Nov. 18, 1958 F. W. FIELDING 2,860,816

FOUR-BOTTLE COLLAPSIBLE CARRIER

Filed June 20, 1955 2 Sheets-Sheet 1

Fig. 3

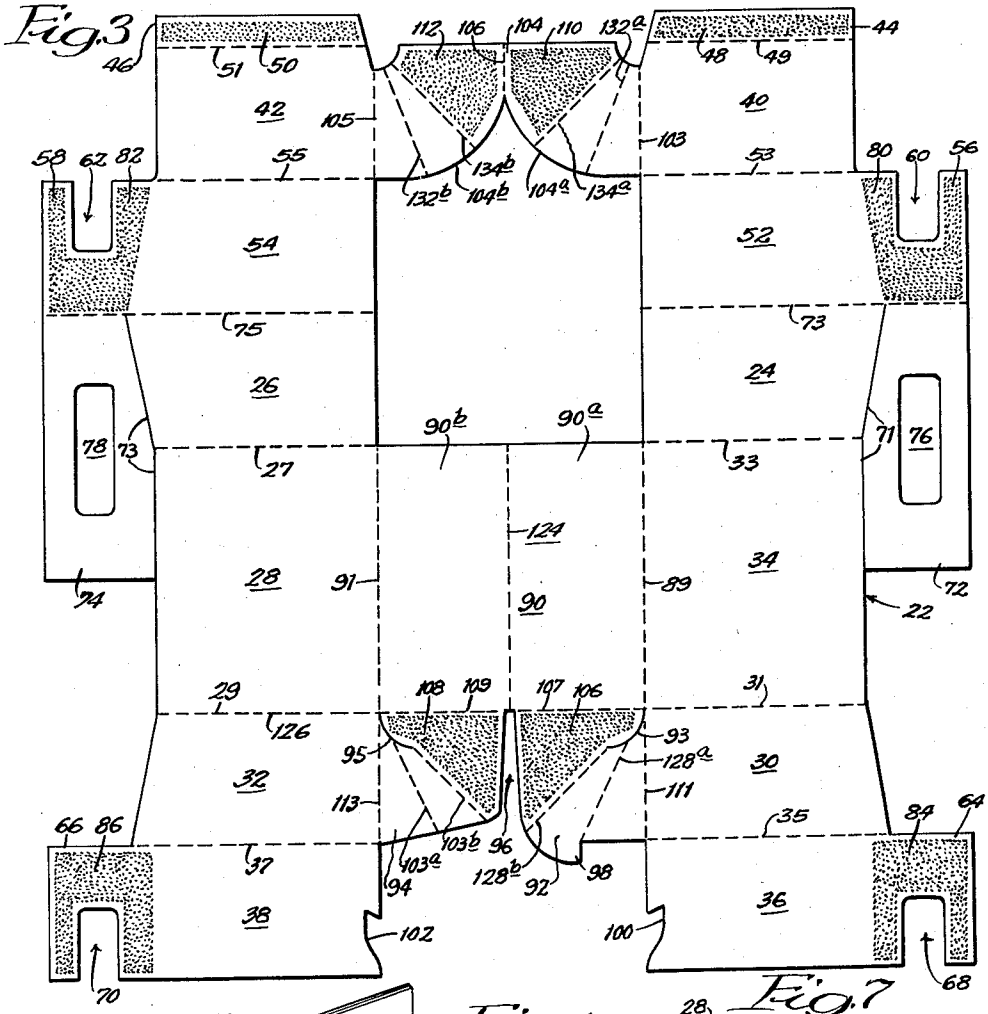


Fig. 1

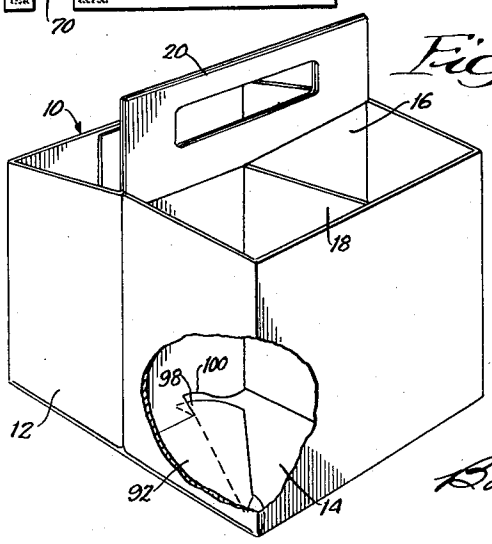
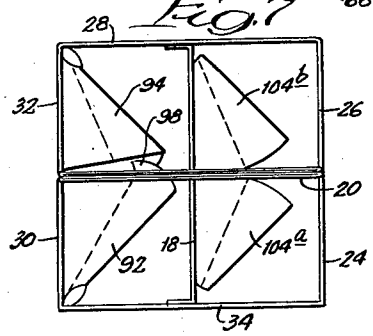


Fig. 7



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Filed June 20, 1955 2 Sheets-Sheet 2

