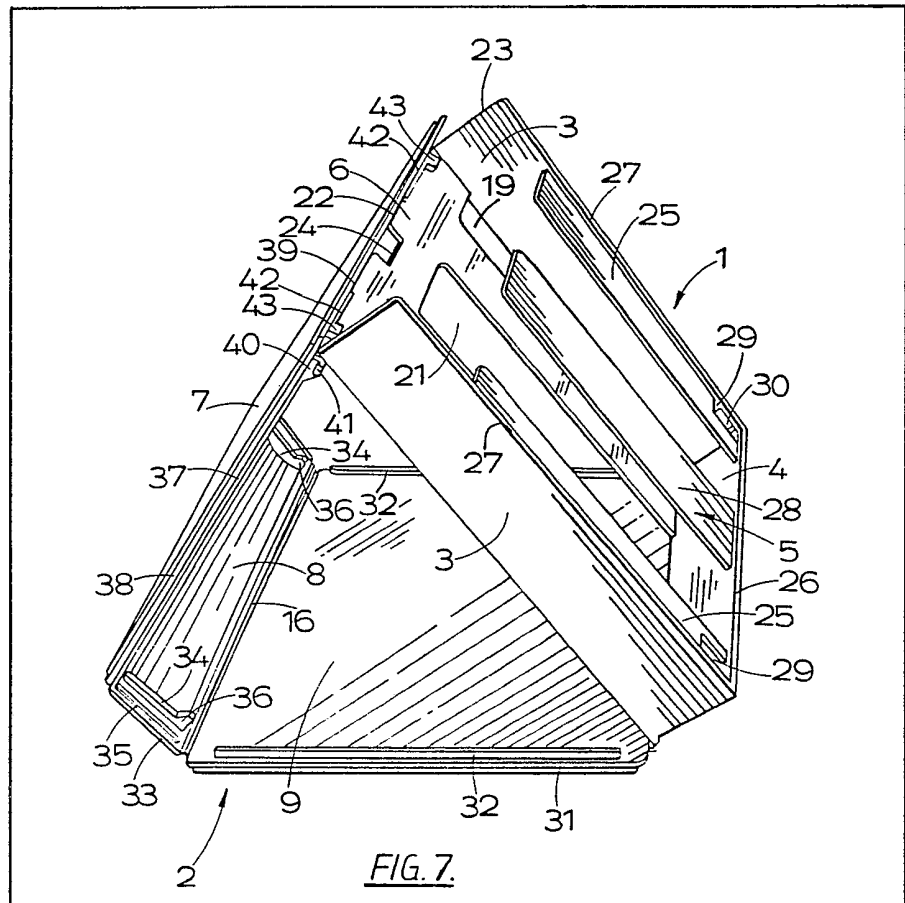


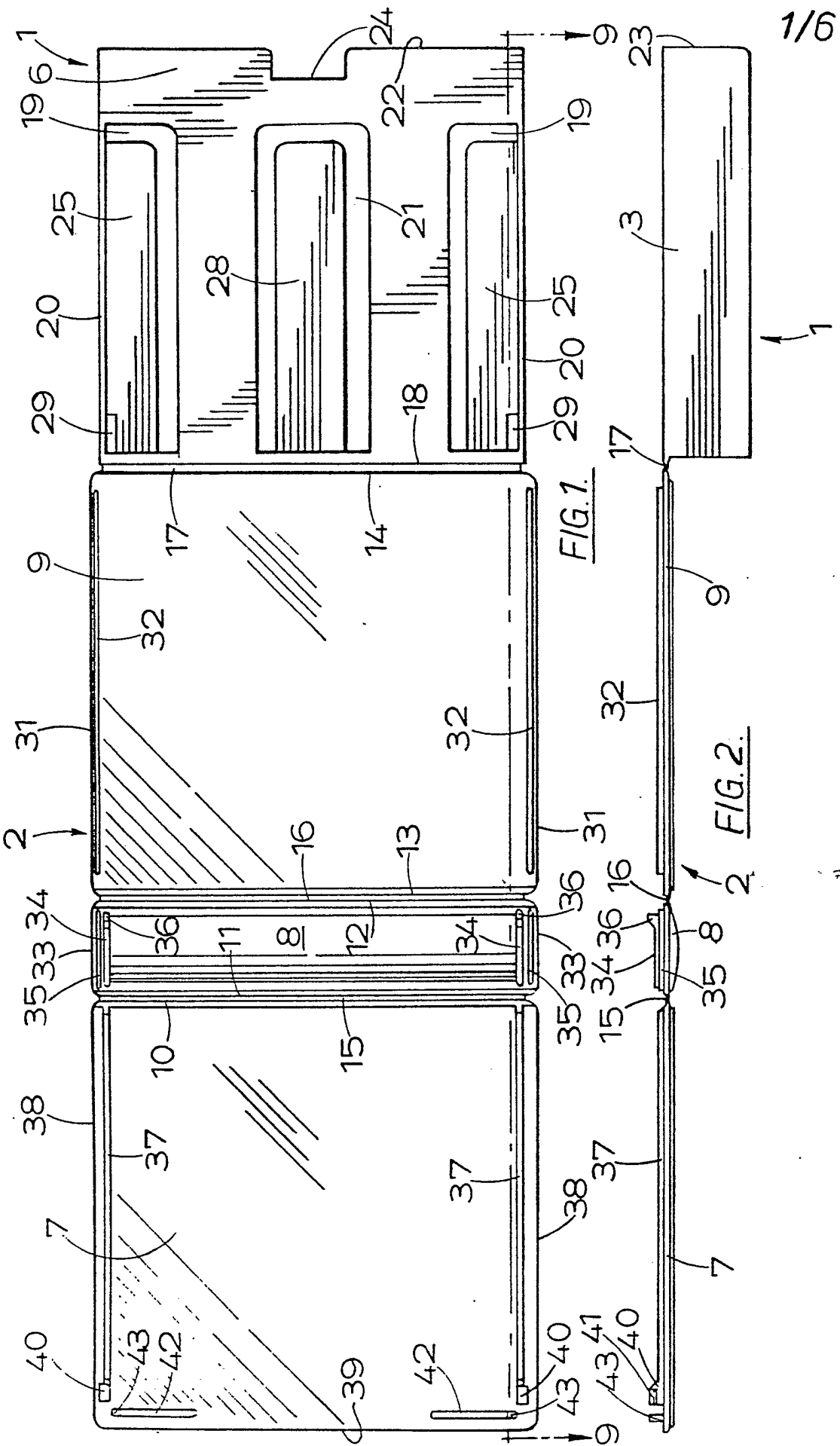
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(54) **Cassette for storing cards, discs and the like**

