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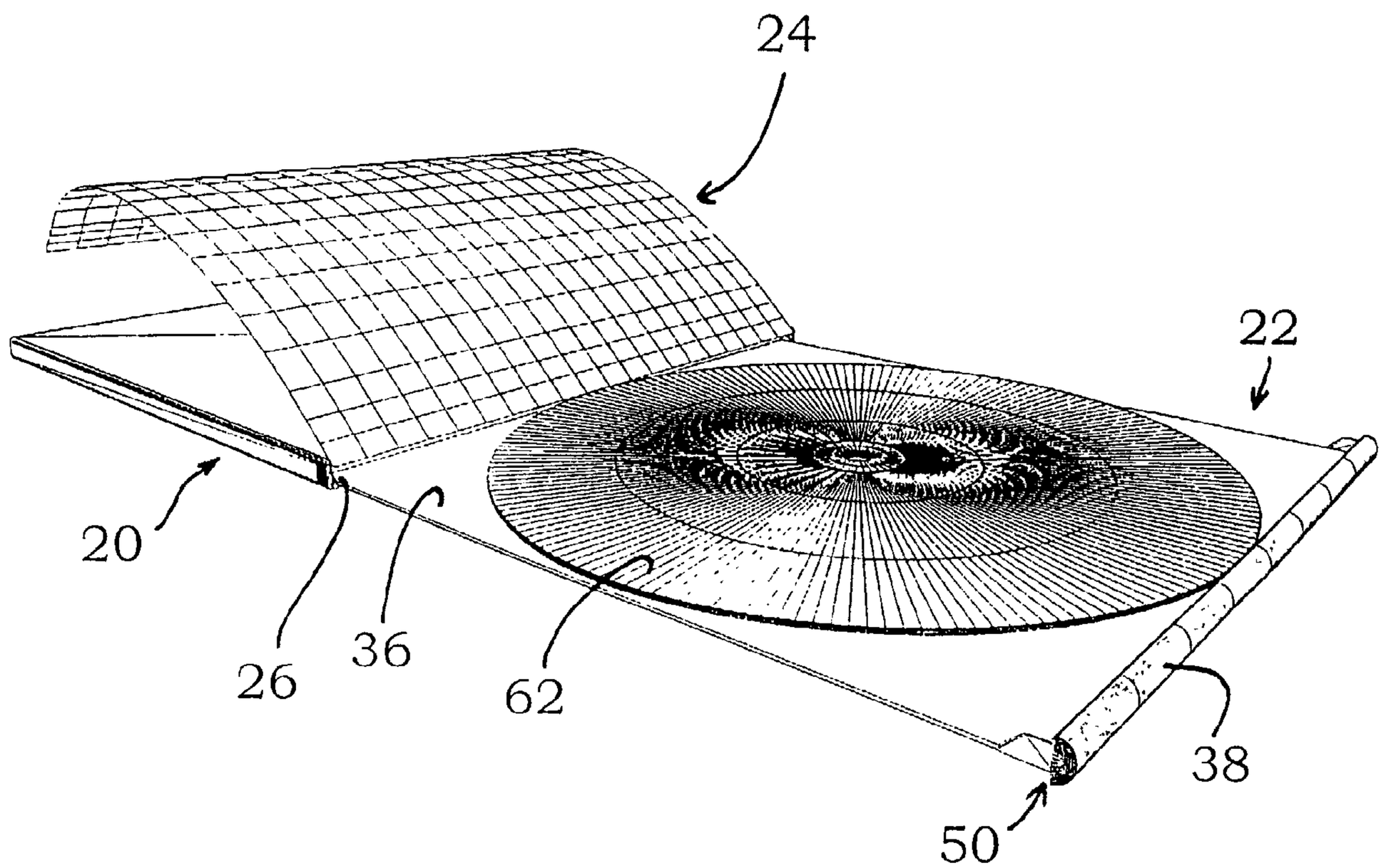
(54) Titre : BOITIER POUR DISQUE OPTIQUE, NOTAMMENT BOITIER DE DISQUE COMPACT (CD)
(54) Title: ENCLOSURE FOR AN OPTICAL DISC, IN PARTICULAR, A CD ENCLOSURE



(57) Abrégé/Abstract:
The invention relates to an enclosure for an optical disc, in particular, a CD enclosure comprising a case (20), which is closed on all sides with the exception of an opening (26) that extends over a narrow side. The inventive enclosure also comprises a drawer (22), which can be slid inside the case (20) and removed therefrom. Said drawer has a front (38), which occludes the opening (26) when the drawer (22) is closed. The drawer also has an essentially flat plate (36), which forms a supporting surface for a CD (62) out of which a holding element (72) for the CD (62) projects. Behind the front (38), a longish pocket (50) is formed between the front (38) and the plate (36). Said pocket extends over almost the entire length of the front (38) and can be accessed from the undersurface of the plate (36). The front (38) is made of an optically transparent material.

NAC 1/00 PCT/CA

Title: Storage box for an optical disc, in particular, a CD enclosure

Abstract

The invention relates to an enclosure for an optical disc, in particular, a CD enclosure comprising a case (20), which is closed on all sides with the exception of one opening (26) that extends over a narrow side. The inventive enclosure also comprise a drawer (22), which can be slide inside the case (20) and removed therefrom. Said drawer has front (38), which occludes the opening (26) when the drawer (22) is closed. The drawer also has an essentially flat plate (36) which forms a supporting surface for a CD (62), out of which a holding element (72) for the CD (62) projects. Behind the front (38), a longish pocket (50) is formed between the front (38) and the plate (36). Said pocket extends over almost the entire length of the front (38) and can be accessed from the undersurface of the plate (36). The front (38) is made of an optically transparent material.

(Figure 1)

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Title: Storage box for an optical disc, in particular, a CD enclosure

The invention relates to a housing for an optical disc, more specifically a CD housing, with a case which is closed to all sides with the exception of one opening, that extends along a narrow side thereof, and with a removable drawer which is moveable within the housing, which has a front that when the drawer is pushed in, closes the opening, and which has a tray which has a carrying surface area for a CD, which has a holding device that protrudes for the CD and is mainly flat.

Such CD housing is known from patent application DE 198 34 549 A which shows a case, into which a drawer can be inserted as is commonly known with a standard CD holder. A further flat CD holder is known from patent application DE 42 21 127 C2.

The handling of the known CD housing is eased by the elastic pressure with which the drawer is extended when applied, but the removal of the CD and the insertion of the CD are rather complicated. Moreover the CD housing is rather clumsy, its dimensions are considerably larger than the actual measurements of the CD.

Optical discs are understood to be data carriers in the shape of a disc with an inner hole, with a typical diameter of 12 centimeters and a typical thickness of 1.2 millimeters. The data is recorded digitally and is read with a laser. In addition to CDs, also Super Audio CDs, DVDs and other corresponding special designs like for example DVD-ROM, CD-ROM, CD-R, DVD-R, etc. are included.

The object of this invention is to further develop the aforementioned known type of CD housing in such a manner that its handling and application is more comfortable and safer, and that the case is smaller and more attractive in appearance.

Based on the above mentioned housing, this object is solved by a storage box having a longish pocket between the front and the tray which is behind the front, which extends across the entire length of the front and which is accessible from the lower side of the tray and which front is manufactured of optically transparent material.

With this housing the application and the removal of the front side labeling is performed very easily. Based on the longish pocket, which holds a foil strip, especially holding a paper strip, a labeled paper strip can be inserted automatically by an assembly machine at the manufacturers while being manufactured, but the end user can easily insert or remove the label later, too. Glue is not needed since the paper strip remains in the pocket by itself which is measured accordingly.

By this means a bar code can be applied on the paper strip, which facilitates a simple sorting and inventory. Stacked next to each other or on top of each other CD cases no longer need to be grasped one at a time, but they can be registered with a scanner in a stacked manner. This is advantageous not only for dealers, but also for private users. The labeling of the contents and archiving is also simplified for recordables.

It is convenient and practicable by providing the dealer and/or user with the labeling strips for self labeling. Since the exchange of labels is performed conveniently, no further resources are needed, the labeling of a constantly visible front side is convenient and performed easily. The foil strip can be conveniently read through the front side.

The reading of the label is facilitated greatly, if the front side is furnished with a magnifying lens, the bar lens ranges across the length of the front side. The bar lens functions as a magnifying lens which eases the recording of the label of the foil strip. In addition the bar lens provides an attractive appearance for the housing based on its rounded shape.

In a further preferred version the foil strip is part of a sheet which also serves as the lower panel of the tray of the drawer which covers the CD on the tray. It is recommended that the foil strip is part of the sheet which is folded at a right angle at the transition of the pocket to the lower area, the lower area (with a rear part of the sheet) is covered and at the rear ledge of the tray it is folded back on the tray and it covers the tray and the CD (with an upper part of the sheet). The foil strip of the sheet which is part of the pocket also has the purpose to position the entire sheet. It is especially positioned in the control direction of the drawer. A further positioning is accomplished with the redirecting of the sheet at the rear ledge of the tray i.e. at the closing panel of the tray. The CD is protected by the upper panel of the sheet. Without this sheet a relative movement would occur between the CD and the inner area of the case when pulling out the drawer. With the inserted sheet the relative movement takes place between the outer side of the sheet and the neighboring inner wall of the case. The CD is protected hereby.

