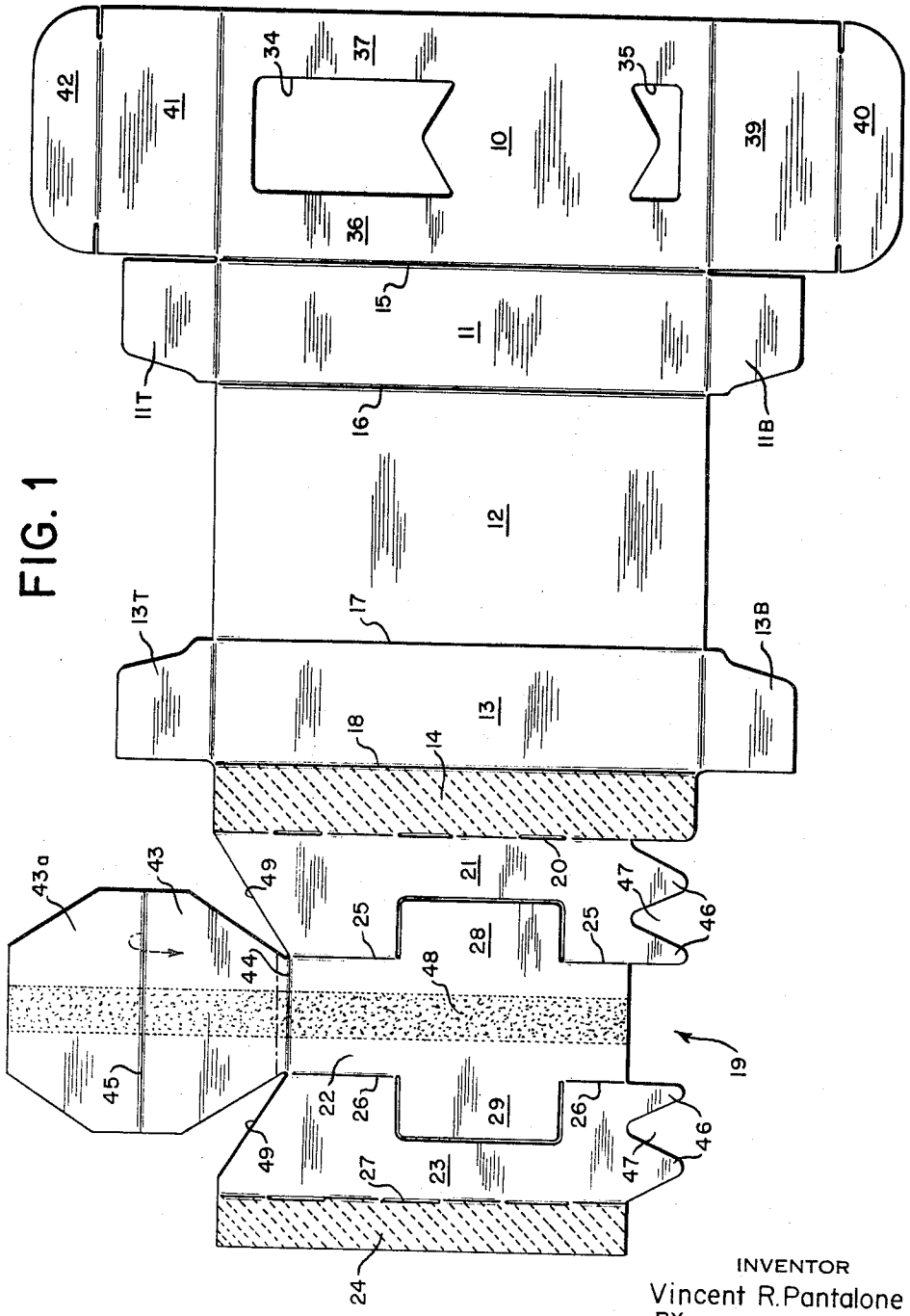
Nov. 24, 1964 V. R. PANTALONE 3,158,259

PROTECTIVE DISPLAY CARTON

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FIG. 1



