

March 3, 1970

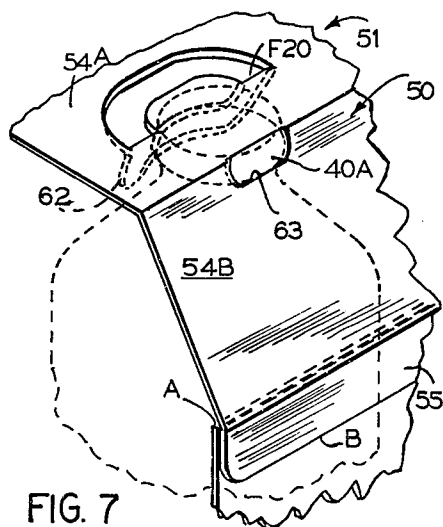
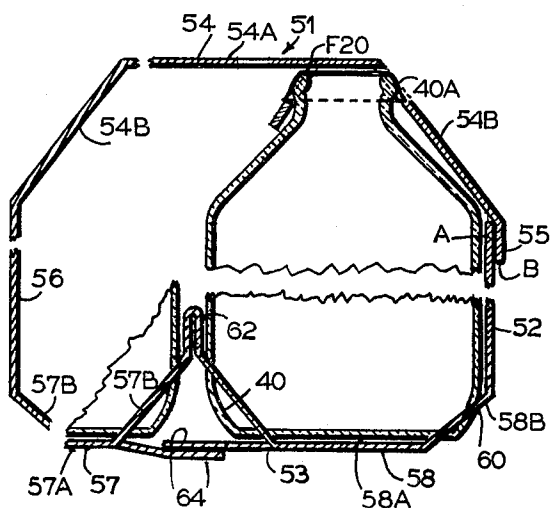
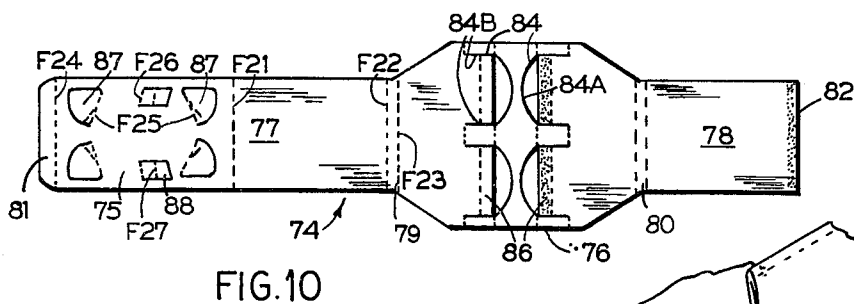
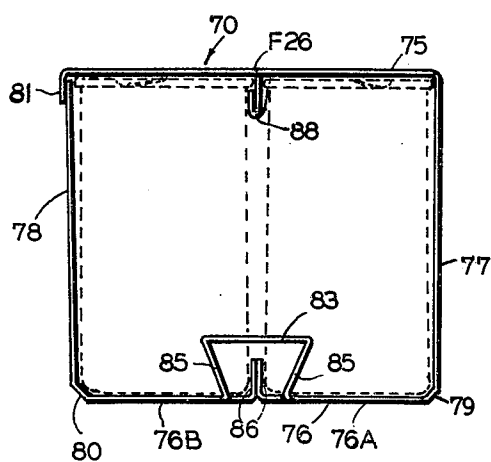
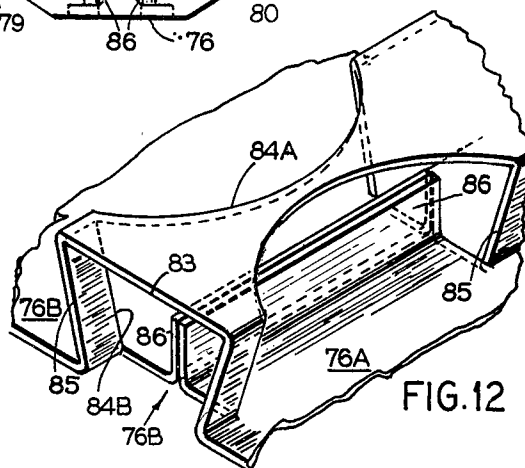
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3,498,449

