United States Patent

Jones

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[54] TAPE REEL CONTAINER

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[73] Assignee: **Charles E. Jones and Associates, Inc.**, Lincolnwood, Ill.

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[52] **U.S. Cl.** ..... **206/52 F**, 220/315

[51] **Int. Cl.** **B65d 43/16**, B65d 85/67

[58] **Field of Search** ..... 206/52 F, 52 R, 62 P, 8, 53, 206/45.11, 17; 220/31 SR, 31 R; 229/44 R, 8

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[57] **ABSTRACT**

A cylindrical storage container for a film or tape reel which is formed of injection molded plastic material and which has a shape conforming to the shape of the reel, with a bottom forming body section and a two part top cover section, the two members constituting the cover section being hinged along parallel top edges of the side walls of the body section and having overlapping portions forming a dust barrier when held closed by integral latch elements. The reel is held against movement within the closed container and the container, when opened, may be held in one hand leaving the user's other hand free for removing or inserting the reel and otherwise handling the same.

10 Claims, 7 Drawing Figures

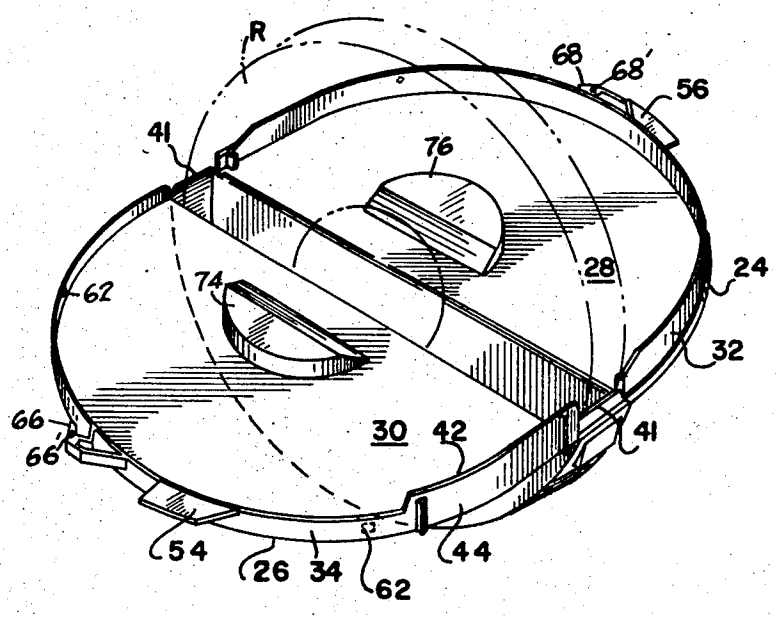
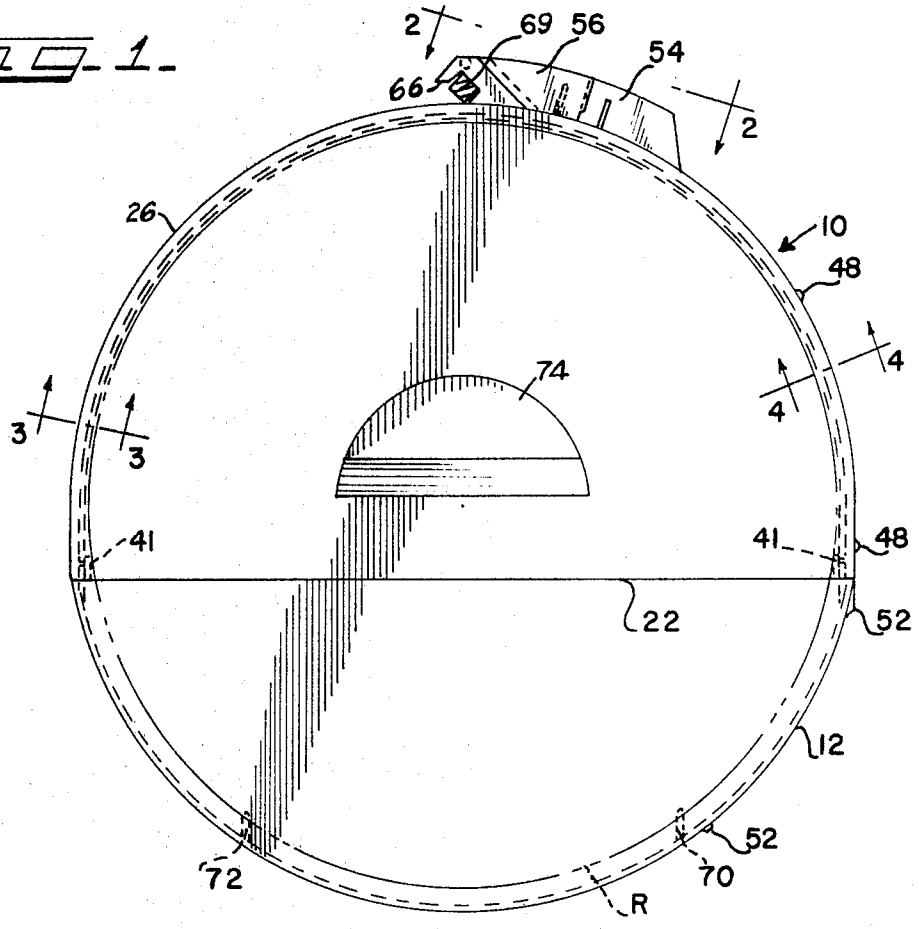