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FIG. 3

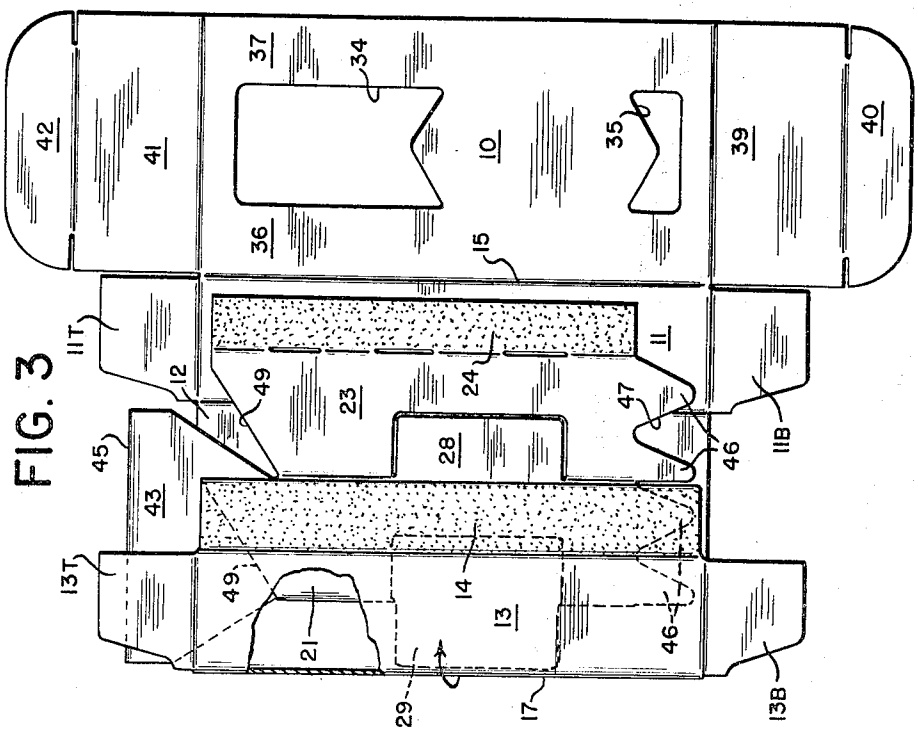
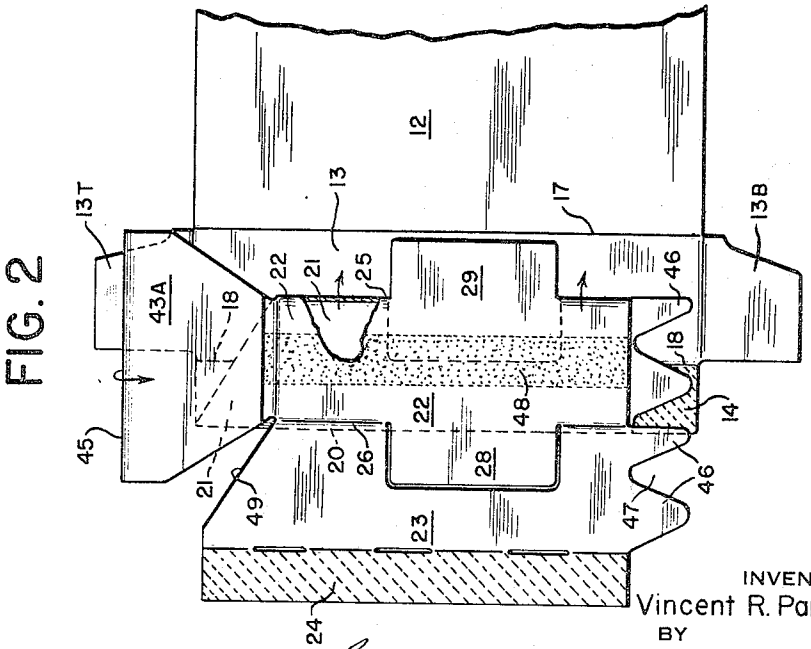