CARRIERS FOR CONTAINERS HAVING CHIMELESS BOTTOMS

Filed Oct. 20, 1965

4 Sheets-Sheet 2



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CARRIERS FOR CONTAINERS HAVING CHIMELESS BOTTOMS

Filed Oct. 20, 1965

4 Sheets-Sheet 3

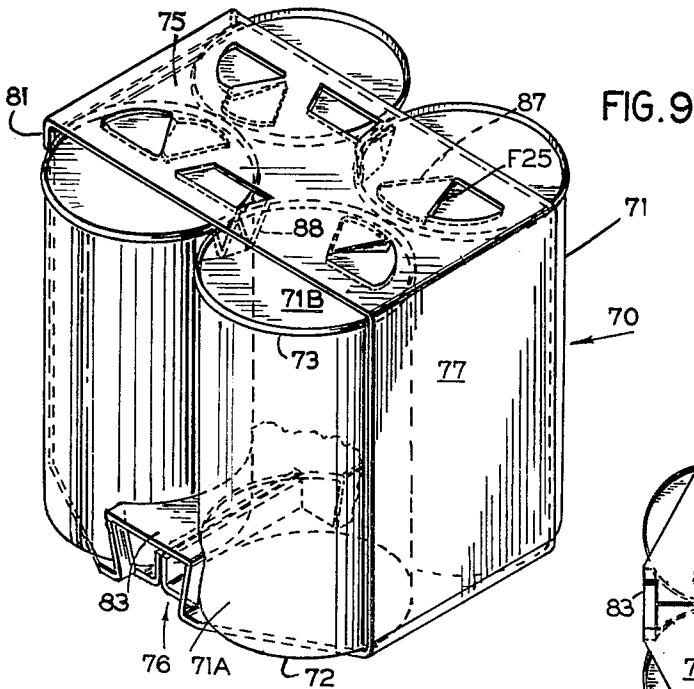


FIG. 9

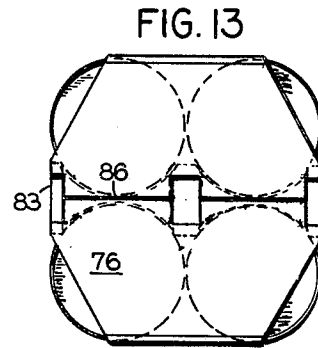


FIG. 13

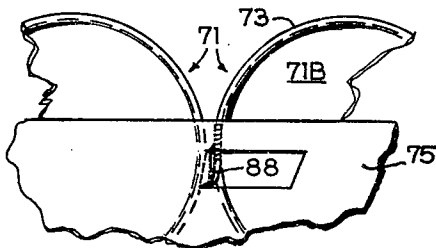


FIG. 14

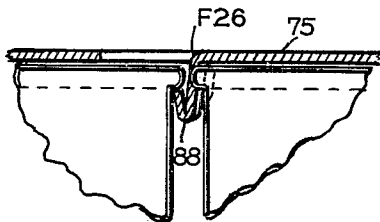


FIG. 15

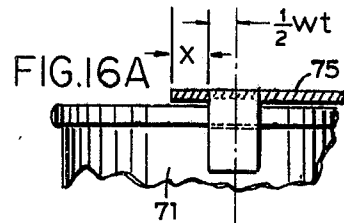


FIG. 16A

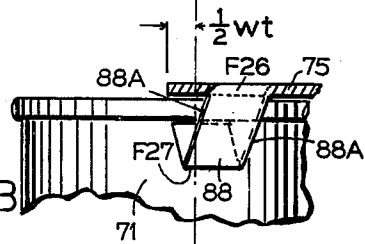


FIG. 16B

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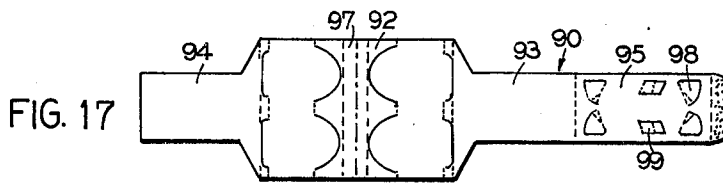
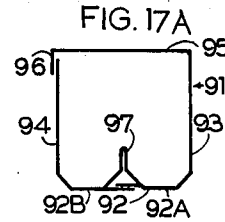
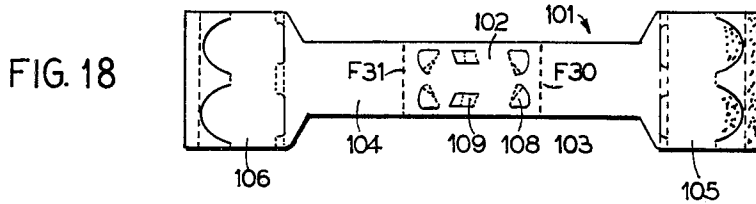
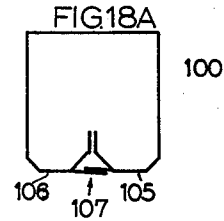
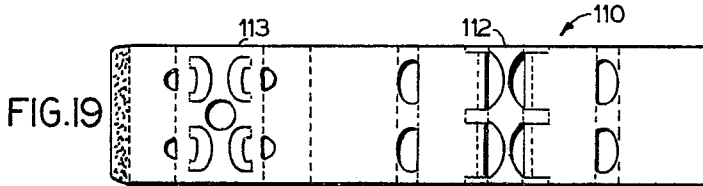
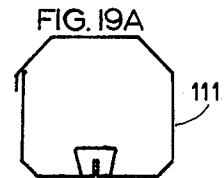
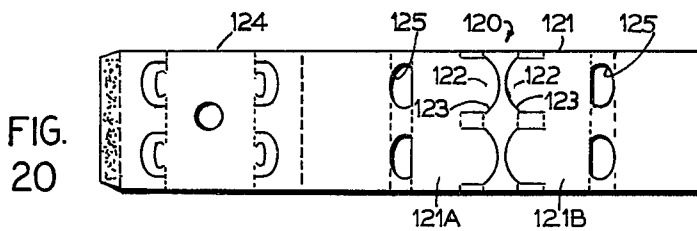
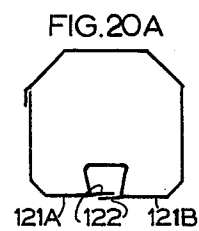
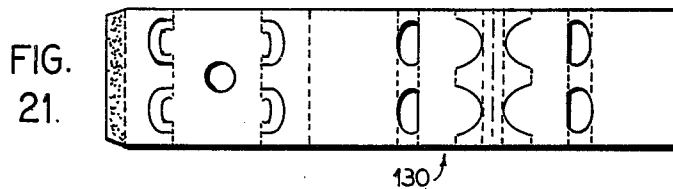
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3,498,449

CARRIERS FOR CONTAINERS HAVING CHIMELESS BOTTOMS

Filed Oct. 20, 1965

4 Sheets-Sheet 4



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3,498,449

CARRIERS FOR CONTAINERS HAVING CHIMELESS BOTTOMS

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Int. Cl. B65d 71/00, 5/12

U.S. Cl. 206—65

1 Claim

ABSTRACT OF THE DISCLOSURE

This invention is directed to a wrapper-type carrier for packaging a plurality of containers having chimeless bottoms which is formed from a single strip of blank material which can be readily folded about a series of transversely extending foldlines so as to define a closed figure having opposed top and bottom panels interconnected by opposed interconnecting side-forming panels. The arrangement is such that the closed figure thus formed is provided with fully open end portions and is free of any intermediate panels interconnecting between the top and bottom panels or the opposed side panels. The top and bottom panels are further provided with blanked out tabs or flaps to positively retain one or more chimeless bottom containers within the carrier between the full open ends thereof. One panel of the carrier is further provided with means for positively retaining the one panel contiguous to one end of the containers adapted to be retained within the wrapper. The opposed panel of the carrier is specifically constructed so as to accommodate or retain the chimeless end of the container within the wrapper in a positive manner.

This invention relates in general to a container carrier, and more specifically to an improved carrier adapted for positively retaining therein a plurality of containers which are formed with chimeless end portions.

