United States Patent

Frederick et al.

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[54] STORAGE DEVICE FOR ROLLABLE OBJECTS

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[51] Int. Cl. **A47g 29/00**

[58] Field of Search 211/40; 312/8, 9, 10, 11, 12, 312/13, 14, 15, 17

[56] **References Cited**

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[57] **ABSTRACT**

A support is adapted to receive a rollable object in a normal position behind a stop. Means responsive to the application of rearward force to the object are provided behind the object. When a rearward force is applied to the object, the means impart sufficient forward motion to the object to permit the object to roll over the stop, at which point the object is readily retrievable.

15 Claims, 6 Drawing Figures

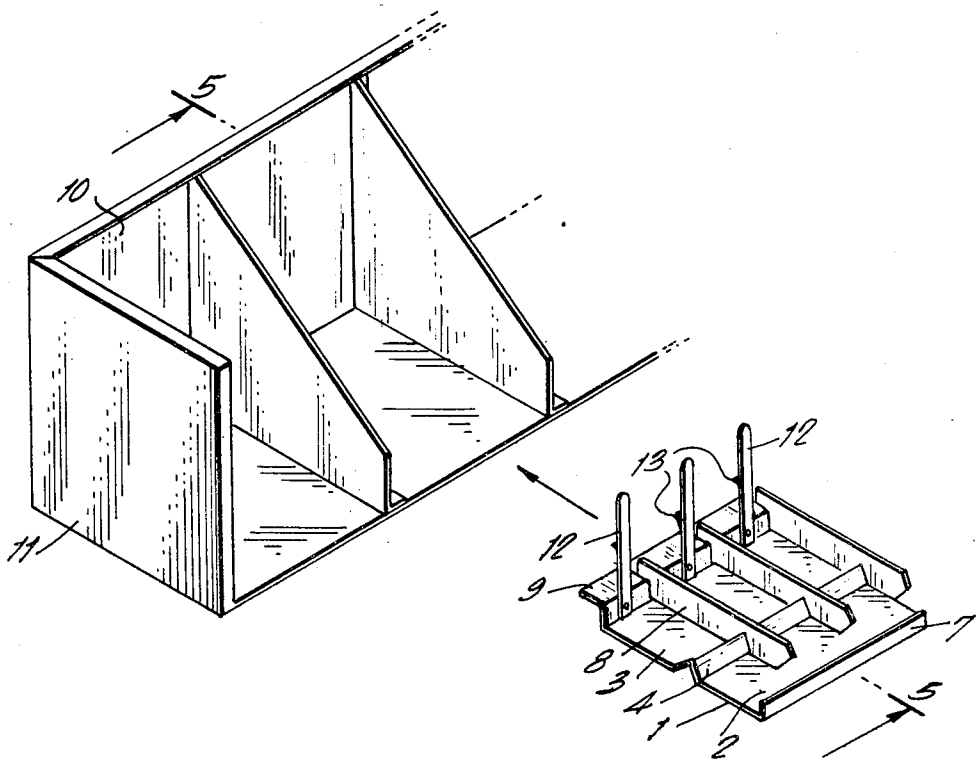


FIG. 1

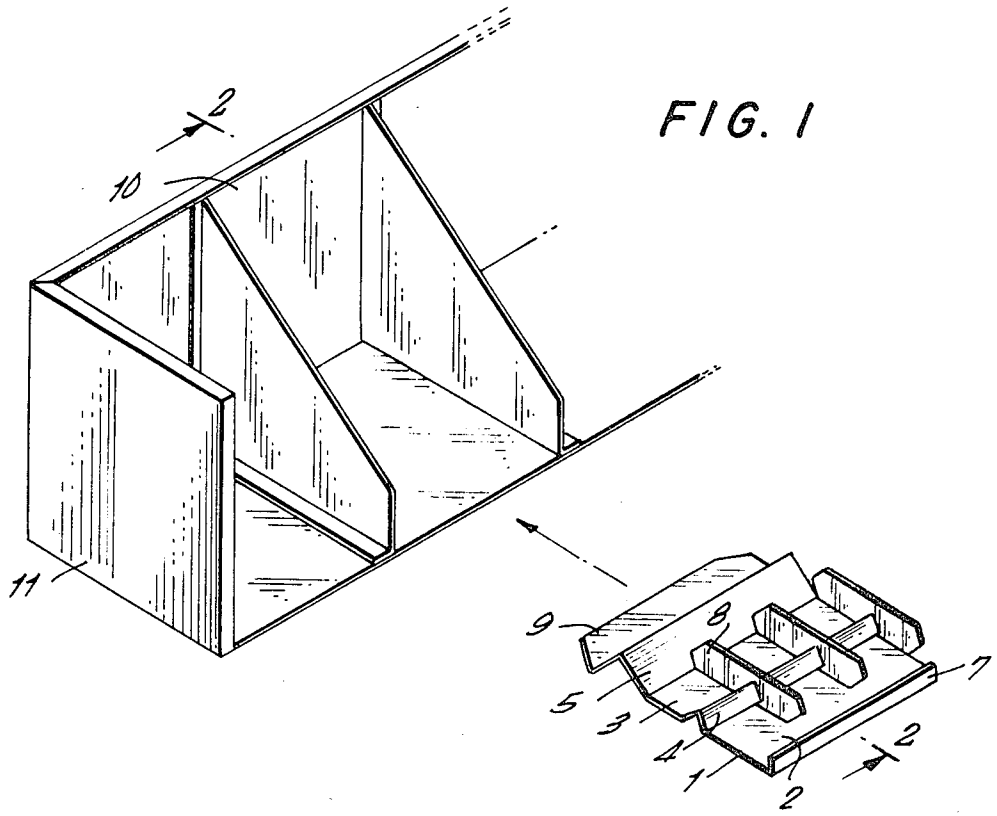
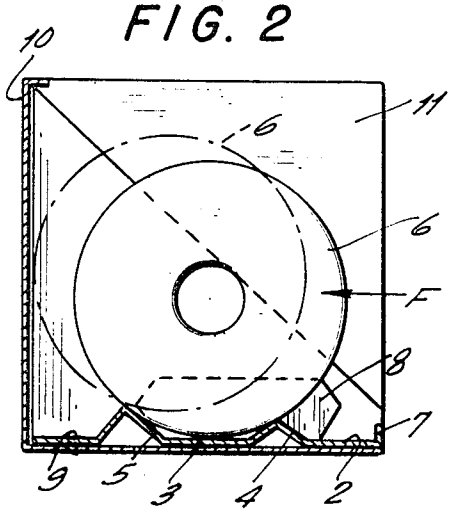


FIG. 2



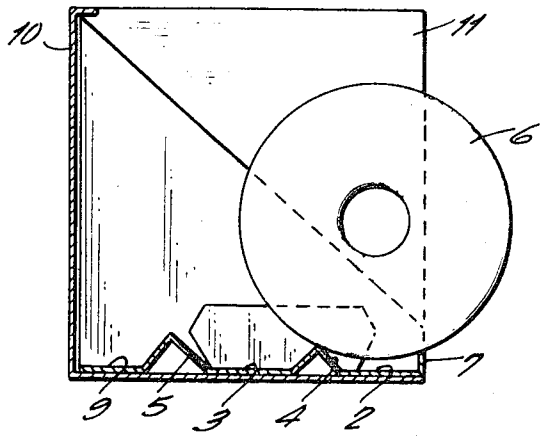


FIG. 3

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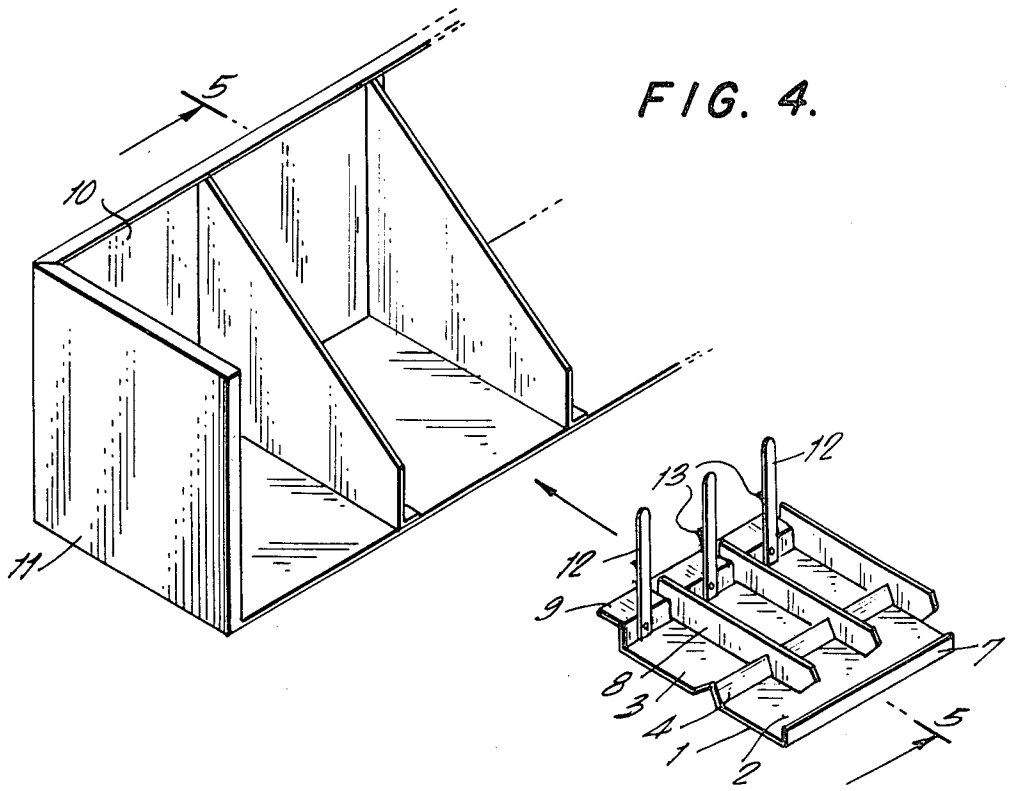


