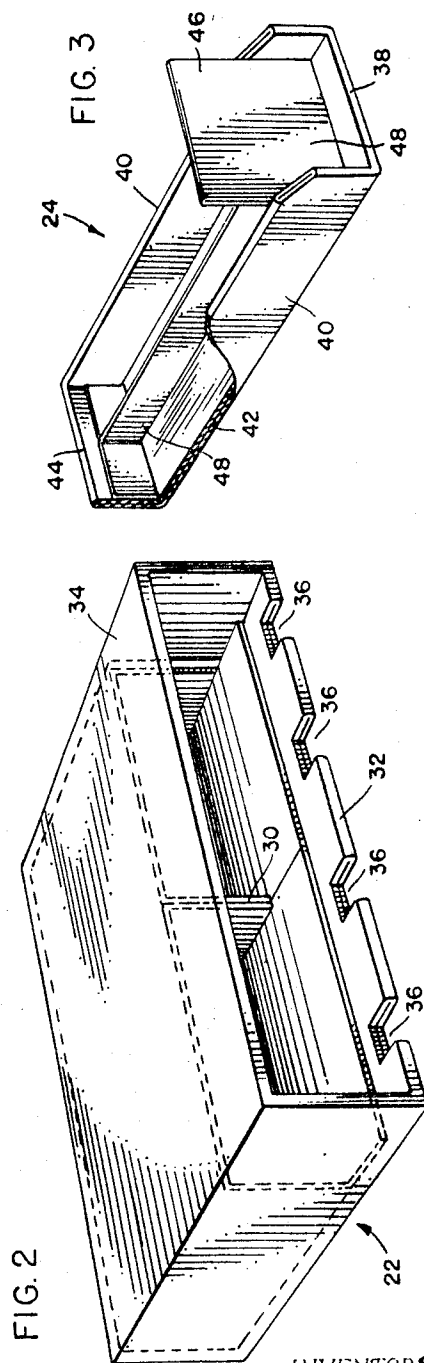


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COMBINATION SHIPPING AND STORING CONTAINER FOR SLIDES

Filed March 3, 1967

3 Sheets-Sheet 1