In the strong competitive efforts of modern day mass marketing of goods distributed in containers, as for example, cans or bottles, much emphasis has been placed on the value of packaging a plurality of such containers in a carrier. The facts which are usually taken into consideration in the manufacture of such carriers are the ease of packaging the goods within the carrier, their sales appeal, their convenience to the consuming public, their durability, and the available space provided thereon for advertising and promoting of the products packaged therein.

Heretofore, various and numerous methods, materials and devices have been employed in the multiple packaging of canned goods or bottled goods, as for example, beer, soda and other products. The most widely used carrier for such products is a familiar wrapper type carrier for accommodating a plurality of such containers of beverages and/or the like. Numerous variations of such wrappers are known. However, each of the known wrappers have been designed to enwrap or accommodate the containers in a manner which requires the utilization of relatively large amounts of wrapper material, such as paperboard or cardboard. The known wrappers utilized for enwrapping therein a plurality of can type containers, are generally constructed for accommodating a conventional can structure, i.e., a three-piece can formed with top and bottom chimes. For this reason, the known can carriers required various constructions of cooperating can retaining tabs blanked out of the top and bottom panels for positioning and retaining the upper and lower chime ends of the can between the opposed panels of a wrapper type carrier.

However, recent innovations have resulted in the can construction art wherein a can is now made of a two-

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piece construction. Such two-piece cans have one end of the can integrally formed with the circumscribing side walls thereof and has the other end portion secured to the body of the can by the well known can chime construction. Thus, one of the chime ends, which was essential for rendering the can structure adapted for use in the heretofore known wrapper type carriers, is now completely eliminated. Consequently, the known wrapper type carriers utilizing can opposed retaining means or flaps engaging the opposed chime ends of a can cannot be satisfactorily utilized with a two piece can construction described.

It has also been observed that the use of bottles have also been gaining wider favor in distributing such beverages as beer, soda and the like. Manufacturers of such bottled goods are also desirous of merchandising their bottled goods in wrapper type carriers in very much the same nature as the competing canned goods are merchandised. Accordingly, bottle carriers are also known. However, the construction of known bottle carriers required relatively large amounts of paperboard, and consequently, are relatively costly. Generally, the known bottle type containers, of the type evidenced in U.S. Patent No. 3,167,241, required marginal flaps circumscribing the open ends of the carrier to retain the endmost bottles within the carrier. The inclusion of this additional material to retain the endmost bottles within a given carrier greatly added to the amount of material otherwise required to contain a plurality of such bottles.

It is an object of this invention to provide an improved carrier which is specifically constructed and arranged so as to positively retain therein a plurality of containers formed with a chimeless end portion, as for example, a two-piece can or bottle.

Another object of this invention is to provide an improved can carrier which is specifically constructed and arranged so as to retain therein a plurality of cans having at least one chimeless end portion.

Another object of this invention is to provide an improved wrapper type carrier which is adapted to contain therein a plurality of bottled goods in a manner wherein the individual bottles are positively retained therein in a novel manner.

Another object of this invention is to provide an improved bottle carrier utilizing a minimum of material per number of bottles contained therein.

Another object of this invention is to provide an improved can carrier which is specifically constructed and arranged so as to conveniently hold either a conventional three-piece, two-chime can construction and/or a two-piece, one-chime can construction.

Still another object of this invention is to provide an improved carrier for containers having at least one chimeless end which is most economical in its use of material with respect to the number of containers housed therein.

Another object of this invention is to provide an improved wrapper type construction which is arranged to attain maximum strength through the use of minimum material.

Still another object of this invention is to provide an improved wrapper type carrier for containers having at least one chimeless end in which such containers are positively secured.

Another object of this invention is to provide an improved wrapper type carrier in which each of the containers carried therein are isolated one from another to obviate over-riding of adjacent containers through the employment of a minimum amount of material, and thereby minimizing wear, breakage or wastage resulting therefrom.

Still another object of this invention is to provide an improved wrapper type can carrier constructed and arranged from a single sheet of blank material which in the folded position thereof defines a closed figure having full open ends, and which is free of any intermediate partitioning panel extending between opposed panels thereof.

Another object of this invention resides in a wrapper type can carrier having a panel specifically constructed and arranged to positively receive and seat thereon the chimeless end portion of a container.

In accordance with this invention, the foregoing objects, features and other advantages are attained by a wrapper type carrier which can be readily formed from a single strip of blank material which can be readily folded about a series of transversely extending foldlines to define a closed figure having opposed top and bottom panels interconnected by interconnecting side panels. The arrangement is such that the closed figure thus formed is provided with fully open end portions, and is free of any intermediate panels interconnecting between the top and bottom panels or opposed side panels. In accordance with this invention, the top and bottom panels are each provided with means blanked therefrom to positively retain within the carrier one end of a container disposed therein within the carrier between the full open ends thereof. One panel of the carrier is further provided with means for positively retaining it contiguous to one end of the containers retained therein. The other opposed panel of the carrier is specifically constructed to accommodate the other or chimeless end of a can or bottle in a positive manner.

In one form of the invention, the wrapper carrier which is specifically constructed to accommodate a plurality of bottled goods disposed in rows arranged in side by side relationship. The bottle carrier of this invention comprises essentially of a single strip of foldable blank material having transversely extending foldlines about which the blank is folded to define opposed panels and interconnected side panels. One of said opposed panels includes a central panel portion and opposed connected inclined panel portions. The other opposed panel is defined by a pair of half panel sections. Each of the respective half panel sections are provided with a central portion and opposed upwardly inclined portions wherein the adjacent inclined portions of the respective half sections are disposed contiguous to one another. Means are blanked out of the respective inclined portions of the respective half panel sections to define openings for retaining the chimeless end of a container within the carrier. The arrangement is such that the openings or cut-out portions circumscribe a peripheral portion of the bottle. Blanked out of the upper panel is a retaining flap which is folded inwardly of the carrier to engage with the cap of the bottle. The arrangement is such that each of the bottles is positively secured between the opposed upper and lower panels by means of the seats blanked out of the bottom panel and the bottle retaining flaps blanked out of the top panel. The bottle retaining flaps blanked out of the top panel will also function to maintain the central portion of the top panel contiguous to the tops of the respective bottles disposed in the carrier.

Means may be also blanked out of the bottom panel of the carrier to be folded inwardly of the carrier to function as a separator between the adjacent bottles in a given row. Accordingly, the arrangement is such that each of the respective bottles within the wrapper are isolated one from another so as to obviate any over-riding or contact therebetween.