(57) A cassette e.g. for storing "floppy discs" for computers and formed in one piece from a plastics material consists of a receptacle 1 for the discs, and a cover 2 having a base portion 9 connected to the receptacle 1 by an integral hinge, a lid portion 7, and an intermediate portion 8 connected to the base and lid portions 9 and 7 by integral hinges and respectively. The receptacle

1 and the cover 2 fold about the hinges between a closed condition of the cassette (Fig. 5) and an open condition in which the receptacle 1 is upstanding from the base portion 9 and rests against the lid portion 7 supported by projections 43 on the lid portion. Lugs 40 on the lid portion 7 engage with complementary apertures 29 in the front wall 5 of the receptacle 1 to lock the cassette shut with a snap-locking action. There is a semi-closed condition in which the mouth of the receptacle 1 is closed by the intermediate portion 8.





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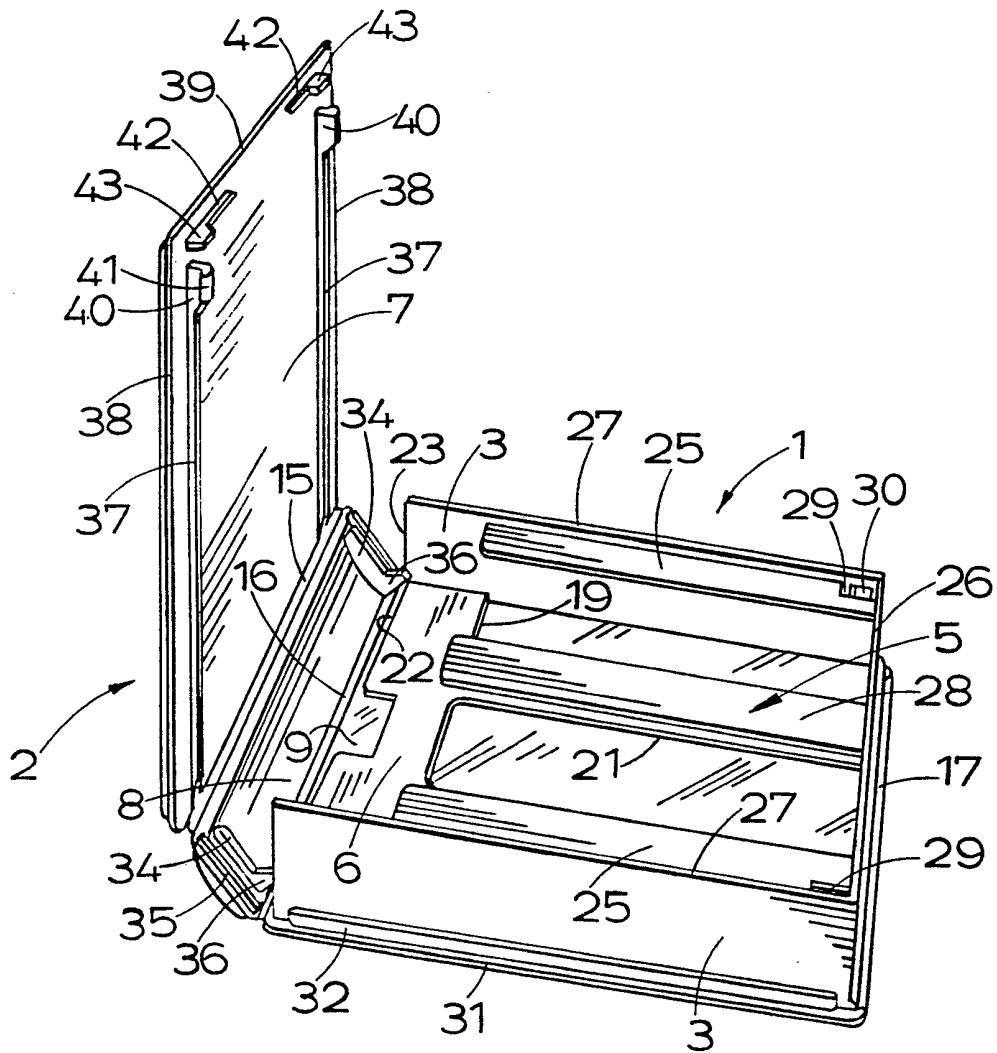


FIG. 4.

