United States Patent Application Publication	20250263222
Kind Code	A1
Publication Date	August 21, 2025
Inventor(s)	Martin; Jared L. et al.

Eyewear Dispensing Assembly

Abstract

A dispensing assembly includes a dispenser having a dispensing opening, a shelf, and a retainer. The dispenser includes a front panel, a rear panel, a top panel, a bottom panel, a first side panel, and a second side panel, and an attachment panel, altogether defining an internal chamber configured to receive a stack of articles. The retainer is configured to maintain the stack of articles in a predetermined arrangement within the internal chamber. The retainer is integrally formed from a contiguous piece of material with the front panel, rear panel, first side panel, and second side panel. The retainer is configured to retain the stack of articles in the stacked arrangement within the chamber.

Inventors: **Martin; Jared L. (Cumming, GA), Chivukula; Suraj (Duluth, GA), Dean; Marshall R. (Cumming, GA)**

Applicant: **O&M Halyard, Inc.** (Glen Allen, VA)

Family ID: **1000008487976**

Appl. No.: **19/053576**

Filed: **February 14, 2025**

Related U.S. Application Data

us-provisional-application US 63555969 20240221

Publication Classification

Int. Cl.: **B65D83/08** (20060101); **B31B50/73** (20170101); **B31B105/00** (20170101); **B31B110/30** (20170101); **B31B120/10** (20170101)

U.S. Cl.:

CPC **B65D83/0805** (20130101); **B31B50/734** (20170801); **B65D83/0894** (20130101); B31B2105/0027 (20170801); B31B2110/30 (20170801); B31B2120/10 (20170801)

Background/Summary

RELATED APPLICATIONS [0001] The present application claims priority to U.S. Provisional Application Ser. No. 63/555,969, filed on Feb. 21, 2024, which is incorporated herein in its entirety by reference thereto.

FIELD OF THE INVENTION
[0002] The present invention relates in general to a dispensing assembly, and more particularly to an eyewear (e.g., face shield, safety glasses, goggle, etc.) dispensing assembly and methods of making same.
BACKGROUND OF THE INVENTION
[0003] A variety of single use, disposable products such as eyewear (e.g., face shields, safety glasses, goggles, etc.), face masks, gloves, and the like are often packaged in bulk in dispensing cartons. These dispensing cartons frequently have an opening or dispensing orifice cover for removal of the articles individually from the carton.
[0004] Because such single use, disposable products are often used in healthcare settings as personal protective equipment (PPE) to prevent hazardous biological fluids from coming into contact with healthcare professionals, it is important for healthcare professionals to have efficient and easy access to these products.
[0005] In the case of protective eyewear in particular, single use, disposable products may be shipped in a container or box in bulk, and the products may remain the container or box until needed. When a face shield, protective glasses, or goggles is needed, a healthcare worker typically locates the container, opens the container, removes a single face shield, pair of glasses, or goggles from the container, and then closes the container. This process can be time-consuming, particular in a fast-paced healthcare environment where the amount of time to don personal protective equipment can make a difference in patient outcomes. Further, it is common for eyewear to be shipped separately and then need to be assembled by the user, which elevates the need for a user to assemble. In this regard, it would be helpful if the packaging in which the eyewear was shipped could provide a consistent means of storing and dispensing the eyewear, where eyewear is typically handled in a loose bulk polybag.
[0006] As such, a need exists for new and improved dispensing assemblies for dispensing personal protective equipment (PPE) products. More specifically, assemblies that effectively dispense individual products, e.g., eyewear (e.g., face shields, safety glasses, goggles, etc.) without a risk of the additional products in the dispenser being dispensed as well would be welcomed in the art in order to reduce waste. The need for such assemblies is particularly apparent for larger volume packages having contents that move around substantially and may be easily removed from a dispenser opening, particularly in a health care environment.
BRIEF SUMMARY OF THE INVENTION
[0007] Aspects and advantages of the invention will be set forth in part in the following description, or may be obvious from the description, or may be learned through practice of the invention.
[0008] The present invention is directed to a dispensing assembly. The assembly includes a dispenser having a front panel, a rear panel, a top panel, a bottom panel, a first side panel, and a second side panel, and an attachment panel, wherein the front panel, the rear panel, the top panel, the bottom panel, the first side panel, and the second side panel define an internal chamber configured to receive a stack of articles. The dispenser further includes a dispensing opening,