In addition the sheet offers a spacious area for recording information of all types. Here, as known with conventional CD cases, much information, also graphics can be applied. Collectively the most important information is stored on the foil strip behind the front. Detailed information is found on the sheet that is opposite the foil strip which offers a considerably larger area.

In a preferred and enhanced development, the upper sheet which is between the CD and the case is prepared in such a manner that it is elastic and it automatically moves away from the CD when the drawer is opened. Thus the access to the CD is directly open.

In another preferred development of the invention, which also without the features of claim 1 by itself is claimed as an invention and in any given combination with other claims, is a solution which is characterized in that the tray has a stiffness that is measured in such a manner that in the practical application outside of the case and through operation of the front side can be pulled out and pushed in, but also can be bent by applying

pressure with the finger along its bending axis which runs parallel along the front side, is flexible, so that when the drawer is partially pulled out there is at least a few millimeters distance between the tray near the front side and the CD which is on the tray, so that the removal is easily possible.

This embodiment has enormous advantages in practical operation. The drawer, especially the tray of the drawer has sufficient flexibility, so that it can be conveniently operated, which means it can be easily pulled out and pushed in when the front side is operated. Hereby the function of a drawer is completely fulfilled. The front side is the handle for the operation of the drawer as with a conventional drawer. By lightly bending down the tray, the tray comes partially away from the inserted CD near the front side, the CD is partially released from the center hold, it can be grasped easily. It can be inserted just as easily. The drawer does not have to be completely opened to accomplish this, an opening of about 60 % to 70 % is sufficient. In association with the self movement of the upper sheet the CD comes free in the front part when the drawer is pulled out, the CD becomes visible and can be easily grasped. Such an easy handling cannot be found with known CD cases.

Further advantages and features of the invention result from the remaining claims as well as the following description of non limiting embodiments of the invention which will hereinafter be explained in detail. This is done with reference to the accompanying drawings, the drawings show in

Fig. 1 a perspective view of the CD case with inserted CD, the drawer is completely pulled out;

Fig. 2 a sectional view of the CD case without inserted CD along a sectional plane which is determined by the direction in which the drawer is pulled out and the axis of an inserted CD;

Fig.3 a view of the left terminal portion of Fig. 2 in an enlarged view;

Fig. 4 a view of the right terminal portion of Fig. 2 in an enlarged view;

Fig. 5 a perspective view of the left, rear corner of the drawer;

Fig. 6 a sectional view taken along a sectional line through the front part of the case like in Fig. 2 and the rear part of the drawer to further explain the stop against pulling out;

Fig. 7 a view as the one of Fig. 6, this time with a bent tray of the drawer, to further explain the overcoming of the pulling out blockage;

Fig. 8 a view as in Fig. 7 showing a position of the drawer where the pulling out blockage is overcome;

Fig. 9 a top plan view of the front corner of the closed CD case;

Fig. 10 a side view with a similar view as in Fig. 2, this time with a partially pulled out, sectional view of the drawer and the sectional view of the CD;

Fig 11 a cut for the production of a case made of PVC foil with folding technique;

Fig. 12 a cut for a drawer which fits the case in Fig. 11 and made in folding technique; and

Fig. 13 a cut for a sheet of paper for usage in both embodiments.

Figures 1 to 10 concern a first exemplary embodiment; the figures 11 and 12 concern a second exemplary embodiment. The first exemplary embodiment is manufactured by the injection molding technique; preferably it is manufactured from completely transparent plastics material. The second exemplary embodiment is manufactured from thin PVC foil which is 1

millimeter or 0.5 millimeter thick, the CD case is manufactured through folding and gluing. The foil is glass clear.

As all figures show, the CD case comprises mainly of two parts, more specifically a case part 20 and a drawer part 22. In addition there is a sheet 24, as it is shown in figure 13 and which can be used for both embodiments.

The case 20 is a flat, hollow parallelepiped with mainly rounded corners and edges, the case is only accessible through an opening portion 26, this opening portion 26 provides open access to the entire inner opening or cross section. The measurement of the inner cross section is 3 millimeters in height and 122 millimeters in breadth. The inner hollow space is 122 millimeters deep.

The case is one piece and consists of an upper panel part 28, a lower panel part 30, a rear panel part 32 and two identical panels parts 34. All these parts 28 to 34 have a panel thickness of 1 millimeter. Hereby the outer measurements are 5 millimeters in height, 124 millimeters in width, and 124 millimeters in depth. The transition of the upper and lower panel parts 28 and 30 in the rear panel part 32 is rounded as is specifically shown in figure 3. All other edges are not sharp, even if not as smoothly rounded as the described transitions regiions. The lower panel part 30 protrudes slightly across the upper panel part 28 and the panels part 34; the protrusion is for example 0.5 millimeter to 1 millimeter.

The drawer 22 consists mainly of a tray 36 and a front side part 38. This is formed by a magnifying lens as shown in the exemplary embodiment, which has the shape of a circular segment as shown in the sectional view, which is slightly smaller than a half circle. It has a rear, flat area, which ranges across the entire height and breadth, which means the measurement 5 x 124 millimeters. The magnifying lens is rounded along the length of the lens, so that no sharp edges are formed.

The tray part 36 is made of 0.5 millimeter thick glass clear plastics material; the same material can be used as for the case part 20. In the rear part it is connected with a closing panel 40. Furthermore the rear corners are aligned with identical guiding parts 42. They have the inner measurements of the case part 20 as is visible in figure 3. The closing panel 40 compared to it has smaller dimensions. The positioning of the drawer 22 in the rear area is achieved with both of the guiding parts 42. They have mainly a triangular shape. There where the sharpest angle is, they are dull. There is where a stopping area 44 is formed.

In the panels parts 34 U shaped cuts are formed which defined tongues 46. These have a slight biasing towards the inner side, which means they are protruding into the inner hollow space. When pulling out the drawer stoppers 44 abut at the free ends of the tongues; this situation is shown in figure 6. The tongues 46 extend only over a third of the height of the free inner space. They can be overcome as shown in figures 7 and 8 and as described in the following. If the drawer 22 is tilted up diagonally, as shown in figure 7, then the stoppers 44 move over the tongues 46. The guiding parts 42 are rounded below or slanted (see figure 5). In the position shown in figure 7 the upper left edge of the tongue 46 is in the area of the slant or the rounding. The slant i.e. the rounding is so strong that it corresponds with the measurement of that of the tongue 46 protruding towards the inside. Therefore the drawer 22 in the position as shown in figure 7 can be pulled out further, the tongue 46 does not constitute a hindrance. On the contrary, the tongue 46 is pressed to the outside as shown in the position of figure 8. In this position the rear part of the drawer 22 glides past the tongues 46 and the drawer can be completely removed.

The tongues 46 do not hinder the reinsertion of the drawer; they can be and are pressed to the outside when reinserting; they do not result in a stopping action. Should the drawer be reinserted the wrong way around, contrary to the presentation in figures 6 to 8 where the bottom is up and the free end of the closing panel 40 is below, then the tongues part 46 are not a hindrance, but there is also not a removal stopper. For this case a removal stopper

could be applied by forming tongues 46 also in the upper panel part 28. These could be displaced in the depth so that another position of the stopping point exists.

In the front side area of the drawer the tray 36 is connected in one piece with an L shaped stem 48, which runs in a right angle to the tray 36. It runs along the upper outer contour of the case part 20 and passes over in one piece into the magnifying lens which makes up the front side part 38. Thereby, a pocket 50 remains open between the flat rear area of the front part 38 and the stem 48. The pocket is about 3 millimeters deep and about a single or two folded paper thickness wide. The transition between the stem 48 and the lower area of the tray 36 is rounded. From this transition the pocket 50 is accessible.

In the transition area between the panel areas of the stems 48 and the tray part 36 there is a fitting piece 52 at the front of the tray 36. It stiffens the transition between the tray 36 and the stem 48. Furthermore it has an upper bearing surface 54 for a contact with the inner panel of the upper panel 28. In addition it has a lower bearing surface 56 for a contact with the inner panel of the lower panel 30. The distance between the two bearing surfaces 54 and 56 is about 3 millimeters and chosen so that a clamping results. It is this clamping by which the drawer 22 is held in the case 20. The fitting pieces 52 are slanted towards the closing panel 40 as shown in figure 4.

Because of the protrusion of the guiding parts 42 as well as the protrusion of fitting pieces 52 to the bottom, namely towards the lower panel 30, opposite the tray 36, a flat inner area 58 remains open between the tray 36 and the inner area of the lower panel 30. It communicates with the pocket 50.