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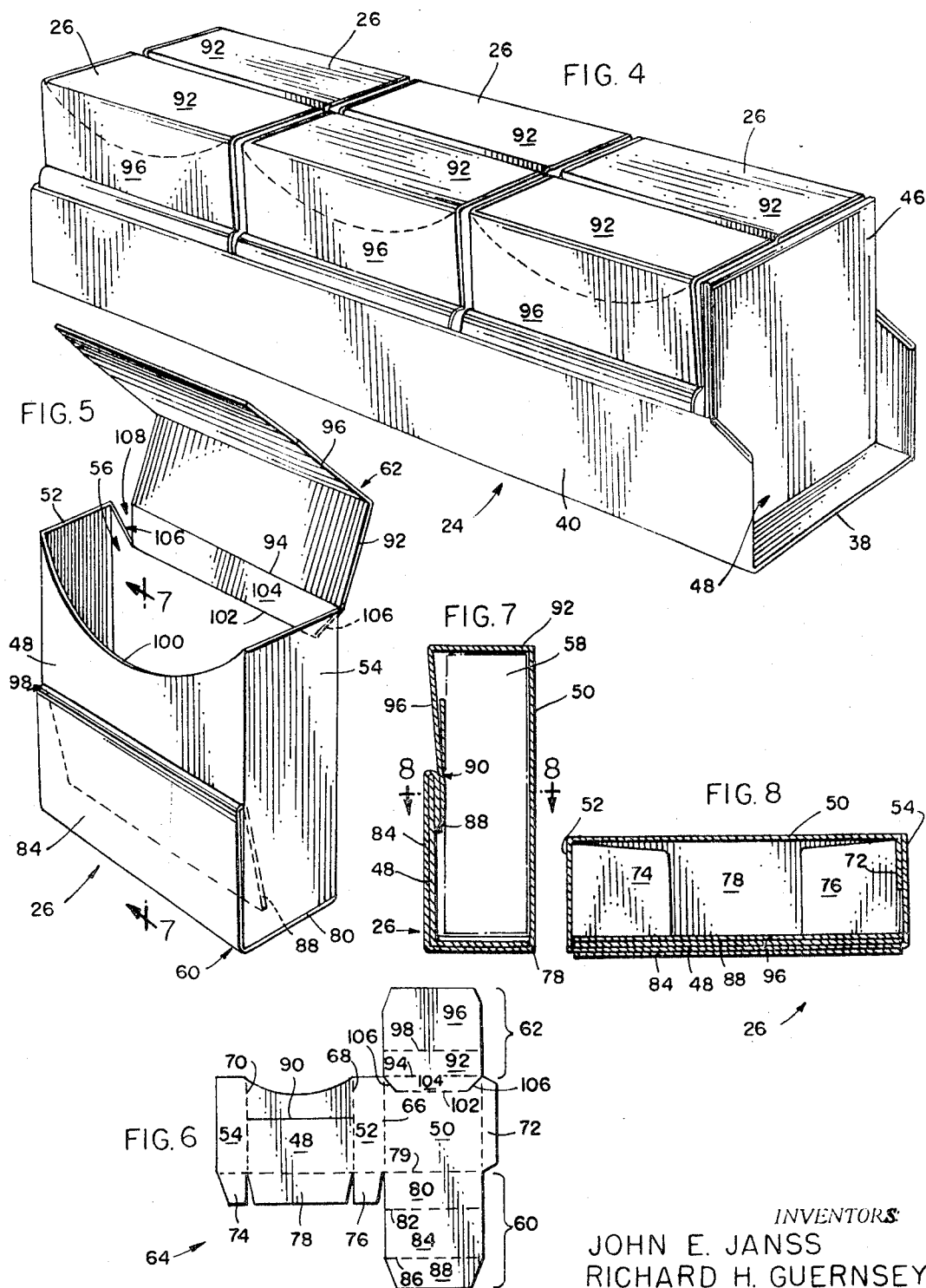
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COMBINATION SHIPPING AND STORING CONTAINER FOR SLIDES