FIG. 2



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FIG. 4

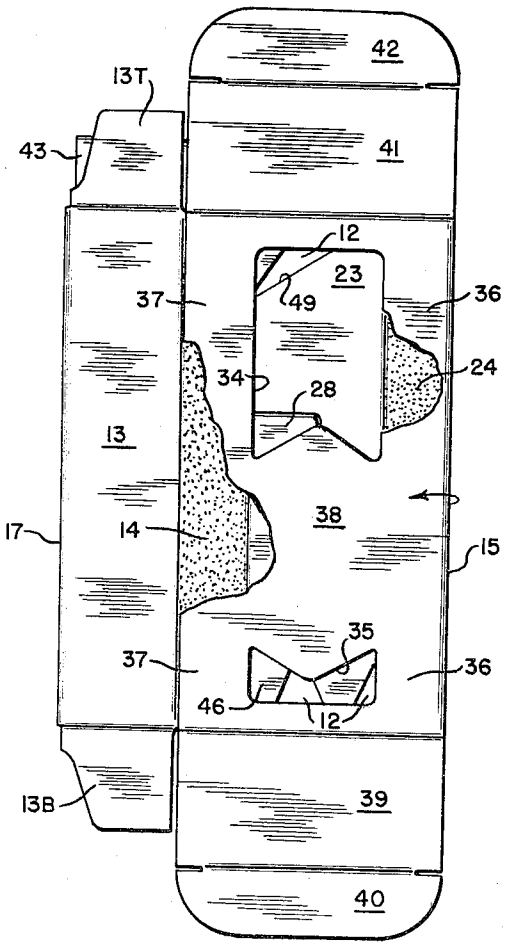


FIG. 5

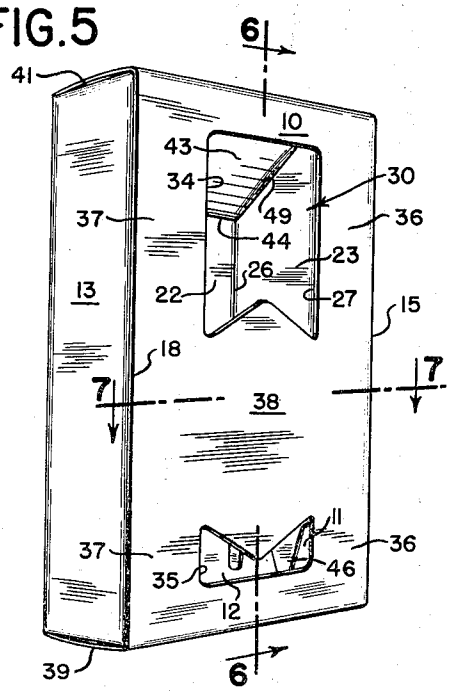


FIG. 6

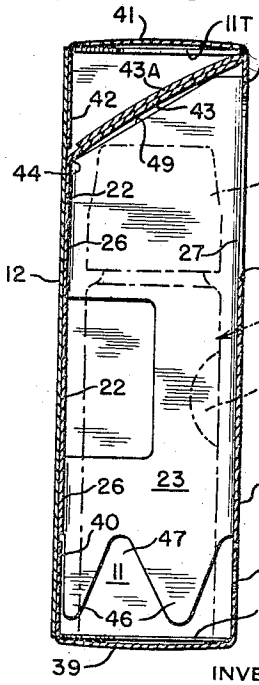
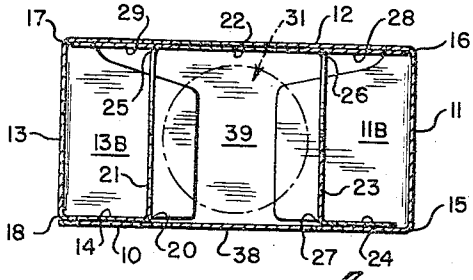


FIG. 7



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3,158,259

PROTECTIVE DISPLAY CARTON

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4 Claims. (Cl. 206—45.14)

This invention relates to cartons of the hollow wall type and particularly to a display carton or box having a central article-holding pocket, opening from the front face of the box and arranged to receive and encase a product and, more especially, a frangible container, such as a glass bottle.