Furthermore due to the described protrusion of the guiding parts 42 towards the rear, namely towards the rear panel 32 and referring to the closing panel 40, a free space 60 exists between the closing panel 40 and the rear panel 32. The closing panel 40 does not touch the inner panel of the upper panel 28 with its upper, free edge; on the contrary a slot remains open there. Even

above an inserted CD 62 an air gap remains and extends all the way to the front to the stem 48. These described inner spaces, beginning with the pocket 50, then the inner area 48, the free space 60 and the air gap viz. room above the CD 62 are used to insert and accommodate the sheet 24. It has a rectangular shape and three folding lines. The first folding line 64 defines a narrow strip, which is called foil strip 66. Between the first folding line and the second folding line 68, a sheet 24 is defined which is on the inner face of the lower panel 30; the whole surface thereof can be used for printing. A narrow strip between the second folding line 68 and the third folding line 70 is visible through the transparent rear panel 32. The rest of the sheet 24, the area over and beyond the third folding line 70 is above the CD 62 and is visible through the upper panel 28. The pocket 50 is shaped so that the foil strips 66 are inserted with a slight clamping.

In its middle the tray 36 has a holder 72 for the CD 62. The CD is placed in the holder 72 loosely, but not fixed, especially not clamped. It can easily be removed out of the holder 72 from the top. The holder 72 defines a cylindrical protrusion which loosely grips the central hole of the CD. The height of the holder 72 is measured so that there is enough space for the sheet; reference is made to figure 2. The holder is formed out of the material of the tray 36.

Figure 10 shows a slightly more than half opened position of the CD housing. The tray 36 on one hand is sufficiently stiff to completely fulfill the function of a drawer, but on the other hand it is also flexible enough so that it can be bent by hand. It has a typical stiffness of a 0.5 millimeters PVC foil, equivalent to the stiffness of a thin carton or strong paper for example 400 grams per square centimeter. Thus the tray 36 can easily be bent as shown. To bend the tray it is sufficient to apply a slight pressure with the finger. In this manner the CD 62 becomes easily accessible, for the insertion as well as the removal of the CD.

The almost complete flexibility of the drawer is achieved because the drawer 22 does not have any side reinforcements. Over most of the depth of the

drawer the drawer is formed by the tray 36 which is completely flat with the exception of the holder 72. Therefore there is little resistance against bending the tray downwards as is desirable to release the CD.

To have free access to the top side of the C, the portion of the sheet 24 that covers the CD is prepared in a manner that is elastic and bends slightly to the top when the drawer 22 is opened without hindering or disturbing the process of pushing in the drawer, see figure 10.

The tray 36 forms a supporting surface for the CD 62 at the upper side of the upper panel 38. It is advantageous to provide the tray aside of the holder 72 with slightly lesser dimension, i.e. to provide for exemptions in the direction of width, so that the CD 62 protrudes there and can easily be grasped there. In figure 12 the corresponding exemptions are shown in dash-dotted lines.

In the second embodiment as shown in the figures 11 and 12 the cuts for the case 20a and the drawer 22 are shown. These cuts are just examples. They are manufactured out of 0.5 millimeter thick strong hard PVC foil which is clear as glass. The dimensions are selected with the most possible accuracy so that the parts fit into each other and that the sheet as shown in figure 13 fits.

The cut for the case as shown in figure 11 is angled upward along the dotted folding lines at an angle of 90 degrees. Along both side panels 34 there are protruding flaps which later on are glued to a corresponding area of the lower panel 30. In this manner a parallelepiped shaped body is formed which has an opening 26 along its narrow side.

Figure 12 shows the cut for the drawer 22. The largest area, i.e. the largest field is used for the tray 36. At its upper edge a closing panel is defined across a folding line. To the left and right sides and slightly underneath there are protrusions 74 for the removal stopper which interact with the tongues 46 in the side panels 34. At the lower edge is the stem 48 which is

folded upwards from the plane of the paper. Then there is the front side 38 which is slightly wider than the stem 48 and the tray 36. It is folded 180 degrees along the folding line between the stem 48 and the front 38.

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Title: Storage box for an optical disc, in particular, a CD enclosure

Claims

1. Housing for an optical disc, specifically a CD housing, with a case (20), which is closed all around with the exception of an opening (26), which extends across a narrow side and with a drawer (22) which is moveable in the case (20) and which can be removed therefrom which drawer (22) has a front (38) which in the closed position of the drawer (22) closes the opening (26) and which drawer (22) has a tray (36) which has a holding surface for the CD (62) and a protruding holder (72) for the CD (62) which tray (36) is mainly flat, characterized in that a lengthy pocket (50) is formed behind the front (38) and between the front (38) and the tray (36) which pocket (50) extends over almost the entire length of the front (38) and is accessible from a bottom face of the tray (36) and in that the front (38) is manufactured out of an optically transparent material.

2. A housing according to claim 1 characterized in that a foil strip (66), specifically a paper foil strip (66), is inserted into the pocket (50).

3. A housing according to claim 2 characterized in that the foil strip (66) is a part of a sheet (24) which is folded downwards at a right angle at the transition towards the pocket (50), that it covers the bottom face and that it is folded back to the holding surface at the rear closing panel (40) and that it covers the holding surface and a CD (62) resting thereon.

4. A housing according to claim 3 characterized in that the part of the sheet (24) which covers the holding surface is biased, especially elastically prestressed, that a free front end thereof swings upwards from the CD (62) when the drawer (22) is pulled out of the case (20).

5. A housing according to claim 1, characterized in that the front (38) comprises a magnifying lens having a bar axis running along the length of the front (38).

6. A housing according to claim 1, characterized in that the case (20) and the drawer (22) have backholding means which hinder a complete removal of the drawer (22) from the opening (26) but which can be overcome, specifically can be overcome by bending the tray (36) of the drawer (22) slightly downwards away from the CD (62) or by bringing it into a slanted position.

7. A housing according to claim 1, characterized in that the case (20) and the drawer (22) have fitting pieces which ensure that the drawer (22) in a closed position is positioned within the case (20) so that the drawer (22) is shut tightly and specifically clamps.

8. A housing according to claim 1, characterized in that the pocket (50) extends over more than half of the height of the front (38).

9. A housing according to claim 1, characterized in that a stem (48) connects the tray (36) with the front (38) which stem (48) runs oblique to the tray (36), specifically in that the stem (48) and the tray (36) are connected in one piece with each other.

10. A housing as defined in the preamble of claim 1, characterized by the fact that the tray (36) has a material stiffness which chosen so that in practical handling and usage the tray (36) can be pushed in and pulled out of the case (20) by grasping the front (38), and the tray (36) can be bent down with a pressure of a finger and along a bending axis which runs parallel to the front (38) sufficiently, so that in a situation of an at least partially pulled out drawer (22) the holding surface has a free space of several millimeters from a CD (62) which is on this holding surface, to facilitate a removal of the CD (62).