In another form of the invention, the means for retaining the bottom end of a bottle or chimeless end of a can is modified to define a portion of the carrier which is stepped inwardly thereof, and which stepped portion extends along longitudinally of the carrier. The arrangement is such that the opposed marginal edges of the stepped portion are provided with arcuate cut-out por-

tions or notches which is adapted to circumscribe a peripheral portion of the bottle or can disposed within the carrier. Accordingly, the arrangement is such that the notched stepped portion cooperates with the adjacent side panel of the carrier to positively retain therein a bottle or can having a chimeless end portion.

In another form of the invention, the wrapper type carrier may be provided with means blanked out of the top panel thereof to cooperate with the bottom retaining means for positively retaining therebetween a can construction having a one-chime end portion and an opposed chimeless end portion.

A feature of this invention resides in a wrapper type carrier which can be specifically constructed and arranged for packaging either a plurality of cans having at least one chimeless end portion or a plurality of bottles.

Another feature of this invention resides in the provision of a wrapper type carrier having improved panels specifically constructed to define a recess or well for receiving and retaining the chimeless end portion of a can or bottle.

Another feature of this invention resides in the provision of a can carrier or bottle carrier which is relatively simple in construction, positive in operation, and which can be readily fabricated and loaded.

Other features and advantages will become more readily apparent when considered in view of the drawings and specification in which,

FIGURE 1 is a perspective view of a bottle type carrier constructed in accordance with the instant invention.

FIGURE 2 is a fragmentary end elevation view of the bottle carrier of FIG. 1.

FIGURE 3 is an expanded view of a blank construction from which the bottle carrier of FIGS. 1 and 2 is formed.

FIGURE 4 is a bottom plan view of the bottle carrier of FIGS. 1 and 2.

FIGURE 5 is a fragmentary perspective view of a bottle retaining means in accordance with this invention looking in the direction of line 5-5 on FIG. 2.

FIGURE 6 is an expanded view of a modified blank construction from which a bottle carrier is formed in accordance with the instant invention.

FIGURE 7 is a fragmentary perspective view of a bottle carrier constructed from the blank of FIG. 6.

FIGURE 8 is a sectional elevation view having parts thereof broken away of a carrier construction constructed from the blank of FIG. 6.

FIGURE 9 is a perspective view of still another modified carrier constructed and arranged to hold therein a plurality of cans having at least one chimeless end portion.

FIGURE 10 is an expanded view of the blank construction from which the carrier of FIG. 9 is constructed.

FIGURE 11 is an end view of the can carrier of FIG. 9.

FIGURE 12 is an enlarged detail perspective view of the bottom panel portion of the carrier of FIGS. 9 and 11.

FIGURE 13 is a bottom end view of a carrier.

FIGURE 14 is a fragmentary detail plan view of the panel holding flap used in the carrier of FIG. 9.

FIGURE 15 is a fragmentary sectional view shown in elevation of the panel holding flap of FIG. 14.

FIGURES 16A and 16B are fragmentary comparison views of the tab construction of this invention (FIG. 16B) as utilized in the construction of the carrier of FIG. 9, as compared with a prior known construction (FIG. 16A), to illustrate how the tab construction of 16B affects a saving in the material from which the carrier is formed.

FIGURE 17 illustrates an expanded view of a mod-

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ified blank construction from which a can carrier may be formed in accordance with the instant invention.

FIGURE 17A illustrates an end view of the can carrier constructed from the blank construction of FIG. 17.

FIGURE 18 illustrates another modified expanded blank construction for a can carrier.

FIGURE 18A illustrates an end view of the can carrier constructed from the blank construction of FIG. 18.

FIGURE 19 illustrates another modified expanded view of a blank construction adapted for use as a bottle carrier.

FIGURE 19A illustrates the end view of the bottle carrier constructed from the blank of FIG. 19.

FIGURE 20 illustrates still another modified view of an expanded blank from which a bottle carrier may be made in accordance with the instant invention.

FIGURE 20A is an end view of the bottle carrier constructed from the blank of FIG. 20.

FIGURE 21 is still another modified form of an expanded blank construction from which a bottle carrier may be made in accordance with the instant invention.

Referring to the drawings, there is shown in FIGS. 1 through 5 an improved carrier 30 constructed in accordance with the instant invention. As shown therein, the carrier 30 is formed from a single sheet or blank 31 of material, as for example, paperboard, cardboard and the like. As will be hereinafter described, the carrier 30 of FIGS. 1 to 6 defines a bottle type carrier.

Referring more specifically to FIG. 3, the blank of sheet material 31 is a substantially elongated or rectangular strip of material provided with a series of transversely extending foldlines or scorelines about which the blank may be folded to define a wrapper type carrier as illustrated in FIGS. 1 and 2.

The blank 31 is scored or folded by foldlines F1 and F2 to define a top panel 32. The top panel 32 is provided with spaced intermediate foldlines F3 and F4 to define a top central panel portion 32a and a pair of connected top side panel portions 32B, which in the folded position are inclined downwardly relative to said central portion.

Connected to the opposed ends of the top panel 32 along foldlines F1 and F2 are the side forming panels 33, 34 of the carrier 30. As shown, hingedly connected along foldlines F5 and F6 to each of the side panels 33, 34 is a bottom section 35, 36 which define one half of the bottom panel 37. Each of the respective half bottom sections 35, 36 are provided with a central portion 35A, 36A defined by spaced foldlines F7 and F8 respectively. Accordingly, each of the respective half panel sections 35, 36 are provided with a central portion 35A, 36A and connected upwardly inclined opposed panel portions 35B, 36B. The free end of the respective bottom sections 35, 36 is further provided with a longitudinally extending flap 38, 39 which is hingedly connected along a foldline F9 to the respective half bottom sections 35, 36. As noted in FIGS. 1 and 2, the respective longitudinally extending flaps 38, 39 in the folded position of the blank 31 are disposed in contiguous relationship with respect to one another. If desired, the flaps 38, 39 may be suitably secured together by applying a suitable adhesive or glue to the contiguous or contacting surfaces thereof. In this manner the blank 31 may be maintained in its assembled or folded position.