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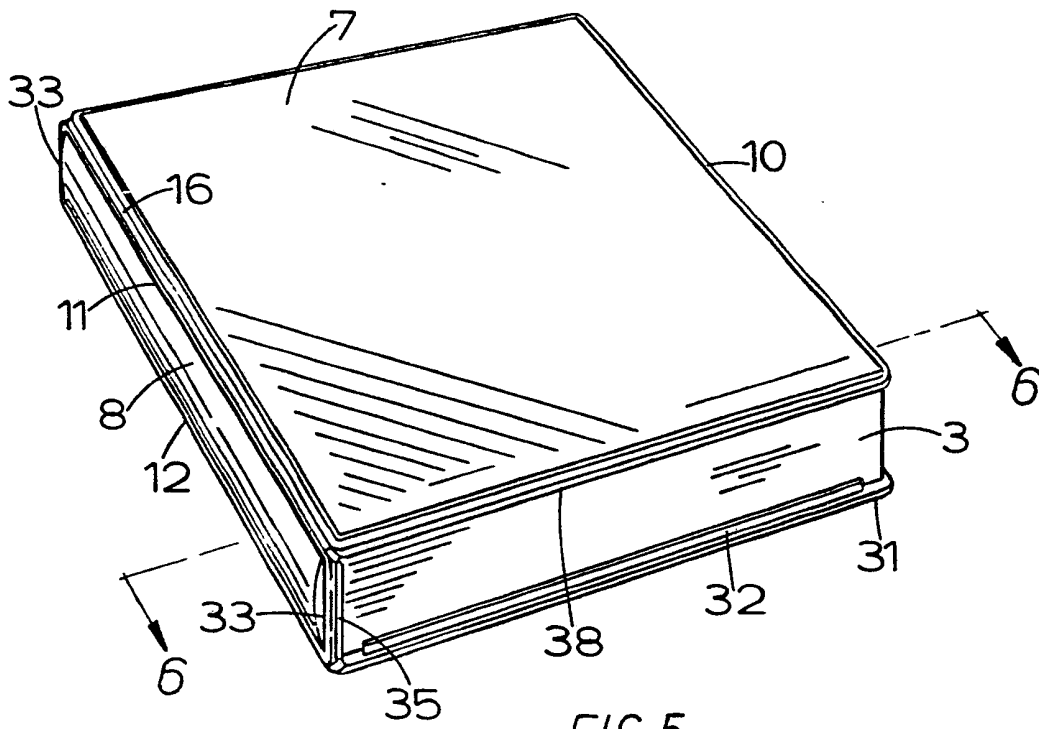


FIG. 5.