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Fig. 1

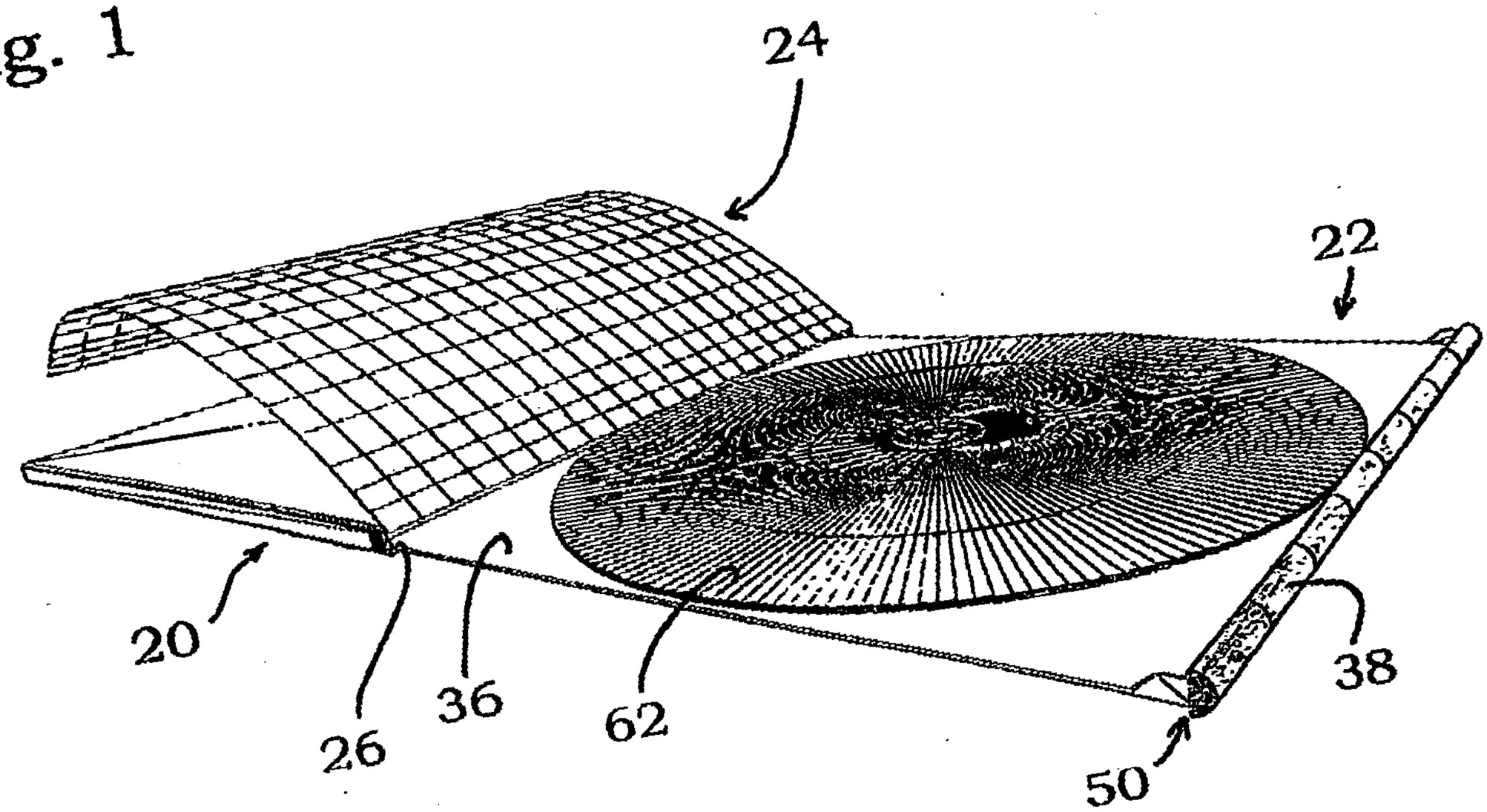


Fig. 3

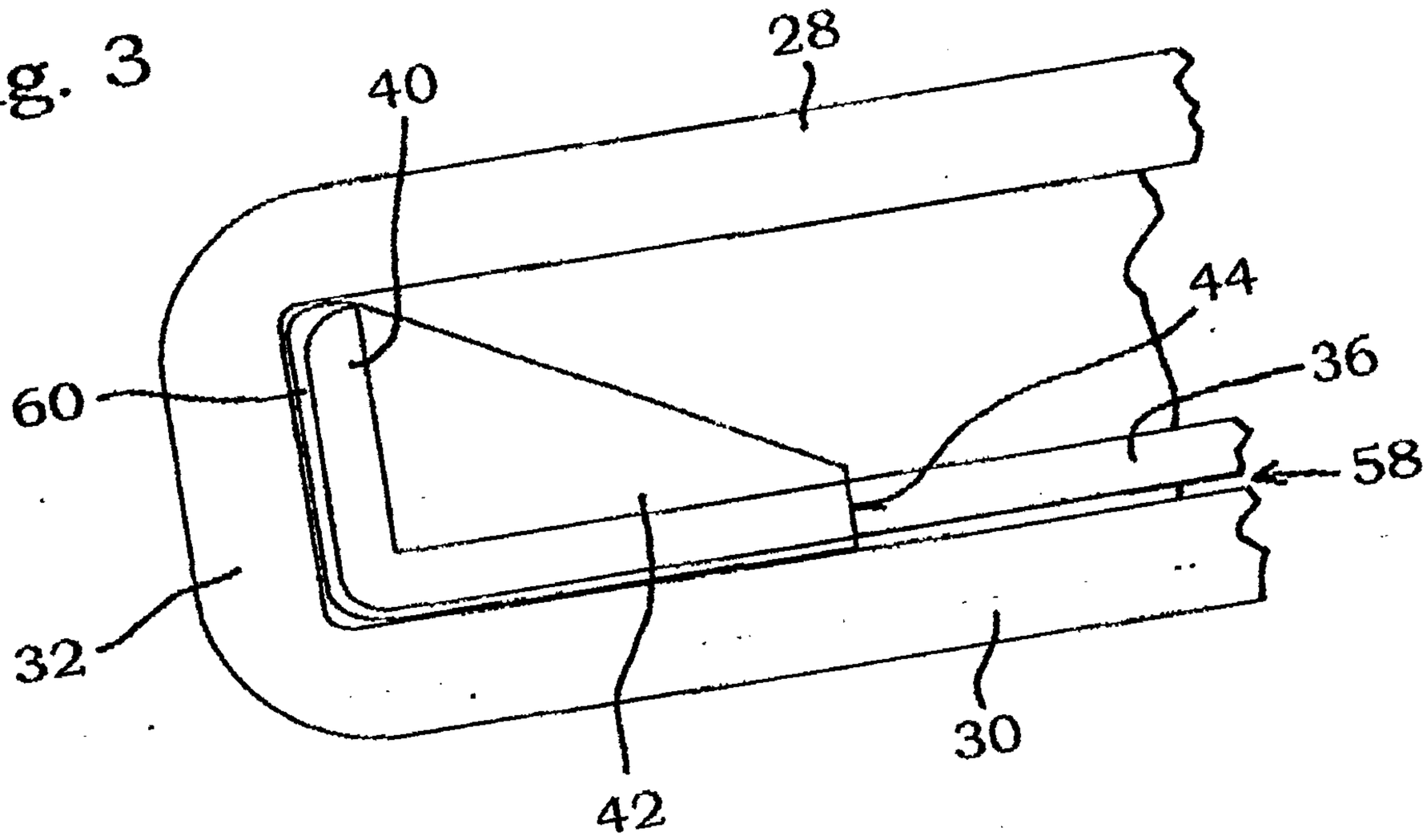