FIG. 1



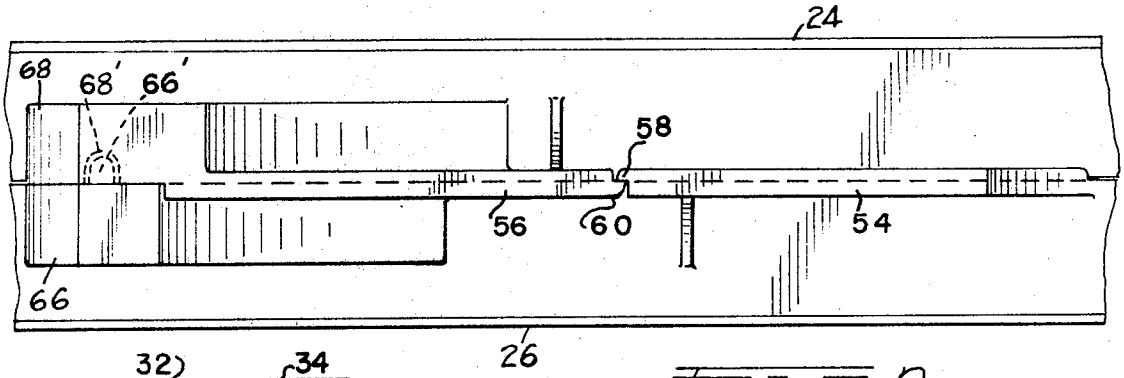


FIG. 2

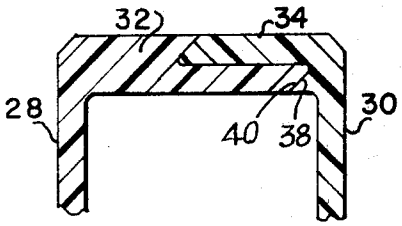


FIG. 3

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FIG. 7

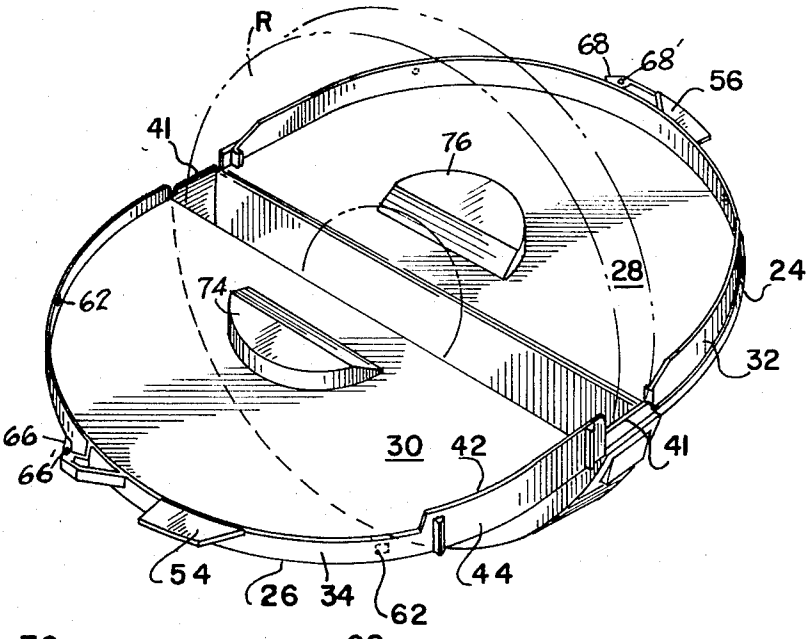

FIG. 5

FIG. 6

FIG. 4

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TAPE REEL CONTAINER

This invention relates to packaging and is more particularly concerned with improvements in containers which are especially adapted for the handling and storage of film or tape holding reels such as the type employed in modern computer operations.

Holders in the form of containers have heretofore been provided for film and tape reels which have generally taken the form of a shallow tray in which the reel may be positioned and a separate telescoping cover. Generally, these containers have been made of rigid metal and afford adequate protection for the reels during handling, shipping and storage. Other reel holders have been provided which are fabricated of other materials and which may conform to the shape of the reel which the holder is designed to receive or which may have a rectangular shape or the like depending upon the conditions of use. Most of the prior containers which have been available have not been designed to provide maximum convenience in the handling of the reels and many of them have not afforded maximum protection against damage or the accumulation of dust or other foreign matter on the film or tape while it is in the container. It is a general object, therefore, to provide a container or holder designed for film or tape reels which affords a maximum of convenience in the storage and handling of the reels and which may be manufactured from a durable material at a cost which will permit it to compete economically with containers heretofore available.

A more specific object of the invention is to provide a container or holder for film or tape reels which is of one piece construction with a base or bottom portion in which the reel may be seated and with integrally hinged cover members which are readily manipulated to open and close the container while it is held in one hand and which in the open position leaves the user with one hand free to grasp the reel for quick removal or replacement therein, or for placing it on a mounting spindle of a computer or the like, in a convenient manner.

It is another object of the invention to provide a holder or container for a film or tape reel which is injection molded in one piece from a plastic material so as to provide a rigid bottom or base portion in which the reel may be initially seated and a pair of cover forming members integrally hinged to the top edges of the base and adapted to be closed on the exposed portion of the reel which cover forming members have co-operating dust barriers in the form of flanges which overlap or telescope when the cover members are closed.

