

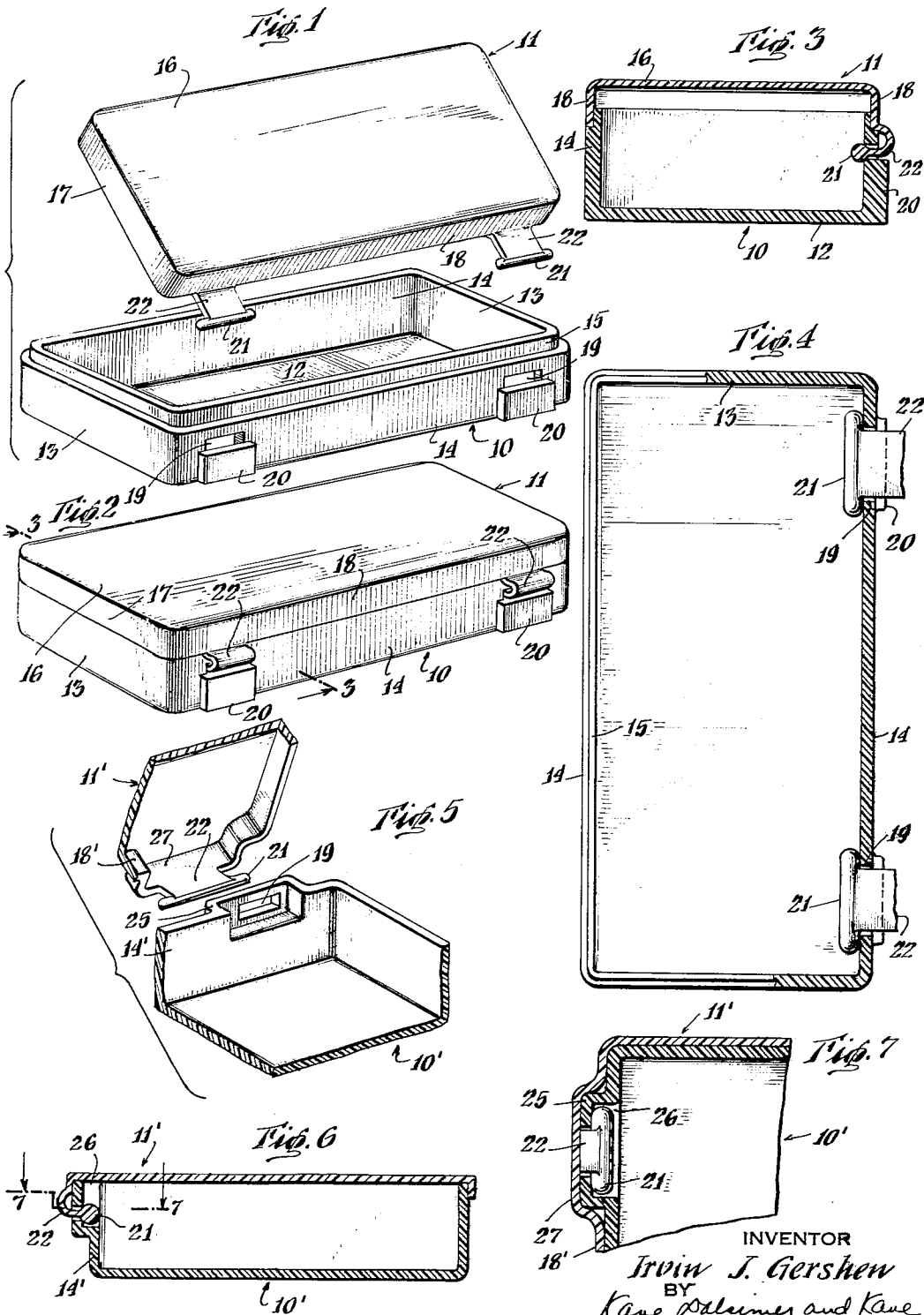
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CONTAINER HINGE ASSEMBLY

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CONTAINER HINGE ASSEMBLY

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This invention relates to an improved container of the type in which a cover section is hingedly connected to a box section and more particularly to an improved hinge assembly for such a container.

It is an object of the present invention to provide an improved hinge assembly for connecting a cover section to the box section of a container which is of simplified construction so that the complementary hinge portions can be made in one piece with the respective cover and box sections as by a molding operation; in which the hinge portions may be readily assembled and disassembled from each other but will remain firmly connected while in use; which presents a neat and attractive appearance; and which is relatively rugged and sturdy so as to give satisfactory service over a long period of time with comparative freedom from wear.