Fig. 4

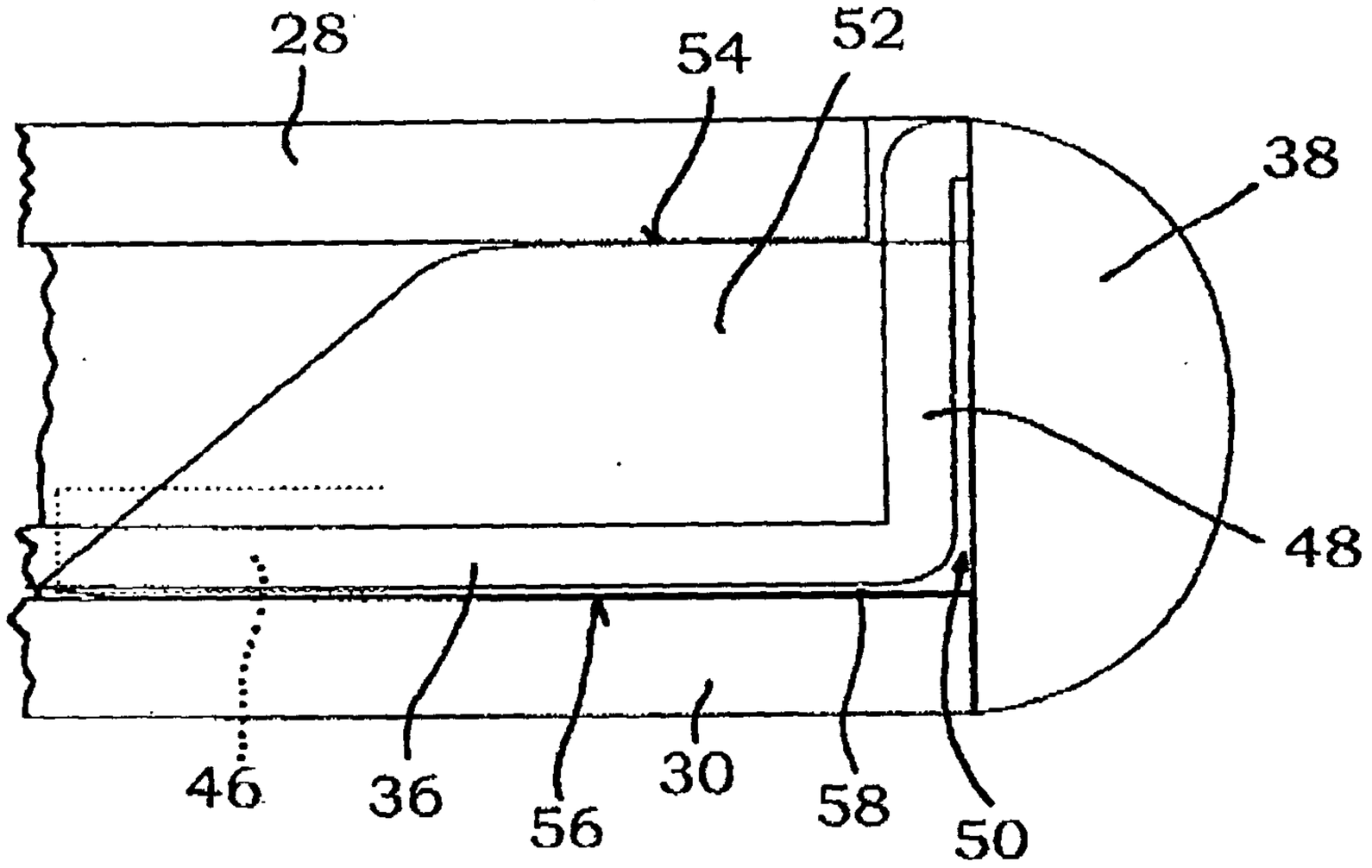


Fig. 5

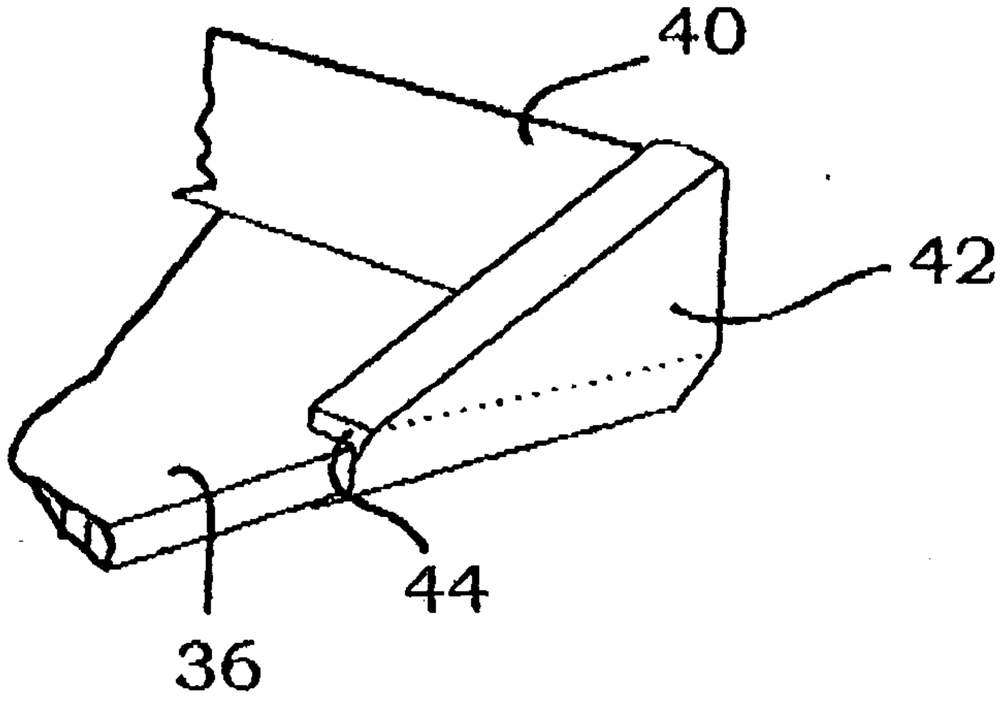


Fig. 6

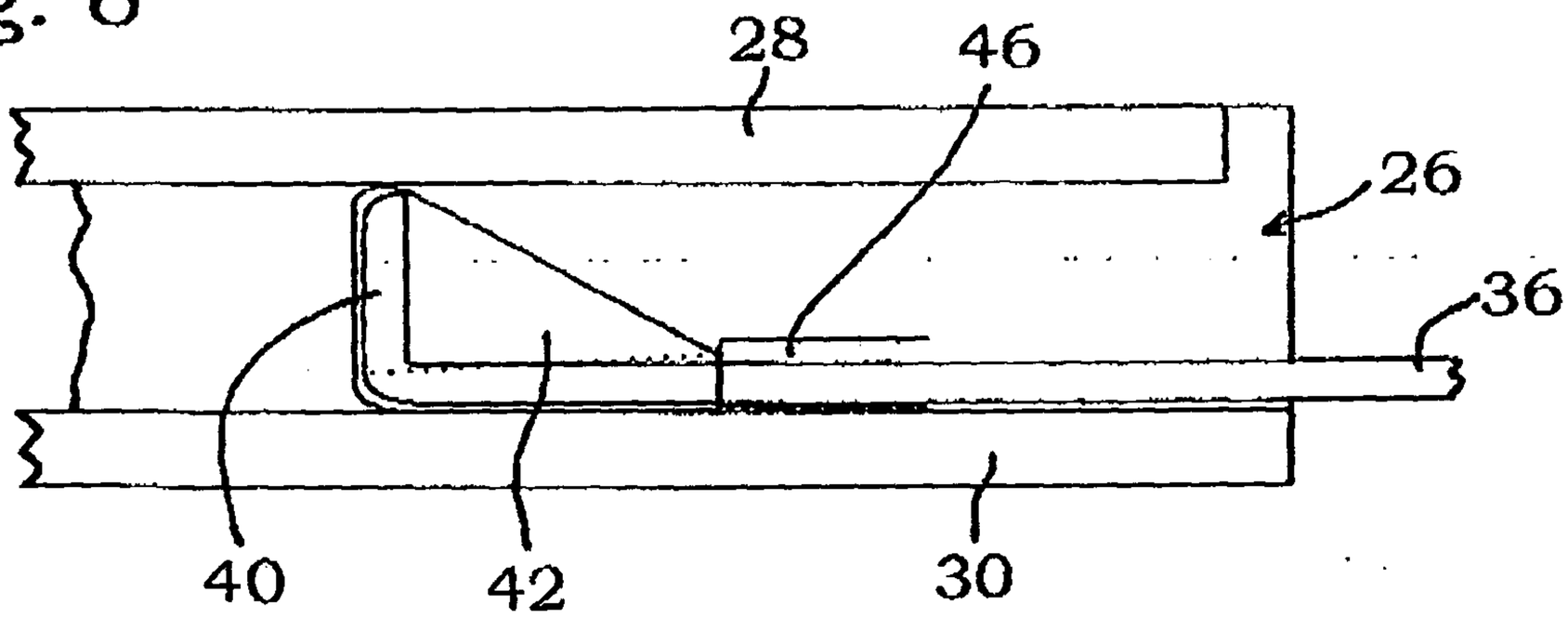


