

- [54] **MAGNETICALLY SEALABLE CONTAINER**
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 [51] Int. Cl. **B65d 5/34, B65d 55/00**
 [58] Field of Search **24/73 MF; 150/42; 248/206 A; 211/DIG. 1; 52/DIG. 4; 40/142 A; 229/44; 220/55 MG**

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[57] **ABSTRACT**

An openable and selectively resealable container includes wall members defining an internal storage cavity and a flap member hingedly connected thereto and movable between an opened and closed position with at least a portion of the flap member being in overlying contact with one wall member of the container when the flap member is in its closed position. Magnetic sealing means are provided for retaining the flap member in its closed position and include a strip of permanent magnetic material secured to the flap member and located in a position to coact with and overlies a thin layer of ferromagnetic material which is secured to the one wall member. The one wall member is formed of a baseboard with at least one surface thereof being covered with a decorative, overwrap material after the ferromagnetic material is impressed into the surface of the baseboard to substantially conceal the appearance and location of the ferromagnetic material.

7 Claims, 9 Drawing Figures

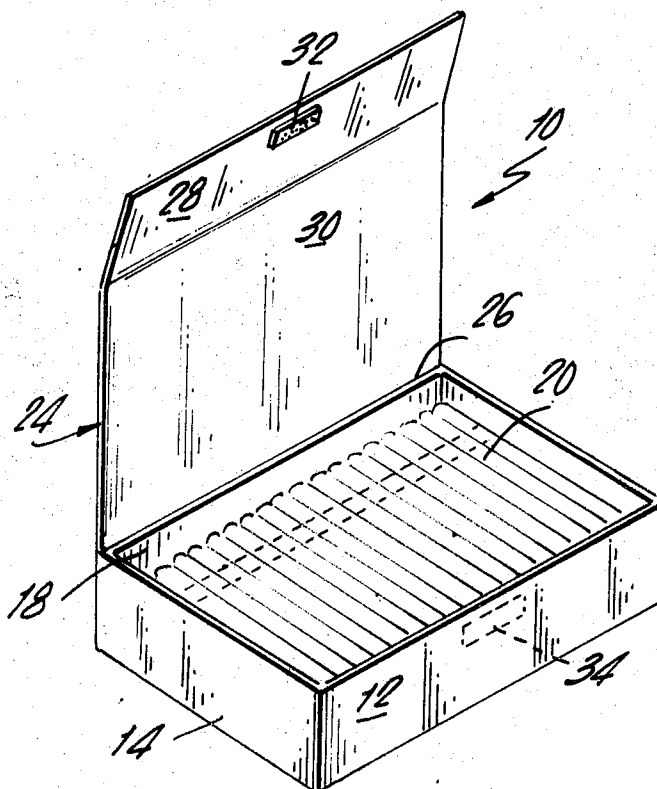


FIG. 1

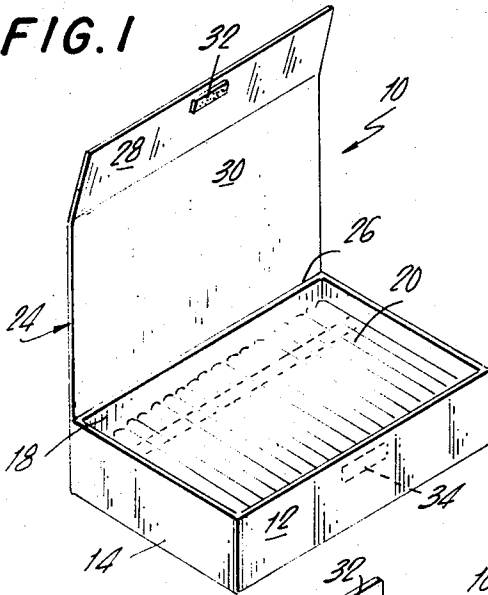


FIG. 2

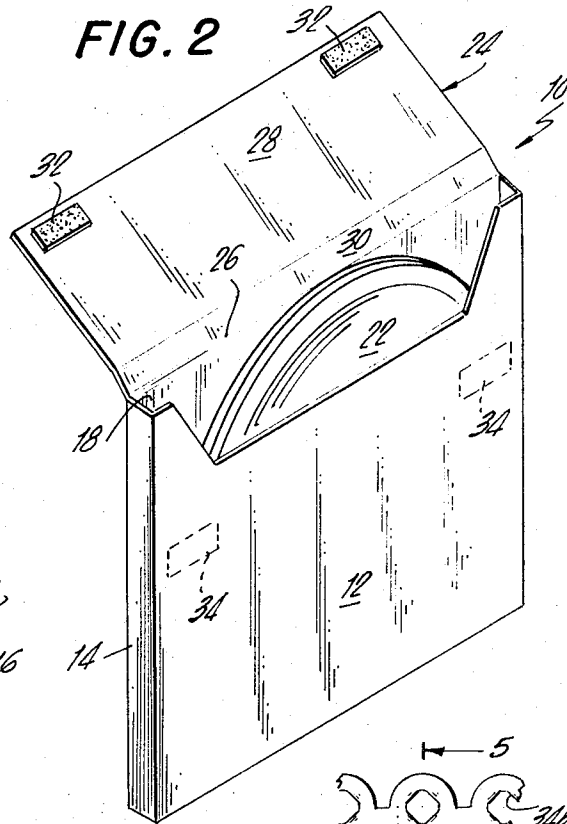


FIG. 3

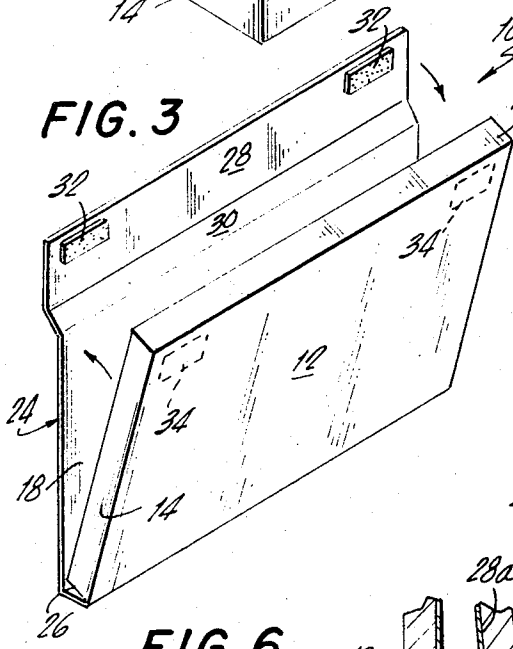


FIG. 5

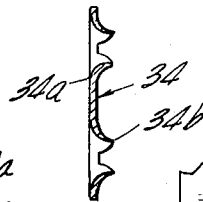
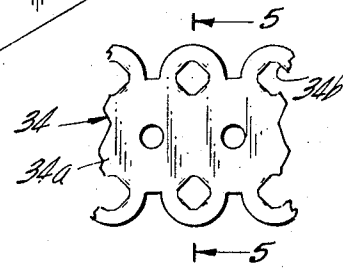


FIG. 4

FIG. 6

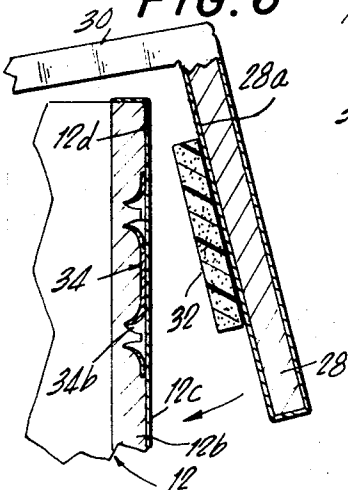
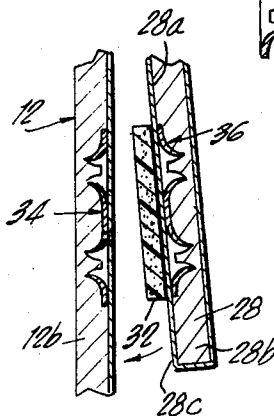


FIG. 7

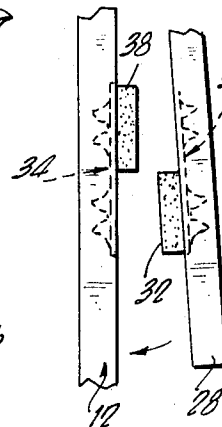


FIG. 8

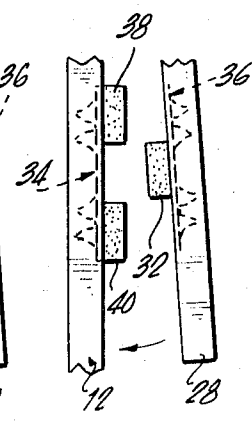


FIG. 9

MAGNETICALLY SEALABLE CONTAINER

This invention relates generally to self-sealing containers and, more particularly, to openable and magnetically releasable containers.