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3 Sheets-Sheet 2



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COMBINATION SHIPPING AND STORING CONTAINER FOR SLIDES

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3 Sheets-Sheet 3

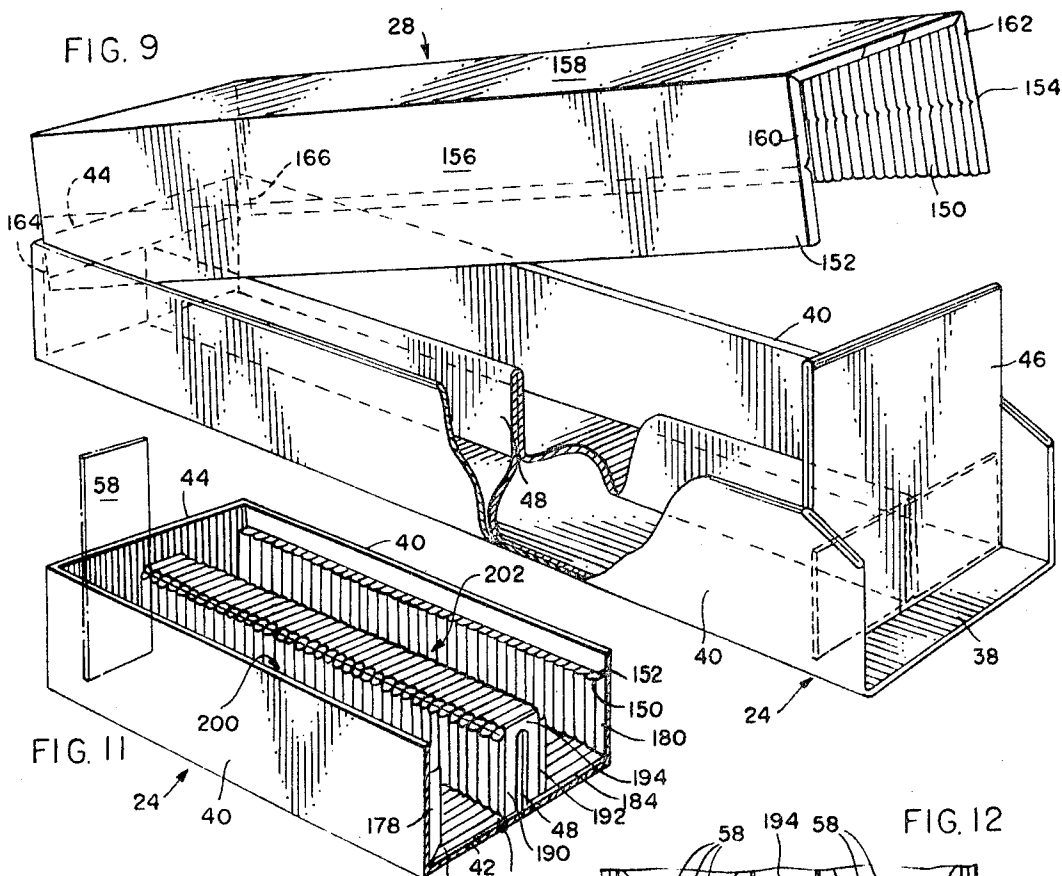


FIG. 10

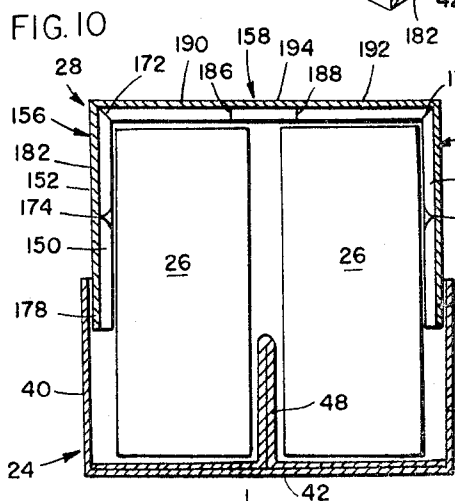
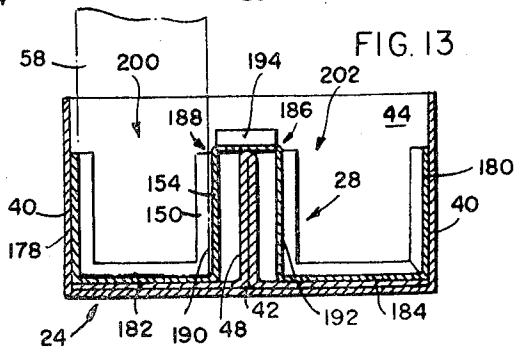
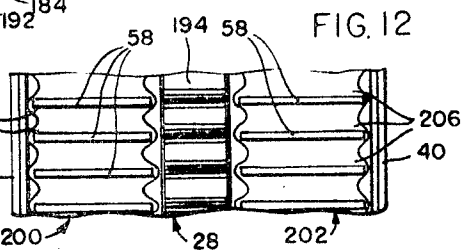
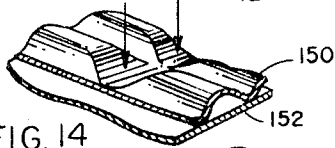


FIG. 14



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COMBINATION SHIPPING AND STORING CONTAINER FOR SLIDES

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U.S. Cl. 206—62

5 Claims

ABSTRACT OF THE DISCLOSURE

A shipping carton for glass microscope slides, the carton equipped with drawers each of which contains a corrugated cover to protect the slides during shipment. The corrugated cover is formed and scored for folding by a user for re-insertion into an emptied drawer to provide a multiplicity of channels for supporting, storing and filing within the carton of slides upon which specimens have been mounted.

Background of the invention

Microscope slides have been traditionally supplied to users in one-half gross unit packages. These unit packages have been overpacked in shipping cartons of various quantities, usually 10 or 25 gross. As the contents of such packages have been exhausted by such users, the packages and, ultimately, the shipping carton, are normally discarded as serving no further useful function.