Fig. 7

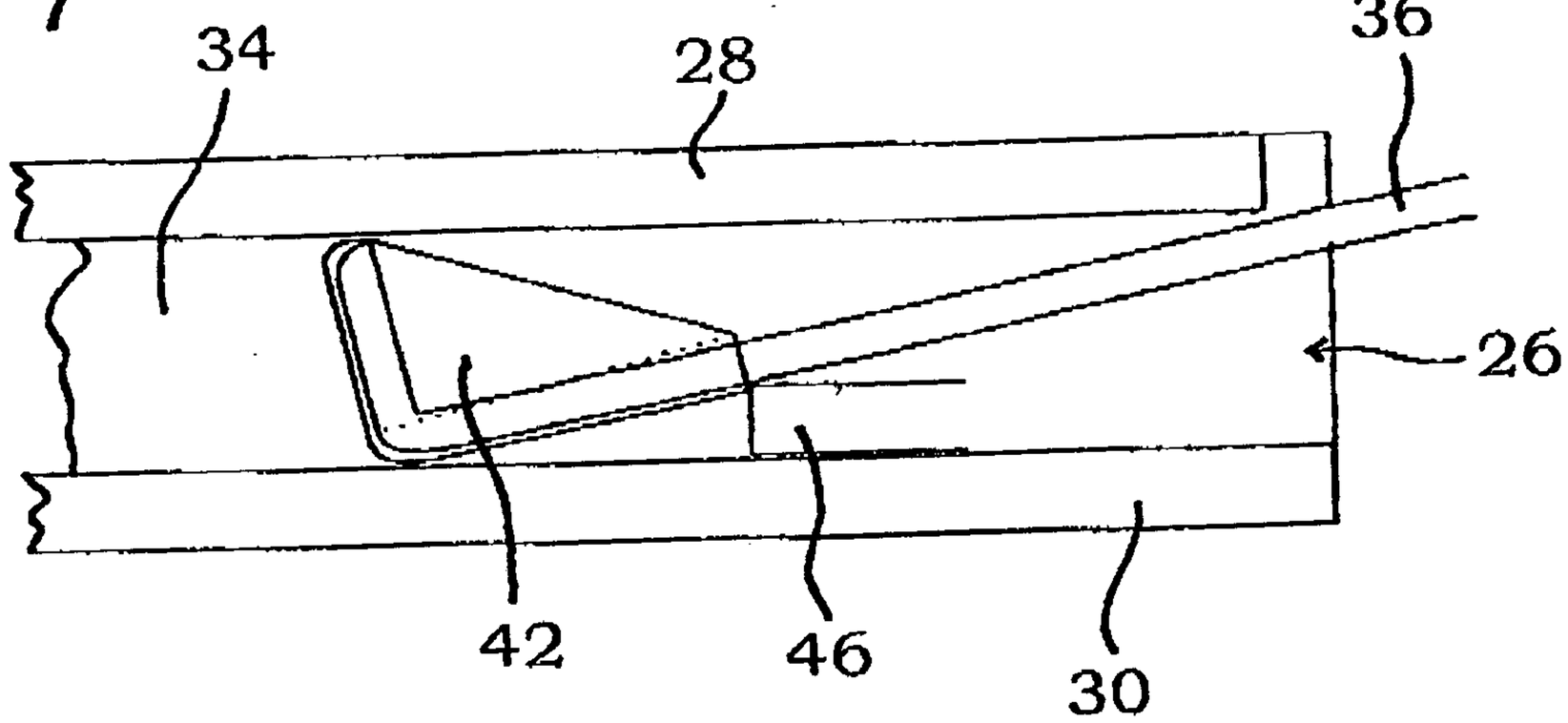


Fig. 8

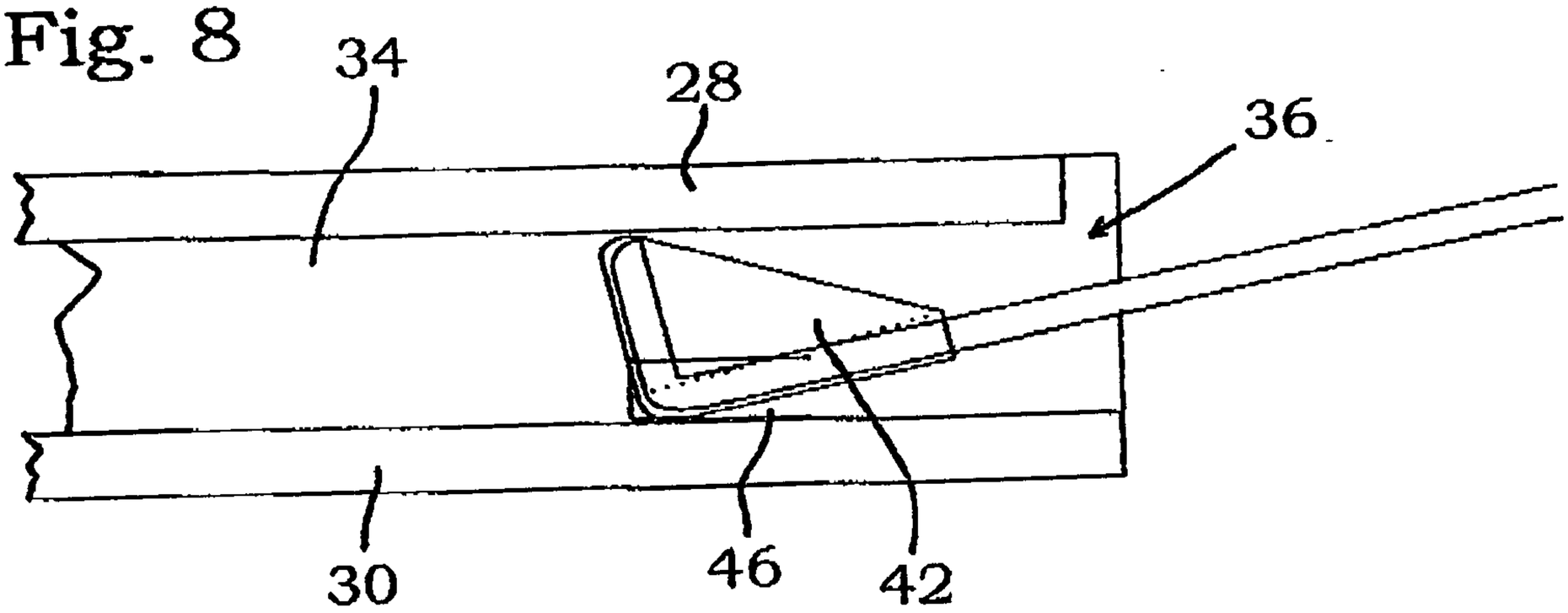
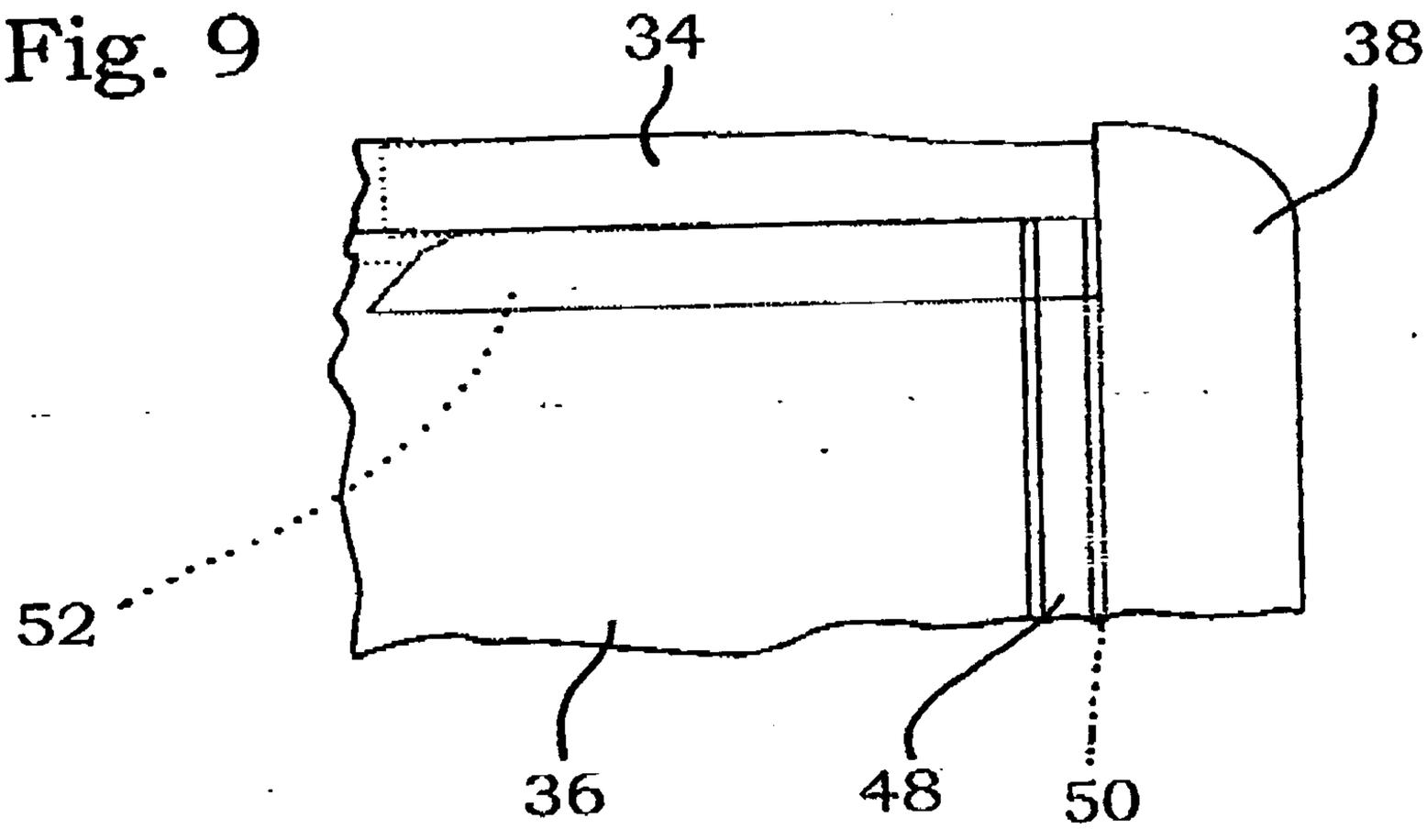