In the prior art, there are a number of different types of containers which employ magnetic means to seal the container. In some of these prior art containers, the magnetic sealing means are exposed and visible on the container even after it has been sealed or closed. This provides a container which is unattractive and limits the use of such containers to fields where appearance is of no concern. However, other types of prior art containers, such as billfolds, coin purses, key cases, etc. have covered and concealed the magnetic sealing means to enhance the appearance of the container. However, even in these prior art containers, the magnetic sealing means considerably increase the thickness of the closure members and usually create an unsightly bump or bulge on the closure members of the container. Finally, to eliminate the problem of an unsightly bulge or bump on container closure members, a portion of the closure member has been removed or cut-out and the magnetic sealing means placed within the cavity created. These inlaid magnetic sealing means and adjacent closure surfaces are then overwrapped to eliminate the unattractive appearance of the magnetic sealing means.

It will be apparent from the foregoing, that cutting-out or removing a portion of a closure member in order to create a cavity of the proper size which will receive the particular magnetic sealing means is both costly and cumbersome. It would be desirable to merely apply the magnetic sealing means to the closure member without having to remove a portion thereof, yet still avoid the unsightly appearance of a bulge or protrusion above the adjacent closure surfaces. In addition, it would be advantageous to avoid the need of cutting-out or removing a portion of the closure member which is to receive the magnetic sealing means, as such an operation is costly and time-consuming.

Accordingly, it is an overall object of this invention to provide magnetic sealing means for a container wherein the magnetic sealing means are not exposed and do not provide bulges or protrusions in the closure member.

A further object of this invention is to provide a container wherein the magnetic sealing means are applied in an efficient and economical manner to a closure member of the container.

Briefly, in accordance with the principles of the present invention, a magnetically sealable container is provided with magnetic sealing means being located on adjacent closure members which coact to seal the container. More particularly, the container includes wall members which define an internal storage cavity and a flap member which is hingedly connected thereto and is movable between an opened and closed position. The flap member includes a contact surface which is in overlying contact with a contact surface of one of the wall members when the flap member is in its closed position. The magnetic sealing means retain the flap member in its closed position and include a strip of permanent magnetic material on the contact surface of the flap member and a thin layer of ferromagnetic material beneath the contact surface of the one wall member.

The one wall member is formed of a baseboard and the surface thereof is covered with a decorative, overwrap material. The ferromagnetic material is impressed into the surface of the baseboard so that the outer surface of the ferromagnetic material is substantially coplanar or flush with the outer surface of the baseboard. Moreover, the decorative, overwrap material covers the baseboard and substantially conceals the appearance and location of the impressed ferromagnetic material. Further, the ferromagnetic material may be secured to the one wall member in a variety of ways, including the use of prongs on the ferromagnetic material or the use of adhesive means on the ferromagnetic material, the baseboard or on the overwrap material.

The magnetically sealable container of the present invention provides a number of advantages over prior art arrangements. Most important, an attractive container is provided due to the fact that the ferromagnetic material is concealed by a decorative, overwrap material. Moreover, as the ferromagnetic material is impressed into the baseboard, and is flush with the surface thereof, there is no unsightly bulge or protrusion through the overwrap material. In addition to the magnetic sealing means of the present invention providing a more attractive container, it is more economical to produce. More particularly, as the ferromagnetic material is simply impressed into the surface of the baseboard, by a suitable machine, it eliminates the costly and time-consuming step of having to remove a portion of the baseboard to form a cavity to receive the ferromagnetic material.

Further objects, features and advantages of the present invention will become apparent upon the consideration of the following detailed description of a presently preferred embodiment when taken in conjunction with the accompanying drawings, wherein:

FIGS. 1 to 3 are illustrative of representative types of containers which may employ the magnetic sealing means of the present invention;

FIG. 4 is illustrative of a portion of the magnetic sealing means of the present invention;

FIG. 5 is a sectional view, taken on line 5—5 of FIG. 4, which shows the prongs which may be employed for attaching the magnetic sealing means to a closure member of a container;

FIG. 6 is an exploded sectional view illustrating one configuration of the magnetic sealing means of the present invention;

FIG. 7 is a sectional view illustrating the use of an additional ferromagnetic strip to reduce the thickness of the magnetic sealing means required on the flap member;

FIG. 8 is a modification and illustrates the use of two permanent magnets in order to provide a shear lock in one direction; and

FIG. 9 is a modification and illustrates the use of three permanent magnets in order to provide a shear lock in two directions.

