Dec. 28, 1948. M. G. HALL ET AL 2,457,307

BOTTLE CARRIER

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Fig. 1

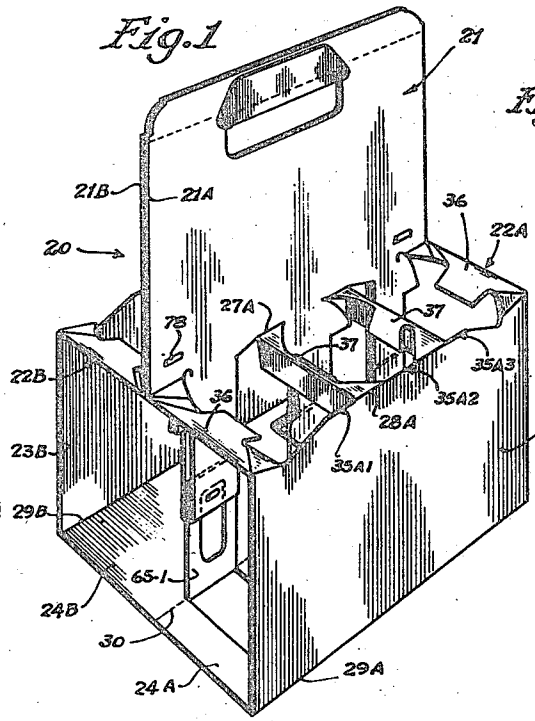


Fig. 2

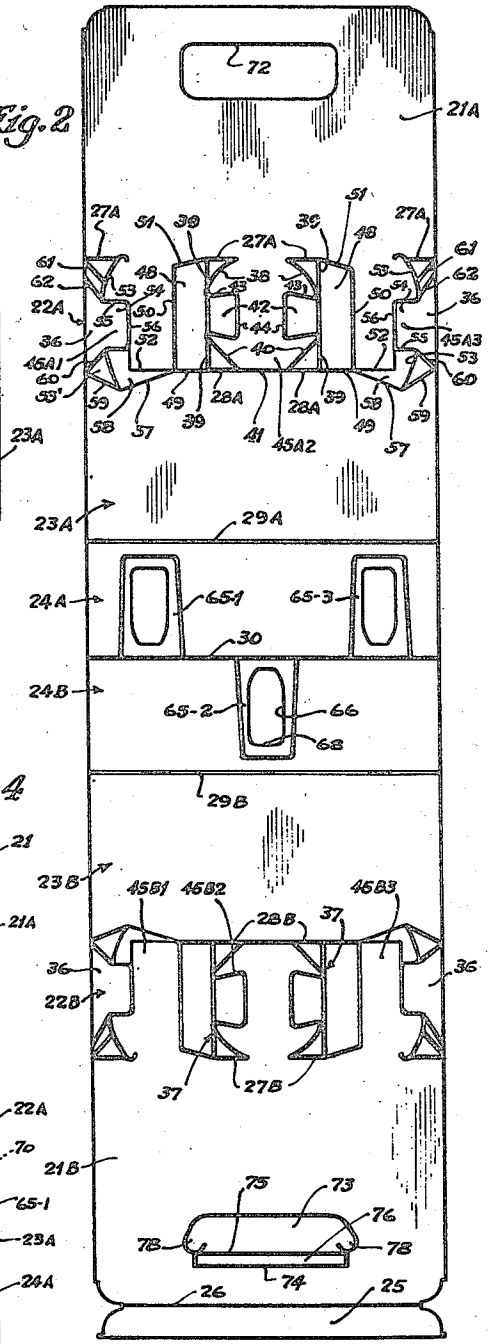


Fig. 3

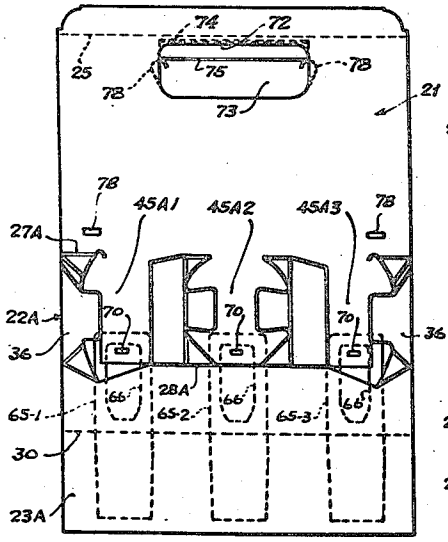


Fig. 4

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Fig. 5

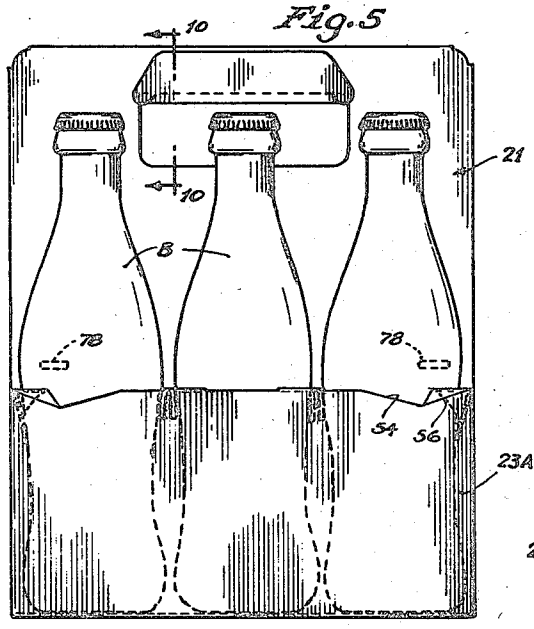


Fig. 6

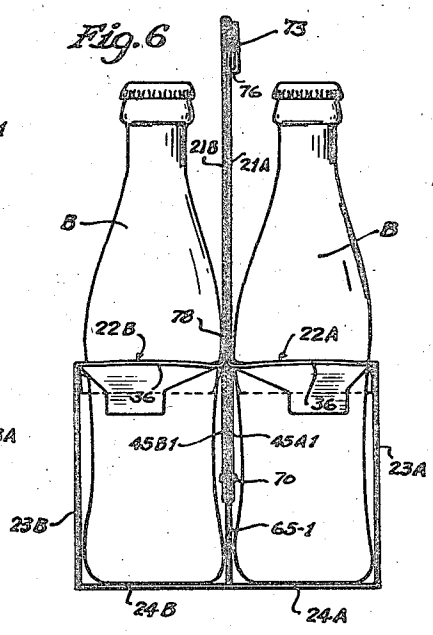


Fig. 10

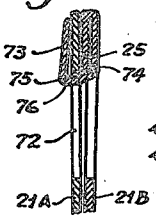


Fig. 7

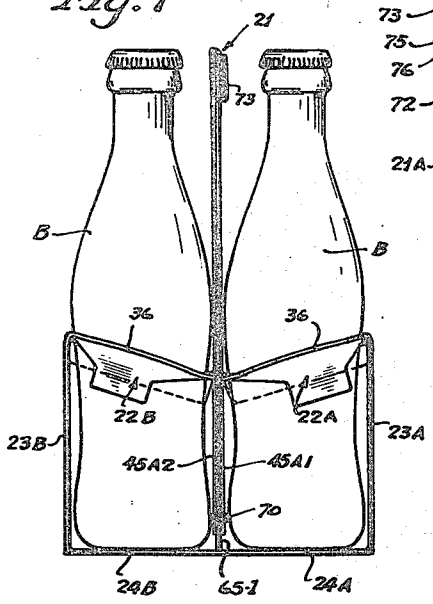


Fig. 8

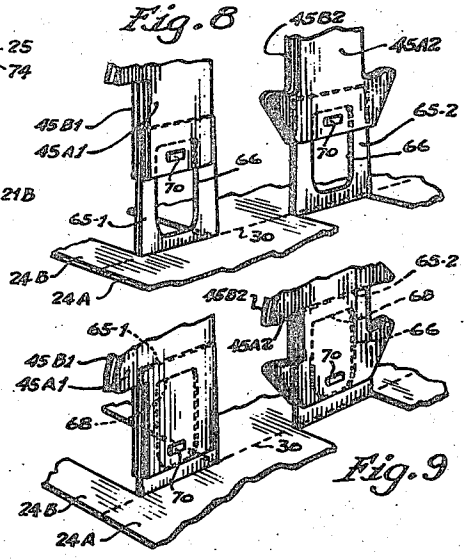


Fig. 9

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UNITED STATES PATENT OFFICE

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BOTTLE CARRIER

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Application July 12, 1945, Serial No. 604,654

15 Claims. (Cl. 224—45.2)

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This invention relates to bottle carriers and particularly to bottle carriers that are fabricated in a collapsible form from material such as cardboard.

Bottle carriers of the general character to which this invention relates have heretofore been made from material such as cardboard so as to afford an upstanding handle section adapted to be grasped by the user and having a pair of bottle receiving sections on opposite sides of the handle into which bottles may be inserted in a downward direction so as to rest upon a bottom wall that is associated with the bottle receiving sections by means of downwardly extended side walls that embrace the outer sides of the bottles. According to the most usual practice in the art, such bottle carriers are arranged to accommodate two rows of three bottles each, the two rows being disposed in symmetrical relation on opposite sides of the handle section. In the use of such carriers it is usually considered to be essential that the parts be so formed and arranged that the loaded carriers may be placed in the usual cases in which the particular kind of bottles are usually handled. It is also important that the carriers be so constructed that such carriers may be stacked one upon the other, thereby to enable the loaded carriers to be economically stacked and stored, and for this reason it is important that the handle section be so arranged that it may be depressed to a position beneath the tops of the bottles when the carriers are to be stacked one upon the other.

In attaining the desirable characteristics above outlined, it has heretofore been the usual practice in the art to construct the bottle carriers so that there is no direct weight supporting connection between the handle and the center portion of the bottom wall of the carrier, and as a result of this it has been necessary for all of the weight of the bottles to be transmitted through the bottle separating webs of the bottle receiving