FIG. 4.

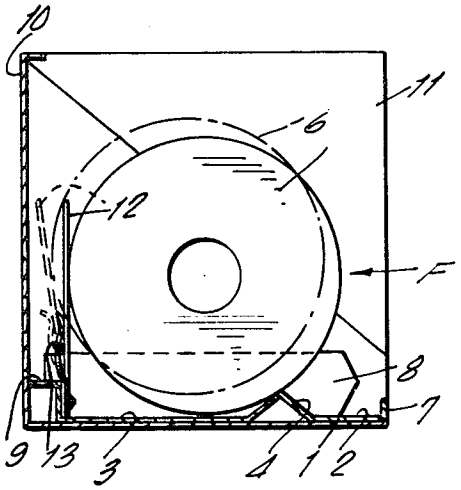


FIG. 5.

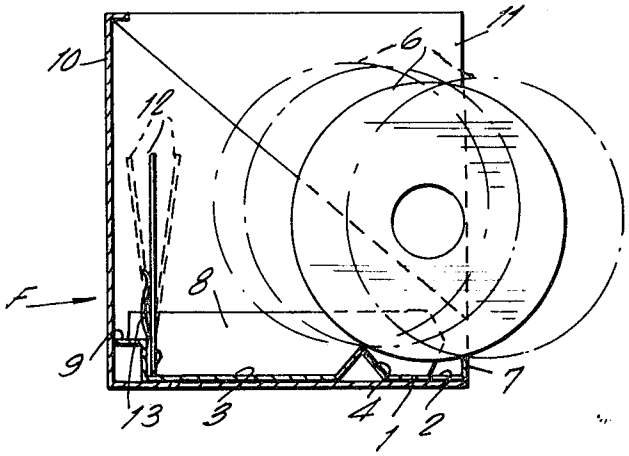


FIG. 6.

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STORAGE DEVICE FOR ROLLABLE OBJECTS

This invention relates to a storage device. More particularly, it relates to a device for storing rollable objects as, for example, reels of tape or film. The device is preferably tray-shaped.

Storage devices for objects such as reels of tape or film are known in the art. These known devices suffer, however, from a number of disadvantages. They are complex in structure and difficult to construct. This increases their cost. Furthermore, many of the devices utilize moving parts in their construction. This increases the risk of breakdown with its attendant high cost of repair.

It is an object of the present invention to remedy the above alluded to defects of the prior art devices. It is another object of the present invention to provide a storage device for storing one rollable object or a plurality of rollable objects in aligned arrangement. Each rollable object is independently and easily accessible without disturbing the position of the other stored objects.

The storage device of the present invention is simple. Its construction cost is low. Additionally, in its preferred form, it utilizes no moving parts, thus it is essentially maintenance free.

The storage device of the present invention may advantageously be used alone or in conjunction with a standard standing storage shelf. As alluded to above, it may be utilized for the storage of a plurality of rollable objects, the rollable objects being stored in close proximity to one another.

The device of the present invention eliminates the need for the presence of sufficient space between adjacent stored objects to permit removal of individual objects by, for example, a human hand. Thus, the device of the present invention permits a greater utilization of storage space as compared with devices of the prior art. Therefore, the device of the present invention permits a greater number of rollable objects to be stored in the same space. The device of the present invention may be used for storage of any rollable object. Rollable objects include, for example, balls, records, reels of tape, reels of film, etc. This list is by no means inclusive.

The device of the instant invention will now be more fully explained in the specification which follows taken in conjunction with the attached drawings wherein:

FIG 1 is a perspective view of a preferred embodiment of the device of the present invention and a storage shelf adapted to receive same;

FIG. 2 is an end view of the embodiment of FIG. 1, taken along the line 1—1, the device being positioned on the shelf with a rollable object carried thereon;

FIG. 3 is a view similar to that of FIG. 2, the object being shown in another position.

FIG. 4 is a perspective view of another embodiment and a storage shelf adapted to receive same;

FIG. 5 is an end view of the embodiment of FIG. 4, taken along line 5—5, the device being positioned on the shelf with a rollable object carried thereon; and

FIG. 6 is a view similar to that of FIG. 5, the object being shown in another position.