Referring now to FIGS. 1 to 3, there are illustrated representative types of containers, which are generally designated by the reference numeral 10, which may employ the magnetic sealing means of the present invention. In particular, FIG. 1 shows the magnetic sealing means of the present invention employed on a cigar box, FIG. 2 shows a record album or tape carrier and FIG. 3 shows a gift or wrapping box. It is to be understood, however, that these containers 10 are for illus-

trative purposes only, and that the magnetic sealing means of the present invention may be employed on any type of container which includes wall members with an overlying flap member, in a manner to be described hereinafter.

Typically, the containers 10 include a plurality of wall members, such as those designated by the reference numerals 12, 14 and 16, which define an internal storage cavity 18 for receiving various types of articles, such as those representitively shown at 20 and 22. A flap member 24 is hingedly connected at 26 to one of the wall members of the container 10 and is movable between an opened and closed position. Flap member 24 includes a flap portion 28 which overlies one of the wall members of the container, e.g., wall member 12, and a connecting portion 30 which will normally form one wall member of the container 10 when flap member 24 is in its closed position.

The magnetic sealing means of the present invention retain flap member 24 in its closed position and includes a strip of magnetic material, such as permanent magnet 32, secured to the contact surface 28a of flap portion 28 and a thin layer of ferromagnetic material 34 secured to the contact surface 12a of wall member 12. It should be understood, that any suitable number of sets of magnetic sealing means 32, 34 may be employed. As shown in FIG. 1, sufficient closure strength is obtained by employing only one pair of magnetic sealing means 32, 34, whereas in FIGS. 2 and 3, it is necessary to employ two pairs of magnetic sealing means 32, 34 to obtain the required or desired magnetic closure force.

As shown in FIG. 6, wall member 12 is formed of a baseboard 12, made out of any suitable material, such as cardboard, with at least one surface 12d of baseboard 12b being covered with a decorative, overwrap material 12c. The ferromagnetic material 34 is impressed into the surface 12d of the baseboard 12b, by any suitable machine, so that the outer surface 34a of the ferromagnetic material 34 is substantially coplanar or flush with the outer surface 12d of baseboard 12b. The decorative, overwrap material 12c is placed over baseboard 12b and ferromagnetic material 34 to substantially conceal the appearance and location of ferromagnetic material 34. In this manner, when flap member 28 is in its open position, only the decorative, overwrap material 12c will be observed as it completely covers the ferromagnetic material 34. Moreover, as ferromagnetic material 34 is impressed into the surface 12d of baseboard 12b so that it is flush with the surface 12d thereof, there is no unsightly bulge or protrusion of the ferromagnetic material 34 through the decorative, overwrap material 12c.

The ferromagnetic material 34 may be secured to wall member 12 in any suitable manner. For example, prongs 34 may be punched out of the strip of ferromagnetic material 34, as shown in FIGS. 4 and 5. In this manner, when ferromagnetic material 34 is impressed into the surface 12d of baseboard 12b, prongs 34b will provide a suitable means for securing ferromagnetic material 34 to wall member 12. Moreover, adhesive means (not shown) may be used on either side of ferromagnetic material 34 so that it will adhere to either baseboard 12b, or overwrap material 12c, or both, to provide the necessary securement means. It is also within the contemplation of the present invention to secure ferromagnetic material 34 to wall member 12

without the use of prongs 34b or adhesive means. More particularly, the impressing of the ferromagnetic material 34 into baseboard 12b would be one way of simply securing the ferromagnetic material 34 thereto.

It is also within the contemplation of the present invention to provide as thin a closure as is possible, yet still providing sufficient magnet force between permanent magnet 32 and ferromagnetic material 34 so that the magnetic sealing means of the present invention will provide an adequate closing force. To accomplish this, as shown in FIG. 7, an additional strip of ferromagnetic material 36 is impressed within the contact surface 28a of baseboard 28b and is covered with a suitable decorative, overwrap material 28c before the permanent magnet 32 is secured to flap member 28, in any suitable manner. As a result, some of the magnetic lines of force which leave permanent magnet 32 and normally enter the surrounding atmosphere, will now enter the strip of ferromagnetic material 36 which has been impressed into flap member 28. This combination of permanent magnet 32 and ferromagnetic material 36 applies a greater magnetic force of attraction to the ferromagnetic material 34 of wall member 12. Accordingly, the size of permanent magnet 32 may be decreased in proportion to the additional magnetic strength provided by ferromagnetic material 36.

