

CONTAINER HAVING AT LEAST ONE VIEWING WINDOW,
IN PARTICULAR A TAPE CASSETTE, AND VIEWING WINDOW
ARRANGEMENT THEREFOR

5 A container having at least one viewing window,
 in particular a tape cassette, the viewing window being
 formed by a window part which can be fastened in a cutout
 of the container housing at fastening points and has
 parts of different transparency, as well as a viewing
 window arrangement.

10 Containers of a general type and tape cassettes,
 specifically audio/video magnetic tape cassettes and data
 magnetic tape cartridges with viewing windows are known
 in many varied forms.

15 Usually the windows are welded into openings
 provided for them in the cassette housings, or the
 windows are produced together with the housings by two-
 color injection molding.

20 In two-color injection molding, changes to the
 shape of the window require complex mold modifications or
 new designs, which rule out such changes from the outset.

In the case of opaque housings, the welded-in
 windows are usually welded in from the rear side of the
 housing in order to keep the welding points out of sight.

25 European Patent 73010 discloses a compact
 cassette having a window arrangement welded into an
 opaque housing from the inside.

30 In addition, it is known from European Patent
 233 028 to provide window parts for windows of video
 cassettes with only slightly transparent roughening above
 points prone to abrasion. This at most covers over
 isolated locations or relatively small window areas.

35 It is an object of the present invention to
 design containers with viewing windows and viewing
 windows for such containers with opaque or transparent
 housings and housing parts for unobtrusive fastening
 points, in particular welding points, or to make certain

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housing and window abutting areas visually indistinct.

We have found that this object is achieved according to the present invention if, for covering over the fastening points, the parts of different transparency are designed as a transparent part and as a masking part, the latter at least over the fastening points.

The second object is achieved if the parts of different transparency are designed as a transparent part and as a masking part, the latter having an opaqueness at least similar to the opaqueness of the housing, so that the transitional region between housing and window part is visually indistinguishable.

In this way it is advantageously possible by changing the size and/or shape of the masking part at the same time to change as a matter of course the size and/or shape of the transparent part, so as to produce completely different window parts which, however, all have the characterizing feature of masking the fastening points and/or achieving the visual indistinctness of the transitional regions between housing and window part.

At the same time, the outlines of the window parts, and consequently also the cutouts in the housings, can remain unchanged, making a great number of window shapes, more specifically shapes of the transparent part of the window part, possible and able to be used as options, without having to change the sizes and shapes of the window parts themselves.

The masking part of the window part should be arranged at the outer edge of the viewing window or at least in the vicinity of the outer edge of the window part. In the simplest case, the masking part may also be in the form of a frame or comprise elements of an outer frame. The masking part may expediently be of the same color as or a similar color to an at least partially opaque container housing. Both parts, housing and window part, may however also be partially or completely transparent, with the exception of the masking part. It



is, however, also possible to use a contrasting color to the color of the housing, for example in order to achieve a three-colored effect or, by suitable covering in the region of the outer edge (for example in the case of printing or impressing) also a multi-colored effect.

The masking part, and consequently also the transparent part, of the window part may be of an irregular or regular shape in relation to the shape of the window cutout in the housing. The outer appearance of the container or the cassette and the visibility of the parts contained therein can thus be varied within broad limits. The window part can be produced as a two-color injection molding or, for example, by one of the following methods.

The masking part can be produced by imprinting after production or during the injection molding operation (in-mold method). It is also possible to form the masking part of the window part by impressing.

Welding points or riveting points on the housing are suitable as fastening points, but use may also be made of adhesive bonding points.

On the side of the window part covered over by the masking part, expediently both welding bosses or ribs and riveting pins and holes, but also guide elements for the tape of a tape cassette, may be expediently [sic] arranged.

The invention also relates to the viewing window for the container or the tape cassette itself, which window comprises a window part fitting into the window cutout and formed in one part as a transparent part and in the other part as a masking part for fastening points on the tape cassette housing. In a practical development, the viewing window comprises a window part of transparent material, which is partly opaque for forming the masking part.

In a further development, the masking part is arranged at least in the vicinity of the outer edge of

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the window part. This makes it possible in practice to cover over all the fastening points which lie at the outer edge or in its vicinity in a manner according to the invention.