In the accompanying drawing—

Fig. 1 is a perspective view of the cover and box sections of a container having hinge portions embodying my invention and showing them disassembled;

Fig. 2 is a perspective view of the container with the cover and box sections assembled and showing the cover in closed position;

Fig. 3 is a sectional view in the direction of the arrows on the line 3—3 of Fig. 2;

Fig. 4 is a partially sectional plan view of the container shown in Fig. 3;

Fig. 5 is a detailed perspective view of a portion of a modified cover section and box section embodying my invention showing them in disassembled relationship;

Fig. 6 is a cross sectional view of the modified container showing it in assembled relationship with the cover section closed; and

Fig. 7 is a detailed sectional view in the direction of the arrows on the line 7—7 of Fig. 6.

My invention contemplates the provision of an improved hinge assembly in a container having a plurality of sections which are hingedly connected together.

Referring to the first four figures of the drawing, I show a box section 10 and a cover section 11 which fit together in a complementary fashion so that the cover section may be shifted between a closed position, as shown in Figs. 2 and 3, fitted over the open top of the box section to open position exposing the open top.

The box section comprises a base panel 12, end walls 13 and side walls 14 preferably formed in one piece as by being molded from a suitable plastic material. The upper edge of the end and side walls is formed with a reduced flange or rim 15 extending completely around the open top of the box section and over which the cover section 11 is adapted to fit.

The cover section comprises a top panel 16, end wall panels 17 and side wall panels 18 preferably formed in one piece as by molding from a suitable plastic material. The cover section is preferably of a size and shape to fit snugly over the rim or flange 15 with the outer walls of the cover preferably flush with the side and end walls of the box section.

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The cover and box sections are provided with complementary hinge portions which may be readily assembled together to provide my improved hinge assembly. Thus, one of the sections, preferably the box section, is provided with apertures 19 extending through one of the walls thereof. In the illustrated embodiment two elongated slot-like apertures 19 are provided adjacent opposite ends of one of the side walls 14. The slotted apertures are arranged parallel to the plane of the side wall and are located intermediate the top and bottom edges thereof. A small pad or block 20 may be provided immediately beneath each aperture 19 and serves as a reinforcement and also to help support the complementary hinge portion secured to the cover section.

The complementary hinge portion comprises a relatively enlarged head portion 21 which is projected through the aperture 19 as shown in Figs. 2, 3 and 4 and is connected by a flexible reduced neck 22 to the lower edge of the cover section at the portion of the side wall thereof corresponding to the location of the apertures 19 in the box section. In the present instance, the head portion 21 is generally cylindrical in shape with rolled ends. The cylindrical head 21 is somewhat larger than the aperture 19 so that when it is projected therethrough it cannot become accidentally disengaged. The reduced neck 22 is in the form of a flat web of a size and shape to fit comfortably through the aperture 19. The neck or web portion 22 is flexible so that when the hinge is assembled as shown, the web will flex to permit the cover to move between open and closed positions. A complementary hinge portion comprising head portion 21 and web portion 22 is provided to engage with each of the hinge apertures in the box section. In the illustrated embodiments two hinge assemblies of this type are shown.

In order to permit the hinge to be assembled, one of the hinge portions must be flexible and resilient so that it can be distorted during the assembling or disassembling of the hinge. I have found that it is preferable that the box section, including the portion surrounding the slotted apertures 19 be made of relatively stiff or rigid material. Thus the box section may be molded from one of the stiffer plastics material—either thermo setting or thermoplastic—such as polystyrene, Bakelite or cellulose acetate. The cover section, together with the head portion 21 and web portion 22 should preferably be molded from a flexible, compressible and resilient material so that the head portion may be compressed to permit it to be inserted through the aperture 19 but so that it will again re-assume its normal size and shape after assembling. For this purpose, I have found that the solid flexible and resilient polymers of polyethylene serve very satisfactorily although, a flexible, compressible and resilient polyvinyl resin or synthetic or natural rubber compound may also be employed.

In making and assembling my improved container, the cover section and box section are first molded in one piece with their respective hinge portions. Thereafter, the enlarged heads 21 of the hinge portions on the cover section are compressed and inserted through the apertures 19. When the hinge portions have been thus assembled the cover may then be pivoted from closed position telescoping over the upper end of the box section as shown in Figs. 2 and 3 to open position with the cover section spaced upwardly away from the top of the box section.

In pivoting or shifting the cover section from open to closed position the web portions 22 of the hinge assembly flex in the manner indicated. Due to the fact that the head portions 21 of the hinge assembly are larger than the slotted openings 19 and due to the inherent resiliency thereof, the hinged connections will remain assembled during normal usage of the box. However, when desired,

the head portions 21 may be compressed, permitting the disassembly of the hinge connections.

