April 28, 1964 H. W. GLASSER ETAL 3,130,833

PANEL RETAINING STRUCTURE

Filed March 12, 1962 2 Sheets-Sheet 1

Fig. 1

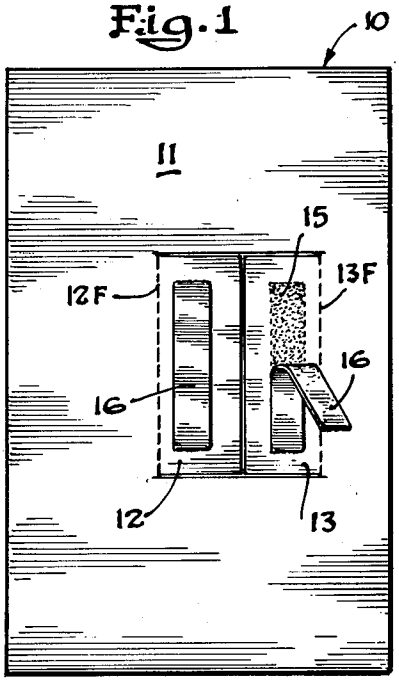


Fig. 2

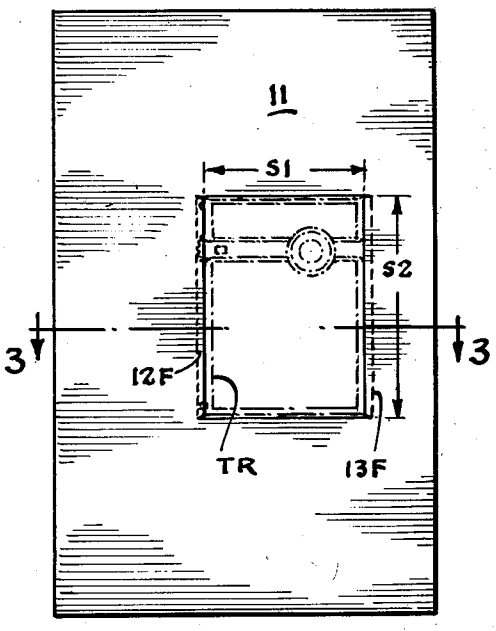
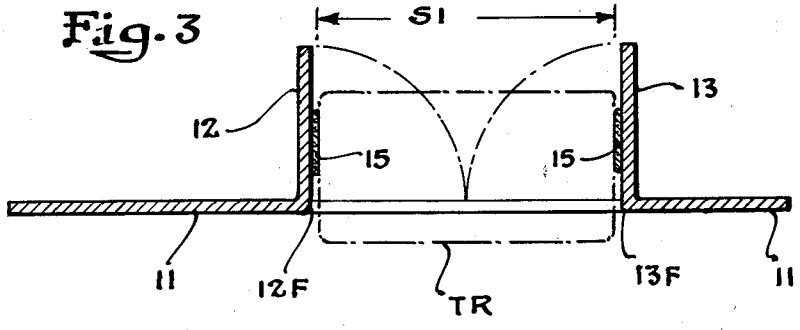


