May 18, 1937. J. C. LIGEOUR 2,080,947

BOTTLE CARRIER AND CAP REMOVER

Filed Jan. 16, 1936

Fig. 2.

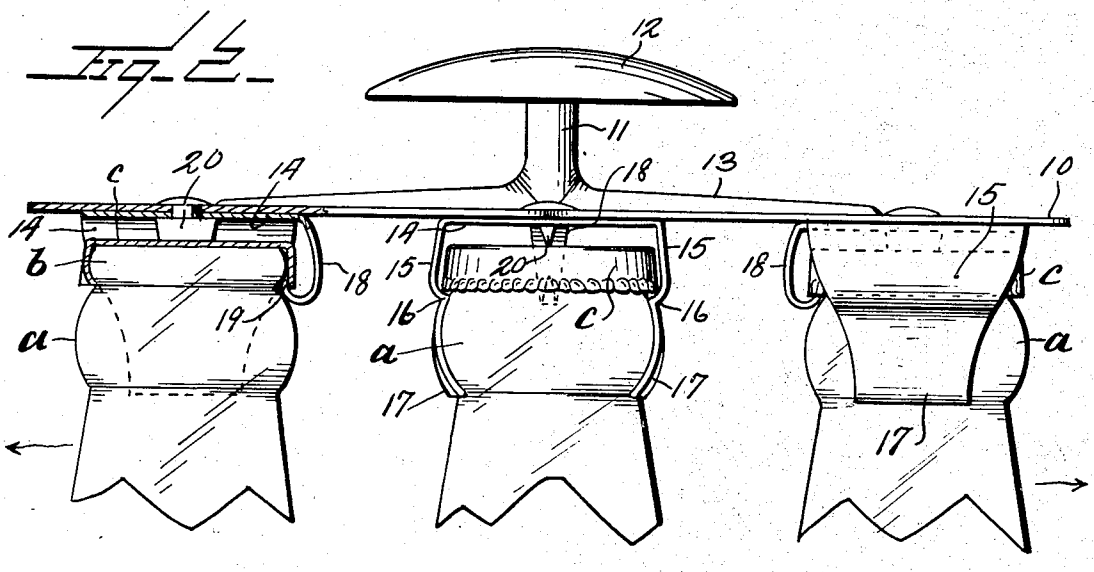


Fig. 4.

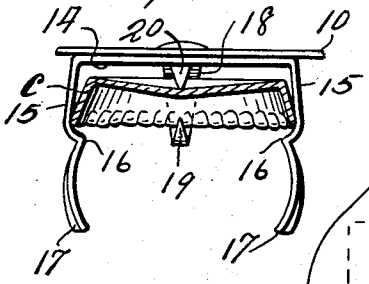


Fig. 1.

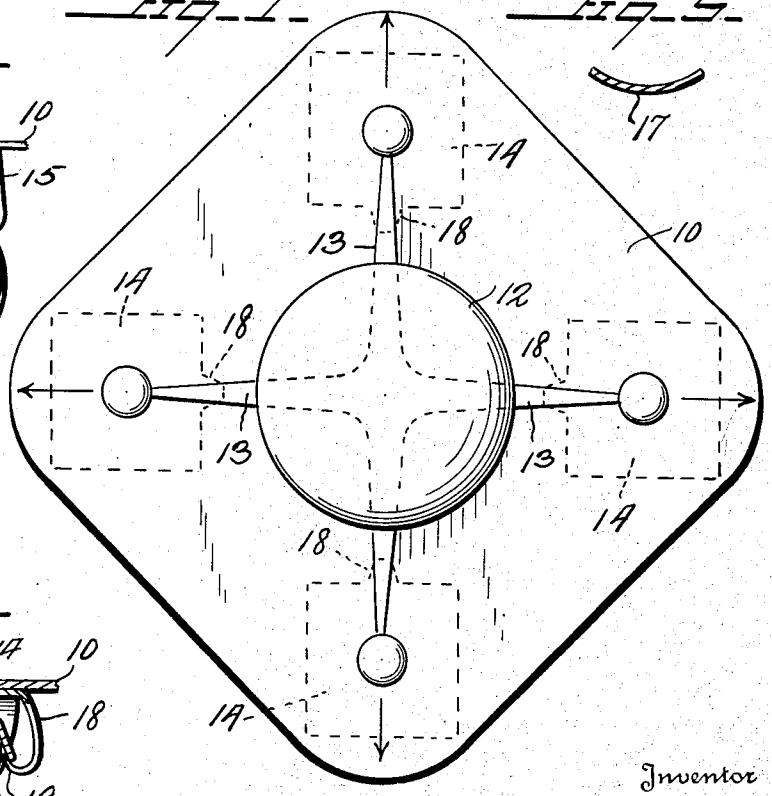
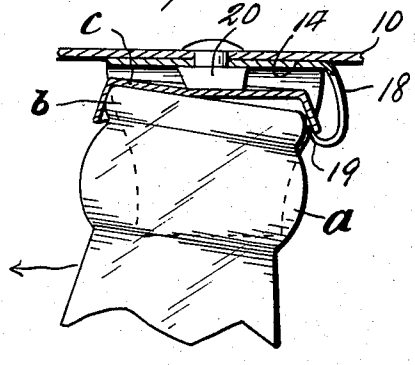


Fig. 5.