5 It is also possible to form the masking part directly as an outer frame. Furthermore, it may be necessary to form the masking part in a regular or irregular shape, for example of an appealing design. The masking part can in practice be applied as a print and/or
10 an impression on a transparent window part. In practice it is also possible to use two-color injection molding in order to make the masking part opaque and the transparent part at least slightly transparent. For fastening, welding ribs or riveting pins and/or riveting holes,
15 formed on the window part, may be provided on the rear side of the masking part. Guide elements, such as continuations, ribs, etc. for a tape in a tape cassette, may advantageously be provided on said covered rear side.

20 Embodiments of the invention are represented in the drawing and described below.

 In the drawing:

 Figure 1a shows a compact cassette according to the invention having a window with an outer frame
 Figure 1b shows the cassette from Figure 1 having a
25 window with a partially interrupted outer frame
 Figure 1c shows the cassette from Figures 1 and 2 having a window with an outer frame given a particular design

 Figure 2a shows a cassette half according to the prior
30 art with fitted window part in plan view
 Figure 2b shows a cross-sectional view along line of intersection II-II through the upper cassette housing half

 Figure 3a shows the cassette according to the invention
35 symbolized by a detail of a cross-sectional drawing such as Figure 2b with a window fitted from outside for welding



Figure 3b is as Figure 3a, but with a window fitted from inside for welding

Figure 3c is as Figure 3a, but with a window fitted from outside for riveting

5 Figure 3d is as Figure 3a, but with a multiply stepped window for an adhesive bond

Figure 4 is as Figure 3a, but with a housing/window unit produced by two-color molding [sic].

10 The compact cassette K in Figure 2a comprises a housing H and a window F, which is connected to the latter, for example in the form of points P, for example welded points, and in which the openings for entry of the drive spindles may also be provided. As can be seen in Figure 2b, the housing H has a recessed edge R, on which
15 the outer edge of the window F rests and in the region of which the fastening points, in this case represented as welding bosses SP, lie. If the two parts, the window F and the housing, are not both transparent, as is usual in the prior art, the housing H being colored and the window
20 F being transparent, the fastening points P are visible only from inside the housing H. An externally neat design is obtained. This changes, however, as soon as both parts, the housing H and the window F, are fully or partly transparent, since the fastening points, or
25 possibly areas, are then at least partially visible and the design of the cassette K may be significantly impaired.

Figure 1a shows a compact cassette 5 according to the invention, essentially comprising the housing 6 and
30 the window 7 which is connected to the latter and likewise contains openings 8 for the drive spindles of the apparatus. The window 7 is formed by a transparent central part 9 and a closed outer frame 10 as masking part.

35 In the cassette 5 in Figure 1b, the same parts have the same designations as in Figure 1a. What is different is the sectional outer frame 11, which



surrounds the transparent part 12, which is provided with outer continuations due to the intermediate spaces produced.

5 Figure 1c shows an outer frame 13 of an irregular design, which surrounds a correspondingly shaped designed transparent part 14. As indicated by a zig-zag line on the lower part of the outer frame 13, a regularly tri-
10 angularly formed frame shape 13A can likewise be designed. In all shapes, only the covering function of the masking part of the window 7 is to be retained. As explained above, this is to cover over the fastening points, but it is quite conceivable also to cover over the entire inner frame of the housing 6 and/or also to
15 conceal a distance 15 between a smaller window 16 and a larger housing recess 17 by the color of, for example, the outer frame 13 virtually matching or even corresponding to the color of the housing 6, cf. Figure 5.

20 Figures 3a to 3d show various fitting possibilities of windows and housing recesses. In Figure 3a, the housing 18 is provided with an outwardly open recess 19. The associated window 20 lies with a masking part 21, formed at this point as a step, and with a downwardly directed welding boss 22 in the recess 19 and
25 is fastened thereto by means of welding. The transparent part 23 adjoins the masking part 21, which contains for example opacifiers, which are provided in particular in the region of the step and in this case also in the adjoining edge region and over the full window thickness
30 D. The window 20 may be produced, for example, by injection molding.

35 Figure 3b shows a geometrically somewhat reversed configuration, in which the recess 24 of a housing 25 is downwardly open for receiving a stepped edge 26 of a transparent part 27 of a window 28. In this example, the welding boss 29 is attached to the edge of the recess 24 of the housing 25. The masking 30 at the point shown here



is applied externally to the transparent part 27 in the edge region, for example by printing, adhesively fixing or impressing.