In accordance with the invention, the box is made from a one-piece blank which is arranged with conventional panels, having flap and closure extensions to form the box, and with additional panels connected by score lines and foldable against the inside face of the blank and also mutually foldable to form an article-holding pocket which is visible through a window in the front wall of the carton. The bottle or other product is placed in this pocket. The printing on the portions of this blank which are to form the exterior of the box and the pocket can be done at one operation before the folding of the panels of the display pocket.

The walls of the pocket form with the walls of the box two empty compartments, one on each side of the pocket, and serve to cushion the bottle in the pocket to prevent breakage.

The window through which the product is visible has an opaque member or shield between its upper and lower sections to conceal the label on the product and thus to make it unnecessary to orient the product during insertion so as to place the label at the front.

The panels forming the article-holding pocket are folded and glued in a special way to form a semi-erected carton for shipment to the user. The box is so constructed and arranged that it can be set up, filled and closed at the rate of approximately 300 units per minute.

The article-holding or display pocket has an arched and angled ceiling or roof, formed as a projection of the back panel of this pocket, and which both enhances the product display and serves as a cushion to protect the top of the product.

The invention will be described further in connection with the embodiment shown in the accompanying drawings which is illustrative of a carton constructed to display a bottle of glass or other breakable material containing a liquid or creamlike product. In these drawings:

FIG. 1 is a plan view showing the outline of the blank from which the carton is made. The blank is viewed from its inner side or surface, the opposite side being printed if desired in one or more colors;

FIG. 2 is a fragmentary plan view showing the left hand portion of the blank with the parts which form the pocket in partially folded position, this folding step, however, being carried out simultaneously with or as a part of the second folding operation;

FIG. 3 is a plan view of the blank after completing the second fold;

FIG. 4 is a plan view similar to FIG. 3 after the final folding operation and showing the carton in semi-erected condition;

FIG. 5 is a perspective view of the semi-erected carton of FIG. 4 after setting or squaring up, and illustrating a completed but empty carton;

FIG. 6 is a vertical section taken on the plane of line 6—6 of FIG. 5 and showing the bottle in outline; and

FIG. 7 is a transverse section taken on the plane indicated by line 7—7 of FIG. 5.

Referring now to FIG. 1 of the drawings the carton blank comprises a front panel **10**, an end panel **11**, back panel **12**, end panel **13** and a panel for glue connection, or glue tab **14** which are connected together by score lines **15**, **16**, **17** and **18**. These parts, with their flap extensions to be described, are to form the carton. At the left there is an extension **19** of the blank which is connected to glue tab **14** along a cut or perforated score line **20**.

Extension **19** is to form the article-receiving or display pocket of the carton and comprises a side panel **21**, a back panel **22**, a second side panel **23** and a glue strip **24**. These parts are interconnected by score lines **25**, **26** and **27**, the latter being a cut score line similar to line **20**. The central panel **22** is provided with side projections **28** and **29** which are cut out of the respective side panels **21** and **23**, the distance between the outer edges of projections **28** and **29** being about the same or slightly less than the width of back panel **12** of the box for a purpose which will be referred to later.

The blank, when folded and glued as will be described presently, forms a carton as shown in FIGS. 5, 6 and 7, having a display pocket **30** to receive an article such as the bottle **31** indicated in FIG. 6 and provided with a screw cap **32**, and also usually having an identifying label **33**. The bottle is visible within pocket **30** through upper and lower window sections **34** and **35**. These window sections are the same width as the display pocket **30** and are framed by narrow side portions **36** and **37** of the front panel **10**.

Between the upper and lower window sections **34** and **35** there is an opaque member or shield **38** which bridges the space between the side portions **36** and **37** and extends crosswise of the window area when window sections **34** and **35** are considered as a single window. Shield member **38** not only serves to assist in retaining the bottle **31** within the display pocket **30**, but also serves to conceal the label **33** on the bottle. This renders it unnecessary to orient the bottle during the filling operation so as to place the label at the front, and this is an important factor in enabling the cartons to be set up and filled at a high rate per minute.

Referring again to FIG. 1 the bottom of the box is closed by means of flaps **11B** and **13B** which project from end panels **11** and **13** respectively, and by means of a bottom closure panel **39** having a tuck-in flap **40** at its outer end. When closed these parts occupy the positions shown in FIGS. 5, 6 and 7. The top of the box is closed in a similar manner by means of side flaps **11T** and **13T**, closure flap **41** and tuck-in flap **42**.