As shown in FIG. 1, the storage device of the present invention is comprised of a tray-shaped support 1 having a front portion 2 and a rear portion 3. A stop 4 is positioned at the front portion 2 of support 1. An incline 5 is positioned at the rear portion 3 of support 1.

As shown in FIG. 2, a rollable object 6, as for example a reel, is normally positioned at a rest position on said support 1 between stop 4 and incline 5. When a rearward force F is applied to the front of the object 6, as for example by a clerk's hand, the rollable object 6 will roll in a backward direction from the rest position and up the incline 5 to a lift position. Rollable object 6 will then roll back down incline 5 towards stop 4 gathering momentum as it rolls. This momentum will carry rollable object 6 over stop 4 and into the hand of the clerk seeking to retrieve the rollable object.

Optionally, a rest 7 is positioned on the front portion 2 of support 1 and in front of stop 4 so that when rollable object 6 rolls over stop 4 it comes to rest at a retrieving position with rollable object 6 resting between stop 4 and rest 7 as shown in FIG. 3. If the rollable object is a reel or a record, side members 8 may be provided on support 1 as shown in FIG. 1. These sides members prevent tipping of the rollable object. The side members also serve to divide support 1 into a number of separate compartments, each compartment being adapted to receive a separate rollable object.

In the preferred form of the device of the present invention, a tongue or spacer 9 is disposed between incline 5 and the rear wall 10 of the storage unit 11. Preferably, as shown in FIGS. 1, 2 and 3, spacer 9 is fixed to support 1 at a point behind incline 5. Spacer 9 insures that the rollable object 6 will be able to roll up incline 5 without interference of its motion by contact with the rear wall 10 of the storage unit 11.

A reading of the instant specification taken together with the drawings will suggest to the skilled artisan other modifications of the present invention. For example, as shown in FIGS. 4–6, inclined 5 can be replaced by an arm 12 having a normal position and a spring 13 for maintaining the arm of said normal position. When the rollable object is subjected to a rearwardly directed force, it will roll against the arm 12, pushing it backwards. The spring will act upon the arm, forcing it back to its normal position, stopping the rearward motion of the object and impelling the rollable object in a forward direction will sufficient force to cause the object to roll over the stop 4.

What is claimed is:

1. A storage device for a rollable object comprising a support, a stop on said support, said support being adapted to receive said object in a normal position behind said stops and means responsive to the application of rearward force to said object, disposed behind said object, for imparting sufficient forward motion to the object to permit the object to roll over the stop, said means responsive being a ramp providing a substantially continuously supportive surface along the path of travel of said object.

2. A device as in claim 1 wherein said stop is a ridge.

3. A device as in claim 1 further including spacing means disposed behind said means responsive whereby when the device is placed on a storage shelf having a back the spacing means will prevent contact of the rollable object with the back when a rearward force is applied to the object.

4. A device as in claim 3 wherein said spacing means is a tongue on said support.

5. A device as in claim 1 further including a rest disposed in front of said stop, said rollable object after rolling over the stop resting at a retrieving position between said stop and said rest.

6. A storage device for a rollable object comprising a support, a stop on said support, said support being adapted to receive said object in a normal position behind said stop, means responsive to the application of rearward force to said object, disposed behind said object, for imparting sufficient forward motion to the object to permit the object to roll over the stop, said means for imparting being an arm and a spring urging the arm forward against the object and towards said stop.

7. A device as in claim 6 wherein said stop means is a ridge.

8. A device in claim 6 further including spacing means disposed behind said means responsive whereby when the device is placed on a storage shelf having a back the spacing means will prevent contact of the rollable object with the back when a rearward force is applied to the object.

9. A device as in claim 8 wherein said spacing means is a tongue on said support.

10. A device as in claim 6 further including a rest disposed in front of said stop, said rollable object after rolling over the stop resting at a retrieving position between said stop and said rest.

11. A storage device for a rollable object comprising a support, a stop on said support, said support being adapted to receive said object in a normal position behind said stop and positive mechanical means responsive to the application of

rearward force to said object, disposed behind said object, for imparting a sufficient forward motion to the object to permit the object to roll over the stop.

12. A device as in claim 11 wherein said stop means is a ridge.

13. A device as in claim 11 further including spacing means disposed behind said means responsive whereby when the device is placed on a storage shelf having a back the spacing means will prevent contact of the rollable object with the back when a rearward force is applied to the object.

14. A device as in claim 13 wherein said spacing means is a tongue on said support.

15. A device as in claim 11 further including a rest disposed in front of said stop, said rollable object after rolling over the stop resting at a retrieving position between said stop and said and said rest.

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