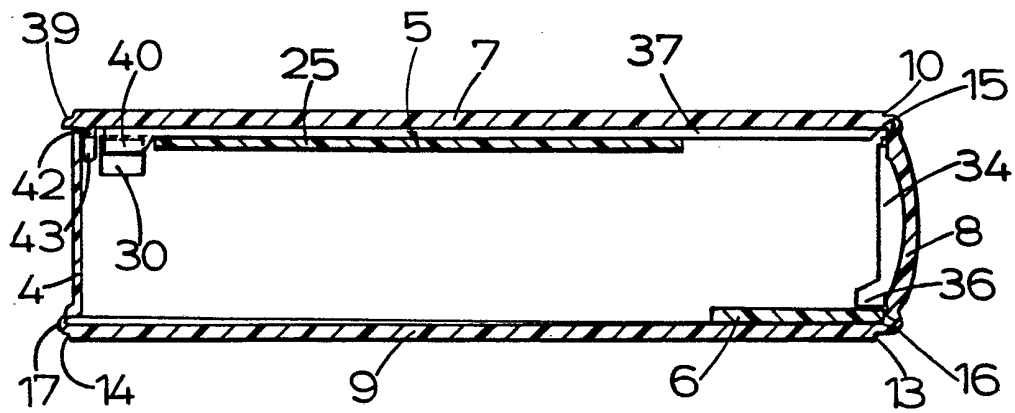
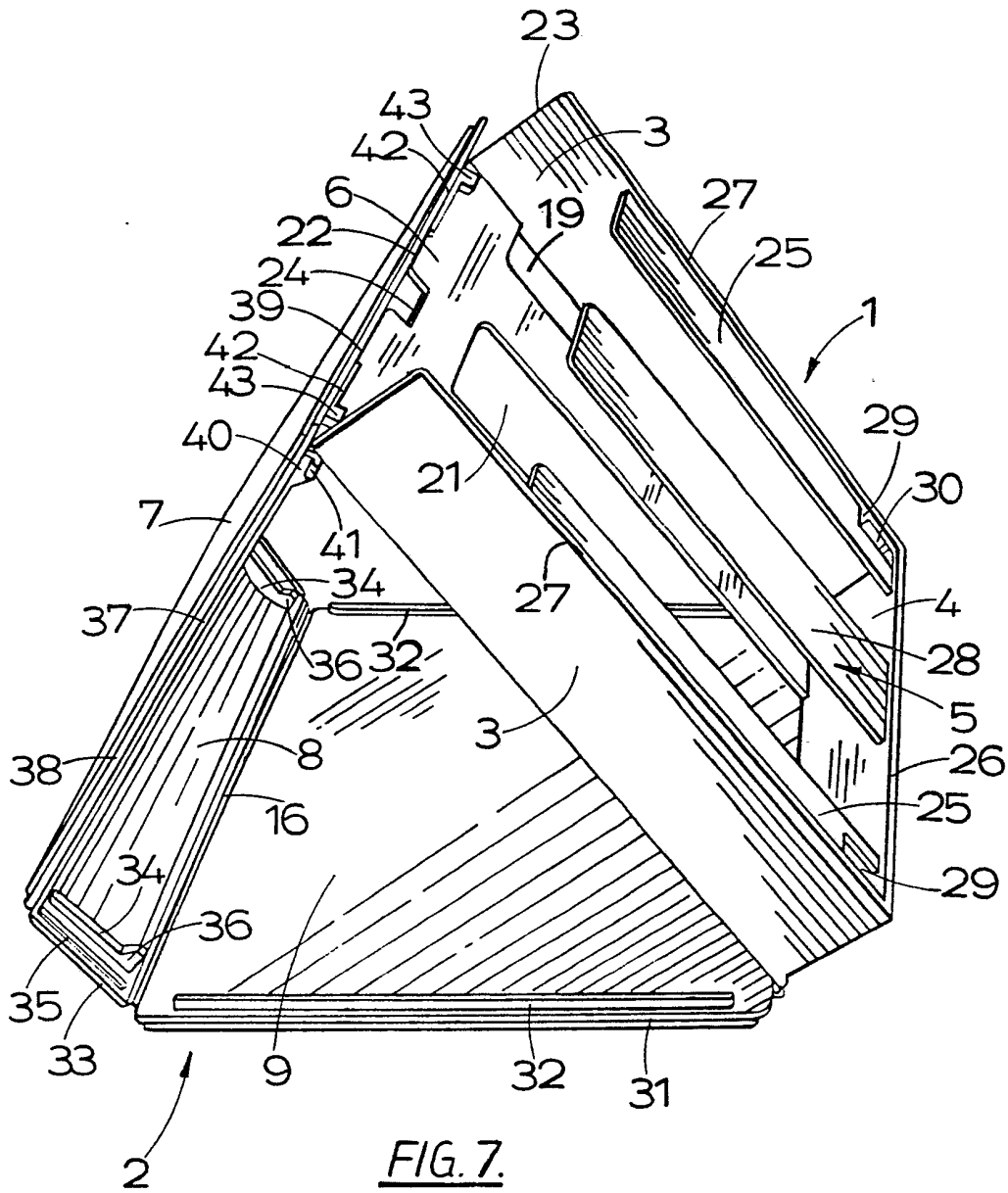


FIG. 6.