At the top of back panel **22** of extension **19** there is a projection **43** which is connected to panel **22** by a score line **44** and which has an upper section **43*a*** which is connected to projection **43** by a score line **45**. Projection **43** has outwardly flaring edges, as shown in FIG. 1, and the edges of section **43*a*** are symmetrical so that when the upper section **43*a*** is folded about score line **45** as shown in FIG. 2 it overlaps and matches with the projection **43**. Section **43*a*** thus reinforces section **43** which becomes the roof or ceiling of the display pocket **30** when the box is completely set up as shown by FIGS. 5 and 6. This double thickness provides a greater cushion for protecting the bottle **31**. Where such additional protection is not required, the upper section **43*a*** may be omitted and projection **43** terminated at the fold line **45**.

The bottom edges of the two side panels **21** and **23** of extension **19** are each provided with a pair of downwardly projecting tongues **46** leaving a V-shaped space **47** between them formed by the edges of the tongues. These V-shaped edges serve to guide the cap **32** of bottle **31** as it is inserted through the bottom of the carton (the top of the carton being folded to closed position before the filling operation takes place).

The blank of FIG. 1 is folded and glued to make the semi-erected carton of FIG. 4 on a conventional automatic machine. In this machine the blanks are removed one at a time from a supply stack and fed sidewise throughout the length of the apparatus. In the first section of the machine after the individual blanks leave the feed, the two score lines 20 and 25, and score line 17, are subjected to pre-breaking operations which flex or limber these score lines.

The individual blanks then move in contact with two glue-applying rolls, one of which applies adhesive to glue strip 24 this being a bottom glue roll so as to apply the adhesive to the underside of the blank as shown in FIG. 1. The second glue roll applies adhesive to the upper surface of the blank along a glue strip 48 which extends centrally across panel 22 and projections 43 and 43*a*. Next, projection 43*a* is folded about line 45 into contact with projection 43.

After this, the entire extension 19, glue tab 14 and end panel 13 of the box are folded to the right about score line 17, and during this folding operation a secondary and double folding also takes place by which panel 21 is folded to the right about score line 20 and the remainder of extension 19 is folded to the left about score line 25 thus making an accordion fold about these two score lines, the two folding operations resulting in positioning the several parts as illustrated in FIG. 3.

FIG. 2 shows the relation of the parts produced by the accordion fold operation during the swinging movement about score line 17. In the position of the parts in FIG. 2, the outer surfaces of panels 22 and 21 are folded face-to-face about score line 25 and the inner surface of panel 21 is folded against glue tab 14 and a portion of end panel 13 of the box. The right edge of projection 29 is now approximately on score line 17 (FIG. 2), and as the folding about this score line is completed the engagement of projection 29 with the score line assures the centering of projections 29 and 28, and therefore of panel 22, with respect to the rear panel 12 of the carton.

With the completion of this folding operation the parts are positioned as illustrated in FIG. 3 as previously indicated. This places the back panel 22 of the display pocket, with its projections 28 and 29 centrally above and in contact with the rear panel 12 of the carton and with projection 43 also in contact with this panel. The panel 22 (with its extension 43) and panel 23 lie with their outside surfaces facing upward, and the adhesive of glue strip 48 is now adhering the inside surface of panel 22 to the inside face of box panel 12. The end panel 13 of the carton with its adjacent glue tab 14 lie superposed upon panel 22 and a part of extension 43, and with their outside surfaces facing upwardly. The previously glued surface of glue tab 14 faces upwardly and glue is now applied to the exposed surface of glue strip 24 by means of a top glue-applying roll.

The next folding operation swings the front panel 10 of the carton to the left (FIG. 3) about score line 15 so as to bring the inner surfaces of side portions 36 and 37 into contact respectively with the adhesive on glue strip 24 and glue tab 14. The application of suitable pressure completes the formation of the semi-erected carton as shown in FIG. 4.