As shown, means are formed in the respective half bottom sections 35, 36 for retaining or positioning therein the respective bottom end portions of the bottles 40 adapted to be disposed or carried within the carrier 30. Accordingly, the innermost inclined portion 35B, 36B of the respective half bottom sections 35, 36 are each provided with semi-elliptical die cuts 41 which in the folded position of the carrier 30 will define a recess 42 adapted to receive a bottom portion of the bottle 40. Accordingly,

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in the folded position of the carton 30, it will be noted that the die cut 41 in the plane of the inclined wall portion 35B, 36B defines an inclined, arcuate edge which is sized to snugly circumscribe a peripheral portion of the bottle adapted to be contained within the carrier. In the assembled position, it will be noted that adjacent bottles of a carrier are held in slightly spaced relationship one from another due to the spacing between adjacent elliptical cut-out portions 41 formed therein. As seen in FIGS. 1 and 2, the portions of the inclined portion blanked therefrom are disposed in the plane of the respective central portion of the respective half sections. Thus, they extend toward the center of the carrier and are then disposed in overlying relation. Accordingly, the overlying ends may be suitably secured as by gluing or the like.

Cooperatively associated and disposed opposite each of the elliptical die cuts 41 formed in the innermost inclined wall portion of the respective half bottom sections is a cut-out portion or opening 43 defined in the opposed inclined wall portion thereof. Accordingly, the cut-out or blanked out portion 43 in the outermost inclined portions 35B, 36B of the respective half bottom sections define a means or seat for receiving opposed peripheral portions of a bottle 40.

In accordance with this invention, means are blanked out of the top panel 32 to retain the upper end of the bottle or container. In the illustrated embodiment of FIG. 1, the bottles 40 adapted to be disposed in the carrier are formed with a reduced neck portion 40A which tapers upwardly to a mouth opening which is capped by a closure or cap 44 of conventional construction. The means blanked out of the top panel are folded inwardly of the carrier to engage or lock under the cap 44 of the bottles.

As shown, the means blanked from the panel comprises a substantially C-shaped retaining flaps 45 which are blanked out of the inclined portion of the top panel 32, and folded inwardly of the carrier 30. Accordingly, it will be noted, as best seen in FIG. 2, that when the tab 45 is bent inwardly of the container, the closure 44 of the bottle 40 is adapted to be received by the opening 46 defined in the plane of the inclined portion 32B from which the tab 45 was blanked.

The construction of the tab 45 is such that the inner edge 45A of the C-shaped tab engages or hooks under the cap 44 of the container 40, and thus functions to maintain the neck 40A of the bottle firmly secured between it and the adjacent inclined portion 32A of the top panel 32. The engagement of the inner edge 45A of the retainer tab 45 against the closure top 44 of the bottle also functions to maintain the top panel 32A of the carrier in contiguous relationship to the respective tops of the bottles. Accordingly, it will be noted, as best seen in FIGS. 1, 2 and 5, that the bottles 40 are securely retained between the opposed panel 32 and 37 of the carrier. The arrangement is such that the contiguously disposed locking flaps 38, 39 of the respective half bottom sectors 35, 36 function as a separator between the opposed row of bottle containers within the carrier. To maintain the adjacent bottles in each row spaced from one another so as to avoid banging of one another, a separator flap 47 may be blanked out of the respective bottom sectors 35, 36 as noted in FIG. 3.

In the assembled position of the carrier, as shown in FIG. 4, the separator flaps 47 are folded inwardly of the carrier about foldline F10 so as to be disposed between adjacent bottles 40 in a given row. It is then to be noted that each bottle 40 is then isolated one from another so as to prohibit riding of one bottle onto the next adjacent bottle and thereby prohibit the unnecessary rattling or knocking of the bottles 40 against one another. Thus, the respective separators 47 and longitudinally extending locking flaps 38, 39 function to isolate each of the bottles from one another and thereby minimizes or prohibits the bottles from breaking on one another. If desired, a finger hole 48 may be formed in the central portion of the top

panel to facilitate carrying of the carrier. While the carrier construction 30 described with respect to FIGS. 1 to 6 has been illustrated as capable of carrying four containers disposed in two rows of two containers each, it will be readily understood that the carrier blank 31 may be formed so as to accommodate two rows of containers in which numbers of containers disposed in each row may be two, three or more. To accommodate more than two bottles in a row, it would be only to increase the width of the blank 31 shown in FIG. 3 to include the additional width necessary to accommodate the number of bottles desired in a given row.

FIGURES 6, 7 and 8 illustrate a modified form of the invention. In this form of the invention, the blank 50 from which the carrier 51 is constructed, is formed so that the ends A, B of the blank 50, in the assembled position thereof are secured along the edge of one of side panels 52 of the carrier 51. Accordingly, the bottom panel 53 is also modified to attain this end. Referring to FIG. 6, the top panel 54 is defined by transversely extending foldlines F11 and F12 with intermediate foldlines F13 and F14 defining a central panel portion 54A and connected opposed inclined portions 54B which are hingedly connected thereto along foldlines F13 and F14. Hingedly connected along one edge of the top panel 54 along foldline F11 is a locking flap 55 which functions to secure the opposed ends A, B of the blank 50 in the folded position thereof, as shown in FIG. 7. Hingedly connected along foldline F12 to the other side of the top panel 54 is a side forming panel 56. Connected along foldline F15 to the side panel 56 is the modified bottom panel 53 of carrier.

As shown, the bottom panel 53 is defined between foldlines F15 and F16. Hingedly connected to the bottom panel along foldline F16 is the opposed side panel 52.

In accordance with this form of the invention, the bottom panel 53 is defined with a plurality of closely spaced centrally located transversely extending foldlines F17, F18 and F19, which in the folded position of the blank defines a reverse fold that extends longitudinally of the blank to separate the bottom panel 53 into two respective half bottom sections 57 and 58. Accordingly, each of the respective half bottom portions 57, 58 is provided with a central portion 57A, 58A and connected opposed upwardly inclined marginal portions 57B, 58B which will closely conform to the bottom end of the bottles 40 in a manner heretofore described.