wherein at least a portion of the dispensing opening is formed in the front panel, wherein a portion of the front panel forms a nose extending toward the dispensing opening to assist with one-by-one dispensing of articles from the stack through the dispensing opening, wherein a first side of the opening is defined by the first side panel and a second side of the opening is defined by the second side panel. The assembly further includes a shelf contained within the internal chamber. The assembly further includes a retainer configured to maintain the stack of articles in a predetermined arrangement within the internal chamber, wherein the retainer is integrally formed from a single piece of material with the front panel, rear panel, first side panel, and second side panel.

[0009] In one embodiment, the retainer may extend in a vertical direction within the internal chamber relative to the top panel and the bottom panel.

[0010] In another embodiment, the assembly may include at least one fold line between the retainer **120** and one of the front panel, rear panel, first side panel, second side panel, and the attachment panel. Moreover, the at least one fold line may include two fold lines. Further, the retainer may extend from a middle portion of one of the rear panel, first side panel, second side panel, and the attachment panel.

[0011] In another embodiment, the retainer may include a first retainer panel and a second retainer panel separated by a fold line. Moreover, the first retainer panel and the second retainer panel may extend generally parallel to each other.

[0012] In another embodiment, the retainer may extend generally parallel to the first side panel and the second side panel.

[0013] In another embodiment, the retainer may extend generally perpendicular to the front panel and the rear panel.

[0014] In another embodiment, a bottom edge of the retainer may be separated from an angled ramp surface of the shelf by a gap. Moreover, the gap may be in a range from about 0.1 inches to about 1 inch.

[0015] In another embodiment, the attachment panel may be configured to couple one of the front panel, rear panel, first side panel, and second side panel to a respective other one of the front panel, rear panel, first side panel, and second side panel so the dispenser forms a hexahedron shape.

[0016] In another embodiment, at least one of the front panel, the rear panel, the top panel, the bottom panel, the first side panel, the second side panel, the retainer, and the attachment panel may be constructed of carton cardboard stock, paperboard, heavy structural paper, container stock, corrugated paperboard, plastic coated paper, a plastic sheet, a wax-coated paper, or a combination thereof.

[0017] In another embodiment, the articles may include personal protective equipment in the form of a face shield, glasses, or goggles.

[0018] In another embodiment, the assembly may further include a dust cover insert configured to cover an entirety of the dispensing opening.

[0019] These and other features, aspects and advantages of the present invention will become better understood with reference to the following description and appended claims. The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

Description

DESCRIPTION OF THE DRAWINGS

[0020] A full and enabling disclosure of the present invention, including the best mode thereof, directed to one of ordinary skill in the art, is set forth in the specification, which makes reference to the appended figures, in which:

[0021] FIG. **1** illustrates a perspective view of one embodiment of a dispenser for dispensing a plurality of articles, such as eyewear (e.g., face shields) according to the present disclosure;
[0022] FIG. **2** illustrates a front view of an unassembled dispenser according to the present disclosure;
[0023] FIG. **3** illustrates a top-down schematic view of the dispenser of FIG. **2** in an assembled configuration;
[0024] FIG. **4** illustrates a front view of an unassembled dispenser according to the present disclosure;
[0025] FIG. **5** illustrates a top-down schematic view of the dispenser of FIG. **4** in an assembled configuration;
[0026] FIG. **6** illustrates a front view of an unassembled dispenser according to the present disclosure;
[0027] FIG. **7** illustrates a top-down schematic view of the dispenser of FIG. **6** in an assembled configuration;
[0028] FIG. **8** illustrates a perspective view of a dispensing assembly for dispensing a plurality of articles, such as eyewear (e.g., face shields) according to the present disclosure;
[0029] FIG. **9** illustrates a perspective view of one embodiment of a dispenser for dispensing a plurality of articles, such as eyewear (e.g., face shields) according to the present disclosure having a retainer not in contact with a shelf;
[0030] FIG. **10** illustrates a front view of an unassembled dispenser including a retaining flap for the top panel according to the present disclosure.
[0031] Repeat use of reference characters in the present specification and drawings is intended to represent the same or analogous features or elements of the present invention.