Fig. 4

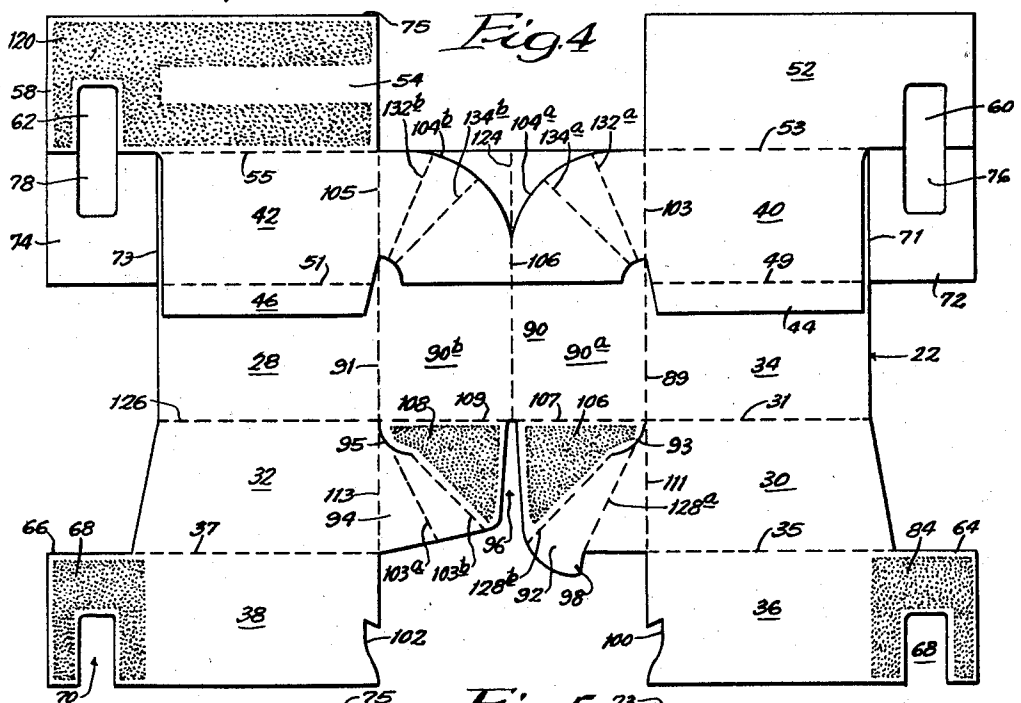


Fig. 5

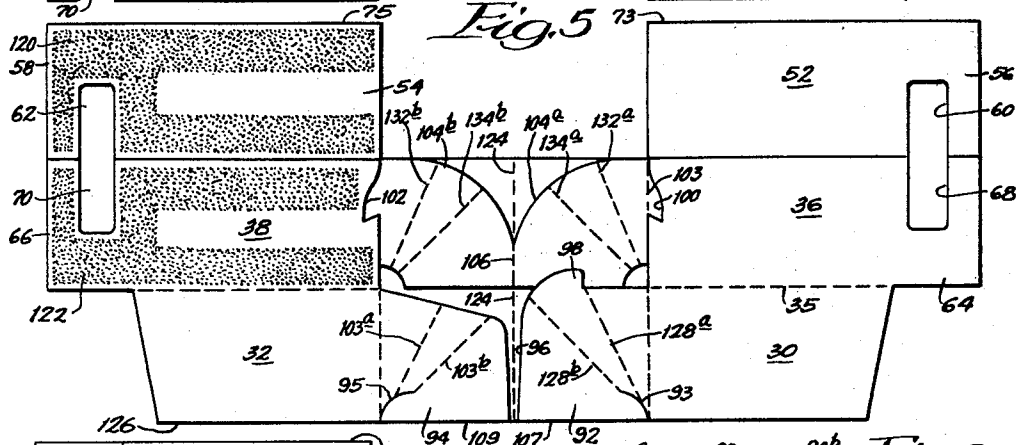


Fig. 6

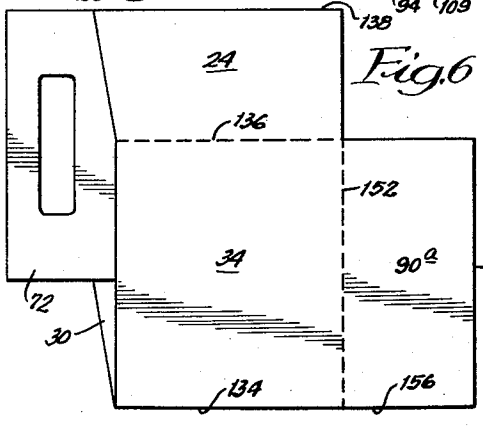
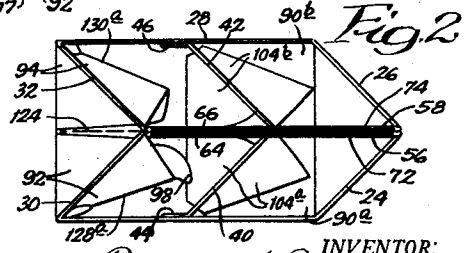


Fig. 2



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FOUR-BOTTLE COLLAPSIBLE CARRIER

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Application June 20, 1955, Serial No. 516,664

2 Claims. (Cl. 220—113)

This invention relates generally to a collapsible bottle-carrier, and more particularly to an improved carrier construction formed from a single sheet of cardboard or like foldable material.

In the design and construction of collapsible bottle-carriers of the general type disclosed by the present invention, several structural requirements must be given careful consideration. First, it is necessary to define a plurality of bottle-receiving compartments separated by means of foldably collapsible partition elements. Second, it is necessary to provide a side wall and bottom wall assembly of substantial strength and rigidity. Third, it is necessary to provide some manual carrying means in the form of a handle or the like, having substantial strength and durability. Fourth, it is desirable to provide means for maintaining the carrier in rigidly fixed, erect position for receiving bottles therein.

For purposes of easy and low-cost mass production, it is a further important consideration to form a collapsible bottle-carrier of unitary form from a single sheet of cardboard or like foldable material, which is particularly cut, scored, and coated with glue to enable initial assembly by a series of simple folding operations.

It is a primary object of this invention to provide a collapsible carrier construction adapted to be formed from a single sheet of foldable material, and having the structural attributes of partition means, handle means, wall reinforcement, and erection lock means.