It is still another object of the invention to provide a holder or container for a film or tape reel which comprises a bottom section in which the reel is adapted to be seated and a cover section comprising a pair of cover members integrally hinged to the top edges of the bottom section and closable upon the remaining portion of the reel with overlapping flanges forming a dust barrier and with means within the container for supporting and holding the reel in position therein when the cover members are closed on the same.

These and other objects and advantages of the invention will be apparent from a consideration of the reel holder which is shown by way of illustration in the accompanying drawings wherein:

FIG. 1 is a side elevation of a container for a film or tape reel which container embodies the principal features of the invention;

FIG. 2 is a partial plan view, taken on the line 2—2 of FIG. 1, to a greatly enlarged scale;

FIG. 3 is a fragmentary cross section taken on the line 3—3 of FIG. 1, to an enlarged scale;

FIG. 4 is a fragmentary cross section, taken on the line 4—4 of FIG. 1, to an enlarged scale;

FIG. 5 is a view of the container partially in side elevation and partially in section with one of the cover members in the open position;

FIG. 6 is a fragmentary view showing a portion of the container in side or edge elevation; and

FIG. 7 is a perspective view showing the container in the position in which it is formed in an injection molding machine.

The container **10** which is illustrated in the drawings is adapted to be fabricated by injection molding of a copolymer of polypropylene or other suitable plastic material, such as, for example, polyethylene. The container material may be transparent or translucent and should be of a character which, in the finished form, is relatively rigid, while at the same time having the necessary hinge forming characteristics, that is, having a sufficient degree of flexibility to form a hinge when the cross section is relatively thin. It should also have suitable surface forming or surface treatment capabilities which will enable an attractive surface appearance to be obtained. The illustrated container is designed particularly for handling and storage of commercial tape holding reels now in use such as those employed in computer operations. A typical reel which is currently employed for holding a standard one-half inch tape has dimensions of approximately 10 ½ inches in diameter, three-fourths inches outside with a center or axial opening for a spindle hub of 3 ⅝ inches diameter. The dimensions of the container **10** are such as to accommodate this reel. They may be varied to accommodate reels of different size.