DETAILED DESCRIPTION

[0032] Reference now will be made in detail to embodiments of the invention, one or more examples of which are illustrated in the drawings. Each example is provided by way of explanation of the invention, not limitation of the invention. In fact, it will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the scope or spirit of the invention. For instance, features illustrated or described as part of one embodiment can be used with another embodiment to yield a still further embodiment. Thus, it is intended that the present invention covers such modifications and variations as come within the scope of the appended claims and their equivalents.
[0033] Generally speaking, the present invention is directed to a dispensing assembly for dispensing articles, such as personal protective equipment including but not limited to disposable eyewear (e.g., face shields, safety glasses, goggles, etc.), face masks, gloves, etc. The dispensing assembly includes a dispenser having a plurality of panels (e.g., a front panel, a rear panel, a top panel, a bottom panel, a first side panel, and a second side panel) that define an internal chamber configured to receive a stack of articles. The dispenser includes a retainer integrally formed with the plurality of panels. For instance, the retainer extends into the chamber from one of the panels, e.g., along at least one fold line. The present inventors have found that the specific design of the retainer allows it to function as a retention mechanism for the articles within the dispenser. Moreover, the present inventors have found that the formation of the insert from a single blank of material contiguous with the dispenser inhibits the insert from being dislodged from its place, which may improve prevention of tangling of articles within the container from occurring during shipping or storage.
[0034] Referring now to the drawings, FIG. **1** illustrates a perspective view of one embodiment of a dispensing assembly **10** for dispensing a plurality of articles **2**, such as eyewear (e.g., face shields) according to the present disclosure. The dispensing assembly **10** includes a dispenser **12** having a dispensing opening **14**. The dispensing assembly **10** may include a shelf **90** disposed within the dispenser **12** that is configured to position the articles **2** within the dispenser **12** to facilitate

dispensing of the articles from the assembly of an exemplary dispensing assembly **10** or package for dispensing the articles **2** such as, for example, disposable eyewear (e.g., face shields, safety glasses, goggles, etc.) face masks, examination gloves, paper products (e.g., tissues, paper towels, etc.), dust mitts, or the like. The dispensing assembly **10** includes a retainer **120** configured to retain the articles **2** in a predetermined arrangement, e.g., a stack, within the dispenser **12** in order to maintain the relative orientation of each of the articles **2**. The arrangement of the retainer **120** relative to the dispenser **12** and the articles **2** can create a support for the articles and prevent tangling of the articles within the dispenser **12**. Further, the dispensing assembly **10** may include a dust cover **80** configured to be inserted within the dispenser **12** to cover the dispensing opening **14**, e.g., to prevent dust or other debris from entering the dispenser **12** through the dispensing opening **14** when the dust cover **80** is in place. The dispenser **12**, shelf **90**, retainer **120** and dust cover **80** each may be constructed of any suitable material such as, for example, carton cardboard stock, paperboard, heavy structural paper, container stock, corrugated paperboard, plastic coated paper, a plastic sheet, a wax-coated paper or the like, or a combination thereof. In some aspects of the invention, as described in further detail below, the retainer **120** may be integrally formed with the dispenser **12**, e.g., from a single piece of continuous material. In other words, the retainer **120** may be integrally formed with the dispenser **12** from a contiguous piece of material.