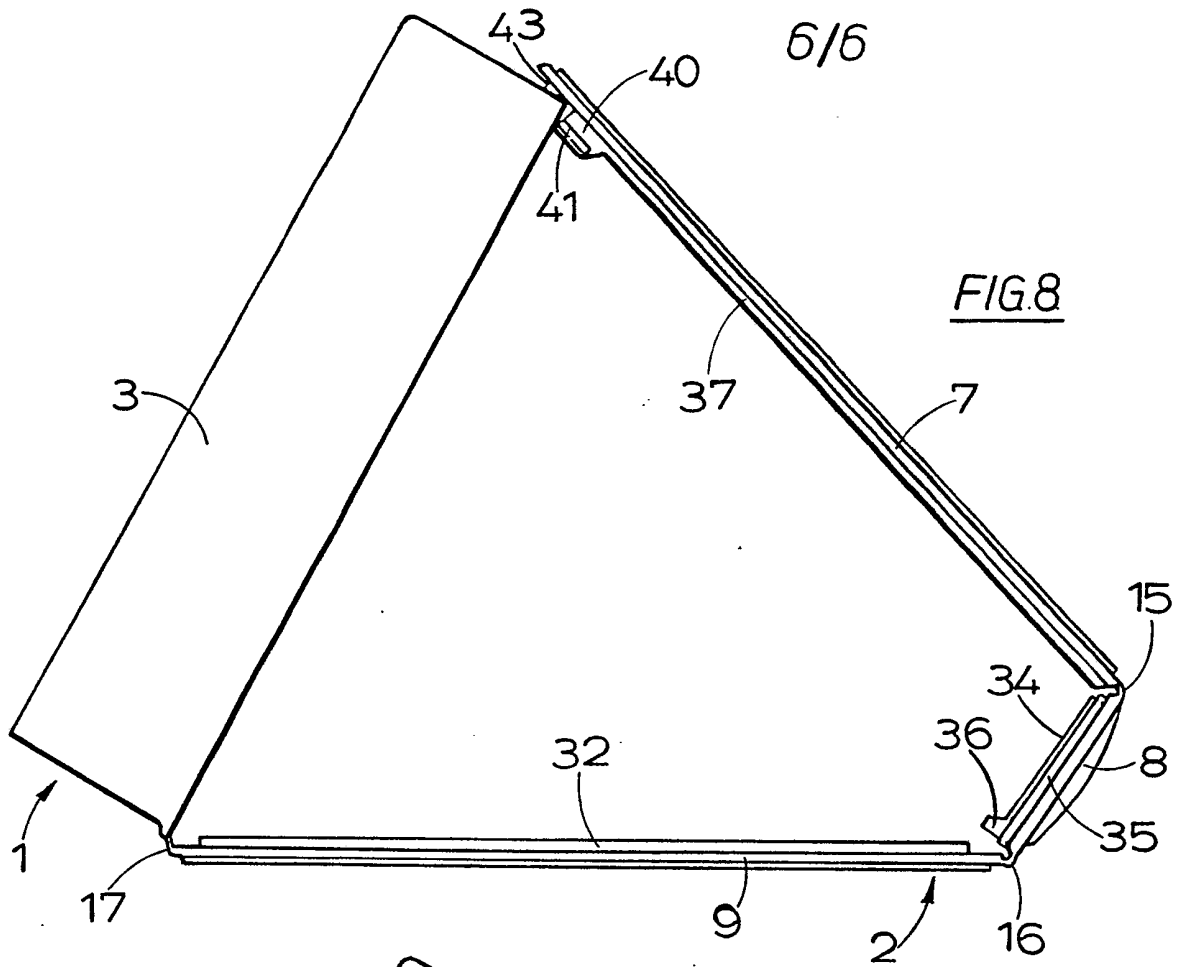


FIG. 8

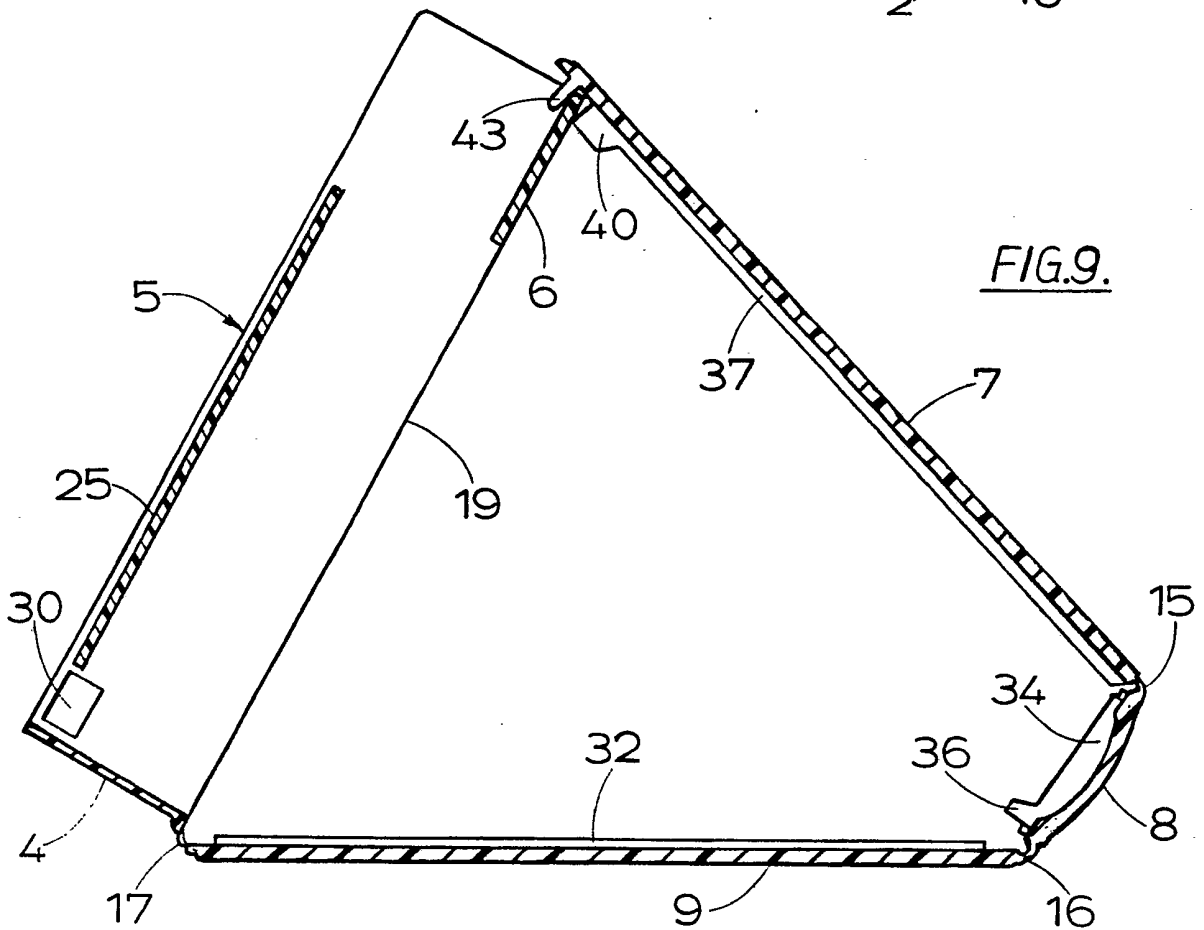


FIG. 9.

SPECIFICATION

Cassette for storing cards, discs and the like

This invention relates to cassettes for storing cards, discs and the like, and more particularly "floppy discs" for computers.

The term "floppy discs" refers to flexible discs on which computer programs or data for a computer are recorded in the form of magnetic traces, the program being replayable and the data retrievable only when the discs are fed into an appropriate computer.

"Floppy discs" for computers have to be kept relatively free from dirt and dust when they are stored, otherwise the dirt and dust may contaminate the discs and have an adverse effect on the magnetic traces thereon.