Fig. 3



Inventors
Harry W. Glasser
Sibley McCaslin
By Wallace, Kinzer and Dorn
Attorneys

April 28, 1964 H. W. GLASSER ETAL 3,130,833

PANEL RETAINING STRUCTURE

Filed March 12, 1962 2 Sheets-Sheet 2

Fig. 4

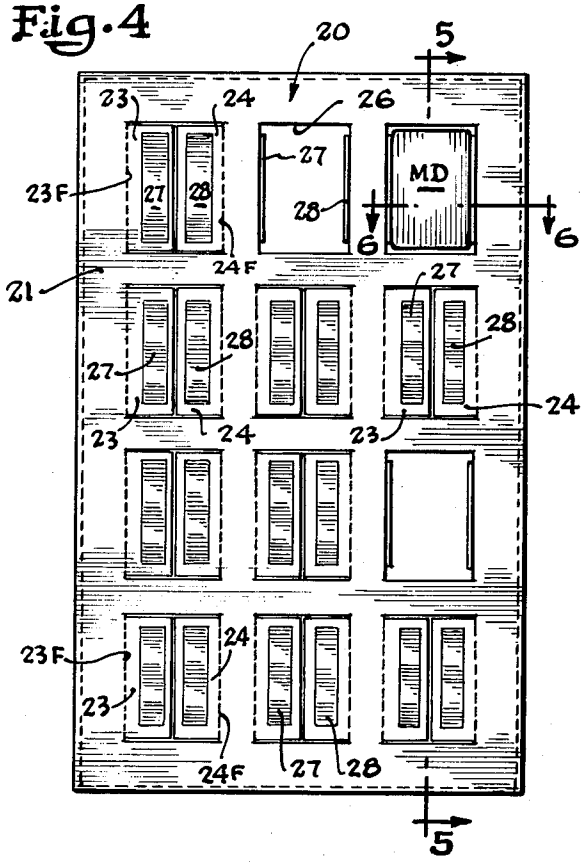


Fig. 5

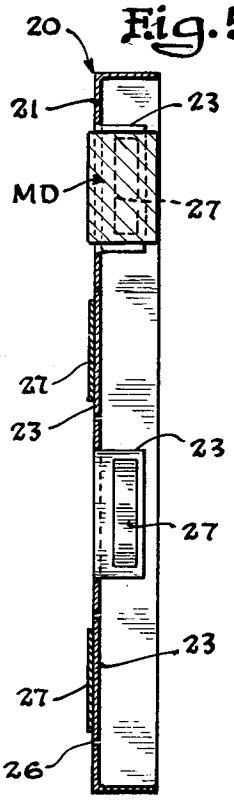


Fig. 6

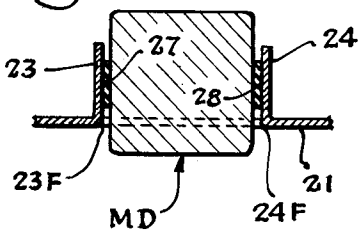
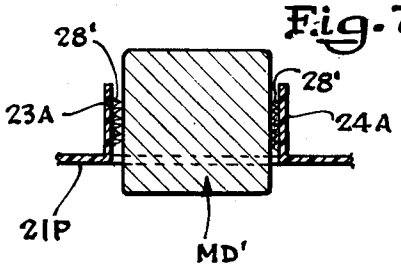


Fig. 7



Inventors
Harry W. Glasser
Sibley McCaslin
By Wallace, Kinzer and Dorn
Attorneys

United States Patent Office 3,130,833 Patented Apr. 28, 1964

3,130,833

PANEL RETAINING STRUCTURE

Harry W. Glasser, R.R. 2, and Sibley McCaslin, 1762 Brookview Lane, both of Palatine, Ill.

Filed Mar. 12, 1962, Ser. No. 178,795
3 Claims. (Cl. 206—80)

This invention relates to packaging, and retaining structure particularly adapted for the display, or shipment of goods, and kindred uses. More particularly, the invention relates to retaining and display structure that provides protection against unauthorized removal of a retained article while permitting quick and convenient removal under permissible conditions.

In many instances it is desirable to display relatively small, and ofttimes valuable, articles of merchandise in positions where sale thereof may be promoted, as by facilitating inspection thereof by prospective purchasers. So to do, however, requires prevention of unauthorized removal of the article from the displayed position thereof so as to prevent pilfering, mishandling and the like. On the other hand, it is usually advantageous to provide for quick and convenient removal of an article of merchandise or the like from a displayed position thereof. Heretofore, accomplishment of the foregoing has entailed resort to a releasable interlocking arrangement which necessitated there being a shoulder, or the equivalent thereof, on the to be displayed article, or on a package containing the same. The present invention, however, enables an article of merchandise or the like to be so secured in a retaining structure in which the same is disposed that unauthorized and undesired removal or displacement thereof may be prevented without resort to an interlocking arrangement between the retaining structure and the article.

It is a primary object of the present invention, therefore, to mount an article of merchandise or the like in partially exposed position in a retaining structure that inherently prevents removal upon forces applied to the exposed portion of the article. It is a further object of our invention to provide for quick and convenient removal of the article from the retaining structure when desired.

A related object of the invention is to limit, in a positive manner, the ordinary direction of removal of an article from mounted position in a retaining structure to one that produces a shear stress at the point of engagement between the retaining structure and the article, in order to maximize the retaining force applied to the article by the retaining structure and thereby discourage pilfering. A related object of the invention is to afford a convenient means to release the grip of the retaining structure on the article by application of forces in tension to a portion of the retaining structure that is not accessible under ordinary conditions.