Many slides, particularly in the area of histology and cytology, must be saved for future reference and it is necessary for the customer to buy a separate slide storage cabinet for this purpose. In other laboratory applications, hematology for example, permanent back-to-back slide storage is not ordinarily required; however, it is desirable to hold the stained and finished slides for a short period of time (often a week) in separated rather than back-to-back condition. For such temporary storage of slides, it has heretofore been necessary for users to acquire and use separate slide storage racks.

The invention described herein eliminates the need for a user to acquire either a separate storage cabinet or temporary storage racks. Instead, the original shipping carton and its components may be used to perform either or both functions.

Summary

This invention relates to a combination shipping and storage container for microscope slides, the container having drawers for holding the slides during shipment and for later supporting the slides, either as temporary storage racks apart from the container, or as storage drawers within the container, after specimens have been mounted upon such slides.

The structure of the present invention is particularly well suited for supporting used slides in protected spaced-apart condition, means being provided within each drawer for preventing contact between adjacent slides. It is a specific object of the invention to provide such means in the form of a foldable cover which performs the additional function of cushioning and protecting unused slides during shipment in the original shipping carton.

In the disclosed embodiment of the invention, such means comprises a die-cut corrugated cover which is normally folded into an inverted U-shaped configuration to cover packages of slides within each drawer, thereby protecting the slides from dust and other contamination as well as cushioning them against impact and possible breakage. After a drawer has been emptied, the cover is reversed, folded along its parallel score lines, and fitted

into the drawer to provide a protective liner for the temporary storage of slides therein. During such use, the corrugations of the liner define channels for receiving the slides and maintaining them in spaced-apart condition. Each drawer may be used as a temporary storage rack or may be reinserted into the shipping container for more permanent storage of the slides. For permanent storage of slides, use of the corrugated liner may be eliminated to permit back-to-back positioning of such slides.

The drawings

FIGURE 1 is a perspective view of a carton in which a plurality of receptacles or drawers are slidably mounted for holding packages of slides;

FIGURE 2 is a perspective view of the carton or casing illustrating its construction;

FIGURE 3 is a perspective view of a receptacle or drawer utilized in the carton of FIGURES 1 and 2;

FIGURE 4 is an enlarged perspective view of a drawer or receptacle, as shown in FIGURE 3, in which a plurality of unit packages of slides are positioned;

FIGURE 5 is an enlarged perspective view of one of the unit packages;

FIGURE 6 is a plan view of a paperboard blank from which a unit package may be folded;

FIGURE 7 is a sectional view along line 7—7 of FIGURE 5;

FIGURE 8 is a sectional view along line 8—8 of FIGURE 7;

FIGURE 9 is an enlarged perspective view of a drawer with the unit packages of slides removed to show the relationship between the drawer and the protective cover;

FIG. 10 illustrates the relationship between the cover, slide packages, and drawer;

FIGURE 11 is a partial sectional perspective view of the drawer with the cover member in a filing position for holding slides;

FIGURE 12 is a fragmentary plan view of the drawer of FIGURE 11 with the slides shown in filing locations;

FIGURE 13 is an elevational view of the receptacle of the drawer of FIGURES 11 and 12 showing the relationship between the cover member in the filing position, the drawer, and a filed slide;

FIGURE 14 is a fragmentary sectional view of a crease score joint used in the cover or shielding member shown in FIGURES 9 through 13.

Description

Referring now to the drawings in greater detail, there is shown in FIGURE 1 a combination shipping and filing container assembly 20 which illustrates a preferred embodiment of my invention. The shipping and filing container assembly 20 includes an outer casing or housing 22 in which a plurality of drawers or receptacles generally designated by the numeral 24, and differentiated by numerals 24a through 24d in FIGURE 1, are slidably positioned. The drawers or receptacles 24 are adapted to receive unit packages 26 of microscopic slides.