Fig. 9



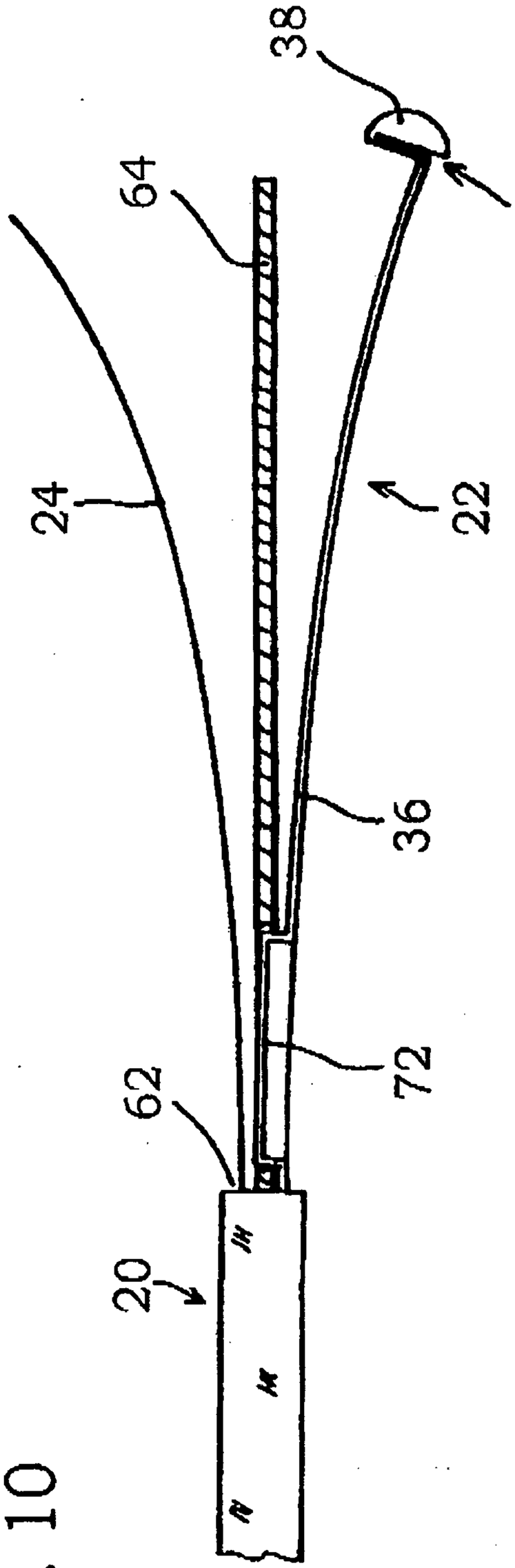


Fig. 10

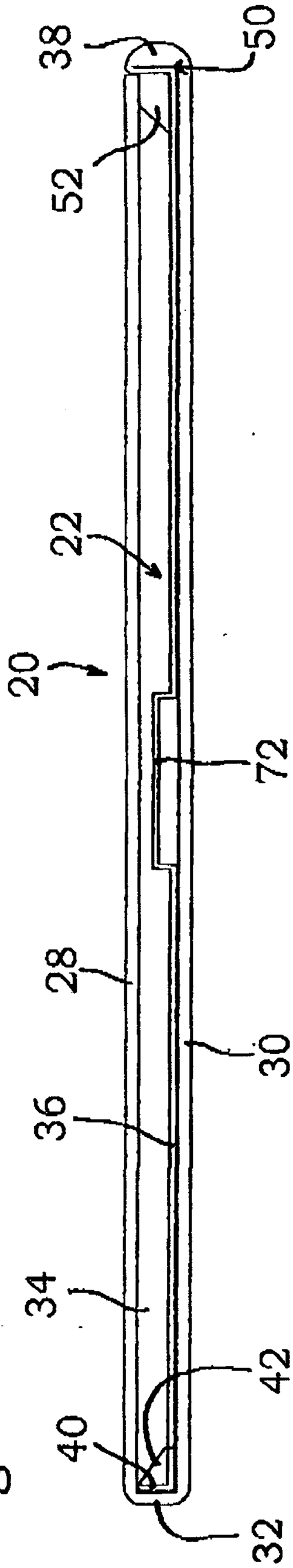


Fig. 2

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Fig. 11

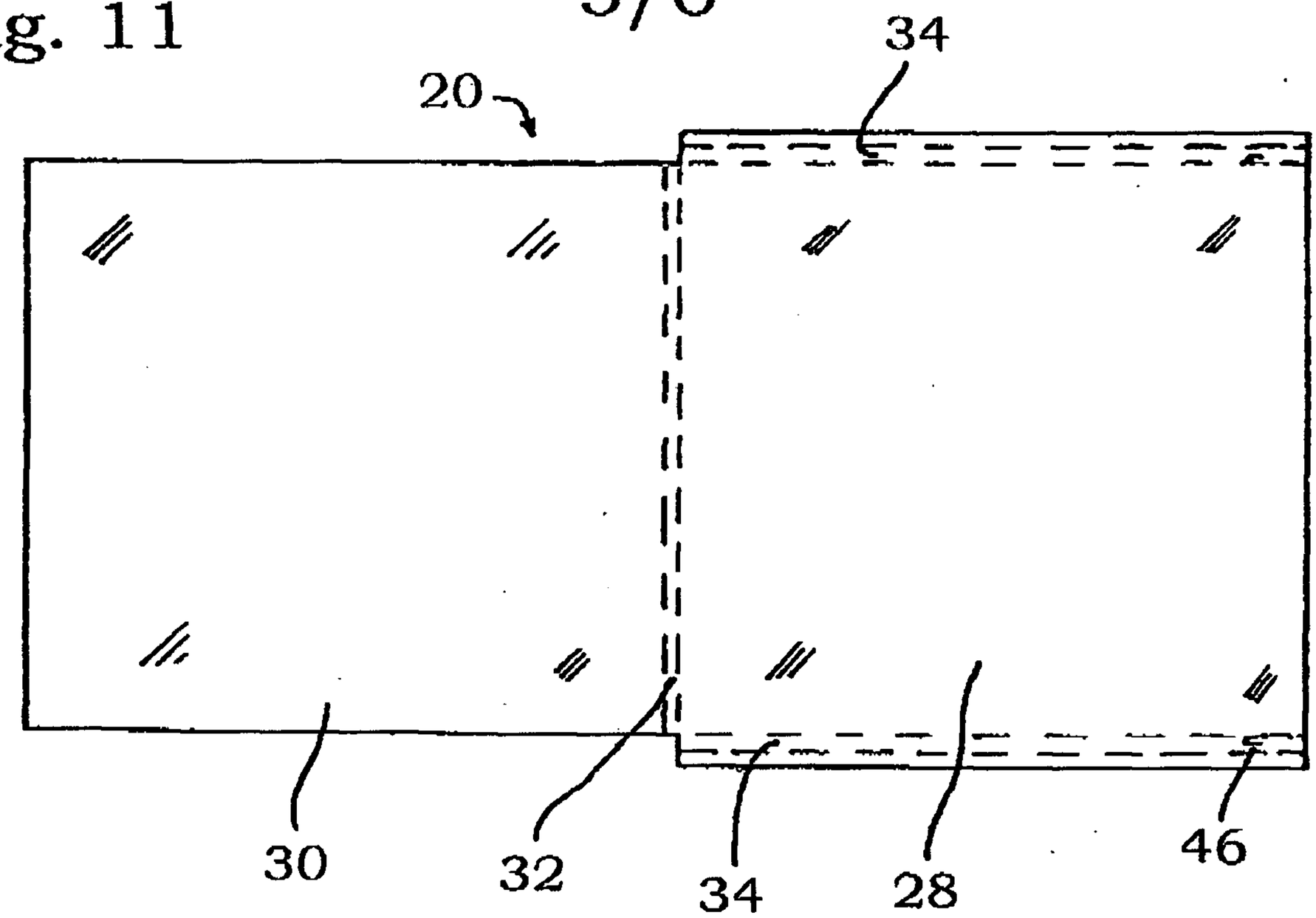