An additional object of the invention is to provide a retaining structure that inherently affords an enhanced retaining force in a retaining structure in which an article may be mounted by adhesion, by cohesion, or by frictional engagement, of engaged surfaces.

Specifically, an object of the present invention is to afford improved retaining properties in a retaining structure that comprises an apertured panel having two opposed retaining elements extending substantially parallel to each other rearwardly of the panel in position to grip parallel sides of an article inserted through the aperture, and thereby limit removal of the article to a direction establishing a shear strain along the parallel engaged surfaces of the article and the retaining elements.

Yet more specifically, it is an object of the present invention to construct a panel or board of the kind disclosed having two cut-out flaps joined to the board or panel along fold lines affording hinges, whereas the flaps can be folded back to afford an opening that enables the goods to be displayed to be neatly fitted therein. Flaps as aforesaid are provided, on their sides that will be adjacent the goods, with adhesive or other gripping or friction material so applied as to be engageable with the adjacent surfaces of the goods inserted into the opening, whereby the adhesive or other gripping material is effective to establish a union between the board flaps and the sides of the goods, and to enable this to be effected in a novel and efficient manner is yet another object of this invention. A related object is to have the flaps spring-like or resilient in character so that even after being folded back they tend to urge themselves against the sides of the goods.

Yet a further object is to afford an arrangement wherein an attempt by a pilferer to withdraw the goods from the display board will result in flaps or the like being brought into tighter and tighter engagement with the goods to thereby make it all but impossible to extract the goods without crushing or destroying the board or the goods, and at least making it necessary to spend a great deal of time or create a lot of noise in an effort to remove the goods that cannot help but be noticed by the attendant clerk.

In the present instance advantage is taken of the phenomenon known as shear stress and strain. The shear strain, a measure of the distortion of a body under an applied force tending to produce cleavage, is proportional to the applied force, the shear stress. Their ratio is the modulus of rigidity. Under the present invention, the flap will be strained to the rupture point by the shear stress before the goods can be removed from retained position.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show preferred embodiments of the present invention and the principle thereof and what is now considered to be the best mode contemplated for applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

FIG. 1 is a front elevation of a support or display member constructed in accordance with the present invention;

FIG. 2 is a front elevation similar to FIG. 1 showing goods associated therewith;

FIG. 3 is a sectional view on an enlarged scale taken on the line 3—3 on FIG. 2;

FIG. 4 is a view of another embodiment of the invention in the form of shipping or packaging member;

FIGS. 5 and 6 are sectional views on the line 5—5 and 6—6 of FIG. 4; and

FIG. 7 is a sectional view similar to FIG. 6 illustrating another embodiment of the present invention.

One embodiment of the present invention is illustrated in FIG. 1 as embodied in a support member or display board 10 constructed from heavy-duty cardboard or the like to be of rectangular configuration. This of course is merely exemplary for purposes of disclosure herein since various sizes, materials and geometrical shapes can be utilized for advantageous merchandising effect, or optimum packaging conditions.

The illustrated board 10 includes a rectangular panel portion 11, and this is die cut at any desired location to afford a pair of fold-back flaps 12 and 13 that are

joined to the adjacent portions of the panel 11 along fold lines 12F and 13F. The flaps 12 and 13 are free of the panel 11 along three cut edges, but are united thereto and integral therewith along the fold lines 12F and 13F which represent hinge lines. Accordingly, the flaps 12 and 13 can be folded to extended positions, FIG. 3, out of the plane of the panel 11 to thereby afford an opening in the panel 11. The opening so afforded is desirably shaped and dimensioned in accordance with the shape and outside dimensions of the goods to be displayed. The flaps as 12 and 13 may be of various dimensions and shapes. In the present instance it is assumed that the goods to be displayed will be a transistor radio TR of box-like nature having rectangular external dimensions.

In this instance, the flaps 12 and 13 are so dimensioned that the opening in the panel 11 afforded by the rearward folding of the flaps 12F and 13F will be rectangular in outline. The edges of the opening thus disclosed are so related and dimensioned as to neatly engage side, top and bottom walls of a transistor radio TR inserted thereinto. This permits the radio to be advantageously and neatly displayed at the front of the panel as shown in FIG. 2, enabling the face thereof to be examined and the controls tested by the prospective customer.