sections to the handle section of the carrier. This manner of transmitting the load from the bottom wall to the handle section has necessitated the use of relatively heavy and high quality cardboard, with the result that such prior bottle carriers have been quite expensive, and it is an important object of the present invention to enable bottle carriers to embody all of the desirable characteristics above set forth while enabling such bottle carriers to be made from a relatively light grade or weight of stock. Further and more specific objects of the present invention are to enable the weight of the bottles in a bottle carrier to be transmitted directly from the central portion of the bottom wall to the handle section in such a manner that the handle section may readily be depressed when the user desires to stack one bottle carrier upon another, and to enable relatively thin and light weight separating webs to be utilized in the bottle receiving sections of a bottle carrier.

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In the attainment of relatively small dimensions in a bottle carrier so as to enable the carrier to be disposed in the usual cases in which the bottles are transported, the width of the bottle carrier, that is the dimension parallel to the two rows of bottles, is quite important and must be only slightly more than the combined diameters of the three bottles of a row, and in attaining this result, it is customary to make the webs that separate the bottles so as to be quite thin, and in respect to the two webs that are disposed on opposite sides of the central bottle of one of the rows, this may be readily and easily accomplished in the manner disclosed in the copending application of Joseph L. Lyons, Serial No. 301,915, filed October 30, 1939, or in Letters Patent of Joseph L. Lyons, No. 2,432,481, filed February 7, 1942. As to the end webs of each bottle receiving section, however, the attainment of the desired smallness of dimension has heretofore required the use of reenforcing flanges along the ends of the bottle receiving sections, and these reenforcing flanges have necessitated the use of added width in the blanks from which the carriers are made, and to enable such reenforcing flanges or flaps to be eliminated while still maintaining the desired smallness of dimension of the carrier that is a still further object of the present invention. Another and related object is to form the end webs of the bottle receiving sections of a bottle carrier in such a way that these webs assume an angular position when the bottles are in position, and a further object is to so form such end webs of the bottle receiving sections that although they are disposed in such generally angular position, these webs may bend readily and easily as an incident to the movements required when the handle section is depressed or elevated.

