

[54] **REEL-STORAGE BOX**

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[51] Int. Cl. ....B65d 85/67

[58] Field of Search .....206/52 F, 52 R, 59 E

[56] **References Cited**

**UNITED STATES PATENTS**

3,348,668 10/1967 Amatsu et al. ....206/52 F

**FOREIGN PATENTS OR APPLICATIONS**

1,457,872 9/1966 France .....206/52 F

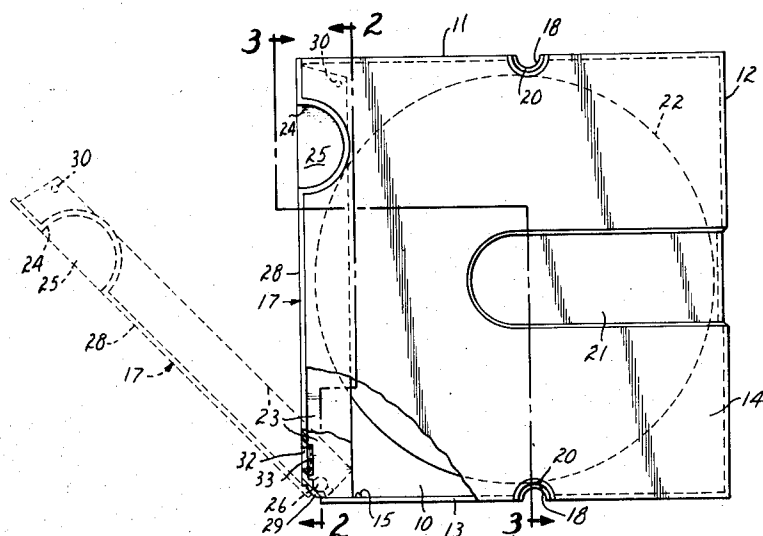
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[57] **ABSTRACT**

A box for storing a reel (22) of tape or film including a hinged door (17) for closing the open front of the box. The top (11) and bottom (13) walls of the box are formed with a flute (18) having a lip (19) extending beyond one side wall (10) and a recess (20) for seating a lip of an identical box so that a plurality of the boxes may be interlocked in side-by-side relationship. The flute (18) in the bottom wall (13) is positioned to cause a stored reel (22) to roll partly out of the box when the bottom wall (13) is horizontal and the door (17) opened.