Accordingly, it will be noted that the innermost inclined marginal portions 57B, 58B of the respective half sections 57, 58 are provided with an elliptical die cut portion 59 to define a recess or well for receiving the bottom end portion of the bottle as previously described with respect to FIG. 1. Accordingly, the elliptical die cuts 59 are arranged so that in the assembled or folded position of the blank, each will circumscribe a peripheral portion of a bottle 40 adapted to be received therein. Oppositely disposed each of the respective elliptical die cuts 59 there is disposed in the opposed marginal portion cut-out portions to define an opening 60. The cut out portion or opening 60 and the elliptical die cut 59 opposite thereto cooperate to retain therebetween the bottom end portion of a bottle 40 in a manner heretofore described. In this form of the invention, see FIG. 7, the locking flap 55 connected to the top panel 54 is folded along foldline F9 into overlapping relationship with the adjacent side panel 52 of the carrier, and is suitably secured thereto by an adhesive or bonding means, or other suitable fastening means.

It is to be noted that the reverse fold 62 (FIG. 8) extending longitudinally along a medial portion of the carrier 51 along the bottom panel to define the respective half sections for each row of bottles, defines a partition or separator for maintaining the bottles in the respective rows spaced one from the other. In this manner, the bottles in each row are separated.

If desired, separating flaps 61 may be blanked out of the respective half bottom sections 57, 58 of the carrier which, when folded inwardly of the carrier, will function as a means or separator for separating or maintaining the respective bottles in a given row spaced from one another. Accordingly, the arrangement is such that each and every bottle is isolated from one another in a manner hereinbefore described.

In this form of the invention, the retaining means 62 for securing the upper end of the bottle 40 within the carrier is blanked out of the plane of the central portion 54A of the top panel 54. Accordingly, referring to FIGS. 7 and 8, it is to be noted that a C-shaped retaining flap 62 blanked out of the central portion of the top panel are folded inwardly of the carrier about foldlines F20. Accordingly, the C-shaped tabs 62, when folded inwardly of the carrier, are each arranged to hook under the closure 40A over the top of each bottle. A complementary cut out portion or opening 63 is formed in the inclined plane 54B of the top panel portion to accommodate a peripheral portion of the closure top 40A. Thus, the neck of the bottle or container 40 is securely wedged between the in-turned tab 62 and the opposed inclined plane 54B of the top panel 54. If desired, the overlapping end portions 64 of the bottom panel blanked from the innermost inclined plane 57B, 58B thereof may be disposed into overlapping arrangement as shown in FIG. 8, and a suitable adhesive or bonding agent may be interposed therebetween to secure the same in the folded position of the carrier, as evidenced in FIG. 8.

FIGURES 9, 10, 11 and 12, 13, 14, 15, 16A and 16B are directed to another modified carrier 70 which is constructed to accommodate a plurality of cans 71 that are constructed with at least one chimeless end portion 72. Generally, cans 70 having a chimeless end are formed of two pieces, 71A, 71B, as distinguished from a three piece can which has a chime end adjacent both the upper and lower ends thereof. Accordingly, the two-piece can 71 having at least one chimeless end is formed so that one end wall and the upright peripheral wall of the can are integrally formed, as for example, by a drawing operation. Accordingly, the second piece 71B or member to complete the can is secured to the other end of the can to form the closure thereof, and it is secured in what is known in the art as a beaded or chimed construction. A can 71 so formed therefore has but only one chimed end 73. Consequently, the known carriers adapted to receiving and retaining therein cans having upper and lower chimes are not satisfactory for single chimed end cans.

FIGURE 9 illustrates an improved carrier 70 which is adapted for use with can 71 having at least one chimeless end. Referring to FIGS. 9 and 10, there is shown therein a can carrier 70 and a blank 74 from which the same is formed which is specifically constructed and arranged to accommodate a can construction formed with a chimeless end portion. The carrier of FIG. 9 is constructed of a blank of foldable sheet material such as cardboard or the like. The blank is provided with transversely extending foldlines to define a top panel 75, a bottom panel 76, and opposed interconnecting side forming panels 77, 78. As shown, the top panel 75 is hingedly connected along a foldline F21 to a side forming panel 77. The bottom panel 76 in turn is hingedly connected along the other edge of the side panel 77 by a hinge section 79 defined by spaced foldlines F22 and F23. Connected to the other end of the bottom panel 76 by a hinge section 80 is the second or opposed side forming panel 78.

In the illustrated form of the invention, a locking flap 81 is hingedly connected along foldline F24 to the other end of the top panel 75. In the assembled or folded position of the blank 74, as best seen in FIGS. 9 and 11, the locking flap 81 overlies the upper end of the side panel 78 and is suitably secured thereto by a suitable adhesive agent or sealing means 82, such as tape or the like. Thus, in the folded or assembled position of the carrier, the

blank 74 defines a closed quadrilateral figure having full open end portions.

In this form of the invention, the bottom panel 76 is provided with an inwardly stepped portion 83 which is blanked from the plane of the bottom panel. As shown, the bottom panel 76 is provided with a series of oppositely disposed U shaped die cuts 84, the bight portions 84A of which are adapted to circumscribe a peripheral portion of a can 71 intermediate the height thereof in the folded position of the blank. Operatively associated with each of the arcuate die cut portions 84A is a straight extension 84B thereof which defines in the folded position of the blank upwardly extending webs 85 by which the raised blanked out stepped portion 83 of the bottom panel is secured to the plane of the bottom panel. Accordingly, it is to be noted that the stepped portion 83 is integrally formed between the respective half sections 76A, 76B of the bottom panel. Accordingly, each of the respective half bottom panel sections 76A, 76B is provided with an upwardly turned flap 86 extending between the adjacent webs 85 of the stepped portion 83 so that in the folded position of the blank, the flaps 86 are disposed contiguous to one another and are suitably secured by a bonding agent, as for example, glue or cement or the like. Accordingly, the flaps 86 function as securing means to maintain the respective half panel sections 76A, 76B adjacent to one another in the folded position of the box, and in this manner, the stepped portion 83 is maintained in spaced relationship with respect to the bottom plane of the respective bottom sections 76A, 76B. If desired, the corner portions of the bottom panel may be cut on the diagonal as shown in FIGS. 9 and 10 so as to minimize material. In the illustrated form of the invention, it is to be noted that the carrier 70 is described and illustrated as being able to contain four cans disposed in two rows of two cans each where in each row is disposed in side by side relationship. However, it will be understood that the carrier 70 need not be limited to four cans, as the number of cans in the respective can rows can be increased merely by increasing the width of the blank. Conversely, the number of can rows can also be increased by increasing the length of the respective top and bottom panels 75 and 76 so as to provide for additional can retaining stations thereon. Therefore, it will be noted that the wrapper carrier of the type disclosed in FIGS. 9 and 10, can be expanded in either the transversely or longitudinally direction to accommodate additional cans if so desired.