[0035] As shown in FIG. **2**, the dispenser **12** includes a front panel **16**, rear panel **18**. a first side panel **20**, a second side panel **22**, a top panel **24**, and a bottom panel **26**. The front panel **16** and the rear panel **18** may be formed opposite each other when the dispenser **12** is in its assembled arrangement, e.g., as shown in FIG. **1**. The first side panel **20** and the second side panel **22** may be formed opposite each other when the dispenser **12** is in the assembled arrangement. The top panel **24** and the bottom panel **26** may be formed opposite each other when the dispenser **12** is in the assembled arrangement. For instance, the front panel **16** and rear panel **18** may be generally parallel to each other. Similarly, the first side panel **20** and the second side panel **22** may be generally parallel to each other. Similarly still, the top panel **24** and the bottom panel **26** may be generally parallel to each other. Adjacent panels, e.g., the front panel **16** and the first side panel **20** or the rear panel **18** and the top panel **24**, may have an angle in a range from about 70 degrees to about 110 degrees between the panel. For instance, adjacent panels, e.g., the front panel **16** and the first side panel **20** or the rear panel **18** and the top panel **24**, may be disposed generally perpendicular to each other. In the described assembled arrangement, the front panel **16**, rear panel **18**, first side panel **20**, second side panel **22**, top panel **24**, and bottom panel **24** may be constructed and arranged such that the assembled arrangement of the dispenser **12** takes on the form of a hexahedron, such as a rectangular prism.

[0036] As shown in FIG. **2**, the dispenser **12** can be formed from a single piece of material such that all of the front panel **16**, rear panel **18**, first side panel **20**, second side panel **22**, top panel **24**, and bottom panel **26** are formed from a single continuous piece of material and folded between the panels. The dispenser **12** may include an attachment panel **28** extending generally parallel to and extending from at least one of the front panel **16**, rear panel **18**, first side panel **20** and/or second side panel **22**. The attachment panel **28** may be configured to be folded generally perpendicular relative to its adjacent panel and coupled to another one of the front panel **16**, rear panel **18**, first side panel **20** and/or second side panel **22** to maintain the front panel **16**, rear panel **18**, first side panel **20** and second side panel **22** in a generally rectangular shape. For instance, the attachment panel **28** may extend from the rear panel **18** and may be coupled to the first side panel **20** in the assembled arrangement of the dispenser **12**. In one exemplary aspect of the invention, an adhesive or other coupling material may be applied to a front surface **30** of the attachment panel **28** and adhered to a back surface (not shown) of the first side panel **20** to couple the attachment panel **28** to the first side panel **20** in a manner that makes the first side panel **20** adjacent to and generally perpendicular to the rear panel **18**.

[0037] The dispenser **12** may further include one or more additional fold panels and/or flaps

configured to maintain the closed and folded arrangement of the dispenser **12**. For instance, the first side panel **20** may have a first top fold panel **32** and/or a first bottom fold panel **34** extending from top and bottom edges of the first side panel **20**, respectively. Similarly, the second side panel **22** may have a second top fold panel **36** and/or a second bottom fold panel **38** extending from top and bottom edges of the second side panel **22**, respectively. Each of the first top fold panel **32**, first bottom fold panel **34**, second top fold panel **36**, and second bottom fold panel **38** can have at least two free non-parallel edges (i.e., edges not directly in contact with the first side panel **20** and/or second side panel **22**), for instance, three or more free non-parallel edges.

[0038] The one or more additional fold panels and/or flaps configured to maintain the closed and folded arrangement of the dispenser **12** may further include one or more insertion tabs configured to extend from one of the front panel **16**, rear panel **18**, first side panel **20**, second side panel **22**, top panel **24**, and bottom panel **26** and configured to be inserted into a retaining opening in the dispenser **12** when the dispenser **12** is in the assembled arrangement. For instance, a rear bottom insertion tab **42** may extend from the bottom panel **26**. The rear bottom insertion tab **42** may be configured to be inserted into an opening disposed along the bottom edge of the rear panel **18**. For instance, the opening can be formed between a bottom edge of the rear panel **18** and one or more edges of the first bottom fold panel **34** and/or second bottom fold panel **38** that may extend generally parallel to or near the bottom edge of the rear panel **18** when the dispenser **12** is in the assembled arrangement. The rear bottom insertion tab **42** may have a width equal to or less than a width of the bottom panel **26**. One or more cut lines may be formed along an edge between the bottom panel **26** and the rear bottom insertion tab **42**, e.g., to aid insertion of the rear bottom insertion tab **42** into the opening and/or to receive a cooperating insertion tab. For example, a rear panel insertion tab **48** may extend from the rear panel **18** and may be inserted into an opening **46** along the edge between the bottom panel **26** and the rear bottom insertion tab **42**.