In bottle carriers of the kind to which this invention relates it is customary to form a finger receiving opening near the upper edge of the handle section, and it is also customary to provide a protecting or surfacing flap that is bent out of the plane of one of the panels of the handle receiving section and through the finger receiving opening in the other of such panels, and it is a further object of the present invention to so

form such a flap that when the flap is bent into position, it affords a relatively wide downwardly facing surface for transmitting the weight of the carrier to the fingers of the user.

Other and further objects of the present invention will be apparent from the following description and claims are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment and the principle thereof and what we now consider to be the best mode in which we have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principle may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings,

Fig. 1 is a perspective view of a bottle carrier embodying the features of the invention, the carrier being shown in its fully erected position;

Fig. 2 is an elevational view of one face of a blank that is utilized in constructing the bottle carrier of Fig. 1;

Fig. 3 is an elevational view of one side face of the carrier of Fig. 1 when the carrier is in its collapsed condition;

Fig. 4 is an end elevational view of the collapsed carrier shown in Fig. 3;

Fig. 5 is a side elevational view of the carrier with the bottles loaded therein;

Fig. 6 is an end elevational view of the loaded carrier;

Fig. 7 is a view similar to Fig. 6 and showing the parts in the positions which they assume when the handle section is depressed for purposes of stacking;

Fig. 8 is a fragmental perspective view showing the relationship of the weight transmitting elements when the handle section is in the upper or carrying position shown in Fig. 6;

Fig. 9 is a view similar to Fig. 8 and showing the positions of the weight transmitting elements when the handle section is depressed to the position shown in Fig. 7; and

Fig. 10 is a fragmental sectional view taken substantially along the line 10—10 of Fig. 5.

In the form chosen for disclosure herein the invention is embodied in a bottle carrier 20 which, in the erected form shown in Fig. 1 of the drawings, comprises an upstanding handle section 21, a pair of generally horizontal bottle receiving sections 22A and 22B extended outwardly from opposite sides of the lower ends of the handle section, side wall sections 23A and 23B extended downwardly from the outer side edges of the respective bottle receiving sections, and a pair of connected bottom wall panels or sections 24A and 24B extended between and connected to the lower edges of the side walls. The carrier 20 is particularly adapted to contain six bottles B arranged in two rows of three bottles each, one row being disposed in the bottle receiving section on each side of the handle section 21.

The bottle carrier 20 of the present invention is formed from a material such as cardboard, and in the production of the carrier, the cardboard stock is initially formed as an elongated rectangular blank that is shown in detail in Fig. 2 of the drawings. The elongated blank has a glue flap 25 formed along one end thereof so as to be joined along a fold line 26 to the edge of a panel 21B that in the finished carton will form a part of the handle section 21. At its other end the blank is formed to afford a panel 21A that will

form the other side of the handle section 21 in the finished carton, and intermediate the panels 21A and 21B, the parts that are to form the bottle receiving sections 22A and 22B, the side wall sections 23A and 23B and the bottom panels 24A and 24B are disposed. Thus the bottle receiving section 22A is joined to the adjacent edge of the panel 21A along a discontinuous fold line 27A, while the other edge of the bottle receiving section 22A is joined to one edge of the side wall section 23A along a discontinuous fold line 28A. The other or lower edge of the side wall section 23A is joined to one edge of the bottom panel 24A along a fold line 29A, while the other edge of the bottom panel 24A is joined to one edge of the other bottom panel 24B along a fold line 30 that is located midway between the fold line 26 and the opposite end of the blank.

The corresponding elements of the other side of the carrier 20 are, in the blank of Fig. 2, similarly joined together along fold lines as hereinabove described. Thus the bottle receiving section 22B is joined along its opposite edges to the panel 21B and the side wall section 23B along discontinuous fold lines 27B and 28B respectively, while the other or lower edge of the side wall section 23B is connected to the outer or other edge of the bottom panel 24B along a fold line 29B.

It has been pointed out hereinabove that each of the bottle receiving sections 22A and 22B is adapted to receive a row of three bottles B, and each such bottle receiving section is therefore provided with three bottle receiving openings which, in the bottle receiving section 22A, are indicated as 35A1, 35A2, and 35A3. In forming or defining these three bottle receiving openings, each bottle receiving section is arranged to afford a pair of end webs 36 which define the outer end edges of the bottle receiving openings 35A1 and 35A3, while a pair of webs 37 are provided in spaced relation to each other and with respect to the end webs 36 so as to thereby define the inner edges of the end openings 35A1 and 35A3 and the webs 37 also define the opposite side edges of the central opening 35A2.

The webs 37 of the bottle receiving sections are in the present case formed substantially in the manner disclosed in the aforesaid Patent No. 2,432,481, dated December 9, 1947, thereby to render these webs relatively thin when they are in their operative condition shown in Fig. 1. Thus as will be evident in the blank illustrated in Fig. 2, the central opening 35A2 is formed by a pair of arcuate slits 38 extended from spaced portions of the fold line 27A in diverging relationship so as to merge respectively with parallel fold lines 39 that are disposed perpendicular to the fold line 27A. The two fold lines 39 are arranged so as to meet angularly disposed slits 40 which are in turn arranged to merge with opposite ends of a slit 41 which is formed on the fold line 28A. The material between the fold lines 39 is utilized in part to form a pair of bottle spacing flaps 42 that are joined to the respective webs 37 along the fold lines 39, and in accomplishing this diverging slits 43 are extended from each fold line 39 and the ends of the pairs of slits are connected by slits 44 that are parallel to the fold lines 39. The slits 43 of each pair are arranged to meet and merge with the slits 38 and 40 at the related fold line 39. Thus the slits 38, 40, 41, 43 and 44 cooperate to form a generally octagonal flap 45A2 that is joined in an unbroken or uncreased relationship along one of its sides to the panel 21A.