The display board 10 may be so constructed as to include openings or tabs so that the same may be suspended incidental to display of the radio, or the board may be so constructed as to have fold-out props or the usual kind associated therewith incidental to having the board supported in an inclined position on a countertop or the like.

Under and in accordance with one form of the present invention, the flaps 12 and 13 are provided on one side with generous amounts of pressure-sensitive adhesive 15 normally protected by removable masking strips 16. The adhesive is applied to the sides of the flaps 12 and 13 which will face the goods inserted into the opening afforded by the bending back of the flaps 12 and 13. Thus, as shown in FIG. 3, the adhesive 15 is present on what amounts to the opposed inside faces of the flaps 12 and 13. Resultantly, with the strips removed, the flaps 12 and 13 can be caused to grip adhesively the sides of the goods after the goods have been inserted into the display opening having the sides S1 and S2. Other gripping means can be used as will be evident from the description to follow.

In associating the goods as TR with the board 10, the flaps 12 and 13 are folded rearwardly out of the plane of the panel 11. Thereafter, in accordance with one mode of operation, the goods are inserted into the resultant opening, while spreading the flaps 12 and 13 to permit free ingress of the goods. After the goods have been properly positioned in the desired manner, the strips 16 are removed to expose the adhesive, and the flaps 12 and 13 are then pressed against the sides of the goods that are adjacent thereto, FIG. 3. In this manner, the securing flaps of the display board are in effect joined to the goods.

As a consequence, the goods can be removed by the unsuspecting person only with extreme difficulty and effort since, when there is an attempt to withdraw the radio TR or the like from the front of the display board, there is a strongly resisted shearing action at the flaps 12 and 13 perpendicular to the panel 11. The same is true upon an attempt to push the goods rearward out of the opening. Moreover, the flaps as 12 and 13 tend to swing inward and grip the goods tighter and tighter as a forward withdrawing force is applied, especially as this is encouraged by the tendency of the flaps to swing inward on their own account. Permissible removal is easily accomplished by spreading the flaps from the back and then pushing the goods from rear to front out the panel opening.

Another embodiment of the support member of the present invention is illustrated in FIGS. 4 to 7, this embodiment of the invention being concerned primarily with a convenient mode of shipping or packaging articles, while securing the same against inadvertent removal from the secured or retained position. Thus, as shown in FIG. 4, there is afforded a modular support member 20, stamped from light-weight sheet metal or like material, and generally of box-like configuration, including a generally rectangular panel section 21. The metallic structure 20 is stamped to provide side and end flanges 23 and 24, FIG. 5, which extend at right angles to the plane of the panel 21 to thereby afford a rigidified, modular shipping member.

The panel 21 is stamped, preferably during the fabrication thereof, to provide a plurality of easily flexed fold-back flaps 23 and 24 which are joined to the panel structure along hinge lines 23F and 24F, the dimensioning being such that upon the flaps being bent out of the plane of the panel 21, an opening 26 of rectangular dimension is defined, enabling merchandise MD of corresponding rectangular dimension, or merchandise contained in a rectangular package of like configuration, to be inserted into the opening 26 incidental to filling the openings in the support structure 20 with as many merchandise items MD as there are openings 26.

Each item as MD is retained in position within the corresponding opening 26 by material of high friction applied to the surfaces of the flaps 23 and 24 which will be immediately adjacent the corresponding surfaces of the article MD. In the present instance, the gripping material of high friction character is in the form of elongated strips of natural or synthetic rubber 27 and 28 applied respectively to the flaps 23 and 24.

As in the foregoing embodiment, the gripping material applied to the fold-back flaps and engaging the corresponding surfaces of the merchandise, after the same has been inserted in a retaining opening as 26, is effective to cause the flaps to so grip the merchandise that any attempt to withdraw or push the merchandise out of the opening 26 as viewed in FIG. 4 creates a shear action with the consequences discussed above. On the other hand, by purposely spreading the flaps 23 and 24 at the rear of the board 20, against their tendency to spring inward against the sides of the contained item, the goods can be removed with facility.