The step portion 83 blanked out of the bottom panel, as described, in conjunction with the adjacent side panel of the carrier provides a means for positively retaining and positioning therein the chimeless end portion of the can therein. As described, the respective half sections 76A, 76B of the bottom panel 76 may be provided with a slightly inclined corner portion 80 adjacent the outer end thereof as indicated in FIG. 11.

In the illustrated form of the invention of FIG. 9, the top panel 75 is provided with a can retaining tab 87 which is blanked out of the plane thereof so as to be folded inwardly of the wrapper as best seen in FIG. 9. Thus, tabs 87 engage the adjacent chime end portion of the can to retain the same. The respective chime retaining tabs 87 are folded inwardly about respective foldlines F25 so as to underlie the panel from which they are blanked.

To provide positive retention of the cans 71 by the can retaining tab 87, a panel retaining or holding means 88 is provided for maintaining the top panel contiguous to the respect-top end portions of the cans disposed therein. In accordance with this invention, the improved panel holding tab 88 is located in the top panel 75 of the wrapper. The panel holding means 88 are blanked out of the top panel and are so constructed and arranged so as to permit a reduction in the overall width of the blank material to an absolute minimum, and in this manner effect the maximum of economy in the saving of board or sheet material

without adversely effecting the holding characteristics or strength of the carrier. The tab construction, as will be hereinafter described, allows the overall width of the top panel of the blank to be reduced to substantially $D(n-1) \pm w_t$ with D =diameter of the respective cans, n =number of the cans in the can row, and w_t =width of the improved panel retaining tab.

Referring specifically to FIGS. 9, 14, 15, 16A, 16B, it is to be noted that the panel holding tab 88 is blanked out of the top panel. The respective tabs 88 are disposed adjacent the outermost longitudinal edge portion of the blank. The arrangement is such that the respective panel holding tabs 88 are adapted to be folded inwardly of the carrier along a foldline F26 disposed in the plane of the top panel. The arrangement is such that the foldline F26 about which the respective panel retaining tabs 88 are folded is disposed at an angle with respect to the longitudinal edge of the blank. While the foldline F26 may be normal to the edge of the blank, in the illustrated embodiment, the foldline F26 of the tab 88 is inclined to the edge of the board. Intermediate the length of the tab 88 there is provided an intermediate or second foldline F27 which is inclined similar to the illustrated foldline F26 about which the retaining tab 88 is folded inwardly of the carton. The free end of the tab 88 is also die cut on an angle so that in the operative position, it will engage the can chime 73 at substantially the tangent point thereof (see 16B). If desired, one or both side edges 88A of the tab may be tapered so as to control the width of the free end portion thereof. Accordingly, in the operative position, as best seen in FIGS. 9, 14 and 15, 16B, the panel holding tab 88 in the assembled position of the wrapper is folded inwardly of the wrapper and reversely onto itself in a laterally offset relationship so as to be disposed between adjacent cans of a can row at the point of tangency therebetween. Referring to FIG. 15, it is to be noted that the end portion of the panel retaining tab 88 is reversely folded so as to form a J fold. Accordingly, the reversely folded, laterally offset, free edge portion of the panel retaining tab 88 is arranged to engage at substantially the tangent point between the adjacent cans, and thereby function to positively maintain the top panel flush against the adjacent end portions of the can to insure positive retention of the can retaining tabs 87 within the raised chimed end portion 73 of the can 71 and the top panel 75.

In a modified form of the invention, the free end portion of the panel retaining tab may be folded in the opposite direction so as to define a T fold.

With this construction, the arrangement is such that the angular offset, reverse fold, of the panel holding tab 88 will permit the overall width of the top panel 75 and side panel wrapper is formed to be reduced to an absolute minimum.

Referring to FIGS. 16A and 16B, it will be noted that the overall width of the blank from which the carrier is formed, can be reduced on each side of the blank by a strip having a length coextensive with the length of the top and side panels with a width dimension X as evident in FIG. 16A.

In the prior known construction of the blank, as evidenced in FIG. 16A, it was necessary that the width of the blank be increased on each end by a width equal to X in order to provide sufficient board strength on both sides of the blank. With the applicant's construction, as illustrated in FIG. 16B, the improved holding tab 88 provided with a reversely bent, laterally offset, portion, allows for the elimination or the reduction in board of that amount equivalent to a strip having dimension X on both sides thereof. This is rendered possible because with the instant construction, the panel retaining tab 88 may be laterally offset in the folded position to engage the tangent point of the can. Accordingly, the laterally offset reversely bent end portion of the respective panel holding tab allows the outermost point of the reverse bent portion of the tab to be

substantially coincident with the outermost edge of the blank. By spacing the panel retaining flaps inwardly from the outer edge of the blank and by providing a laterally offset reversely bent fold, the arrangement is such that the free edge of the reversely bent laterally offset fold may still be located so as to engage the point of tangency of can, and thereby enable the top panel to be retained contiguous to the chimed end portions of the can to effect positive retention of the cans therein.

With this construction, the overall width of the top panel and the adjacent side panels from which the wrapper is formed can be effectively reduced and at the same time permit the panel holding tab 88 to be folded so as to engage the cans at the point of tangency thereof. Accordingly, in this form of the invention, it is to be noted that the top and side panels of the blank may have a dimension which is substantially equal to $D(n-1)+w_t$ wherein D is the diameter of the can, n is the number of cans in the can row, and w_t is the width of the free end of the panel holding tab. The bottom panel only then requires a width substantially equal to $n(D)+C$ wherein D is the diameter of the can, n is the number of cans in the can row and C=a constant, the constant being the sum of the widths of the webs 85 along one side by which the step portion 83 is secured to the bottom panels of the wrapper.