This relationship is such that in the erected carrier, the flap 45A2 remains in the plane of the panel 21A so as to serve as a downwardly bottle cushioning flap disposed between the central bottles of the two rows.

While the flaps 42 that are thus afforded on the webs 37 will have a bottle separating and cushioning action when the carrier is loaded, the webs 37 are also provided with additional flaps 48 formed so as to be connected along the score lines 39 with the triangular sections of material that are formed about the edges of the flap 45A2. Thus a slit 49 is extended in alignment with the score line 28A and in opposite directions from each of the score lines 39, and the slits 49 are arranged to meet slits 50 that are formed parallel to the score lines 39 in outwardly spaced relation thereto. The slits 50 are arranged to meet with angularly disposed slits 51 that are extended in generally opposite directions from the points where the score lines 39 meet the score line 27A, and the slits 49, 50 and 51 cooperate in defining the flaps 48 connected to the webs 37 along the fold lines 39 and which in the erected carrier serve as depending bottle cushioning flaps disposed on opposite sides of the central bottle B.

The slits 50 also serve to define one side edge of a pair of bottle separating flaps 45A1 and 45A3 that are formed from the material that is cut away in forming the bottle receiving openings 35A1 and 35A3 respectively. These bottle separating flaps 45A1 and 45A3 are joined along their upper edges to the panel 21A in an unscored relationship, and the lower edges of these flaps are defined by slits 52 that constitute outward continuations of the slits 49. The other sides of the flaps 45A1 and 45A3 are defined by discontinuous or section arcuate slits 53 and 53' that are extended from the fold line 27A downwardly and toward the slit 52. The ends of the sections 53 and 53' are spaced apart so as to enable flaps 54 to be formed on the respective end webs 36, and such flaps 54 are defined in each instance by spaced slits 55 parallel to the slit 52, and by a connecting slit 56 parallel to the slit 50. The lower ends of the slits 53' are arranged to meet with the outer ends of slits 57, the inner ends of which are extended to the juncture of the adjacent slits 50 and 52. This results in the formation of an opening 58 adjacent the lower end of each of the tabs 45A1 and 45A3, as will be evident in Fig. 2 of the drawings.

The arcuate or sectional slits 53 and 53' are so arranged that they are generally parallel to but spaced from the adjacent side edges of the blank, thereby to define the relatively narrow end webs 36, and these webs 36 are so formed and arranged that they will invariably assume a predetermined relation with respect to the bottles B as such bottles are loaded in the carrier and also may be readily bent with relation to the side wall sections 23A and 23B and the handle section 21 when the handle section is moved up and down between its elevated position of Fig. 6 and its depressed or lowered position of Fig. 7. In accomplishing this the webs 36 are provided with a plurality of angularly related score lines that function in cooperation with the flaps 54 to enable such bending of the webs as will hereinafter become apparent. Thus a score line 59 is extended in an angular direction from the juncture of the slits 53' and 58 so that the score line 59 meets the adjacent side edge of the blank at a point that is aligned with the score line 28A, and from the outer end of the score line 59, a score line 60 is extended

inwardly at an angle of substantially 45° with respect to the side edge of the blank so as to meet the slit 53' at substantially the point at which the slit 53' meets the adjacent one of the slits 55.

Another pair of angularly disposed score lines 61 and 62 are formed in each of the webs 36, the score lines 58 and 59 being arranged in a slightly diverging relation to each other so that these score lines are closest together at the outer ends thereof that extend to the edge of the blank. Thus the outer end of the score line 61 extends to the point where the score line 27A meets the side edge of the blank, while the other end of the score line 61 meets the slit 53 substantially midway between the ends of the slit 53. The other score line 62, at its inner end, is arranged to terminate at the juncture of the slit 53 and the adjacent slit 55, while at its outer end it is disposed relatively close to the score line 61.

Thus, by an arrangement of fold lines and slits as just described, the openings 35A1 and 35A2 and 35A3 of the bottle receiving section 22A are afforded, and the necessary webs 36 and 37 are defined, and by a similar arrangement of fold lines and slits, the corresponding webs and bottle receiving openings of the bottle receiving section 22B are provided, it being understood of course that the relationship of the fold lines and slits is reversed in the bottle receiving section 22B.

When the bottle carrier 20 is in its erected condition, it is desirable that the weight of the bottles B loaded in the carrier be transmitted directly upwardly from the center portion of the bottom wall to the handle section 21, thereby to relieve the webs 36 and 37 of substantially all weight supporting forces, and in attaining this result, it is also desirable that the handle section 21 be capable of depression from the elevated position of Fig. 6 to the depressed position of Fig. 7, thereby to enable the bottle carriers to be stacked one upon the other. In accordance with the present invention, this desirable weight supporting action, coupled with the depressability of the handle section 21 is attained through the provision of lost-motion connections between the several bottle separating flaps 45 and means that are connected to the bottom wall of the carrier substantially along the central score line 30. Such lost-motion connections are afforded in the present instance by means that are cut from the bottom wall sections 24A and 24B, and this is accomplished in such a way that the bottom wall sections will retain adequate material and strength to enable them to properly support the weight of the bottles thereon. Thus as will be evident in Figs. 1, 2 and 3, the bottom wall section 24A has a pair of spaced connecting link members 65—1 and 65—3 that are extended from the score line 30 toward the score line 29A in alignment with the bottle separating flaps 45A1 and 45A3. The bottom wall section 24B has a single connecting link 65—2 cut therefrom by appropriate slits so as to extend from the fold line 30 toward the fold line 29B and in alignment with the two bottle separating flaps 45A2 and 45B2.