[0039] Similarly, a front panel insertion tab **40** may extend from a top edge of the front panel **16** and a front top insertion tab **50** may extend from a front edge of the top panel **24**. The front top insertion tab **50** may have a width equal to or less than a width of the top panel **24**. Optionally, one or more cut lines may be formed along an edge between the top panel **24** and the front top insertion tab **50**, e.g., to aid insertion of the front top insertion tab **50** into an opening **52** and/or to receive the front panel insertion tab **40** therein.

[0040] The front panel insertion tab **40** may extend symmetrically along a vertical line of symmetry of the front panel **16** such that the front panel insertion tab **40** is centered along the top edge of the front panel **16**. The front panel insertion tab **40** may extend the width of the front panel **16**, or the front panel insertion tab **40** may be narrower than the front panel **16** in a width direction. The rear panel insertion tab **48** may have a similar arrangement with respect to the rear panel **18** as the front panel insertion tab **40** to the front panel **16**, such that the rear panel insertion tab **48** is centered along a vertical line of symmetry of the rear panel **18**. In some aspects of the present invention, it may be beneficial for the front panel insertion tab **40** and the rear panel insertion tab **48** to each have a width that is less than a width of the front panel **16** and rear panel **18**, respectively, less than a width of the top panel **24** and bottom panel **26**, respectively, and less than a width of the front top insertion tab **50** and the rear bottom insertion tab **42**, respectively, such that the front panel insertion tab **40** and the rear panel insertion tab **48** may be retained along the edges of the front and rear panels without compromising the structural integrity of the front top insertion tab **50** and the rear bottom insertion tab **42**, respectively.

[0041] The dispensing assembly **10** further includes a shelf **90** configured to be inserted within the internal chamber **60** of the dispenser **12**. Specifically, the shelf **90** is configured to be seated on the bottom panel **26** of the dispenser **12** in the assembled arrangement such that the shelf **90** provides a shelf support for the articles **2** to be dispensed through the dispensing opening **14**. The shelf **90** includes a ramp **92** configured to form a support for the articles **2** within the internal chamber **60**. The shelf **90** may be formed from a single piece of material such that the entirety of the shelf **90**,

including the ramp **92**, is formed from a single continuous piece of material and folded to form a three-dimensional support structure.

[0042] Turning now to FIGS. **2**-**7**, a retainer **120** configured to maintain the stack of articles **2** in a predetermined arrangement within the internal chamber **60** of the dispenser **12** is shown. The retainer **120** may be formed integrally with the dispenser **12**. For instance, the retainer **120** may be formed from the same single piece of material as the dispenser **12** and arranged to extend into the chamber **60** relative to the front, back, sides, top, and bottom of the dispenser **12**. In some aspects, the retainer **120** may extend from the attachment panel **28**, described above.

[0043] FIGS. **2**-**3** illustrate an arrangement of a dispenser **12** having a retainer **120** extending from one side of the attachment panel **28**. While FIG. **2** illustrates the retainer **120** and attachment panel **28** extending laterally from the first side panel **20**, it is to be understood that the attachment panel **28** and retainer **120** may extend from the rear panel **18**, or, in other arrangements, the front panel **16** or second side panel **22**. The attachment panel **28** may have a width W extending from the side panel **20** to a fold line **122**. The fold line **122** may define where the attachment panel **28** ends and the retainer **120** begins. When the dispenser **12** is assembled, the attachment panel **28** may extend parallel to the rear panel **18** and the retainer **120** may extend or protrude inward into the chamber **60** relative to the rear panel **18** by folding along the fold line, e.g., as best illustrated in the top view of FIG. **3**. For instance, the width of the attachment panel **28** may be about half of a width of the dispenser **12**, so that the retainer **120** extends from a midpoint or generally middle portion of the dispenser **12** when viewed from the front. In this manner, contents of the dispenser within the chamber **60** may be aligned on either side of the retainer **120**.