It is another object of this invention to provide a four-compartment collapsible bottle-carrier formed from a single piece of flat stock such as cardboard or like foldable material, which is particularly cut, folded, glued, and self-reinforced to provide a container of high strength and structural rigidity when erect, and which is readily capable of being collapsed into flat, folded relation.

It is a further object of this invention to provide a collapsible bottle-carrier having foldably collapsible partition means providing structural elements adapted to cooperate with bottom wall reinforcing means for effecting a locking of the carrier in erect position.

It is still another object of this invention to provide a collapsible bottle-carrier having bottom wall reinforcing means secured to and relatively foldable away from the bottom wall.

Further objects and advantages of this invention will become apparent as the following description proceeds and the features of novelty which characterize this invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

A preferred embodiment of the invention is shown in the accompanying drawing, in which:

Figure 1 is a perspective view of a four-compartment bottle-carrier constructed in accordance with the present invention and shown in erected position for receiving a plurality of bottles therein, portions being broken away to show details of construction;

Figure 2 is a top view of the bottle-carrier of Figure 1 shown in near fully collapsed relation;

Figure 3 is a layout view of a single piece of sheet stock which has been appropriately cut, scored for folding, and coated with glue for subsequent assembly to form the carrier shown in Figures 1 and 2;

Figures 4 through 6 are plan views on a reduced scale showing the consecutive folding steps to be performed on the pattern of Figure 3 for providing the final bottle-carrier structure; and

Figure 7 is a top plan view on a reduced scale of the bottle-carrier in fully erect relation.