When the bottle carrier of the present invention is in its assembled condition of Figs. 3 and 4, or when it is in its erected condition of Fig. 1, the connecting links 65—1, 65—2 and 65—3 are disposed in an upstanding relationship in a plane parallel to and disposed between the planes of the several bottle spacing flaps 45, and a lost-motion connection is provided between each link 65 and the aligned flaps 45, as will be evident in Figs. 1, 3, 8 and 9. In order that such a lost-

motion connection may be afforded each of the connecting links 65 has an elongated slot 66 formed therein, and each slot terminates in an end wall 68 that is spaced from the free end of the link. Each link is disposed between the aligned pair of flaps 45, and thus for assembly purposes, the link 65—1 is disposed between the flaps 45B1 and 45A1. After this relationship has been established, a weight transmitting connection such as a staple 70 is extended through the opposed flaps 45 in such a position as to extend freely through the slot 66 in the related link 65. The relationship of the upper end walls 68 and the location of the staples 70 is such that when the handle section 21 is pulled upwardly slightly beyond the position shown in Fig. 6, each staple 70 engages the end 68 of the related slot 66, and thus a weight transmitting connection is afforded between the flaps 45 and the several connecting links 65. The weight of the bottles B is, of course, carried by the bottom panels 24A and 24B, and in the connection it will be observed that the central bottle in one row spans the opening formed in the bottom panel 24B so as to rest on this panel on both sides of such opening, and a similar relationship is attained in respect to the two end bottles that are rested on the panel 24A. The weight of the bottles is transmitted to the connecting links 65 so as to be thereby transmitted directly upwardly through the flaps 45 and the handle portion 21, and as a result of this arrangement, the connecting webs 36 and 37 of the bottle receiving sections sustain very little weight and serve primarily to space the bottles and retain the same in their upright positions. This of course enables the webs 36 and 37 to be of a relatively light construction, and this advantage is reflected in the entire carrier inasmuch as it enables the carrier as a whole to be made from relatively light cardboard stock.

When the loaded carriers are to be stacked one upon the other, either in the cases in which they are shipped, or as a display in a retail store, the handle sections 21 may be readily moved downwardly so as to be located beneath or at the same level as the tops of the bottles, and in such movement the handle section 21 is shifted from the position of Fig. 6 to the position shown in Fig. 7. The fit of the bottles in the carrier is relatively snug, so that when the handle is depressed as aforesaid, the lower ends of the flaps 45 as well as the lower portions of the handle section will be frictionally gripped between the bottles so as to hold the handle section against undesired upward displacement. It should be observed that the height of the handle section 21 is such that when it is in its upper position it may be grasped through the finger receiving opening, and the lower ends of the flaps 45 are so spaced from the bottom wall that the handle section may be depressed to the protected position of Fig. 7. In the course of such a depressing movement of the handle section 21, the flaps 45 are caused to move downwardly as will be best seen in Fig. 9 of the drawings, and in the course of such movement the staples 70 move downwardly through the slots 66 to substantially the positions shown in Figs. 7 and 9. When the bottle carriers are again to be lifted by means of the handles 21 thereof, each handle is grasped and pulled upwardly into and somewhat beyond the position shown in Fig. 6, and the staples 70 thereby move upwardly through the slots 66 and into engagement with the upper ends 68 of these slots. The desired weight transmitting relationship is thereby reestablished and the weight of the bottles is primarily supported upon the center portions of the bottom walls or panels of the carrier. It should be observed that the slots 66 terminate short of the fold line 30, and hence in the erected carrier the lower portions of the links 65 serve to space the lower edges of the bottles in one row from the lower edges of the bottles in the other row, and hence damage and wear to these lower edges is minimized.

It has been pointed out that the end webs 36 of the carrier of the present invention are formed without the necessity for reenforcing end flaps along the outer edges thereof, thereby to materially reduce the effective width of the blank from which the bottle carrier is made, and the webs 36 are so formed as to enable these webs to conform with the shape of the bottles and to move in a generally pivotal manner or with a twisting action as the bottles are loaded therein. Thus, as a bottle B is inserted downwardly into one of the end openings, the bottle strikes the flap 54, and since this flap is carried on the web 36 in an uncreased relation, the web is in effect twisted to the relation shown in Figs. 1 and 6. This twisting action bends the web 36 along the fold lines 59, 60, 61 and 62 so that the flap 54 extends downwardly along the side of the bottle, and the upper or outer edge of the web 36 assumes an arcuate outline as will be evident in Figs. 1 and 6. Moreover, it should be observed that such twisting of the web 36 bends the same along the fold lines 60, 61 and 62 in such a manner that the paper stock or fibres remain undamaged.

With the end webs 36 thus positioned, it will be clear that when the handle section 21 is to be depressed, the webs 36 may pivot along the fold lines 27, 59 and 60 so as to assume the position illustrated in Fig. 7 of the drawings. Thus the end webs 36 enable the desired up and down movements of the handle section 21 to be accomplished, and yet this movement and the requisite bending of the parts of the end webs 36 may take place without breaking of the fibres of the end webs, and hence these webs retain their strength and are effective to hold the end bottles in place.

In the lifting of a bottle carrier of the character to which this invention relates it will be recognized that a considerable downward pressure is exerted upon the fingers of the user, the finger receiving openings of the present carrier are so constructed and arranged that such forces are transmitted to the fingers of the user without undue strain or fatigue. Thus the end panel 21A has a generally rectangular opening 72 formed therein as will be evident in Fig. 2 of the drawings, and in substantial alignment with this opening 72 and in the handle section or panel 21B, a flap 73 is cut by appropriate slits so as to be connected to the panel 21B along a fold line 74 that will in the finished or erected carrier be aligned with the upper edge of the opening 72. The flap 73 also has a fold line 75 formed therein parallel to and spaced a short distance from the fold line 74 so that when the flap 73 is forced through an opening 72, the portion of the flap between the fold lines 74 and 75 will be disposed so as to form a relatively wide area panel 76, which as shown in Fig. 10, is disposed in a substantially horizontal position. The ends of the flap 73 have relatively small ears 78 formed thereon which serve to latch the flap 73 in its projecting relationship beyond the opening 72, as will be evident in Figs. 1 and 10. It should be observed in this connection that when the handle section

is assembled the fold line 74 is disposed slightly above the level of the upper edge of the opening 72, so that when the flap 73 is forced through the opening 72, it will bear against the upper edge of the opening in such a manner as to hold the panel 76 in the desired downwardly facing relation. Thus this construction of the finger receiving opening of the present carton enables the carton to be conveniently and easily carried by the user.