**5 Claims, 4 Drawing Figures**



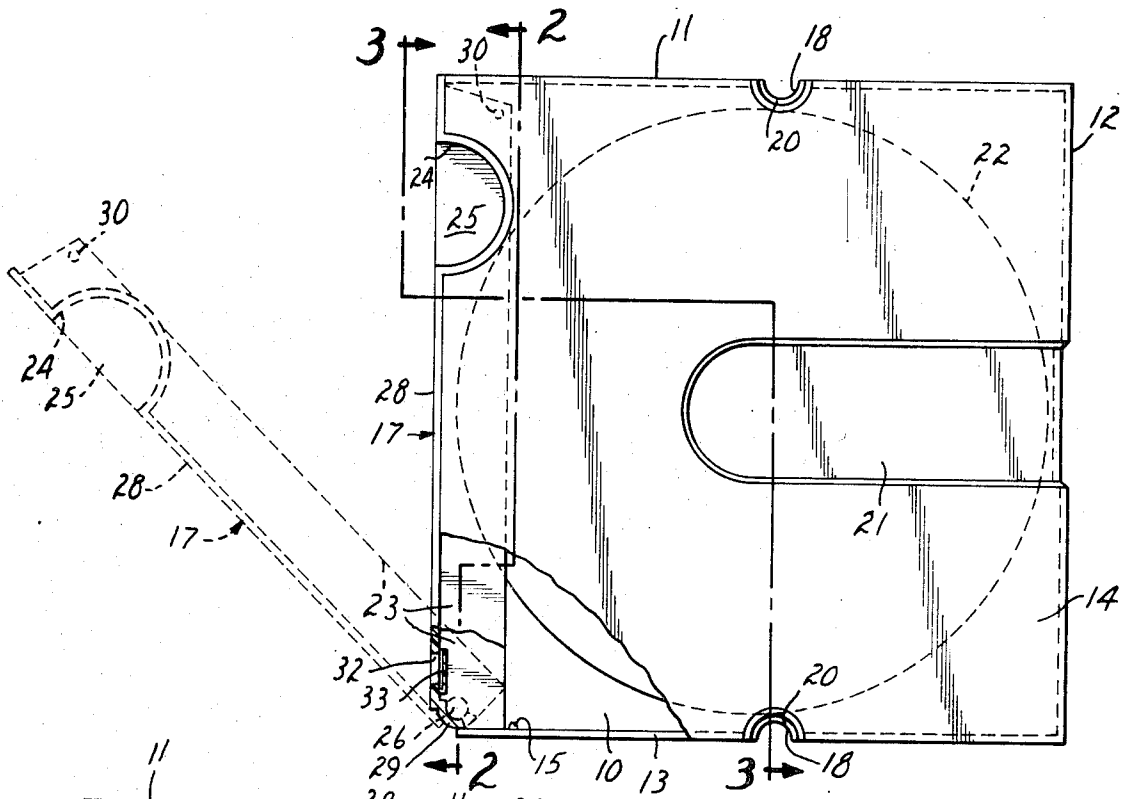


FIG. 1

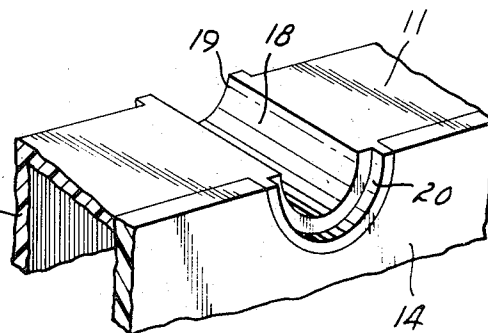


FIG. 4

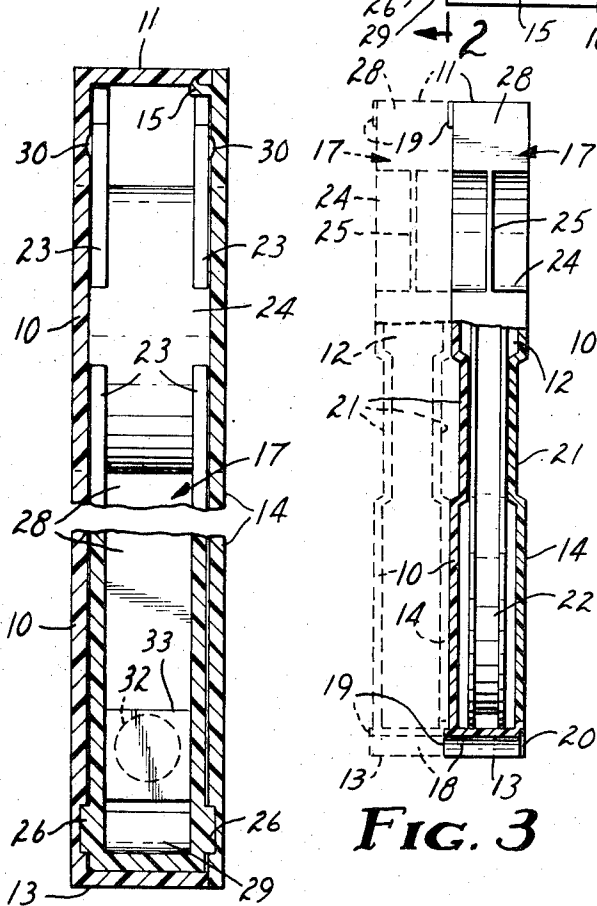


FIG. 2

FIG. 3

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## REEL-STORAGE BOX

The present invention concerns a box for storing a reel of tape or film, which box is adapted to be molded from plastic such as polystyrene.

The novel box has a pair of broad rectangular side walls and narrow top, rear and bottom walls. A hinged door closes the open front of the box. The bottom and top walls are each formed with a central flute having a lip extending beyond one side wall and a recess at the other side wall. When a plurality of the boxes are positioned in side-by-side relation, the lips of each box seat in the recesses of the adjacent box to interlock the boxes in an orderly row.

The flute in the bottom wall is positioned centrally, and preferably slightly to the rear of exact center, so that when the bottom wall is horizontal and the door is opened, the reel rolls partly out of the box to permit it to be easily grasped with the fingers and removed.

In the prior art, others have disclosed reel storage boxes which likewise are adapted to be assembled in side-by-side relation. In particular, see British Specification No. 1,075,738 and U. S. Pat. Nos. 3,316,039 and 3,462,206. However, the novel reel storage box possesses a number of advantages which will become apparent from consideration of the drawing and the following detailed description.

In the drawing:

FIG. 1 is a side elevation of a box embodying the invention, in part broken away to reveal details of construction;

FIG. 2 is an enlarged section along line 2—2 of FIG. 1, with the reel removed;

FIG. 3 is a section along line 3—3 of FIG. 1 and illustrates with dotted lines the manner in which the box of FIG. 1 may be interlocked with a similar box; and

FIG. 4 is a fragmentary perspective view showing the flute in the top wall of the box.