Fig. 12

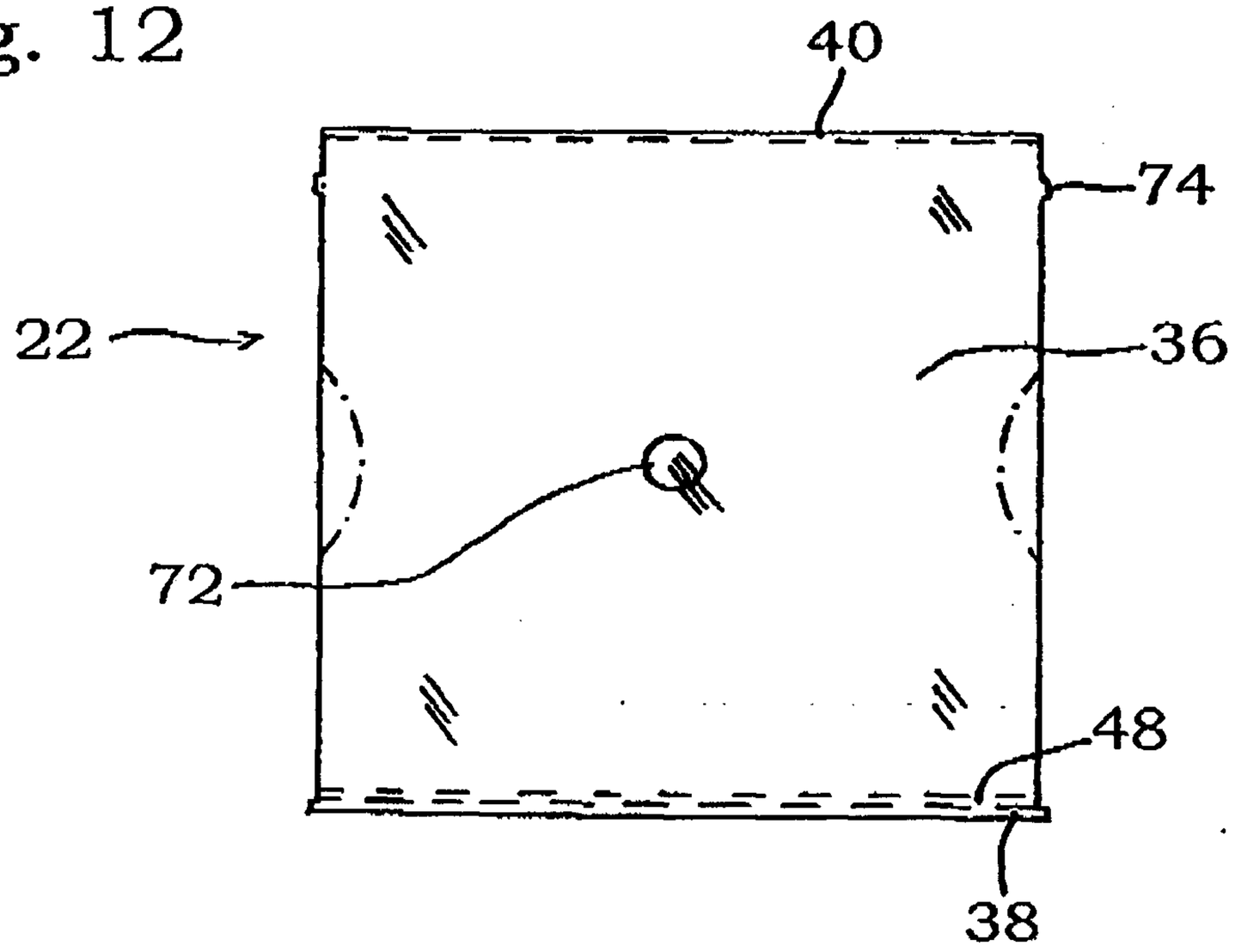
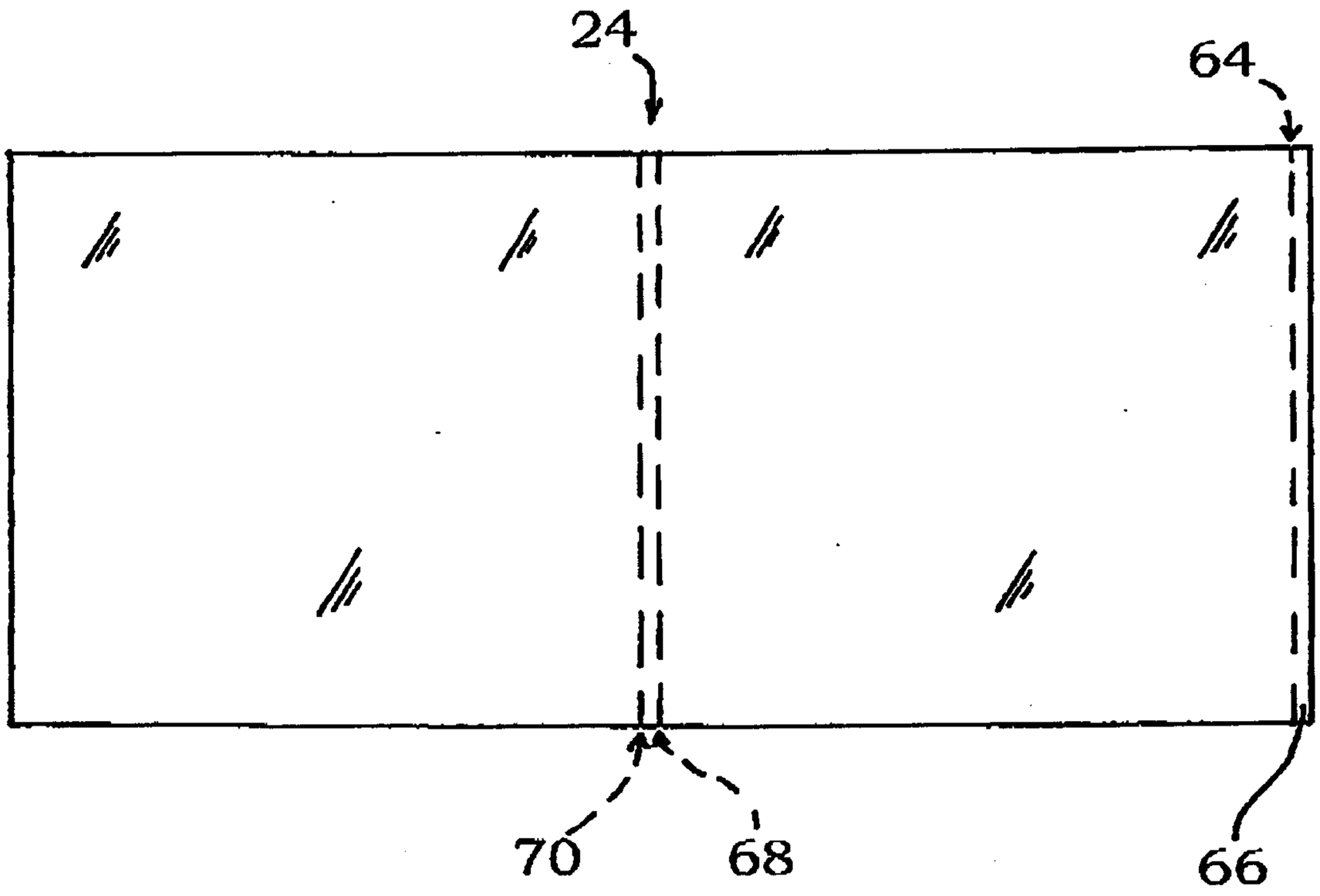
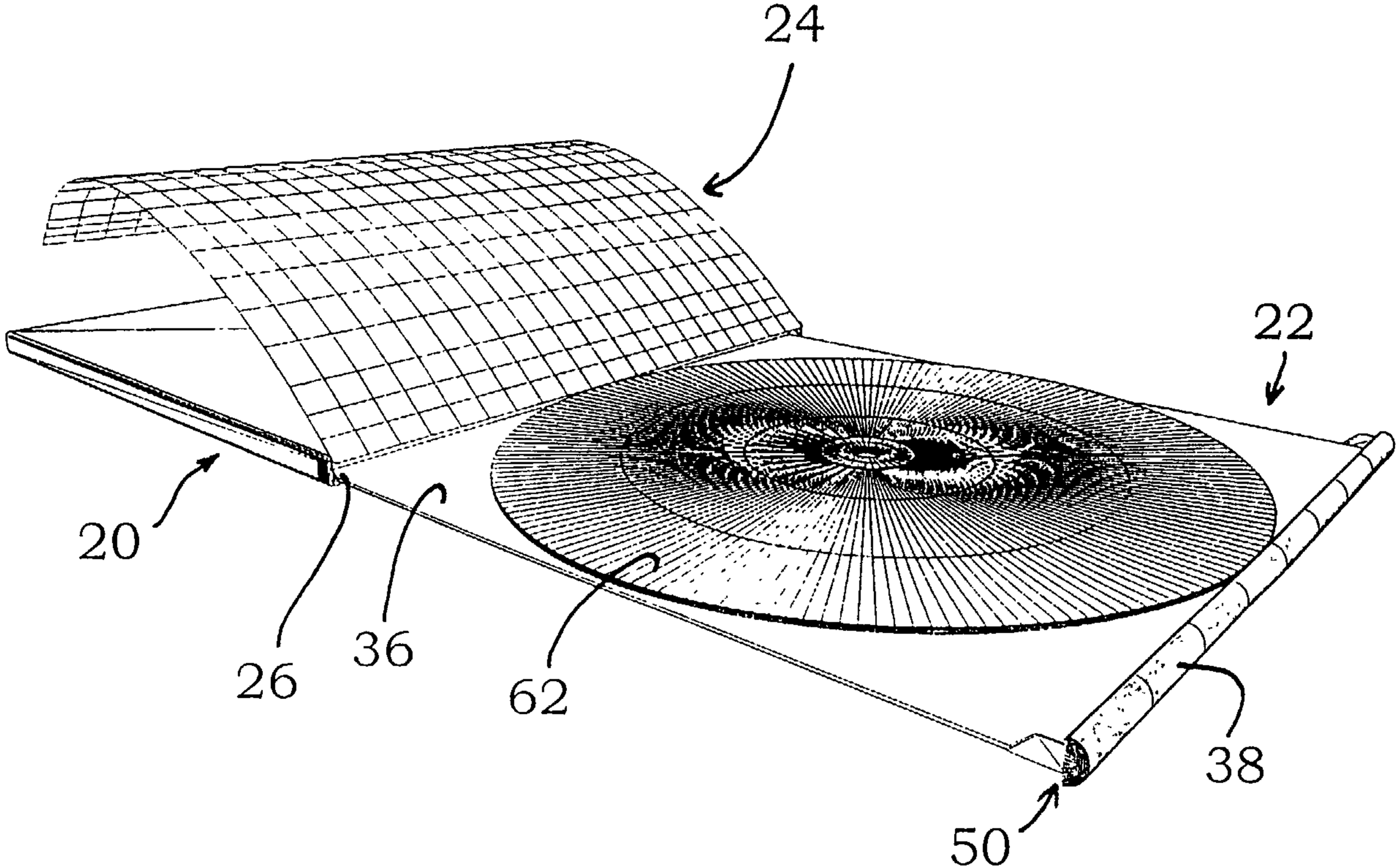


Fig. 13

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