The slides are shipped in the drawers 24 in an orderly arrangement of rows of juxtaposed packages 26, as shown in the right hand drawer 24d of FIGURE 1. The drawers 24 are shipped in the rigid paperboard casing 22 with the drawer completely protected by the walls of the casing, as illustrated by the left hand drawer 24a of FIGURE 1. The packages 26 of slides are shielded by a paperboard cover member or shield 28 which overlies the upper and side surfaces of the packages 26, as shown in the drawer 24b, while they are being shipped. As will be explained in greater detail subsequently, the cover member 28 can after the slide packages 26 have been removed from the drawer, be positioned in a filing location adjacent to the

longitudinally extending base and side walls of the empty drawer, as illustrated by the drawer 24c.

Referring now to FIGURE 2, taken in conjunction with FIGURE 3, the construction of the sturdy paperboard casing 22 which forms the shipping container for the drawers or receptacles 24 is illustrated. The casing 22 is divided into two drawer receiving compartments by a longitudinally extending partition 30 which is mounted in the center portion of the container between a lower wall 32 and an upper wall 34 of the casing. An outer edge of the bottom wall 32 is provided with a plurality of finger receiving recesses 36 which provide ready access to outwardly extending handles or flanges 38 on the drawers 24. The recesses 36 enable the handles 38 to be grasped between a thumb and index finger of a person pulling a drawer 24 out of the filing container 22. Since the bottom wall 32 is of a heavy double layer paperboard construction, the thickness of the bottom wall provides sufficient space to receive the index finger of a user even when the casing 22 is positioned on top of a flat surface or another casing.

The construction of a drawer 24 is illustrated in FIGURES 3 and 4. The drawer 24 is made of stiff paperboard and has a pair of parallel spaced apart longitudinally extending side walls 40 which are interconnected by a base wall 42 and transversely extending end walls 44 and 46. It should be noted that the side walls 40 extend outwardly past the end wall 46 to provide a finger receiving recess 48 which facilitates grasping of the handle 38 which is formed integrally with the base wall 42 of the drawer or receptacle 24. The end wall 46 extends upwardly, beyond the longitudinally extending side walls 40, to provide a shield for the sides of the packages 26 which will be placed in the drawer 24, as shown in FIGURE 4. A longitudinally extending central partition 48 is mounted between the side walls 40. The partition 48 retains the packages 26 in an orderly aligned arrangement in the drawer.

The construction of the one-half gross packages 26 for microscopic slides is best shown in FIGURES 5 through 8. The package 26 includes a front wall 48 and a rear wall 50 which are interconnected by two side walls 52 and 54. The walls of the container define an upper opening 56 through which slides 58 are inserted into the package 26. The slides 58 are retained in the package by a base cover 60 and a top cover 62.

The package 26 is constructed from a single-piece blank form 64, as shown in FIGURE 6, made of a relatively stiff paperboard. The blank form is fabricated with a plurality of crease scores defining the walls and covers for the package 26. The package 26 is assembled from the blank 64 by folding the blank at vertically extending creases 66, 68 and 70 to offset the side walls 52 and 54 and the front wall 64 from the rear wall 50. The outermost side wall 54 is secured to the rear wall 50 by means of adhesive on a flap 72. As shown in FIGURE 8, the flap 72 is glued to an inner surface of the side wall 54. After the side wall 54 has been secured to the flap 72, two base tabs 74 and 76 are bent inwardly and a longitudinally extending tab 78 is bent under the two tabs 74 and 76 (see FIGURE 8). The base cover 60 is then bent at a horizontal crease score 79 so that base wall 80 is positioned adjacent to an outer surface of the flap 78. The base cover 60 is then bent upwardly, at crease score 82, to position a base flap or shielding wall 84 adjacent to an exterior surface of the front wall 48, as shown in FIGURES 5 and 7. The base cover 60 is then bent at an outermost crease score 86 to project a tongue 88 inwardly toward the front wall 48 of the package 26. The tongue 88 is then inserted through a transversely extending slit 90 in the front wall 48 (see FIGURE 5).