Fig. 3.



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BOTTLE CARRIER AND CAP REMOVER

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6 Claims. (Cl. 224—45)

This invention relates to devices for carrying, for vending purposes, a number of bottles such as are used in dispensing "pop", ginger ale, beer and the like, which bottles are provided with metallic caps, ordinarily removed by bottle openers. It is the custom at ball parks, fairs and in like circumstances, for boys to carry around bottles of soda, "pop", beer, etc., and when a bottle is bought by a customer, to remove the cap by hand with a bottle opener. In the hasty removal of these caps from bottles, the contents of the bottle is very likely to be contaminated by the hands of the vender. Furthermore, it is difficult to carry the bottles.

The general object of the present invention is to provide a carrier so constructed that a plurality of bottles may be supported by their necks from the carrier.

A further object is to provide means whereby when the bottle is removed from the carrier, that the cap will be pulled off at the same time without the necessity of the vender touching the cap at all.

A still further object is to provide means whereby the cap is retained within the carrier when the bottle is detached from the carrier, thus preventing the caps from falling to the ground. This is particularly required in certain States, baseball fields and the like, because of State laws or ordinances against the dropping of metallic caps upon the ground.

Still another object is to so construct the carrier that these caps may be readily removed when necessary and so constructed that the bottles may be readily inserted when desired.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawing wherein:

Figure 1 is a top plan view of a bottle carrier constructed in accordance with my invention;

Figure 2 is an enlarged side elevation partly in section of the bottle carrier shown in Figure 1;

Figure 3 is a section through the bottle gripping means showing the action on the cap when the bottle is tilted in the direction of the arrow;

Figure 4 is an elevation taken at right angles to Figure 3 and showing the manner in which the cap is expanded when the bottle is detached;

Figure 5 is a fragmentary section of the portion 17 to indicate the transverse curvature of this portion.

Referring to Figure 2, it will be seen that I have illustrated a form of carrier comprising a plate 10 to which a handle 11 is attached, having a head 12 whereby the shank of the handle may be disposed between two fingers of the hand leaving the thumb free. The supporting plate 10 is illustrated as being reinforced at 13 so as to stand the strain of supporting a plurality of bottles. This plate may be square, circular, or elongated in one direction, or cruciform, or may have any other desired shape. The number of bottles which may be carried will depend upon the shape and area of the plate 10.

I have illustrated in Figure 1 a supporting plate 10, which is designed to carry four bottles, but it is to be understood that this is purely illustrative and that the supporting plate 10 may be so shaped as to carry quite a large number of bottles.

Mounted upon this supporting plate are a plurality of bottle engaging or bottle gripping devices which may be riveted, welded or otherwise attached to the plate 10. Each of these bottle engaging devices includes a metal web 14 having downwardly extending side walls and is open at front and rear. The bottles of the character referred to and for the support of which this invention is designed, are formed with a bulbous portion *a* at the mouth of the bottle, and above this bulbous portion there is formed a bead *b* over which the cap *c* is crimped. The side walls of each bottle grip therefore extend downward and outward, as at 15, then are formed with a slightly indented portion 16, which is adapted to engage beneath the bead *b*, and below this indentation 16, the side wall of the bottle grip is curved downward and then inward at 17, so as to conform more or less to the bulbous portion or bead *a* at the bottle mouth. Thus it will be seen that when the bottle is inserted between the side walls of the bottle grip that it is supported not only by the inwardly turned lower end of the portion 17 but by the depressions 16 which engage below the bead *b*.

Struck up or otherwise formed from the metal of the grip is a hook-shaped spur 18. This spur is disposed between the two side walls of the grip and extends outward, downward and then upward in a hook, the edge 19 of which is adapted to engage with the margin of the bottle cap itself. Extending downward from the top wall of the grip is what I call a spreader, which is designated 20.

This spreader 20 is elongated from front to rear of the grip but is transversely V-shaped and normally bears against the top of the bottle cap when the bottle is inserted within the grip. The function of this spreader is to act as a fulcrum

when the bottle is tilted in the direction of the arrow in Figure 3 in order to remove the cap. As the bottle is tilted in the direction of the arrow, Figure 3, the cap will be forced upward against this spreader. The spreader will indent or depress the middle of the cap under these circumstances and will tend to cause the lower edge of the cap to expand while at the same time the hook-shaped spur **18** engaging beneath the lower edge of the cap will detach the cap from the bottle in the usual way of bottle openers. If the spreader **20** were not present, it might be possible to detach the cap by swinging the bottle until the upper edge of the cap opposite the spur struck the upper wall of the grip, but there would be no expansion of the bottle cap and as a consequence, when the bottle was withdrawn, the cap would drop out of the grip. By providing the spreader **20**, however, the extent to which the bottle must be swung in order to detach the cap is lessened and the central portion of the cap is depressed, thus expanding the rim of the cap, thus causing it to remain within the grip above the portion **16** when the bottle is withdrawn and making it easier to uncap the bottle. Afterwards, these bottle caps may be readily withdrawn manually from between the sides of the grip. The spreader may even penetrate the bottle cap under these circumstances and thus an additional means for holding the bottle cap within the grip is provided, due to the spreader penetrating the cap and holding it frictionally in place against dropping out.