One known type of container for storing "floppy discs" for computers consists in a box comprising a cardboard receptacle for holding the discs and a separate cardboard envelope. The envelope is arranged to fit over the receptacle to form the whole box. This type of container, made from cardboard, is inexpensive to produce, but is not very durable and, if the box is accidentally knocked over, the envelope all too readily separates from the receptacle and the discs fall out of the box.

More durable and robust types of containers for storing "floppy discs" for computers may be formed from plastics materials, but previously such containers have comprised at least two separate parts and have been relatively expensive to produce.

It is an object of the present invention to provide a cassette for storing cards, discs and the like that is of a simple yet durable construction, that is relatively inexpensive to produce, and from which dirt and dust is adequately excluded.

According to the present invention, a cassette for storing cards, discs and the like is provided which is formed in one piece from a plastics material and which comprises a receptacle for the cards, discs or the like, an envelope, and an integral hinge connecting the receptacle to the envelope, the receptacle and the envelope being foldable about the integral hinge between an open condition of the cassette and a closed condition of the cassette.

In the open condition cards, discs or the like may readily be inserted into or removed from the receptacle, and in the closed condition the envelope and receptacle together constitute a closed container for the cards, discs or the like.

The cassette may be formed as a one-piece moulding in, for example, a polypropylene copolymer, or any other suitable plastics material.

A web of reduced thickness preferably comprises the integral hinge which connects the receptacle to the envelope.

The envelope may comprise at least two distinct parts, each part being connected to an adjoining part by an integral hinge.

Preferably, the envelope comprises a base portion connected to the receptacle by a first

65 integral hinge, an intermediate portion connected to the base portion by a second integral hinge and a lid portion connected to the intermediate portion by a third integral hinge. Each integral hinge may comprise a web of reduced thickness.

70 The receptacle is preferably of box-like form having an end wall, two side walls, a front wall, a rear wall and a mouth opposite the end wall, the end edge of the rear wall being connected to the base portion by the first integral hinge.

75 The cassette may be assembled from its open condition into its closed condition by folding the receptacle about the first hinge so that the rear wall is adjacent the base portion, and by folding the intermediate and lid portions about the second and third hinges such that the intermediate portion closes the mouth of the receptacle and the lid portion covers the front wall of the receptacle.

80 Preferably, the cassette is provided with means for locking the cassette shut in its closed condition. The locking means may comprise lugs or projections and complementary apertures or recesses on or in the envelope and the receptacle. The lugs or projections preferably interlock with the apertures or recesses with a snap-locking action.

90 The cassette may occupy a semi-closed condition in which the rear wall of the receptacle is adjacent the base portion and the mouth of the receptacle is closed by the intermediate portion, but in which the front wall of the receptacle is not covered by the lid portion. Projections may be provided on the intermediate portion to retain the cassette in its semi-closed condition.

100 In the semi-closed condition of the cassette, the intermediate portion covering the mouth prevents cards, discs, or the like from falling out of the receptacle. The front wall of the receptacle may have openings therein or otherwise may be of open construction to enable identification marks on at least the uppermost card to be easily seen when the cassette is in its semi-closed condition.

110 The cassette may occupy an alternative open condition in which the base portion stands upon any convenient surface and the receptacle rests against and is supported by the lid portion with its front and rear walls at an acute angle to the base position. Cards, discs and the like may be readily inserted into and removed from the receptacle when the cassette occupies the alternative open condition. Projections are preferably provided on the lid portion which engage with the receptacle to retain the cassette in its alternative open condition.

120 On the peripheral edges of the portions of the envelope ridges may be provided which, in the closed condition of the cassette, abut against the side and end walls of the receptacle effectively to prevent dirt and dust from entering the enclosed container.

125 An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:-

Figure 1 is a plan view of a cassette in

accordance with the invention shown in an open condition;

Figure 2 is a side view of the cassette in the open condition of *Figure 1*;

Figure 3 is a perspective view of the cassette in a slightly different open condition from that of *Figure 1*;

Figure 4 is a perspective view of the cassette in a semi-closed condition;

Figure 5 is a perspective view of the cassette in a closed condition;

Figure 6 is a sectional view on the line 6—6 of *Figure 5*;

Figure 7 is a perspective view of the cassette in an alternative open condition;

Figure 8 is a side view of the cassette in the alternative open condition of *Figure 7*; and

Figure 9 is a sectional view on the line 9—9 of *Figure 1* when the cassette is in the alternative open condition of *Figure 7*.

The cassette illustrated in the accompanying drawings is formed as a one-piece moulding of plastics material and comprises a receptacle 1 for cards, discs and the like and an envelope 2 integrally connected hingedly to the receptacle 1.

The receptacle 1 is an open box-like structure and has two side walls 3, an end wall 4, an incomplete front wall 5, an incomplete rear wall 6 and a mouth opposite the end wall 4.

The envelope 2 comprises a generally flat square-shaped lid portion 7, and intermediate portion 8 of arcuate section and oblong rectangular outline and a generally flat square-shaped base portion 9. One edge 10 of the lid portion 7 is connected to an adjacent longer edge 11 of the intermediate portion 8 by an integral web 15 and the other longer edge 12 of the intermediate portion 8 is connected to an adjacent edge 13 of the base portion 9 by another integral web 16. The edge 14 of square-shaped base portion 9 opposite to edge 13 is connected to the end edge 18 of the rear wall 6 of the receptacle 1 by a further integral web 17.