The magnetic sealing means 32, 34 of the present invention described heretofore, although providing a sufficient magnetic closure force between the closure members, wall member 12 and flap member 28, allow the two closure members to slide relative to each other once the flap member 28 is in its closed position and overlies and contacts wall member 12. In order to avoid relative sliding between wall member 12 and flap member 28, once the flap member 28 is in its closed position, the arrangements shown in FIGS. 8 and 9 may be employed. With respect to FIG. 8, in addition to permanent magnet 32 being secured to flap member 28, there is shown an additional permanent magnet 38 secured to wall member 12, in any suitable manner. Accordingly, it will be seen that when flap member 28 is in its closed position, permanent magnets 32 and 38 will avoid sliding movement of flap member 28 relative to wall member 12 in one direction. In this manner, a more secure and sturdy sealing means is provided.

Finally, the magnetic sealing means shown in FIG. 9 prevents relative movement between wall member 12 and flap member 28 in two directions. More particularly, in addition to the permanent magnet 32 secured to flap member 28 and the permanent magnet 38 secured to wall member 12, there is provided an additional permanent magnet 40 secured to wall member 12, in any suitable manner, and spaced from permanent magnet 38 a sufficient distance so that permanent magnet 32 will be received between permanent magnets 38 and 40 when flap member 28 is moved into its closed position. As a result, permanent magnets 32, 38 and 40 will prevent relative sliding movement between wall member 12 and flap member 28 in two directions. Accordingly, there is provided a more secure and sturdy seal to fasten the closure members of container 10.

From the foregoing, it will be appreciated that there has been provided in accordance with the present invention, magnetic sealing means for a container which are attractive in appearance, provide an adequate magnetic sealing force and are inexpensive to manufacture. More particularly, the ferromagnetic material on the

wall member is concealed from view in such a manner that there is no bulge or protrusion through the decorative, overwrap material due to the fact that the ferromagnetic material is impressed into the wall member and is flush with the surface thereof. In addition, the size of the permanent magnets secured to the flap member may be reduced in size to provide a thinner closure by impressing a strip of ferromagnetic material into the flap member. Most important, the strip of ferromagnetic material is applied to the closure members in a most economical and efficient manner, i.e., the strip of ferromagnetic material is simply impressed into the surface of the baseboard and is then covered with a decorative, overwrap material.

A latitude of modification, change and substitution is intended in the foregoing disclosure and in some instances, some features of the invention will be employed without a corresponding use of other features. Accordingly, it is appropriated that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention disclosed herein.

What is claimed is:

1. An openable and selectively resealable container including wall members defining an internal storage cavity and a flap member hingedly connected thereto and movable between a closed and opened position, one of said wall members and said flap member defining closure members, at least a portion of said flap member having a contact surface in overlying contact with a contact surface of one wall member of said container when said flap member is in its closed position, magnetic sealing means in association with said closure members for retaining said flap member in its closed position, said magnetic sealing means comprising a strip of permanent magnetic material on the contact surface of one of said closure members and a thin layer of ferromagnetic material beneath the contact surface of said other closure member, said other closure mem-

ber being formed of a baseboard and at least one receiving surface thereof being covered with an overwrap material, said ferromagnetic material being impressed into the receiving surface of said baseboard with the outer surface of said ferromagnetic material being substantially coplanar with the receiving surface of said baseboard and said overwrap material secured thereover substantially concealing the appearance and location of said ferromagnetic material, baseboard in the area of said ferromagnetic material being free from cut outs, means securing said ferromagnetic material to and into the receiving surface of said baseboard, said ferromagnetic material and said permanent magnetic material being located on said closure members to coact and overlie when said flap member is in its closed position.

2. The container in accordance with claim 1 wherein said securing means includes prongs formed on said ferromagnetic material.

3. The container in accordance with claim 1 wherein said securing means includes adhesive means for securing said ferromagnetic material to said baseboard.

4. The container in accordance with claim 1 wherein the width of said baseboard is greater than the width of said ferromagnetic material.

5. The container in accordance with claim 1 wherein ferromagnetic material is impressed into each of said closure members.

6. The container in accordance with claim 1 wherein at least one strip of permanent magnetic material is secured to each of said closure members.

7. The container in accordance with claim 6 wherein the strips of permanent magnetic material on each of the closure members are positioned immediately adjacent each other when said flap member is in its closed position with said strips of permanent magnetic material preventing sliding movement between said closure members.

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