The container **10** comprises a base or bottom section **12** having a peripheral wall **14** and parallel side walls **16** and **18** which terminate at the top at hinge lines **20** and **22** above which two cover sections **24** and **26** extend. The side walls **16** and **18** are spaced a distance apart which is slightly greater than the width of the reel R which the container is adapted to hold. The side walls **16** and **18** are of substantial thickness so as to provide the necessary rigidity in the container section **12**. The hinge lines or hinge areas **20** and **22** are of the same material and are integrally formed with the other elements of the container, the only difference being that the thickness or cross section of the material is substantially less than the thickness of the walls so as to permit the hinging of the cover forming members **24** and **26** about the lines **20** and **22**.

The cover members **24** and **26** comprise the side walls **28** and **30** which have integral side or edge wall forming flange formations **32** and **34**, which flange formations **32** and **34** are constructed throughout the major portion of their peripheral dimension to intermesh as shown in FIG. **3**, with the flange **32** having a marginal portion **36** which telescopes within the flange **34** and seats the inner edge **38** thereof in a groove **40** provided at the base of the flange **34**. Small extensions **41** on the top edges of the wall **14** underlie the ends of the flanges **32** and **34** when the cover members **28** and **30** are closed and co-operate with the flanges to provide a dust barrier. A relatively short length or section **42** of the flange **34** is increased in width to provide an exterior surface **44** (FIG. **5**) on which a label may be placed when the container is to be supported in a position or location substantially below normal eye level. The outer portion of the flange **32** is reduced in width for co-operation with the increased width of the flange section **42**. The label area **44** is set off or delineated by spaced cross ribs **48, 48**. Another label area **50** is set off on an adjoining portion of the wall **14** of the bottom section by similar cross ribs **52, 52** which is utilized when the container is located above normal eye level.

A pair of latch plates **54, 56** are provided on the inner margins of the flanges **32** and **34** which, in the closed position of the members **24** and **26**, are in a common plane and which have radially extending, interengaging, latch forming edge portions at **58** and **60** (FIG. **2**). The latch formations **58** and **60** are adapted to snap past each other when the members **24** and **26** are hinged to closed position as shown in FIG. **2** to hold the members **24** and **26** closed and restrain the same against opening movement. Supplemental latching means in the form of detents **62**, and co-operating recesses **64**, are provided on overlapping portions of the flange members **32** and **34** at circumferentially spaced points on each side of the latch plates **54** and **56**. At the top of the container the cover or closure members **24** and **26** carry a pair of hook formations **66, 68** which in the closed positions of the cover members **28** and **30** are aligned, with the help of co-operating pin **66'** and recess **68'**, and adapted for engagement with a horizontally disposed

supporting rod **69**, as shown in FIG. **1**, for suspending the container in a storage space. In this manner a large number of the containers can be conveniently stored in side by side relation on a bar or rod where they are readily available for use when desired.

Cross members **70**, **72** bridge the space between the side walls **16** and **18** in the bottom section of the container for supporting the reel R and for holding it against excessive shifting in the container. The cover members **24** and **26** are provided with semi-circular, hub-like, inwardly extending, co-operating protuberances **74** and **76** for engaging in the center aperture of the reel R to further restrain the reel against movement within the container.

The container or holder **10** is designed to be injection molded in one piece with one molding operation and requires no secondary operations. The holder **10** comes from the mold or is released from the mold in the form shown in FIG. **7** and requires only the closing of the cover members **24** and **26** to permit it to be dropped into a shipping container or carton with other holders for delivery to a customer which contributes greatly to the economy in manufacture. While a circular form is shown for the container it is not limited to this shape. Other shapes may be desirable in certain instances. Also the suspending hook formation need not be located in the peripheral position shown since it will serve to attach the container to a supporting bar in various other peripheral locations.