In the assembly of the bottle carrier of the present invention, the blank is bent along the fold line 30 so that the faces of the bottom panels 24A and 24B that are to constitute the lower faces in the erected carrier are disposed in a face to face relationship, and in accomplishing such bending of the blank, the connecting links 65 are allowed to remain in the plane of the particular bottom section to which they are connected. In other words, these connecting links are not bent along the fold line 30, and hence when such folding operation has been completed, the connecting links 65 extend upwardly in substantially the relationship shown in Fig. 4 of the drawings. The opposite side portions of the carrier are then bent along the fold lines 29A and 29B so as to assume the relationship shown in Fig. 4 of the drawings, and as an incident to this folding operation the glue flap 25 is bent along the fold line 26 into position between the two panels 21A and 21B. Suitable adhesive is applied to the glue flap 25 so as to secure the same to the opposed face of the handle section 21A and hence the carrier is maintained substantially in the folded relationship shown in Figs. 3 and 4. The area of the two panels 21A and 21B lying between the upper edge and the fold line 27A may of course be secured together at all points by adhesive, but in the present instance, these panels are secured together adjacent to the fold lines 27A and 27B by means such as staples 78 that are located adjacent to the ends of the connecting webs 36, and hence separation of the lower portions of the handle sections or panels 21A and 21B is prevented. As will be evident in Fig. 3 of the drawings, the collapsed or folded blank as thus formed has the several bottle spacing flaps 45 disposed in pairs on opposite sides of the related supporting links 65, and at this stage in the assembly operation, the staples 70 are placed in position so as to connect the pairs of flaps 45 and extend through the slots 66 of the related connecting links 65. The assembly of the carrier is thus completed, and the carrier assumes the form shown in Figs. 3 and 4. The carrier is of course shipped in this flat or collapsed form and is erected to the form shown in Fig. 1 when the bottles are to be loaded into the carrier.

From the foregoing description it will be evident that the present invention enables bottle carriers to be made in a simple and expeditious manner from cardboard or like material of a relatively light weight, and the invention also enables such carriers, even though they are made from light weight stock, to support the weight of the bottles without imposing objectionable or breaking forces upon the thin webs that separate the bottles. The present invention enables bottle carriers to be made in such a size that the loaded carriers may be positioned within the cases usually utilized in handling or shipping such bottles, and this is attained in such a manner that a relatively narrow blank may be utilized. Thus the present invention enables bottle carriers to be made with the minimum of cardboard stock.

It will also be evident that the carrier of the present invention attains an effective transmission of the weight of the bottles to the handle section through material that is disposed substantially in the plane of the handle section, thereby to avoid objectionable stresses in the webs of the bottle receiving sections, and under the present invention this result is attained in such a way that the handle section may readily be depressed when the loaded carriers are to be stacked one upon the other.

The present invention also provides a handle construction that transmits the weight of the loaded carrier to the hand of the user in an unusually effective manner, and this result is attained in a simple manner and without the use of additional material.

The construction of the end webs of the bottle receiving sections of the present carrier is particularly valuable in that the necessary strength is attained in these end webs in such a manner that these webs are capable of pivoting and bending movement in the course of vertical movements of the handle section. Such bending and pivoting of the end webs of the bottle receiving sections is under the present invention attained in such a way that the strength of the end webs is preserved even though the handle section may be moved up and down many times in the course of useful life of the bottle carrier.

Thus, while we have illustrated and described the preferred embodiment of our invention, it is to be understood that this is capable of variation and modification and we therefore do not wish to be limited to the precise details set forth, but desire to avail ourselves of such changes and alterations as fall within the purview of the following claims.

We claim:

1. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising, when erected, a bottom wall, side walls, a handle portion, and bottle receiving sections extended between the side walls and the handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, flaps cut from said bottle receiving sections and disposed to depend from the handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, and means including slidably cooperating parts cut from said bottle receiving sections and from said bottom wall and forming lost-motion weight-supporting connections between central portion of said bottom wall and said handle portion to support the weight of such bottles directly from said handle portion when said handle portion is in a projected upper position and allow depressing movement of said handle portion to a protected lower position when one carrier is to be stacked upon another.

2. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising, when erected, a bottom wall, side walls, a handle portion, and bottle receiving sections

extended between the side walls and the handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, flaps cut from said bottle receiving sections and disposed to depend from the handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, and means including connecting links cut at least in part from the material of said bottom wall and slidably cooperating parts cut from said bottle receiving openings and affording lost-motion weight-supporting connections with said handle portion to support the weight of said bottles directly from said handle portion when said handle portion is in a projected upper position and allow depressing movement of said handle to a protected lower position when one carrier is to be stacked.

3. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising, when erected, a bottom wall, side walls, a handle portion, and bottle receiving sections extended between the side walls and the handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, flaps cut from said bottle receiving sections and disposed to depend from the handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, and means including connecting links cut at least in part from the material of said bottom wall and affording lost-motion weight-supporting connections with said handle portion to support the weight of said bottles directly from said handle portion when said handle portion is in a projected upper position and allow depressing movement of said handle to a protected lower position when one carrier is to be stacked upon another.

4. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising a bottom wall, side walls, a handle portion, and bottle receiving sections extended between the side walls and the handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, bottle cushioning flaps cut from said bottle receiving sections and disposed to depend from the handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, and means including links cut from said bottom wall and also including said bottle cushioning flaps and affording lost-motion weight-supporting connections between said handle portion and central portions of said bottom wall and effective when said handle portion is elevated to directly support said central portion of said bottom wall and also enabling the upper free end of said handle portion to be moved downwardly substantially into alignment with the tops of the bottles whereby said part of said handle portion may be depressed so to enable stacking of loaded bottle carriers one on top of another.

5. A pre-formed collapsible bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising, when in its collapsed condition, side walls, a bottom wall formed in two sections joined along a fold line to each other and along other fold lines to corresponding edges of said side walls and disposed in an inverted V-shape formation between said side walls, a handle portion comprising a pair of panels disposed in face to face relation, and bottle receiving sections extended between the other edges of said side walls and the respective panels of said handle portion whereby the handle portion is disposed above said bottom wall and in substantially aligned relation therewith, said bottle receiving sections having bottle receiving openings therein, bottle cushioning flaps cut from said bottle receiving sections and disposed to depend in pairs from the handle portion in alignment therewith and toward said bottom wall, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall when the carrier is erected, said part having a handle opening therein, and means including links cut from said bottom wall and extended between the bottle cushioning flaps of each pair and affording lost-motion weight-supporting connections between said handle portion and central portions of said bottom wall and effective when said carrier is erected and said handle portion is elevated to directly support said central portion of said bottom wall and also enabling the upper free end of said handle portion to be moved downwardly substantially into alignment with the tops of the bottles whereby said part of said handle portion may be depressed so as not to interfere with the stacking of one bottle carrying carrier of the aforesaid character directly over and upon the tops of another such carrier.

6. A pre-formed collapsible bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising, when in its collapsed condition, side walls, a bottom wall formed in two sections joined along a fold line to each other and along other fold lines to corresponding edges of said side walls and disposed in an inverted V-shape formation between said side walls, a handle portion comprising a pair of panels disposed in face to face relation, and bottle receiving sections extended between the other edges of said side walls and the respective panels of said handle portion whereby the handle portion is disposed above said bottom wall and in substantially aligned relation therewith, said bottle receiving sections having bottle receiving openings therein, bottle receiving flaps cut from said bottle receiving sections and disposed to depend in pairs from the handle portion in alignment therewith and toward said bottom wall, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall when the carrier is erected, said part having a handle opening therein, longitudinally slotted links cut from said bottom wall and extended between the bottle cushioning flaps of each pair, and staples extending through the

respective pairs of flaps and the slots of the related links to afford lost-motion weight-supporting connections between said handle portion and central portions of said bottom wall and effective when said carrier is erected and said handle portion is elevated to directly support said central portion of said bottom wall.

7. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising side walls, a bottom wall, a handle portion comprising juxtaposed panels, and bottle receiving sections extended between the side walls and the respective panels of said handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, bottle cushioning flaps cut from said bottle receiving sections and disposed to depend in opposed pairs from the respective panels of said handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, said flaps having the lower edges thereof normally spaced from said bottom wall sufficiently to enable limited downward movement of said handle portion to thereby enable the upper free end of said handle portion to be moved downwardly substantially into alignment with the tops of the bottles whereby said part of said handle portion may be depressed so as not to interfere with the stacking of one bottle carrying carrier of the aforesaid character directly over and upon the tops of bottles in another such carrier, connecting links cut from the material of said bottom wall and connected thereto substantially midway between said side walls, said connecting links having longitudinally extended slots formed therein, and said links being extended upwardly so as to project between the pairs of bottle cushioning flaps, and means extended through each pair of bottle cushioning flaps so as to extend through the slot of the related connecting link to thereby afford lost-motion weight-supporting connections to support the weight of said bottles directly from said handle when said handle is in its upper position and allow depressing movement of said handle as aforesaid when one carrier is to be stacked upon another.

8. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising side walls, a bottom wall, a handle portion, and bottle receiving sections extended between the side walls and the handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, bottle cushioning flaps cut from said bottle receiving sections and disposed to depend from the handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, said flaps having the lower edges thereof normally spaced from said bottom wall sufficiently to enable limited downward movement of said handle portion to thereby enable the upper free end of said handle portion to be moved downwardly substantially into alignment with the tops of the bottles whereby said part of said handle portion may be depressed so as not to interfere with the stacking of one bottle carrying carrier of the aforesaid character directly over and upon the tops of bottles in another such carrier, a plurality of connecting links cut from the material of said bottom wall and connected thereto substantially midway between said side walls, said links being extended upwardly so as to be disposed partially in a face to face relation to said bottle cushioning flaps, and means forming lost-motion weight-supporting connections between said flaps and the related links to support the weight of said bottles directly from said handle when said handle is in its upper position and allow depressing movement of said handle as aforesaid when one carrier is to be stacked upon another.

9. A pre-formed bottle carrier formed from cardboard or like material and adapted to receive bottles of predetermined height and comprising side walls, a bottom wall, a handle portion, and bottle receiving sections extended between the side walls and the handle portion whereby the handle portion is disposed above said bottom wall substantially midway between said side walls, said bottle receiving sections having bottle receiving openings therein, bottle cushioning flaps cut from said bottle receiving sections and disposed in pairs so as to depend from the handle portion in alignment therewith, said handle portion including a part which may extend above the tops of bottles of said predetermined height that are disposed in said bottle receiving openings and rested on said bottom wall, said part having a handle opening therein, said flaps having the lower edges thereof normally spaced from said bottom wall sufficiently to enable limited downward movement of said handle portion to thereby enable the upper free end of said handle portion to be moved downwardly substantially into alignment with the tops of the bottles whereby said part of said handle portion may be depressed so as not to interfere with the stacking of one bottle carrying carrier of the aforesaid character directly over and upon the tops of bottles in another such carrier, connecting links cut from the material of said bottom wall and connected thereto substantially midway between said side walls, said connecting links having longitudinally extended slots formed therein, and said links being extended upwardly so as to project between the pairs of bottle cushioning flaps, and fastening means extended through and secured to each pair of bottle cushioning flaps so as to extend through the slot of the related connecting link in position to engage the upper ends of said slots and thereby afford weight-supporting connections to support the weight of said bottles directly from said handle when said handle is in its upper position and constituting a lost-motion connection whereby depressing movement of said handle as aforesaid when one carrier is to be stacked.