FIGURES 17 and 17A illustrate another modified form of the invention. FIGURE 17 illustrates a modified blank construction 90 from which the carrier 91 of 17A is formed. Accordingly, the blank 90 of FIG. 17 is constructed and arranged so as to contain therein a plurality of can rows disposed in side by side relationship. As shown, the carrier 91 is defined by a single blank 91 of foldable material having a bottom panel 92, a side panel 93, 94 connected to each end of the bottom panel 92, and a top panel 95 connected to side panel 93, which in the folded position of the blank defines a closed quadrilateral figure having full open end portions. Accordingly, the top panel 95 is provided with a locking flap 96, which in the folded position of the wrapper is adapted to overlie the upper end of side panel 94. The flap 96 is suitably secured thereto to maintain the same in folded position.

It is to be noted that the bottom panel 92 of the carrier 91 of FIGS. 17 and 17A is die cut and formed in a manner similar to the bottom panel 53 described with respect to FIG. 6. In other words, the bottom panel 92 of FIG. 17 is provided with a central fold 97 which functions to separate the can rows therein, and defines the bottom panel 92 into two half sections 92A, 92B, each having opposed inclined wall portions which are die cut to define a recess or well for receiving the chimeless end of a can therein.

The panel 95 is provided with can retaining tabs 98 and panel retaining tab 99 of the type described with respect to the embodiment of FIGS. 9 and 10. Accordingly, in operation, it will be noted that the bottom of the cans seat on the bottom panel 92 in the same manner as the bottles in the embodiments of FIGS. 6, 7 and 8 seat thereon panel 53, and the the upper ends of the cans are retained in a manner similar to that described with respect to the embodiment of FIG. 10. In other words, the blank 90 and carrier 91 of FIGS. 17 and 17A include the bottom panel 92 as described in FIG. 6 and the top panel 95 described with respect to FIG. 10.

FIGURES 18 and 18A illustrate still another form of can carrier 100. In this form of the invention, the blank 101 from which the carrier 100 is formed is defined by a top panel 102 which has connected along foldlines F30 and F31, the opposed side panel 103, 104. Connected to each of the side panels 103, 104 is the respective half panel sections 105, 106 of the carrier. Accordingly, in the folded position of the blank 101, the bottom panel 107 is similar to that described with respect to FIGS. 1 and 2, and it is die cut in a similar manner.

The top panel 102 is provided with tabs 108, 109 similar to that described with respect to FIG. 10. Accordingly,

the carrier 100 of FIG. 18A is constructed with a bottom panel 107 similar to the bottom panel 37 of FIG. 1, and a top panel 102 similar to that of FIG. 10.

FIGURE 19 illustrates a modified blank construction 110 adapted to define a bottle carrier 111 of FIG. 19A, constructed so as to utilize a bottom panel 112 construction similar to that described with respect to the carrier of FIG. 9, and the top panel construction 113 similar to that described with respect to the embodiment of FIG. 6.

FIGURE 20 illustrates an expanded modified blank 120 construction wherein the bottom panel 121 construction thereof is substantially similar in construction as that described with respect to FIG. 10. The bottom 121 of blank 120 differs from the bottom panel 76 of FIG. 10 only in that the arcuate portion 122 defined by the elliptical die cut 123 is retained so that in the folded position of the blank, portions 122 are disposed in overlying relationship and secured in any suitable manner as by gluing or by taping. The top panel 124 utilized in conjunction with bottom panel 121 is similar to the top panel 32 of bottle carrier 30 described with respect to FIG. 1. As shown, the bottom panel 121 therein is provided with die cuts 123 which, in the folded position of the blank, will define a raised central or stepped portion which has its opposed edges cut out to define containers receiving notches which in conjunction with openings 125 formed in the adjacent inclined portion of the respective bottom sections 121A, 121B serve as a recess for the respective bottles.

FIGURE 21 illustrates a further modified blank construction 130 utilizing the top panel 131 die cut in a manner similar to the top panel 32 described with respect to FIG. 1, and a bottom panel 132 constructed and die cut in the manner similar to that described with respect to the bottom panel 53 of FIG. 8.

From the foregoing, it will be noted that by combining the various bottom panel constructions with the variously described top panel constructions, that a carrier can be formed which will be capable of use with either bottles or cans.

While each of the embodiments has been illustrated as accommodating four containers, it will be understood that by increasing the width of the blank as required, any number of containers can be accommodated.

It will be further noted that the can carriers described are particularly adapted for use with a two-piece, one-chime can construction, the carriers can accommodate a conventional three-piece, two-chime can with equal facility.

While the instant invention has been described and illustrated with respect to numerous embodiments thereof, it will be readily appreciated and understood that variations and modifications thereof may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. A carrier for containers having a chimeless bottom formed of a blank of foldable sheet material comprising: opposed top and bottom forming panels, said bottom panel including a pair of half-bottom sections, each of said half-bottom sections being defined by a half-bottom central portion having a width less than the diameter of a container adapted to be retained in said carrier and oppositely connected inclined bottom portions, the innermost bottom inclined portion of the respective half-bottom portions being contiguously disposed along a medial plane of said carrier, the terminal end portions of the blank constituting flaps connected to the innermost edges of the respective innermost bottom inclined portions, said flaps being disposed contiguous to one another and extending longitudinally of the carrier, means for securing said flaps in face to face contacting relationship, said top panel including a central panel portion and opposed interconnected outer incline portions, opposed

side panels interconnected between the respective outer incline portions of said top panel and the corresponding outermost incline portions of the respective half-bottom sections,

means defining opposed notched-out openings in the 5
opposed incline bottom portions of the respective half-bottom sections for snugly embracing a major circumferential portion of a chimeless container disposed therebetween,

means formed in the top panel adapted for retaining 10
the corresponding upper ends of a container within said carrier,

said latter means in said top panel includes holding tabs 15
blanked out of the inclined portion thereof and adapted to be folded inwardly of the carrier,

each of said tabs being substantially U-shaped having 20
the opposed leg portions thereof hingedly connected to said top panel,

and said tabs having a bight portion adapted to firmly 25
engage a neck portion of a container to secure the same between it and the adjacent inclined portion of said top panel,

said bottom panels including separator tabs blanked out 30
of the plane thereof and folded inwardly of said carrier,

and said separator tabs being adapted to be disposed between adjacent containers in said carrier.

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