The top cover 62 is divided into a plurality of sections by crease scores, in much the same manner as is the base cover 60. Thus, a top cover wall 92 is divided from the

rear wall 50 by a crease score 94. By bending the top cover 62 at the crease score 94 the top cover wall 92 is moved to a position blocking the opening 56 at the top of the container 26 (see FIGURE 7). A top cover flap 96 is then bent downwardly by bending the cover at an outermost crease score 98. An end portion of the top cover flap 96 is then inserted into the slit 90 adjacent to an inner surface of the base cover tongue 88, as shown in FIGURE 7, to retain the top cover 62 in the closed position.

To facilitate the removal of a slide from the package the front wall 48 is provided with an arcuate recess 100 which permits the fingers of a person extracting a slide 58 from the container 26 to grasp an outer edge of the slide. When the package is opened, the cover 62 can be pivoted about a horizontally extending crease score 102 to deflect an access panel 104, which is defined by angled slits 106 and crease score 94, outwardly relative to the rear wall 50 of the package. Thus, a second recess 108 is provided to permit the rear surface of the slide to be engaged to grasp the slide between the thumb and fingers to facilitate its removal from the package.

The containers or packages 26 for the microscopic slides are formed from a single unitary blank of a relatively stiff paperboard. The bottom of the container or package 26 is enclosed by a base cover 60 which has a bottom wall 80 and an upwardly extending outer wall 84. The base cover 60 is retained in the closing position, relative to the front wall 48 of the package, by an inwardly and downwardly extending tongue 88. From an examination of FIGURES 5 and 7, it will be apparent that when slides 58 are inserted into the package 26, a vertical edge of the slides will force the tongue 88 into a position abutting an inner surface of the front wall 48 of the package. Thus, the bottom of the package cannot open under the weight of slides, since the slides will press the tongue 88 against the front wall of the package to lock the base cover 60 in position. The top cover 62 is closed by inserting the flap 96 downwardly between an inner surface of the base cover tongue 88 and a vertical edge of the slides 58. Therefore, the pressure of the slides against the cover flap 96, tongue 88, and the front wall 48 of the package 26 secures both the upper and lower covers 60 and 62 in position.

From an examination of FIGURE 7, it will be apparent that there are no upwardly projecting flaps in the interior of the package 26. It should be noted that both the upper cover flap 96 and the base cover tongue 88 project downwardly, as shown in FIGURE 7. Thus when the slides 58 are inserted into the package, they will not catch and break on upper edges of the flaps.

The package 26 is also provided with a pair of recesses 100 and 108 which are positioned opposite each other in the front and rear walls of the container. These recesses enable the slides to be readily grasped and removed from the package 26. Since the upper cover 62 is pivoted rearwardly about the crease joint 102, the cover will be swung out of the way and will not interfere with the removal of a slide from the package.

As previously mentioned, the packages 26 are protected by a shield or cover 28 during shipment and storage. After the packages 26 have been removed from the drawer 24, the cover 28 can be moved from a first shielding position overlying the packages 26, as shown in FIGURES 9 and 10, to a second filing position. In the filing position the cover is located adjacent to the longitudinally extending base and sidewalls of the drawer, as illustrated in FIGURES 11 to 13.

The cover 28 is made of a relatively stiff paperboard having a corrugated inner surface 150 and a relatively smooth outer surface 152 (see FIGURES 9 and 10). The cover is formed from a series of articulated panels or sections which are interconnected by crease score joints and cut score joints. By moving the panels relative to each other, at the crease score and cut score joints,

the cross sectional shape of the cover is altered from a generally U-shaped cross section which it has in the shielding position. The panels are movable relative to each other to form two longitudinally extending filing channels, both of which have a U-shaped cross section, as shown in FIGURES 11 and 13. Thus, by enabling the cross sectional shape of the cover 28 to be changed from a single U-shaped channel to a pair of U-shaped channels, the cover 28 can be used for both protecting the unit packages 26 during shipment and storage, and for providing filing locations for the slides 58 after they have been removed from the packages 26.