[0044] FIGS. **4**-**5** illustrate an arrangement of a dispenser **12** having a retainer **120** extending from a central portion of an attachment panel **28**. While FIG. **4** illustrates the retainer **120** and attachment panel **28** extending laterally from the first side panel **20**, it is to be understood that the attachment panel **28** and retainer **120** may extend from the rear panel **18**, or, in other arrangements, the front panel **16** or second side panel **22**. The attachment panel **28** may have a first portion **28***a* and a second portion **28***b*. The retainer **120** may extend between the first portion **28***a* and the second portion **28***b*. For instance, a fold line **122** may extend between the first portion **28***a* and the retainer **120**, and a fold line **124** may extend between the second portion **28***b* and the retainer **120**. The retainer **120** may include a central fold line **126** disposed about halfway between the fold line **122** and the fold line **124**. Each of the fold lines **122**, **124**, **126** may extend parallel to each other. When the dispenser **12** is assembled, the first attachment panel **28***a* and the second attachment panel **28***b* may be disposed generally parallel to the rear panel **18** of the dispenser **12**. Along the fold lines **122**, **124** the retainer **120** may be folded in a generally perpendicular direction away from the first attachment panel **28***a* and the second attachment panel **28***b*, respectively, such that the retainer **120** extends inwardly into the chamber **60**. Along the central fold line **126**, the retainer **120** may be folded back onto itself so that a first retainer panel **128** and a second retainer panel **130** may be generally parallel to each other.

[0045] The arrangement of the dispenser **12** illustrated in FIGS. **4**-**5** may provide additional structural stability to the dispenser **12**. Specifically, the attachment panels **28***a*, **28***b* may reinforce the rear panel **18** by overlapping the rear panel **18**, e.g., as shown in the top-down view of FIG. **5**.

[0046] FIGS. **6**-**7** illustrate another arrangement of a dispenser **12**. The dispenser **12** of FIGS. **6**-**7** is similar to that of FIGS. **4**-**5** in that the retainer **120** extends from a central portion of a panel; however, instead of extending from an attachment panel, the retainer **120** extends within the rear panel **18** of the dispenser **12**. For instance, the rear panel **18** is split into a first rear panel **18***a* and a second rear panel **18***b*, and the retainer **120** may extend between the first rear panel **18***a* and the second rear panel **18***b*. For instance, a fold line **122** may extend between the first rear panel **18***a* and the retainer **120**, and a fold line **124** may extend between the second rear panel **18***b* and the retainer **120**. The retainer **120** may include a central fold line **126** disposed about halfway between the fold line **122** and the fold line **124**. Each of the fold lines **122**, **124**, **126** may extend parallel to each

other. When the dispenser **12** is assembled, the first rear panel **18***a* and the second rear panel **18***b* may be disposed generally parallel to the front panel **16** of the dispenser **12**. Along the fold lines **122**, **124** the retainer **120** may be folded in a generally perpendicular direction away from the first rear panel **18***a* and the second rear panel **18***b*, respectively, such that the retainer **120** extends inwardly into the chamber **60**. Along the central fold line **126**, the retainer **120** may be folded back onto itself so that a first retainer panel **128** and a second retainer panel **130** may be generally parallel to each other.