Referring now more particularly to Figure 1 of the drawing, I have shown a four-compartment collapsible bottle-carrier 10 having peripherally continuous side walls 12, contiguous bottom wall portions 14, intersecting center and cross partitions 16 and 18, and carrying handle portions 20.

As best seen in Figure 3, a single integral pattern 22 is cut from a flat sheet of cardboard stock or like foldable material. The pattern 22 defines first side panel-forming portions 24 and 26, a second side panel 28, third side panel-forming portions 30 and 32, and a fourth side panel 34. Intermediate fold lines 27, 29, 31, and 33 serve to define the four corners of the bottle-carrier 10 when disposed in its generally rectangular erect position.

The center partition 16 is formed by two mated pairs of half-panels in aligned, abutting relation. A first pair of these half-panels is provided by end portions 36 and 38 of the pattern 22. The panels 36 and 38 are bendable relative to the adjacent panels 30, 32 along fold lines 35, 37, and are of substantially identical complementary form for mating engagement with each other to provide one of the half-portions of the center partition 16.

The cross partition 18 is formed by a pair of end panels 40 and 42 at the other end of the panel 22. The panels 40 and 42 terminate in connector flaps 44 and 46 having glue surfaces 48 and 50, respectively, for rigid attachment to corresponding side walls, as will hereinafter appear. Fold lines 49 and 51 permit bending movement between the flaps 44, 46 and the corresponding end panels 40, 42.

The other half-portion of the center partition 16 is formed by half-panels 52 and 54, of substantially identical complementary form for mating engagement with each other. End panels 40, 42 are bendable relative to the half-panels 52, 54 along fold lines 53, 55. The half-panels 52 and 54 also provide handle-forming extensions 56 and 58, respectively, extending outwardly beyond the adjacent edges of the side wall panels. The extensions 56 and 58 are cut away at 60 and 62, respectively, to accommodate the formation of the carrier handle 20. The center partition half-panels 36 and 38 similarly provide handle-forming extensions 64 and 66, respectively, which are cut away at 68 and 70 for formation of the carrier handle 20.

Extended portions of the side wall panels 24 and 34 serve to define a bonding flap 72, separated therefrom by cut lines 71, but contiguous with the handle forming extension 56. The side wall panels 26 and 28 similarly provide a complementary bonding flap 74, separated by cut lines 73 and contiguous with the handle-forming extensions 58. Fold lines 73 and 75 afford bending movement of the bonding flaps 72 and 74 relative to the handle-forming extensions 56 and 58. The bonding flaps 72 and 74 are cut away at 76 and 78, respectively, to provide a suitable hand grip for manually supporting the bottle-carrier by the handle 20.

The handle-forming extensions 56 and 58 are coated with glue at 80 and 82, respectively. Similarly, the handle

forming extensions **64** and **66** are coated with glue at **84** and **86**, respectively.

A bottom wall **90** extends contiguously between the side panels **28** and **34**, and is bendable relative thereto along fold lines **89** and **91**. Adjacent the bottom wall **90** and intermediate the third side panel-forming portions **30** and **32**, a pair of contiguously extending reinforcing flaps **92** and **94** are provided, with a cut away or separation **96** therebetween. Cut lines **93** and **95** of particular form extend within the flaps **92** and **94**, respectively, from each point of intersection with the corresponding adjacent bottom and side panels. The flap **92** is particularly formed to provide a hook extension **98**. The center partition half panels **36** and **38** are notched at **100** and **102** for cooperation with the hook **98** in a manner to be hereinafter described. A reinforcing flap **104** extends between the cross partition panels **40** and **42**, and is bendable relative thereto along fold lines **103** and **105**. Glue surfaces **106**, **108**, **110**, and **112** are provided by suitable coating of the reinforcing flaps **92**, **94**, and **104**. Fold lines **107** and **109** are provided intermediate the flaps **92**, **94** and the adjacent bottom wall **90** for bending movement therebetween. Similarly, fold lines **111** and **113** are provided to permit bending movement of the flaps **92**, **94** relative to the panels **30** and **32**.