5 Figure 3c shows a similar configuration to Figure 3a, with a housing 31 having an upwardly open recess 32 with clearances 33 and a transparent part 34 with a stepped edge 35 and a riveting pin 36. The window 37 can consequently be connected to the housing 31 by means of riveting, which can be seen diagrammatically from the
10 undeformed and deformed riveting pin 36. The outer surface of the transparent part 34 is masked by the in-mold application method, a masking film 38 in this case covering over the edge region and a transparent film 39 covering over the entire surface. The masking process
15 takes place in the injection mold.

Figure 3d shows two alternative step configurations of a housing 40, 41 and of a window 46, 47 and of a stepped transparent part 42 and 43 respectively, covering layers 44 and 45 also being provided in each
20 case in the edge region. The covering layers may be formed and produced as in the examples of Figures 3b and 3c. Fastening may be performed by adhesively fixing in place.

Figure 4 shows a further configuration with a
25 housing 52 and a window 48, which are produced by the two-color injection molding process, the window 48 having been coated with a layer 49 on the surface in a printing and/or impressing process or provided with an impressed layer, comprising a covering film 50 and a transparent
30 film 51. The transparent part is designated 53. Such a configuration may be necessary if the two-color transitions of the injection moldings are not entirely satisfactory and masking improves the appearance in critical areas.

35 In embodiments described above, it is possible for all the housing parts to be opaque or partly opaque. In these cases, the masking part should be either of a



similar color as the housing or a contrasting color to it. It is also possible, however, for the housing and the transparent part to be transparent and only the masking part to be partially or completely opaque. The shape of the cutout in the housing, which is for example bordered by the recess for the window, is, for the sake of simplicity, shown as rectangular in the examples described. However, any contour of the cutout can be used, as long as the housing part can still be produced, since the window is of course essentially adapted in its shape to the contour of the cutout, or more specifically to the contour of the window recess, if there is one.

According to the invention, a housing having a predetermined cutout contour can be used for a great number of windows of essentially the same outer shape, but different masking parts and consequently also different transparent parts, which constitutes a simplification in terms in production and, for variety design, offers all the possibilities for distinguishing from other containers or cassettes.

In particular, the welding bosses or ribs, riveting pins and/or riveting holes are expediently arranged on the window on the rear side of the masking part. In the rearside region of the masking part, guide elements 54 (Figure 4) for the tape and/or the tape rolls of a tape cassette may also be formed on the window.

Producing the impression on the window for forming the masking part may be performed by injection molding.

A container having a viewing window essentially comprises a housing with a window which can be fastened to it or can be connected to it during production and is designed in one part as a transparent part and in another part as a masking part, in particular in the edge region. The aim is to cover over the fastening points. In addition, the advantage is obtained of using windows with a wide variety of maskings for the same housing, provided



that the contours of the cutout and of the outline of housing and window are adapted at least substantially to one another. The plastic container with windows can be used for all packing and archiving purposes, in particular also as a cassette with a recording medium, for example a magnetic tape cassette.

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We claim:-

1. A container having at least one viewing window, in particular a tape cassette (K), the viewing window being formed by a window part (F) which can be fastened in a cutout of the container housing at fastening points and has parts of different transparency, wherein, for covering over the fastening points (P), the parts of different transparency are designed as a transparent part (9, 12, 14, 23, 27, 34, 42, 43, 53) and as a masking part (10, 11, 13, 13A, 21, 30, 38, 44, 45, 50), the latter at least over the fastening points.
2. A container having at least one viewing window, in particular a tape cassette (K), the housing consisting of opaque material and the viewing window being formed by a window part (F) which can be fastened in a cutout of the housing at fastening points and has parts of different transparency, wherein the parts of different transparency are designed as a transparent part (9, 12, 14, 23, 27, 34, 42, 43, 53) and as a masking part (10, 11, 13, 13A, 21, 30, 38, 44, 45, 50), the latter having an opaqueness at least similar to the opaqueness of the housing, so that the transitional region between housing (6, 18, 25, 31, 40, 41, 52) and window part (7, 20, 37, 46-48) becomes visually indistinct.
3. A container as claimed in claim 1 or 2, wherein the masking part (10, 11, 13, 13A, 21, 30, 38, 44, 45, 50) is arranged at least in the vicinity of the outer edge of the window part (7, 20, 28, 37, 46-48).
4. A container as claimed in claim 3, wherein the masking part (11) comprises at least elements of a frame-like outer edge.
5. A container as claimed in claim 3, wherein the masking part (10, 13, 13A) is an outer frame on the window (7).
6. A container as claimed in claim 1 and one or more of claims 3 to 5, wherein the masking part (10, 11, 13, 13A, 21, 30, 44, 45, 50) has an at least similar color to

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the container housing (6, 18, 25, 31, 40, 41, 52).