The cover 28 is shown in the shielding position in FIGURES 9 and 10. When the cover member is in the shielding position, the articulated panels or sections are arranged to form a longitudinally extending, generally U-shaped channel defined by downwardly extending leg panels 154 and 156. The leg panels 154 and 156 are interconnected by a generally horizontal connector or base panel 158. When the cover 28 is in the shielding position, forward edges 160 and 162 of the legs 152 and 154 (see FIGURE 9) engage the upwardly extending end wall 46 of the drawer 24 to prevent the cover from moving forward relative to the drawer 24. The cover is prevented from moving rearwardly, relative to the drawer 24, by engagement of rearmost edges 164 and 166 of the legs 152 and 154 with the rear wall 44 of the drawer.

As will be seen from an inspection of FIGURE 10, when the cover is in the shielding position lower end portions of the legs 154 and 156 extend downwardly between the side walls 40 of the drawer 24 and the packages 26 of microscopic slides. The corrugated surface 150 of the cover 28 is then positioned adjacent to the packages 26. Thus, the corrugated surface 150 provides a shock absorbent surface to cushion the packages against severe blows while protecting the packages against dust and other foreign material.

As previously mentioned, the dust cover 28 is formed of a series of articulated panels which are interconnected by crease and score joints. The legs 154 and 156 are connected to the base or connector wall 158 by a pair of longitudinally extending crease joints 170 and 172 which permit the leg panels to be moved relative to the base or connector panel 158. The leg panels are divided into two sections by longitudinally extending crease joints 174 and 176, which are formed by pressing the corrugated inner surface inwardly as shown in FIGURE 14. The crease joints 174 and 176 permit relative movement between a pair of lower or outer panels 178 and 180 and a pair of upper or inner panels 182 and 184. In a similar manner, the connector or base panel 158 is divided into three sections by two longitudinally extending cut score joints 186 and 188. Thus, the base panel 158 is divided into a pair of outer end panels 190 and 192 which are interconnected by a center panel 194.

After the unit packages 26 have been removed from the drawer 24, the cover member can be refolded into the position shown in FIGURES 11 to 13 for temporary storage of stained slides within the drawer. The cross sectional shape of the cover member is altered from the single U-shape shown in FIGURES 9 and 10 to the double U-shape shown in FIGURES 11 to 13 but pivoting the two lower panels 178 and 180 of the leg panels inwardly about the crease score joints 174 and 176 while simultaneously pivoting the two end panels 190 and 192 outwardly about the two cut score joints 186 and 188. It should be noted that the cut score joints 186 and 188 enable the end panels 190 and 192 to be pivoted in only an outwardly direction. The crease joints 174 and 176 enable the panels 178 and 180 to be pivoted in only an inwardly direction. Therefore, the combination of pre-score joints and cut score joints enable the cover member to be arranged only in the double U-shape of FIGURES 11 to 13 when the cover member is moved from its shielding position to its slide storing position.

When the cover member is in its slide storing position it is located in the drawer 24 with the smooth outer surface 152 of the cover engaging the inner surface of the drawer. The corrugated surface 150 of the cover is then facing inwardly and upwardly to define a pair of channels 200 and 202. Such channels are formed by the two lower panels 178 and 180 of the leg panels, the two inner panels 182 and 184 of the leg panels, and the two end panels 190 and 192 of the base panel 158. The two lower panels 178 and 180 are placed in an abutting relationship with the side walls 40 of the drawer 24. The two inner panels 182 and 184 are placed in an abutting relationship with the base wall 42 of the drawer and the two end panels 190 and 192 are placed in a position spaced apart from and substantially parallel to the side walls 40 and the lower panels 178 and 180. It should be noted, as best seen in FIGURE 13, that the two end panels 190 and 192 are held in a spaced-apart relationship adjacent to the central partition 48 of the drawer 24 by the cross or connector panel 194.