Referring to the drawing in detail, the illustrated box consists of three molded plastic pieces. One of these provides a broad rectangular side wall 10, a top wall 11, a rear wall 12 and a bottom wall 13. The second plastic piece is a broad rectangular cover which provides a second side wall 14 and has a plurality of latches 15 (one of which is best seen in FIG. 2). The latches 15 snap into recesses in the top, rear and bottom walls 11, 12, 13. If desired, an adhesive cement may be employed to insure against separation of these two plastic pieces. The third plastic piece is a hinged door 17 which closes the open front of the box.

Each of the top and bottom walls 11, 13 is formed with a flute 18 which has a lip 19 projecting beyond one side wall 10. The opposite end of each flute 18 has a recess 20 (see FIG. 4) for seating the lips of a similar box so that a plurality of the boxes may be interlocked in side-by-side relation as shown in FIG. 3. It is very easy to remove any box from a long row and then to interlock the two boxes that had been adjacent to the removed box.

Each of the side walls 10, 14 is formed with an indented area 21 toward the rear of the box to provide a constricted interior spacing approximating the width of the reel for which the box is designed. The door 17 has a pair of ribs 23 which are similarly spaced from each other. The ribs 23 together with the indented areas 21 restrain a stored reel 22 from axial or sidewise movement when the door is closed.

The upper end of the door 17 is formed with an arch 24 bisected by a vertical web 25 which provides an unobstructed recessed handle for opening the door. At its lower end, the door 17 is hinged to the box by a pair of trunnions 26 which are journaled in the side walls 10, 14. The door may be pivoted through a full 90°, being stopped in the fully opened position when the base of the front panel 28 of the door 17 contacts the bottom wall 13.

As can be seen in FIG. 1, the flute 18 in the bottom wall 13 is positioned slightly to the rear of exact center so that a stored reel 22 tends to roll forwardly through the open front of the box when the door 17 is opened. Forward movement of the reel is stopped upon contacting a curved portion 29 of the door, but the reel has moved forward sufficiently to permit one to grasp the reel for easy removal.

When the door 17 is closed, detents 30 on the ribs 23 force the side walls 10, 14 slightly outward until the detents reach notches in the side walls which snap back to receive the detents to latch the door. The arch 24 holds the reel 22 away from the front panel 28 of the door and is positioned in relation to the flutes 18 and the rear wall 12 so that very little movement of the reel is permitted in radial directions. When the box is positioned with the bottom wall horizontal, the pressure of the reel 22 against the arch 24 is to a considerable extent in an upward direction, so that there is very little tendency for the reel to force the door open.

The door 17 is formed with an opening 32 in the front panel 28 and an interior retainer 33 into which a small piece of paper or cardboard may be inserted for purposes of identification.

The box shown in the drawing has no projections except for the lips 19. When a number of the boxes are to be shipped, they may be interlocked in side-by-side fashion so that only the lips 19 of the end box protrude from the assemblage. Only at this end box need any special care be taken to prevent damage.

In spite of the simplicity and economy of construction, the novel box contains desirable features of inherently more expensive, more fragile boxes of the prior art.

We claim:

1. Box for storing a reel of tape or film, which box is adapted to be molded from plastic and includes a pair of broad rectangular side walls and narrow top, rear and bottom walls, and a door hinged between the side walls to close the open front of the box, wherein

1. the top and bottom walls are each formed with a flute having a lip extending beyond one of the side walls and a recess at the opposite side wall for seating a lip of an identical box so that a plurality of the boxes may be interlocked in side-by-side relation, an
2. the flute in the bottom wall is positioned to cause a stored reel to roll partly out of the box when the bottom wall is horizontal and the door is opened, thereby permitting one to grasp the reel and remove it from the box.

2. Box as defined in claim 1, wherein the side walls are indented toward the rear of the box to provide a constricted interior spacing approximating the width of the reel and the hinged door is formed with a pair of ribs which are similarly spaced and which telescope within the side walls to restrain the stored reel from axial movement.

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3. Box as defined in claim 1, wherein the upper end of the hinged door is formed with an arch extending into the box sufficiently to cooperate with the flutes and the rear wall to restrain the stored reel against radial movement.

4. Box as defined in claim 3, wherein a web extending across the concave side of the arch provides an unobstructed recessed handle for opening the hinged

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door.

5. Box as defined in claim 1, wherein the door is formed with a stop member for stopping the motion of the stored reel out of the box at a predetermined position for the reel when the bottom wall is horizontal and the door is opened.

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