FIG. 7 illustrates another embodiment of the present invention to the extent that the panel section of the shiping carton 20, or support member consists of a plastic 21P, stamped or otherwise fabricated to afford easily flexed flaps 23A and 24A having the function of the flaps 23 and 24 disclosed above. However, the sides of the flaps 23A and 24A to be opposite the packaged item MD', FIG. 7, are surfaced with frictional material in the form of an abrasive 28' such as grains of sand or alumina, which present a sufficiently sharp tooth to take a bite on the sides of the retained item. Obvious, the item MD' will be a box or like container, as to which there need be no apprehension regarding scratch damage by the abrasive when, upon an attempt to withdraw the goods forwardly without permissive action, the abrasive gripping the container MD', will set up the shearing action with the consequences discussed above.

It will be seen from the foregoing that the present invention makes it possible to support merchandise for display purposes, or for shipping, under circumstances where pilfering, or damage due to inadequate retention, is for the most part obviated in a quite economical manner. Thus, any movement of the retained item out of the opening in which it is inserted tends to produce movement of the flaps that are secured thereto, adhesively or by friction material applied to and active between the flaps and the adjacent surfaces of the retained goods. Such tendency toward movement in the flaps, however, is manifest in a shear force at the flaps, producing strain, and hence removal of the goods in the manner under consideration is resisted. The material of the flaps or panel will crush

before the goods can be removed by the unsuspecting person.

It will be recognized that it is possible to resort to a single flap, and the goods need not project out of the opening in any one direction, and can have a face flush or coplanar with the panel.

Moreover, as in the illustrated embodiments of the invention, the flaps may be afforded by the material within the outline of the product-receiving opening but this is not essential since, in accordance with our invention, it is only necessary that at least one flap be afforded which may be adhered to the product to be retained on the display board. Thus, in some instances the flap or flaps may be hingedly joined to the board other than by a fold line as disclosed. Furthermore, it is not essential that the flaps include all of the material of the panel within the boundaries of the product-receiving opening therein since it is only essential that the flap or flaps be of such size as to enable the same to be effectively adhered to a product disposed in the opening afforded in the panel, and to present enough material for resistance to withdrawal of the goods, manifest in applied shear forces of sufficient magnitude on an attempted removal of the goods.

The above described arrangements enable the above set forth and kindred objects of our invention to be realized and while we have illustrated and described preferred embodiments of our invention, it is to be understood that these are capable of variation and modification, and we therefore do not wish to be limited to the precise details set forth, but desire to avail ourselves of such changes and alterations as fall within the purview of the following claims.

We claim:

1. A panel display support for displaying a merchandisable item for sale and inspection while preventing pilfering of such an item and comprising, a support panel having at least one opening therein, said opening being so dimensioned as to permit insertion of the item therein from the front of the panel to be supported within said opening with the edges of the opening neatly engaging the item with the front portion of the inserted item free of the panel for customer inspection, turn-back flaps

hingedly arranged within said opening at opposite sides thereof and presenting surfaces engageable with corresponding surfaces of such an item when supported in said opening as aforesaid, said flaps when in use being normally swung rearwardly to be disposed in planes extending substantially normal to the plane of said opening so as to extend toward the back of said panel to permit insertion of said item into said opening from the front of the panel and capable of swinging movement toward the front of said panel in the direction of said opening, and frictional securing material on said surfaces of said flaps to secure the flaps frictionally to said corresponding surfaces of the inserted item, whereby the flaps will be pulled forward to swing inward toward the plane of said opening when there is an impermissive forward tug on said item in an unauthorized attempt to pilfer said item, and whereby said item is permissibly freed for withdrawal from said opening upon knowledgeable manual release of the flaps from said item from the back of the panel.

2. A panel display support according to claim 1 wherein the opening is rectangular and said flaps are a part of and integral with said support panel and are hingedly joined thereto along fold lines.

3. A panel display support according to claim 1 wherein said frictional material is an adhesive.

References Cited in the file of this patent

UNITED STATES PATENTS

1,591,909	Zimmerman	July 6, 1926
1,813,812	Molkenthin	July 7, 1931
2,001,798	Schreiber	May 21, 1935
2,015,222	Hinson	Sept. 24, 1935
2,042,672	Maclean	June 2, 1936
2,247,252	Price	June 24, 1941
2,249,424	Hanington	July 15, 1941
2,256,024	Hill	Sept. 16, 1941
2,845,758	Lowthian	Aug. 5, 1958
2,851,237	Welshenbach	Sept. 9, 1958
2,903,139	Penman	Sept. 8, 1959
3,047,144	Wissel	July 31, 1962

FOREIGN PATENTS

356,067	Great Britain	Sept. 3, 1931