10. A pre-formed collapsible bottle carrier formed from cardboard or like material and comprising a bottom wall, side walls joined to opposite edges of said bottom wall along lower fold lines, a handle portion, and bottle receiving sections extended between said side walls and said handle portion, each of said bottle receiving sections comprising a plurality of webs arranged at spaced intervals therein to afford bottle receiving openings in the sections between said webs, said

webs having ends thereof respectively connected to the handle portion and a side wall along score lines, the webs at the ends of said bottle receiving sections having the score lines along which they are connected to the side walls disposed at an inwardly and downwardly sloping angle to said lower fold lines, and each of such end webs also having a plurality of other score lines, at least two of which are substantially parallel, and formed at spaced points and generally transversely of the web to enable bending of each web as an incident to vertical movement of said handle portion.

11. A pre-formed collapsible carrier formed from cardboard or like material and comprising a bottom wall, side walls joined to opposite edges of said bottom wall along lower fold lines, a handle portion, and bottle receiving sections extended between said side walls and said handle portion, each of said bottle receiving sections comprising a plurality of webs arranged at spaced intervals therein to afford bottle receiving openings in the sections between said webs, said webs having ends thereof respectively connected to the handle portion and a side wall along score lines, the webs at the ends of said bottle receiving sections having the score lines along which they are connected to the side walls disposed at an inwardly and downwardly sloping angle to said lower fold lines, and such end webs also having a plurality of other score lines formed at spaced points and transversely thereof to enable bending of said webs as an incident to vertical movement of said handle portion.

12. A pre-formed collapsible bottle carrier formed from cardboard or like material and comprising a bottom wall, side walls, a handle portion, and bottle receiving sections extended between said side walls and said handle portion, each of said bottle receiving sections comprising a plurality of webs arranged at spaced intervals therein to afford bottle receiving openings in the sections between said webs, said webs having ends thereof respectively connected to the handle portion and a side wall along score lines, the webs at the ends of said bottle receiving sections having the score lines along which they are connected to the side walls disposed at such an angle to the longitudinal axis of such webs that the inner ends of such last mentioned score lines are disposed closer to said bottom wall than the outer ends of such last mentioned score lines, and such end webs also having a plurality of other score lines formed at spaced points and transversely thereof to enable bending of said webs as an incident to vertical movement of said handle portion.

13. A pre-formed collapsible bottle carrier formed from cardboard or like material and comprising a bottom wall, side walls, a handle portion, and bottle receiving sections extended between said side walls and said handle portion, each of said bottle receiving sections comprising a plurality of webs arranged at spaced intervals therein to afford bottle receiving openings in the sections between said webs, said webs having ends thereof respectively connected to the handle portion and a side wall along score lines, the webs at the ends of said bottle receiving sections having a plurality of other score lines formed at spaced points and transversely thereof to enable bending and lateral tilting of said webs as an incident to vertical movement of said handle portion and to enable inward and downward tilting of such webs as an incident to the loading of the bottles into the carrier, and a flap formed on each of said end webs and extended into the adjacent bottle receiving opening for engagement by a bottle as it is loaded into such opening to tilt the related web inwardly in a predetermined amount.

14. A pre-formed collapsible bottle carrier formed from cardboard or like material and comprising a bottom wall, side walls, a handle portion, and bottle receiving sections extended between said side walls and said handle portion, each of said bottle receiving sections comprising a plurality of webs arranged at spaced intervals therein to afford bottle receiving openings in the sections between said webs, said webs having ends thereof respectively connected to the handle portion and a side wall along score lines, the webs at the ends of said bottle receiving sections having the score lines along which they are connected to the side walls disposed at such an angle to the longitudinal axis of such webs that the inner ends of such last mentioned score lines are disposed closer to said bottom wall than the outer ends of such last mentioned score lines, and such end webs also having a plurality of other score lines formed adjacent to the fold line that joins the end webs to said handle portion and extending from the outer edge of said webs inwardly at an angle to said last mentioned fold line and in diverging relation to each other.

15. A pre-formed collapsible bottle carrier formed from cardboard or like material and comprising a bottom wall, side walls, a handle portion, and bottle receiving sections extended between said side walls and said handle portion, each of said bottle receiving sections comprising a plurality of webs arranged at spaced intervals therein to afford bottle receiving openings in the sections between said webs, said webs having ends thereof respectively connected to the handle portion and a side wall along score lines, the webs at the ends of said bottle receiving sections having the score lines along which they are connected to the side walls disposed at such an angle to the longitudinal axis of such webs that the inner ends of such last mentioned score lines are disposed closer to said bottom wall than the outer ends of such last mentioned score lines, and such end webs also having a plurality of other score lines formed adjacent to the fold line that joins the end webs to said handle portion and extending from the outer edge of said webs inwardly at an angle to said last mentioned fold line and in diverging relation to each other, and a flap formed on each of said end webs and extended into the adjacent bottle receiving opening for engagement by a bottle as it is loaded into such opening to tilt the related web inwardly and downwardly in a predetermined amount as the bottles are loaded into the carrier.

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Disclaimer

2,457,307.—*Maynard G. Hall*, Rutherford, and *Thomas Hurban, Jr.*, Hasbrouck Heights, N. J. BOTTLE CARRIER. Patent dated Dec. 28, 1948. Disclaimer filed May 6, 1950, by the assignee, *Empire Box Corporation.*

Hereby enters this disclaimer to claims 1 to 15, inclusive, of said patent.

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