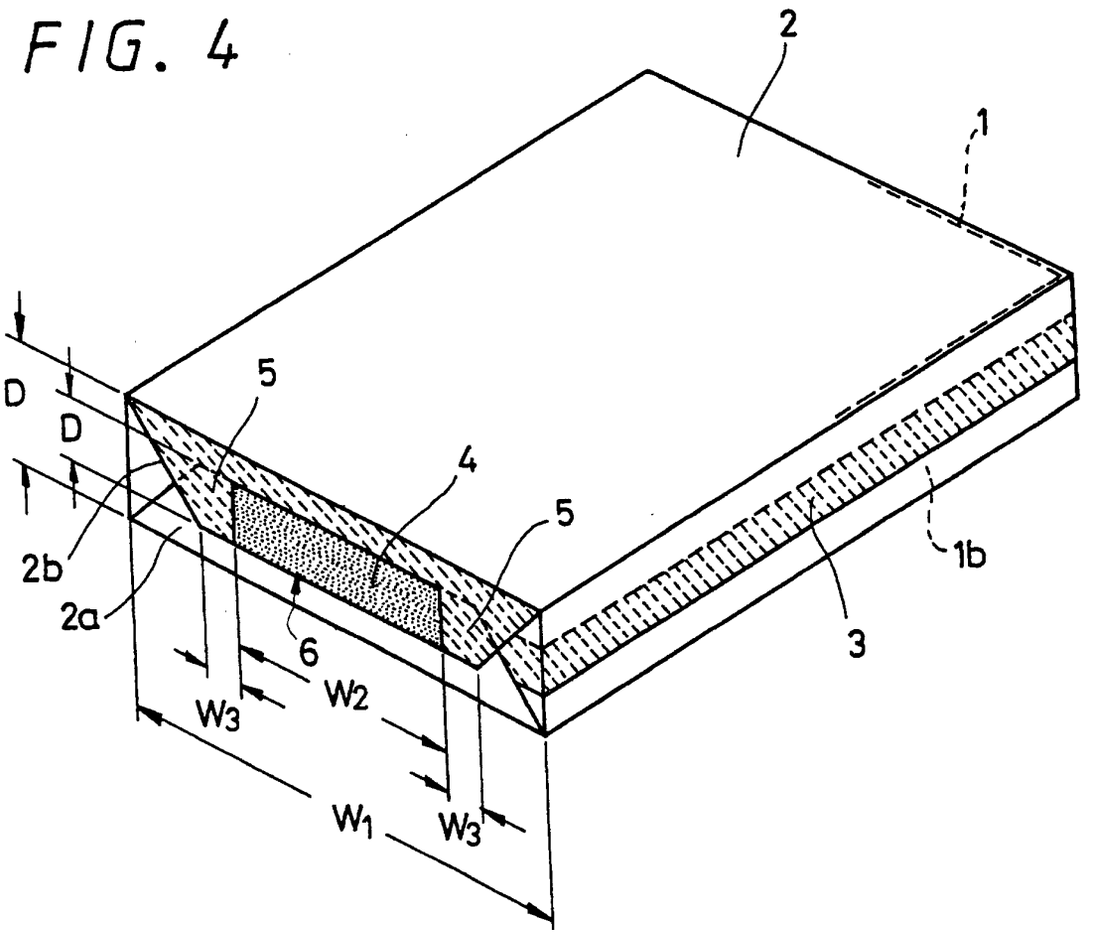

FIG. 5

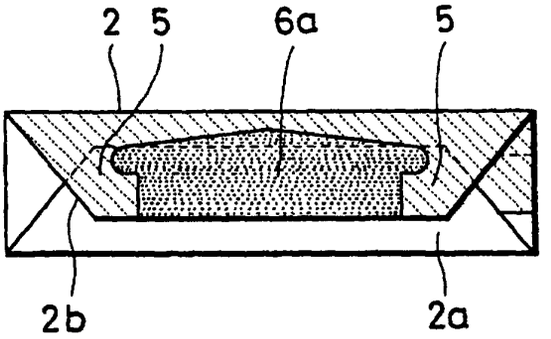

FIG. 6

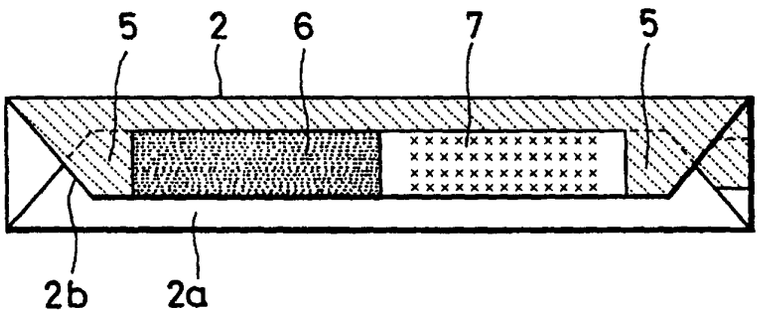

FIG. 7

PRIOR ART