When the user feeds these semi-erected cartons to the setting up apparatus in his plant the same operation which squares up the carton by swinging the end panels 11 and 13 (FIG. 7) upwardly about their respective score lines 16 and 17, also swings the side panels 23 and 21 of the display pocket about their respective score lines 26 and 25 and places them at right angles to the back panel 22 of the display pocket. Since the widths of the side portions 36 and 37 correspond to the widths of the glue flap 24 and glue tab 14, the front edges of side panels 23 and 21 are now in line with the side edges of the window sections 34 and 35 (FIG. 5).

Projections 28 and 29 on the sides of display panel 22 (FIG. 7) engages the opposite side walls 11 and 13 of the carton and insure that the panel 22 is centered on back panel 12 of the box.

It will be noted that the upper edges 49 of side panels 23 and 21, as shown for example in FIG. 3, are disposed at an acute angle to the score line, and when the carton is set up these edges are also at an acute angle to the front wall 10 of the carton. These edges extend downwardly for some distance below the top of back panel 12. Prior to closing the top of the carton the extension 43 is folded downwardly and forwardly about its score line 44 into contact with these sloping edges 49. The flared edges of projection 43 extend laterally beyond the edges 49 so that a continuous appearance is imparted to the side surfaces and the ceiling of the display compartment.

In closing the top of the box the flaps 11T and 13T which extend from the end walls are folded to horizontal position and then the closure panel 41 is folded downwardly and tuck-in flap 42 is inserted in the usual manner to hold the closure parts in position. This operation applies pressure to the upper edge of extension 43 which imparts a slightly arched or curved shape to the ceiling of the display compartment.

After closing the top of the box, it is carried past the filling mechanism and a bottle or other product is inserted through the open bottom of the box into the display compartment, as previously explained. Thereupon the bottom parts are closed in the conventional manner and the squaring up and filling operation is complete.

I claim:

1. A display carton comprising spaced parallel front and rear walls and spaced parallel end walls, the front wall having a vertical window therein for an article-holding pocket, the window having side edges parallel with and spaced inwardly from the carton end walls, the pocket being formed by a sheet member which is U-shaped in cross-section having the base portion thereof secured to the rear wall of the carton and constituting the rear wall of the pocket, the legs of the U-shaped member being parallel and extending to the front wall of the carton, the legs having flanged portions glued to the inner surface of the carton front wall along the respective vertical edges of the window, the carton walls having foldable closure flaps at each end for retaining within the pocket an article placed therein, and the pocket side walls having each a pair of projecting fingers the tips of which are in proximity to said closure flaps at one end of the carton when the flaps are folded to closed position, the edges of such fingers providing an inverted V formation in the direction of the opened closure flaps for guiding the article into the pocket when it is inserted through such open flaps.

2. A display carton as set forth in claim 1 wherein the top edges of the pocket side wall members slope from the top and front of the carton downwardly to the rear wall of the carton, the rear wall member of the pocket having an upward extension the width of which is greater than the spacing of the pocket end wall members, the closure flaps for the top of the carton when in closed position pressing downwardly against said extension of the pocket rear wall and causing it to assume an arched position above the top edges of the pocket side walls, thereby providing the pocket with a curved top wall surface.

3. A blank in an intermediate state in the formation of a carton, the blank having front and back wall panels, a first end wall panel between the front and back panels and a second end wall panel on the opposite side of the back panel from the first end wall panel, the front panel having a window therein, said panels being connected to one another by score lines, a panel for glue connection along the second end wall panel, panels for an article-holding pocket including first and second side panels and an intermediate panel connected to one another by score lines, the

first side panel being connected by a score line to the glue connection panel and the second side panel having a glue connection strip along its free edge, the second end panel being folded substantially 180° about its score line, the first side panel being folded to underlie the glue connection panel and a portion of the second end wall panel, the intermediate panel being reversely folded to underlie the first side panel and being glued to the back panel, and the front panel being folded into glued connections with both the glue connection panel and the glue connection strip along the respective opposite lengthwise margins of the window in the front panel.

4. A blank in an intermediate state in the formation of a carton as set forth in claim 3 wherein the pocket back panel member includes lateral projections extending from its opposite sides for engaging the opposite interior surfaces of the carton end walls for spacing the pocket side wall members with respect to the carton end walls.

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