Referring now more particularly to Figures 4 through 6 of the drawing, a consecutive series of folding and gluing steps to be performed on the pattern of Figure 3 will be described to illustrate the formation of the completed bottle-carrier structure shown in Figures 1 and 2.

The first folding step is made along fold lines **73** and **75** which extend inwardly between side-forming panel **24** and center partition half-panel **52**, and between side-forming panel **26** and center partition half-panel **54**, respectively. When this folding is completed, as shown in Figure 4, the handle-forming extensions **56** and **58** will be glued to the bonding flaps **72** and **74**, respectively. It should be noted that the fold lines **73** and **75** permit the panels **52** and **54** to be freely swingable relative to the panels **24** and **26**, respectively, without restriction by the bonding flaps **72** and **74** which are separated from the adjacent side panels by means of the cut lines **73** and **75**. The cut-outs **60** and **62** will register with the adjacent half-portions of the cut-outs **76** and **78** to define a single opening therethrough. The connector flaps **44** and **46** will be glued to the side panels **28** and **34**, respectively, substantially intermediate their widths. The reinforcing flap **104** will be glued to the bottom wall **90**, the glue area **110** lying within a flap half-portion **104***a* which registers with an aligned half portion **90***a* of the bottom **90**, and the glue area **112** lying within a flap half-portion **104***b* which registers with an aligned bottom half portion **90***b*.

The second folding step is made along fold lines **29**, **31**, and **107**, **109**. When this folding is completed, as shown in Figure 5, the handle-forming extensions **64** and **66** will be glued to the remaining exposed halves of the bonding flaps **72** and **74**, respectively. In addition, the glue surfaces **106** and **108** of the reinforcing flaps **92** and **94** will be glued to the bottom portions **90***a* and **90***b*, respectively. The hook **98** will freely overlap an adjacent portion of the reinforcing flap **104**.

As clearly seen in Figures 4 and 5, the first folding serves to expose an underlying glue surface **120** of the center partition half-panel **54** and the handle-forming extension **58**. Similarly, as seen in Figure 5, the second folding serves to expose an underlying glue surface **122** of the center partition half-panel **38** and the handle-forming extension **66**.

The third folding step is made along fold lines **124** and **126** which mark boundaries between the portions **90***a* and **90***b* of bottom **90**, and the portions **104***a* and **104***b* of flap **104**, respectively. After the third folding has been made, along the lines **124** and **126**, the center partition half-panels **36** and **52** will be glued to the cross panels **38** and **54**. Also, the handle-forming extensions **56** and **64** will be glued to the cross extensions **58** and **66**. This final folding step completes the assembly of the carrier, resulting in a collapsible four-sided container of generally rectangular form, having a center partition of two-ply thickness, which provides an upwardly extending carrying handle of four-ply thickness, and a cross partition between the center partition and the opposite adjacent side walls.

The structural formation of the bottom wall **90** and the re-inforcement thereof by the flaps **92**, **94**, and **104** constitutes a particularly important aspect of the present invention. As best seen in Figure 3 of the drawing, the re-inforcement flaps **92** and **94** are provided with fold-lines which serve to divide each of the flaps into three distinct areas. For this purpose, re-inforcing flap **92** is scored at **128***a* and **128***b*. Similarly, re-inforcing flap **94** is scored at **130***a* and **130***b*. The fold-lines **128***b* and **130***b* extend inwardly from the corresponding flap edges to intersect with the cut-lines **93** and **95**, respectively. In this same way, the reinforcement flap portions **104***a* and **104***b* are provided with fold lines **132***a*, **134***a* and **132***b*, **134***b*, respectively, serving to divide each of the flap portions into three distinct areas.