[0047] In some aspects, e.g., as illustrated in FIG. **4**, the retainer **120** may have a height H**2** that is less than (i.e., shorter than) the height H of the assembled dispenser **12** so that a lower edge **132** of the retainer **120** may be flush with the ramp **92** and/or so that there is a gap between the lower edge **132** of the retainer **120** and the ramp **92**. For instance, as shown in FIGS. **2-4**, the retainer **120** may extend from the top of the dispenser **12** to a bottom edge **132** that is higher than a bottom edge of the front panel **16**, rear panel **18**, and side panels **20**, **22** relative to the bottom of the dispenser **12** (e.g., panel **26**). As shown in FIGS. **2** and **3**, the attachment panel **28** may have the same H**2** as the retainer **120** in some embodiments.

[0048] FIG. **4** illustrates an arrangement in which the height H**2** of the retainer **120** is shorter than the height of the attachment panel **28**, which may be generally the same as the height H of the dispenser. For instance, a portion **134** (shown in dashed lines in FIG. **4**) of the retainer **120** can be removed relative to the attachment panel **28** to achieve the shorter height H**2**. In this manner, the retainer **120** can be customized to align with the particular dimensions of a shelf **90**. For instance, FIG. **9** illustrates a dispenser **12** in which the height H**2** of the retainer is shorter than the height H of the dispenser **12**. A gap may be provided between the ramp **92** and the lower edge **132** of the retainer **120**. The gap may be in a range from about 0.1 inch to about 1 inch, such as from about ⅛ inch (about 0.125 inch) to about 0.5 inch, such as from about ⅛ inch (about 0.125 inch) to about 0.25 inch. In this manner, the retainer **120** may retain the articles **2** within the dispenser **12** in a stack above the ramp **92** without contacting or pushing on the ramp **92** or buckling the retainer **120** along its length.

[0049] When the retainer **120** extends within the dispenser **12** as described above, the retainer **120** may extend vertically within the internal chamber **60** in a manner that maintains a stack of articles **2** within the internal chamber **60**. For instance, when the stack of articles **2** is formed by a stack of protective eyewear, the retainer **120** may extend vertically between the side arms of the protective eyewear from the rear panel **18** towards the front panel **16** of the dispenser **12**. In this arrangement, the retainer **120** may prevent twisting and/or tangling of the side arms of adjacent articles **2** in the stack. As a result, the articles **2**, e.g., protective eyewear, can be maintained in a vertically arranged stack, such as a vertically arranged single-file stack. As shown in FIG. **8**, the protective eyewear may be stacked with each protective eyewear article upside down (i.e., arms down and lens facing up) at the bottom of the dispenser **12** (e.g., resting on the shelf **90**) with the lenses presented toward the front panel **16** of the dispenser **12**.

[0050] FIG. **10** illustrates another aspect of the retainer **120** and dispenser **12** of the present invention including a retaining flap **140** extending from an upper end of the retainer **120** and a slot **56** formed through the top panel **24** to hold the retainer **120** in place. The slot **56** may be a cut line formed through the top panel **24**, e.g., along a center of the top panel **24** as shown in FIG. **10**. The retaining flap **140** may be configured to be inserted through the slot **56** to extend outside the internal chamber **60** of the dispenser **12**. The retaining flap **140** may include one or more tabs **142**, e.g., two tabs **142**, and the top panel **24** may include complementary tab receiving slots **58**. The tabs **142** may each be inserted into a complementary tab receiving slot **58** to be tucked under the top panel **24** to maintain the retaining flap **140** in place. In this arrangement, the retainer **120** can be maintained in place relative to the top panel **24** and the internal chamber **60** of the dispenser **12**. In other words, by coupling the retainer **120** to the top panel **24**, the retainer **120** may be held in place in a generally central location within the internal chamber **60** and prevented from being angled,