While the web portion 22 must be sufficiently flexible to permit the opening and closing of the cover it should be appreciated that the degree of flexibility may be varied. Thus, where an extremely flexible web is employed the cover section 11 will close under the force of gravity. Where a less flexible web is employed the web will serve like a spring to maintain the cover in open or partially open position. Under those circumstances, the cover can be held in closed position by frictional engagement between the end and side walls of the cover and the flange or rim 15 or by a conventional latch.

In Figs. 5, 6 and 7 I have provided a slightly modified form of container having a box section 10' and a cover section 11' similar to the sections 10 and 11, with the exception that the slotted apertures 19 in the box section are formed in projecting or offset portions 25 provided in one of the side walls 14'. Thus, when the enlarged head portion 21 secured to section 11' by web 22 is projected through the aperture 19 it is accommodated within a recess 26 provided inside the box section at the offset portion 25 of the side wall. The side wall 18' of cover section 11' is offset in a similar manner as shown at 27 so as to accommodate the offset portion 25 of the side wall of the box section.

The box and cover sections in the modified form of container may be molded in similar fashion to the box and cover sections in the first form of my invention and may be made of similar materials. They are assembled together in the manner described above by compressing the head portion 21 and inserting it through the slotted aperture 19. When assembled, the box may be used in similar fashion, the only difference being that in the modified form of invention the head portion of the hinge assembly is accommodated in a recess provided for that purpose and, accordingly, does not take up any of the usable space inside the box section.

It will thus be seen that I have provided an improved container, particularly an improved container hinge assembly for hingedly securing container sections together, in which the hinge assembly is of relatively simple and inexpensive construction and may be readily molded in one piece with the respective container sections; which is simple to assemble but will not become accidentally disassembled when in use; which is attractive in appearance and which is rugged and strong so as to provide long service with comparative freedom from wear.

Modifications may of course be made in the illustrated and described embodiments of my invention without departing from the invention as set forth in the accompanying claims.

I claim:

1. In a container of the type having a plurality of sections hingedly connected together, the improved hinge assembly which comprises: a member formed on one of the container sections having a hinge aperture therein and an enlarged head portion connected to the other container section by a reduced neck portion, said head portion being larger than said aperture and said neck portion being disposed in the aperture with the head portion disposed on the opposite side of the aperture from the point of connection between the neck portion and said other container section and said head portion and said slotted opening being relatively distortable so that the head portion may be inserted through the slotted opening for assembling and disassembling the container sections.

2. In a container of the type having a plurality of sections hingedly connected together, the improved hinge assembly which comprises: a relatively stiff member on one of said sections formed with a hinge aperture extending therethrough and a complementary hinge portion including an enlarged head and a web portion con-

necting the head to the other container section, said head being larger than said hinge aperture and said web portion being disposed through the aperture with the enlarged head positioned on the opposite side of the aperture from the point of connection between the web and the other container section, said web and head being made of relatively flexible, compressible and resilient material whereby said container section may be shifted relative to each other with the web portion flexing during the shift movements and whereby said head may be compressed and inserted through the apertures in assembling and disassembling the container sections.

3. In a container of the type having a plurality of sections hingedly connected together, the improved hinge assembly which comprises: a relatively stiff member on one of said container sections formed with a slotted hinge aperture extending therethrough and a complementary hinge portion in the form of an enlarged generally cylindrical head portion larger in size than said slotted opening connected to said other container section by means of a web portion, said web portion extending through said slotted hinge aperture with the enlarged cylindrical head positioned on the opposite side of the aperture from the point of connection between the web portion and said other container section and said web and enlarged head portions being made of flexible, compressible, resilient material whereby said container sections may be shifted relative to each other with said web portion flexing during said shifting and whereby said enlarged head portion may be compressed to be inserted through the hinge aperture in assembling and disassembling the container sections.

4. In a container of the type having a plurality of sections hingedly connected together, the improved hinge assembly as set forth in claim 3 in which the enlarged head and web portions are made of polymers of polyethylene.

5. An improved container comprising a box section and a cover section shiftable relative to each other between open and closed positions, said box section having a side wall made of relatively stiff material and having hinge apertures formed therein and said cover section having complementary hinge portions in the form of relatively enlarged head portions connected to the cover section by web portions, each of said web portions extending through one of the hinge apertures with the enlarged head positioned on the opposite side of the aperture from the point of connection between the web portion and the cover section and said web and head portions being made of relatively flexible, compressible and resilient material whereby the web portion will flex to permit the opening and closing of the cover section and the head portion may be compressed for insertion through the aperture so that the sections may be assembled and disassembled with respect to each other.

6. The improved container as set forth in claim 5 in which the said side wall of the box section has an outwardly offset portion providing a recess inside the box section and said web portion projects through the aperture from the outside of the side wall with the enlarged head portion positioned in said recess.

7. The improved container as set forth in claim 5 in which the hinge aperture in the box section is in the form of an elongated slot and the enlarged head portion is substantially cylindrical in shape.

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