I claim:

1. A one piece container for storage of tape reels which is formed of molded plastic material, said container having a generally cylindrical form with a base forming portion comprising side wall members, a web-like peripheral wall member integrally connecting said side wall members in spaced relation, which side and peripheral wall members terminate short of a diametrical plane, and a two part cover forming portion comprising side wall members integrally hinged to top edges of the side wall members of said base portion and having integral flange members which extend about the non-hinged periphery thereof and which interlock with each other when the cover side wall members are hinged to a closed position where major portions of the cover side wall members are in the plane of the respective side wall members of said base portion and said flange members constitute a continuation of said web-like peripheral wall member so as to form a dust barrier, and interengaging latch means on said flange members which is operative to releasably hold the cover forming members in closed position.

2. A container for storage of tape reels which is formed of one piece integrally molded plastic material, said container having a base forming portion comprising side wall members, a web-like peripheral wall member connecting said side wall members, the side and peripheral wall members terminating short of a diametrical plane when a reel is seated therein, and a two part cover forming portion comprising side wall members integrally hinged to top edges of the side wall members of said base portion and having integral peripheral flange members which interlock with each other to form a continuation of the side wall members of said base forming portion and which constitute a dust barrier when the cover members are hinged to a closed position where major portions of the cover side wall members are in the plane of the respective side wall members of said base portion, said cover side wall members having means forming a hub on the inner face thereof for engaging in a center opening in a tape reel so as to hold the reel against movement, and latch means on said flange members operative to releasably hold the cover forming members in closed position.

3. A container as set forth in claim **2** and said cover flange members having radially extending plate elements with interengaging edge portions which constitute said latch means.

4. A container as set forth in claim **2** and said base forming portion and said cover side wall members having means for engaging portions of the reel at the periphery and at a center opening in said reel which cooperate to hold the reel against movement within the container when the cover members are in closed position.

5. A container for storage of tape reels which is formed of one piece integrally molded plastic material, said container having a base forming portion comprising side wall members, the peripheral edges of which are integrally connected by a web-like peripheral wall member, the side and peripheral wall members terminating short of a diametrical plane when a reel is seated therein, and a two part cover forming portion comprising side wall members integrally hinged to top edges of the side wall members of said base portion and having integral peripheral flange members which interlock with each other to form a dust barrier when the cover members are hinged to a closed position where major portions of the cover side wall members are in the plane of the respective side wall members of said base portion, said base forming portion and said cover side wall members having reel engaging means comprising reel edge engaging members in said base forming portion and co-operating hub forming members in said cover members which co-operate to hold the reel against movement within the container when the cover members are in closed position, and latch means operative to releasably hold the cover forming members in closed position.

6. A container as set forth in claim **2** and the peripheral flange members on said cover members having marginal portions which overlap each other with at least one of said marginal portions terminating in a tapered edge which seats in cooperating recesses formed in the opposite cover member.

7. A container for storage of tape reels which is formed of one piece integrally molded plastic material, said container having a base forming portion comprising side wall members, the peripheral edges of which are integrally connected by a web-like peripheral wall member, the side and peripheral wall members terminating short of a diametrical plane when a reel is seated therein, and a two part cover forming portion comprising side wall members integrally hinged to top edges of the side wall members of said base portion and having integral peripheral flange members which interlock with each other to form a dust barrier when the cover members are hinged to a closed position where major portions of the cover side wall members are in the plane of the respective side wall members of said base portion, said cover members having side wall members formed with hub-like formations extending from the inner face thereof which co-operate in the closed position to engage in a center opening in a tape reel so as to hold the tape reel against movement in the container, and latch means operative to releasably hold the cover forming members in closed position.

8. A container as set forth in claim **3** and said flange members on said cover members having auxiliary latch means comprising integral button-like protuberances and co-operating recesses which are spaced peripherally on either side of said latch plate elements.

9. A container as set forth in claim **7** and the peripheral wall member of said base having an area at a top end thereof set off by peripherally spaced cross bar formations for receiving contents identification marking, and the adjoining end portion of the outermost cover flange member having a width sufficient to provide a corresponding area set off by peripherally spaced cross bar formations for receiving like marking.

10. A container as set forth in claim **7** and said cover members having co-operating hook-like formations at the top thereof which are aligned in the direction normal to the plane of the cover members when the cover members are closed and which are adapted to engage over a horizontally disposed bar or rack member for suspending the container.

* * * * *