The web 17 comprises the hinged connection between the receptacle 1 and the envelope 2, and the webs 15 and 16 comprise hinged connections between the different portions 7, 8 and 9 of the envelope.

The cassette therefore consists of four distinct parts, the receptacle 1 and portions 7, 8 and 9, each part being hingedly connected to an adjoining part by one of the integral webs 15, 16 and 17.

The cassette may be conveniently produced as a one-piece moulding of any suitable plastics material in the fully open condition as shown in *Figures 1* and *2*. In the moulding the regions forming the webs 15, 16 and 17 are of a reduced thickness to enable the webs to act as hinges between adjoining parts of the cassette.

Preferably, the cassette is moulded from a polypropylene co-polymer which provides a durable construction with good hinging between the adjoining parts of the cassette.

It will be appreciated that the receptacle 1 and

portions 7 and 8 may be folded inwardly towards the base portion 9, thus enabling the cassette to occupy the various conditions shown in *Figures 3* to *7* of the drawings.

After the cassette has been folded several times between the various conditions, it generally occupies the open condition shown in *Figure 3*.

The detailed construction of the receptacle will now be described with particular reference to *Figures 1, 3, 4* and *7* of the drawings.

The rear wall 6 of the receptacle 1 consists of a square-shaped panel of plastics material which has two oblong rectangular openings 19 extending along its side edges 20 and a central oblong rectangular opening 21 extending parallel to and between the openings 19. Each opening 19, 21 extends from the end wall 4 of the receptacle 1 across most of the width of the rear wall 6 terminating a short distance away from the edge 22 of the rear wall. Midway along the edge 22 there is a rectangular indentation 24.

The front wall 5 of the receptacle is also of open construction and consists of two strips 25 each of which is joined to the end wall 4 and to a respective side wall 3 just below the front edges 26 and 27 respectively of the walls 3 and 4, and a central stip 28 extending parallel to and between the strips 25 which is also joined to the end wall 4. The free ends of the strips 25, 28, the edges 23 of the side walls 3 and the edge 22 of the rear wall 6 together defined the mouth of the receptacle 1.

As shown in the plan view of *Figure 1*, each opening 19, 21 in the rear wall 6 is disposed directly above a respective strip 25, 28 of the front wall 5, the openings 19 and 21 slightly larger than the strips 25 and 28. In the corner of each of the two strips 25 adjacent the side and end walls 3, 4 there is a small rectangular aperture 29 and, next to each aperture 29, a recess 30 is disposed in the adjacent side wall 3.

Figures 5 and *6* show the cassette in its closed condition in which cards, discs or the like may be contained. The closed cassette of *Figures 5* and *6* is assembled from the open cassette of *Figures 1, 2* and *3* by folding the receptacle 1 about the web 17 until its rear wall 6 lies adjacent the base portion 9, such as shown in the semi-closed position of *Figure 4*, and then by folding the intermediate portion 8 and the lid portion 7 about the webs 16 and 15 so that the intermediate portion 8 closes the mouth of the receptacle 1 and the lid portion 7 covers the front wall 5 of the receptacle 1.

In the closed condition of the cassette illustrated in *Figures 5* and *6*, any cards, discs or the like in the receptacle 1 are completely enclosed within the cassette, and the three portions of the envelope 7, 8, 9, the two side walls 3 and the end wall 4 of the receptacle constitute the exterior walls of the enclosing container.

The portions 7, 8 and 9 of the envelope are provided with various ridges and projections which assist in assembling the cassette and which provide means for retaining the cassette in the various conditions shown in *Figures 4* to *9*.

Along each of the side edges 31 of the base portion 9 there extends a ridge 32 which is arranged to abut against the outside of a respective side wall 3 of the receptacle 1 when the cassette is in either the semi-closed condition of Figure 4 or the closed condition of Figures 5 and 6.

On the intermediate portion 8 adjacent and parallel to each of its shorter side edges 32 there are formed inner and outer ridges 34 and 35 respectively, which are so positioned that when the cassette is folded into the semi-closed or closed condition the edges 23 of the side ridges 34 and 35. On the end of each inner ridge 34 adjacent the web 16 and the longer edge 12 of portion 8 there is formed a projection 36 which is arranged to extend over the edge 22 of the rear wall 6 of the receptacle 1 when the cassette is in the semi-closed condition to retain the receptacle 1 with its rear wall 6 adjacent the base portion 9. In the semi-closed condition, the intermediate portion 8 closes the mouth of the receptacle 1 and thereby prevents the cards, discs or the like from falling out of the receptacle 1.

The lid portion 7 is formed with a ridge 37 adjacent and parallel to each of its side edges 38. The ridges 37 terminate a short distance away from the end edge 39 of the lid portion 7 where they are formed into raised locking lugs 40 with sidewardly extending ears 41. The lugs 40 and ears 41 are arranged to co-operate with the apertures 29 in the strips 25 and the recesses 30 in the side walls 3 to lock the cassette shut with a snap-locking action that will now be described with particular reference to Figure 6. When the lid portion 7 in its normally flat state is folded about the web 15 so that it covers the front wall of the receptacle 1, the ears 41 on the lugs 40 prevent the lugs 40 from entering the apertures 29. In order to enable the lugs 40 to enter the apertures 29 the lid portion 7 has to be deformed into a convex state by applying downward pressure on the corners of the end edge 39 of the lid portion 7. As the lugs 41 enter the aperture 40, the lid portion 7 returns to its normal flat state and the ears 41 are received by the recesses 30 in the side walls 3. Conversely, in order to open the cassette from its closed and locked condition, upward pressure is applied at about midway along the underside of the end edge 39 to deform the lid portion 7 into its convex state so as to enable the lugs 40 to move upwardly out of the apertures 29.