7. A container as claimed in claim 1 and one or more of claims 3 to 5, wherein the masking part (10, 11, 13, 13A, 21, 30, 44, 45, 50) has a contrasting color to the color of the container housing (6, 18, 25, 31, 40, 41, 52).

8. A container as claimed in claim 1 or 2 and one or more of claims 3 to 7, wherein the masking part (13, 13A, 21, 30, 38, 44, 45, 50) and the transparent part (14, 23, 27, 34, 42, 43, 53) are of an irregular shape in relation to the shape of the window cutout.

9. A container as claimed in claim 1 or 2 and one or more of claims 3 to 8, wherein the masking part (10' [sic] 11, 13, 13A, 21, 30, 38, 44, 45, 50) and the transparent part (9, 12, 23, 27, 34, 42, 43, 53) are of a regular shape with respect to the shape of the window cutout.

10. A container as claimed in claim 1 or 2 and one or more of claims 3 to 9, wherein the window part (20, 48) is produced by two-color injection molding.

11. A container as claimed in claim 1 or 2 and one or more of claims 3 to 9, wherein the masking part (10, 11, 13, 13A, 30, 44, 45) is formed as an imprint on the window part.

12. A container as claimed in claim 1 or 2 and one or more of claims 3 to 9, wherein the window part is formed with an impressed masking part (10, 11, 13, 13A, 30, 44, 45).

13. A container as claimed in claim 1 or 2 and one or more of claims 3 to 12, wherein the window part (37, 48) is provided with a complete print (38, 39 and 50, 49 respectively) during the injection molding operation.

14. A container as claimed in claim 1 or 2 and one or more of claims 3 to 13, wherein the window part (20, 28) is fitted to the housing (18 and 25 respectively) by means of a welded fastening (27, 29).

15. A container as claimed in claim 1 or 2 and one or





more of claims 3 to 13, wherein the window part (37) is connected to the housing (31) by means of a riveted fastening (36).

5 16. A container as claimed in claim 1 or 2 and one or more of claims 3 to 13, wherein the window part (46, 47) is fitted to the housing (40, 41) by means of an adhesive fastening.

10 17. A viewing window for a window cutout of a container, in particular a tape cassette, formed by a window part fitting into the window cutout, wherein said window part is formed in one part as a transparent part (9, 12, 14, 23, 27, 34, 42, 43, 53) and in the other part as a masking part (10, 11, 13, 13A, 21, 30, 38, 44, 45, 50) for fastening points on the container housing (6, 18, 15 25, 31, 40, 41, 52).

18. A viewing window as claimed in claim 17, wherein the window part (20) consists of a transparent material (transparent part 23) which is partly opaque for forming the masking part (21).

20 19. A viewing window as claimed in claim 17 or 18, wherein the masking part (10, 11, 13, 13A, 21, 30, 38, 44, 45, 50) is arranged at least in the vicinity of the outer edge of the window part (7, 20, 28, 37, 46-48).

25 20. A viewing window as claimed in claims 17 and 19 or 18 and 19, wherein the masking part (10, 13, 13A) surrounds the transparent part (9, 14) of the window part (7) as an outer frame.

30 21. A viewing window as claimed in claim 17 or 18 and one or both of claims 19 and 20, wherein the masking part (13, 13A, 21, 30, 38, 44, 45, 50) is of a geometrically regular or irregular shape.

35 22. A viewing window as claimed in claim 18 and one or more of claims 19 to 21, wherein the masking part (10, 11, 13, 13A, 30, 44, 45) is applied to the transparent part (9, 12, 14, 27, 42, 43) as a print and/or an impression.

23. A viewing window as claimed in claim 17 and one





or more of claims 18 to 21, wherein the masking part (21, 50) and the transparent part (23, 49) are different-colored parts of a window part (20, 48) produced by two-color injection molding.

5 24. A viewing window as claimed in claim 17 or 18 and one or more of claims 18 to 21, wherein welding ribs or riveting pins (30) and/or riveting holes are provided on the side of the window part (20, 37) opposite the masking part (21, 38).

10 25. A viewing window as claimed in claim 17 or one or more of claims 18 to 24, wherein guide projections or ribs (54), arranged on the rear side of the masking part (50) on the window part (48), are provided for the tape contained in a container.

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