The glue surfaces **106**, **108**, **110** and **112** are each confined within a single one-third area of the corresponding reinforcing flaps. The three one-third areas of each of the reinforcing flaps are foldable relative to each other and relative to the adjacent portions of the pattern **22**. It will be apparent that after complete folding assembly of the carrier the glue surfaces will serve to fixedly secure the glued one-third area of each reinforcing flap to the bottom wall **90**. The two remaining freely foldable one-third areas of each of the reinforcing flaps together provide an additional material thickness overlying the glue-attached one-third area when the carrier is disposed in erect position, as clearly seen in Figure 7. These folding reinforcement areas permit free bending movement of the bottom wall portions **90***a* and **90***b* toward each other, and cooperative folding of the side wall and center partition elements in cooperation therewith. In this way, the carrier may be readily folded into its flat storage position, and also expanded into its erect use position, with the various bottom reinforcing flaps folding from collapsed to operative positions required.

As best seen in Figure 1 of the drawing, the hook **90***a* formed by the reinforcing flap **92** is received within the recess formed by mated notches **100** and **102** of the center partition **16**, when the carrier is expanded to its erect position. The particular folding relation of the freely bendable one-third areas of the reinforcing flap **92** serve to effect a pivotal upward and outward movement of the hook **98** into the notches **100**, **102** as the bottom wall portions **90***a* and **90***b* move upwardly toward the center partition **16** to form a substantially flat bottom wall. In this way, automatic coupling of the center partition **16** and bottom wall **90** to effect locking of the carrier in erect position is acccomplished and maintained by the hook **98**. Upon folding of the carrier to a collapsed position, the hook **98** moves pivotally in the opposite manner, thereby releasing the interlock between the center partition **16** and bottom wall **90**.

By the present invention I have provided a four-bottle carrier of sturdy and reliable construction having substantially reinforced bottom wall strength and automatic locking means for effecting rigid cooperation of the reinforced bottom wall and the center partition means.

Changes may be made in the construction and arrangement of the parts of my four-bottle collapsible carrier without departing from the real spirit and purpose of my invention, and it is my intention to cover by the claims any modified forms of structure or use of mechanical improvements which may be reasonably included within their scope.

What I claim as new and desire to obtain by Letters Patent of the United States is:

1. A collapsible article carrier formed from a single unitary pattern of foldable sheet material, particularly cut, scored, and coated with glue to provide, in the assembled carrier when erected, four separate article receiving compartments; said carrier comprising, a pair of elongated panel lengths of complementary form defining a pair of side walls and a pair of end walls, a bottom wall extending integrally between said side walls and foldable relative thereto, said panel lengths further serving to define a center partition extending between said end walls and a cross partition extending between said side walls said center partition being formed by a pair of half-partition portions in abutting end-to-end relation, each half-partition portion being formed by face-to-face mating pairs of panel portions to define a two-ply material thickness, upwardly extending portions of said center partition and matingly engaged reinforcing flaps formed by cut-away extensions of said end and side walls cooperating to define a carrying handle of four-ply material thickness and to maintain said abutting half-partition portions in rigidly planar relation, first bottom wall reinforcing means comprising flaps extending integrally and foldably between said bottom wall and one of said end walls, and second bottom wall reinforcing means comprising a flap extending integrally and foldably between portions of said cross partition, said reinforcing flaps serving to overlie said bottom wall with portions thereof secured thereto.

2. A collapsible article carrier formed from a single unitary pattern of foldable sheet material, particularly cut, scored, and coated with glue to provide, in the assembled carrier when erected, four separate article receiving compartments; said carrier comprising, a pair of elongated panel lengths of complementary form defining a pair of

side walls and a pair of end walls, a bottom wall extending integrally between said side walls and foldable relative thereto, said panel lengths further serving to define a center partition extending between said end walls and a cross partition extending between said side walls said center partition being formed by a pair of half-partition portions in abutting end-to-end relation, each half-partition portion being formed by face-to-face mating pairs of panel portions to define a two-ply material thickness, upwardly extending portions of said center partition and matingly engaged reinforcing flaps formed by cut-away extensions of said end and side walls cooperating to define a carrying handle of four-ply material thickness and to maintain said abutting half-partition portions in rigidly planar relation, first bottom wall reinforcing means comprising flaps extending integrally and foldably between said bottom wall and one of said end walls, and second bottom wall reinforcing means comprising a flap extending integrally and foldably between portions of said cross partition, said reinforcing flaps serving to overlie said bottom wall with portions thereof secured thereto, said center partition and one of said reinforcing flaps providing releasably interlocking portions for retaining said carrier in erect relation.

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