From an inspection of FIGURES 11 through 13, it will be apparent that the corrugations on the inner surface of the cover member 28 define a multiplicity of slide-receiving grooves or channels 206. Freshly stained slides may be inserted into the channels or grooves defined by the corrugations and retained in spaced-apart condition until dry or until further reference thereto is desired. Each drawer may therefore serve as a temporary storage rack for holding a multiplicity of slides in spaced-apart relation. If desired, the drawers may be reinserted into the carton, in which case the carton, in combination with the drawers, serves to store the slides in protected condition. After the slides are dry, or where more permanent storage of such slides is desired, the corrugated cover may be removed from the drawer, the slides may be placed in back-to-back condition within the drawer, and the drawer placed within the storage carton. For purposes of such storage, the slides may either be placed directly within the drawers, or may first be repackaged in the unit packages which are then in turn placed within the drawers. It is contemplated that a number of these storage cartons 22 will be stacked upon each other to provide in effect a multiple tier cabinet for the filing of stained slides.

While a preferred embodiment of the invention has been disclosed, it is to be understood that a person skilled in the art will be able to adapt the invention to other uses and to substitute equivalent structure to that shown without departing from the principle thereof.

We claim:

1. An assembly comprising: a receptacle for holding articles and a corrugated cover associated with said receptacle, said cover being movable from a first shielding position overlying the articles to a second storage position in which the corrugations of said cover are positioned in said receptacle to define a plurality of spaced-apart locations for the storage of selected articles, said cover including a plurality of relatively movable panels, said relatively movable panels being arranged to form a single shielding channel having a generally U-shaped cross section when said cover is in the first position and said relatively movable panels being arranged to form a plurality of filing channels each having a generally U-shaped cross section when said cover is in the second position.

2. The assembly of claim 1 wherein said receptacle includes a central longitudinally extending partition for positioning said packages, each leg of the U-shaped channel formed by the cover in said first position including an outer panel in an inner panel joined by a longitudinally extending fold line, the base portion of the U-shaped channel formed by the cover in said first position including a plurality of articulated horizontally extending base panels joined by longitudinally extending fold lines whereby said cover may be folded into said second position with said outer panels being positioned adjacent inner surfaces of opposite side walls of said receptacle, said inner panels

7

being positioned adjacent inner surfaces of the base wall of said receptacle, and said base panels being positioned adjacent said partition.

3. The assembly of claim 2 wherein each of the fold lines joining the inner and outer panels of each leg is a generally V-shaped notch extending inwardly into the cover whereby the outer panels can be pivoted in an inwardly direction, and the fold lines in the base portion are longitudinally extending slits whereby the base panels can be folded only in an outwardly direction.

4. An assembly comprising: a receptacle having longitudinally extending side and base walls for holding packages of slides and a corrugated cover associated with said receptacle, said cover being formed by a plurality of articulated panels and being movable from a first position shielding said packages to a second position in said receptacle, said cover in the first position being generally U-shaped cross section and having a pair of downwardly extending legs and a horizontally extending base portion, each of said legs including inner and outer articulated panels joined by a fold line, the outer panels being foldable inwardly, the base portion including at least three articulated panels joined by fold lines whereby two of the base portion panels may be folded outwardly, said articulated panels being arranged when said cover is in the second position to form a plurality of channels each having a generally U-shaped cross section.

5. The assembly of claim 4 wherein said receptacle

8

includes a central longitudinally extending partition between the receptacle side walls, said cover in the second position having the outer panels of the legs positioned adjacent the inner surfaces of the receptacle side walls, the inner panels being positioned adjacent the inner surface of the receptacle base wall, two of the base portion panels being positioned adjacent opposite sides of the central partition and the third base portion panel being positioned above the central partition.

References Cited

UNITED STATES PATENTS

177,279	5/1876	Ritter	229—38
2,114,422	4/1938	Guyer	229—39
2,176,284	10/1939	Whiteford.	
2,851,188	9/1958	Pavelle	206—72
3,065,849	11/1962	Rice et al.	206—48
3,235,068	2/1966	Asnes et al.	206—62
3,245,527	4/1966	Martin.	
3,313,407	4/1967	Palm	206—62

FOREIGN PATENTS

900,219	7/1962	Great Britain.
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U.S. Cl. X.R.

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