pushed, or pulled by the articles **2** within the chamber **60** towards one of the side panels **20** or **22**.
[0051] In some aspects of the present invention, more than one retainer **120** may be included in the dispenser assembly **100**. For example, two parallel retainers **120** may be included within the dispenser **12**. Additionally or alternatively, rather than a generally two-dimensional retainer **120** as described above, the retainer **120** may have a three-dimensional shape such as a V-shape or U-shape within the dispenser **12** to suit the various support needs based on the selected articles **2** within the dispenser **12**.
[0052] The plurality of articles as described herein is desirably a plurality of disposable articles. As used herein, the term “disposable” refers to a product that may be discarded after only a single use, for instance a product that is so inexpensive that it may be economically discarded after a single use or a product that is used in a healthcare setting that requires sanitary single use of the product to reduce the potential for contamination or infection. Products that are “disposable” are typically intended for single use. The term “single-use” refers to a product that is intended to be used only once and is not intended to be re-used, re-conditioned, restored or repaired after that use. Such products offer advantages in clinical settings by reducing the potential for contamination or infection. In addition, these products can enhance workflow since they are not collected and assembled for reprocessing and reuse. Examples of disposable articles include disposable eyewear (e.g., face shields, safety glasses, goggles, etc.), disposable face masks, disposable examination gloves, and the like.
[0053] While various patents have been incorporated herein by reference, to the extent there is any inconsistency between incorporated material and that of the written specification, the written specification shall control. In addition, while the disclosure has been described in detail with respect to specific embodiments thereof, it will be apparent to those skilled in the art that various alterations, modifications and other changes may be made to the disclosure without departing from the spirit and scope of the present disclosure. It is therefore intended that the claims cover all such modifications, alterations and other changes encompassed by the appended claims.

Claims

1. A dispensing assembly, comprising: a dispenser comprising a front panel, a rear panel, a top panel, a bottom panel, a first side panel, and a second side panel, and an attachment panel, wherein the front panel, the rear panel, the top panel, the bottom panel, the first side panel, and the second side panel define an internal chamber configured to receive a stack of articles; a dispensing opening, wherein at least a portion of the dispensing opening is formed in the front panel, wherein a portion of the front panel forms a nose extending toward the dispensing opening to assist with one-by-one dispensing of articles from the stack through the dispensing opening, wherein a first side of the opening is defined by the first side panel and a second side of the opening is defined by the second side panel; a shelf contained within the internal chamber; and a retainer configured to maintain the stack of articles in a predetermined arrangement within the internal chamber, wherein the retainer is integrally formed from a single piece of material with the front panel, rear panel, first side panel, and second side panel.
2. The assembly of claim 1, wherein the retainer extends in a vertical direction within the internal chamber relative to the top panel and the bottom panel.
3. The assembly of claim 1, comprising at least one fold line between the retainer **120** and one of the front panel, rear panel, first side panel, second side panel, and the attachment panel.
4. The assembly of claim 3, the at least one fold line comprising two fold lines.
5. The assembly of claim 4, the retainer extending from a middle portion of one of the rear panel, first side panel, second side panel, and the attachment panel.
6. The assembly of claim 1, the retainer including a first retainer panel and a second retainer panel separated by a fold line.

7. The assembly of claim 6, wherein the first retainer panel and the second retainer panel extend generally parallel to each other.
8. The assembly of claim 1, wherein the retainer extends generally parallel to the first side panel and the second side panel.
9. The assembly of claim 1, wherein the retainer extends generally perpendicular to the front panel and the rear panel.
10. The assembly of claim 1, wherein a bottom edge of the retainer is separated from an angled ramp surface of the shelf by a gap.
11. The assembly of claim 10, wherein the gap is in a range from about 0.1 inches to about 1 inch.
12. The assembly of claim 1, wherein the attachment panel is configured to couple one of the front panel, rear panel, first side panel, and second side panel to a respective other one of the front panel, rear panel, first side panel, and second side panel so the dispenser forms a hexahedron shape.
13. The assembly of claim 1, wherein at least one of the front panel, the rear panel, the top panel, the bottom panel, the first side panel, the second side panel, the retainer, and the attachment panel is constructed of carton cardboard stock, paperboard, heavy structural paper, container stock, corrugated paperboard, plastic coated paper, a plastic sheet, a wax-coated paper, or a combination thereof.
14. The assembly of claim 1, wherein the articles comprise personal protective equipment in the form of a face shield, glasses, or goggles.
15. The assembly of claim 1, further comprising a dust cover insert configured to cover an entirety of the dispensing opening.