Also formed on the lid portion 7 are two ridges 42 adjacent and parallel to end edge 39. The ridges 37 and 42 adjacent the side and end edges 38 and 39 of the lid portion 7 are disposed so that in the closed cassette they abut against the inner faces of the side and end walls 3 and 4 of the receptacle. It will be appreciated that all the ridges 32, 34, 35, 37 and 42 on the portions 7, 8 and 9 of the envelope not only assist in locating the edges 23, 26 and 27 of the side and end walls 3 and 4 when the cassette is assembled into its closed condition, but also help to prevent dirt and

dust from entering the cassette in its closed condition.

The ridges 42 adjacent the end edge 39 of the lid portion 7 each terminate at a point between a respective lug 40 and the end edge 39 where they are formed into raised projections 43, the purpose of which will be described with reference to the condition of the cassette illustrated in Figures 7, 8 and 9.

Figures 7, 8 and 9 of the drawings illustrate an alternative open condition of the cassette in which discs, cards and the like may be readily placed within and removed from the receptacle 1. In this condition the cassette resembles a lectern and this condition will hereinafter be referred to as the 'lectern position.'

In the 'lectern position', the base portion 9 provides a base on which the cassette stands, and the receptacle 1 rests against the lid portion 7 and is thereby supported at an angle of approximately 60° to the base portion 9. The edge 22 of the rear wall 6 of the receptacle is received between the lugs 40 and the projections 43 on the lid portion 7 and the cassette is thereby retained in the 'lectern position.'

The 'lectern position' comprises an alternative open condition of the cassette that is particularly useful when it is required to remove from and return to the receptacle several cards, discs or the like one at a time. For this use the cassette is conveniently positioned such that the base portion rests on a work surface with the front wall of the receptacle facing towards the person removing and replacing the cards, discs or the like.

CLAIMS

1. A cassette for storing cards, discs and the like which is formed in one piece and which comprises a receptacle for the cards, discs or the like, and an envelope having a base portion connected to the receptacle by an integral hinge and a lid portion connected to the base portion, the receptacle and the envelope being foldable between a closed condition of the cassette in which the envelope and receptacle together constitute a closed container for the cards, discs or the like and an open condition of the cassette in which the receptacle is upstanding from the base portion and rests against and is supported by the lid portion.

2. A cassette according to claim 1 wherein the lid portion is provided with projections which are engageable with the receptacle to retain the receptacle against the lid portion in the open condition.

3. A cassette according to claim 1 or claim 2 wherein the receptacle and envelope are formed integrally as a one-piece moulding in a plastics material.

4. A cassette according to claim 3 wherein the plastics material is a polypropylene co-polymer.

5. A cassette according to any of the preceding claims wherein the envelope has an intermediate portion which is connected to the base portion

and to the lid portion by integral hinges.

6. A cassette according to any of the preceding claims wherein the or each integral hinge is constituted by a web of reduced thickness.

7. A cassette according to any of the preceding claims wherein the receptacle is of box-like form having an end wall, two side walls, a front wall, a rear wall and a mouth opposite the end wall, and an end edge of the rear wall adjacent to the end wall is connected to the base portion.

8. A cassette according to claim 7 wherein at least the front wall of the receptacle has openings therein or is otherwise of open construction.

9. A cassette according to claim 7 or claim 8 wherein in the closed condition of the cassette the rear wall of the receptacle is adjacent the base portion and the lid portion covers the front wall of the receptacle.

10. A cassette according to claim 9 as dependent from claim 5 wherein in the closed condition of the cassette the intermediate portion closes the mouth of the cassette.

11. A cassette according to any of the preceding claims wherein locking means is provided for locking the cassette shut in its closed condition.

12. A cassette according to claim 11 wherein the locking means comprises lugs or projections and complementary apertures or recesses provided on or in the envelope and the receptacle.

13. A cassette according to claim 12 as dependent from claim 9 wherein the lugs or

projections are provided on the lid portion and are engageable with complementary apertures and recesses in the front wall and side walls of the receptacle.

14. A cassette according to claim 12 or claim 13 wherein the lugs or projections interlock with the apertures or recesses with a snap-locking action.

15. A cassette according to claim 7, or to any claim dependent from claim 7, wherein means are provided for retaining the cassette in a semi-closed condition in which the mouth of the receptacle is closed but in which the front wall of the receptacle is not covered.

16. A cassette according to claim 15 as dependent from claim 5 wherein in the semi-closed condition of the cassette the mouth of the receptacle is closed by the intermediate portion which is provided with projections which engage with the rear wall of the receptacle to retain the cassette in its semi-closed condition.

17. A cassette according to claim 7, or to any claim dependent from claim 7, wherein ridges are provided on the peripheral edges of the portions of the envelope which, in the closed condition of the cassette, abut against the side and end walls of the receptacle to prevent dirt and dust from entering the enclosed receptacle.

18. A cassette for storing cards, discs and the like substantially as described herein with reference to and as illustrated by the accompanying drawings.