In order to prevent the accidental withdrawal of the bottles or the detachments of the bottles from the grips, each one of the portions **17** is convexly curved outward so as to fit the cross-sectional curvature of the bottle at a point just below the bead portion *b*.

In the form of the carrier shown in Figure 1, the bottles are withdrawn each in the direction of the arrow applied to these bottles. Thus each bottle is withdrawn in a different direction from any other bottle and hence a uniform swinging movement of the bottles as they are carried by the vender is resisted. It is to be understood that, if desired, the supporting plate **10** may extend out beyond the bottles entirely so as to tend to prevent the bottle striking the legs of the vender.

The exact contour of the metal grips, the amount of play allowed and the precise points of contact between the spur **18** and its position relative to the contact points of the side members which carry the loaded or empty bottle are all important. The spreader **20** at the top of the grip is particularly important because it takes care of the added length of distance between the top of the cap and the under part of the bottle bead in the act of opening the bottle. In other words, the bottle would be liable to bind within the bottle grip if this spreader did not pierce or depress the bottle cap to a sufficient extent. This spreader may be from ⅜'' to ¼'' deep at the point of contact. In extracting a loaded bottle, it is gripped and pulled out in the direction of the arrow, Figure 1. The sides of the cap are practically touching the side walls of the grips. There is a certain amount of spread given to the cap as the cap releases itself, but the additional spreading brought about by the spreader **20** forces the edges of the cap outward and presses these edges firmly enough against the walls so that the cap will be held very securely. The indentation made by the spreader **20** may be of sufficient depth as to so deform or pierce the cap so as to render that particular cap unfit for use again. The spur **18** must be so shaped at its contact point **19** that under no circumstances will it catch under the bottle bead *b* but must positively catch only under the downwardly turned edge of the metal cap. In order to insure positive contact at all times of the portions **17** of the grip with the bottle and for the additional purpose of preventing the bottle from slipping as the holder may be swung or jostled, I form the lower edges of the side walls **17**, as heretofore stated, with a concave curvature which will fit around the neck of the bottle.

There is a side swing of the bottle when carried in this support and which must be guarded against. There should be just as little friction as possible when either inserting or extracting these bottles. On the other hand, unless the bottom part **17** of the grips, which bottom part carries the bulk of the load, are formed exactly the right distance apart, then on a side swing of the carrier which will continually occur, the bead on one side will slip beyond or below the horizontal line and if it does, the bottle will fall out, but it will not do this if the proper distance is maintained, for when the holder is tilted from side to side, instead of the lower side of the bead passing beyond the center, the reverse will be the case. It will force the upper side higher and remain in position.

The carrier may be supported by a couple of fingers under the handle and the bottles, under these circumstances, are so distributed as not to interfere with the knee action in riding a bicycle. The carriers are practically indestructible and may be thrown about in tubs of ice by boy venders without danger of damage. They may be loaded with filled bottles and allowed to remain submerged in tubs of ice without deterioration. The sanitary characteristics of this holder are particularly to be noted. Because of the fact that the bottle cap remover forms part of the bottle carrier, the hand of the vender never touches the mouth of the bottle but only the lower end of the bottle. The mouths of the bottles are also to some extent protected from rain and dust.

It will be obvious that these carriers will take any length bottle. A bottle of beer, a bottle of ginger ale, a bottle of Coca-Cola or a bottle of any other drink, all of which may have different lengths, may be handled in these carriers. They provide for the return of empties because the empty bottles may be inserted in the carrier and handled in the same manner as the filled bottles.

As before stated, the shape illustrated for the supporting plate **10**, which is shown as supporting four bottles, may be changed to suit any desired circumstances and I, therefore, do not wish to be limited to the particular form of this carrying plate **10** except as defined in the appended claims. This carrier plate may be so formed as to carry a dozen bottles or two or any desired number and the bottles may be arranged as shown in Figure 1, or arranged in two rows or in any other desired way.

One of the particular advantages of my construction is that it eliminates the possibility of theft from the vendor where bottles are carried upon an open carrier as, for instance in a bucket, and in passing through large crowds, it is a very simple matter for one so inclined to pick up a bottle of cold drink out of the bucket or other holder without the vendor's knowledge. This is impossible with my device.

The instant construction has a considerable advantage over the structure shown in my prior Patent 1,112,300, granted on September 29, 1914. In the structure shown in this prior patent, the bottles were supported upon springs, these springs being supported upon a base plate. Extending over the upper end of the bottle was a finger which bore at its extremity against the extreme margin of the cap of the bottle and which finger carried a cap detaching hook engaging beneath the edge of the bottle cap. The reason in this construction for using the springs beneath the bottle was that when the bottle was swung outward at its lower end to detach the cap and remove the bottle from the carrier the distance between the upper corner of the bottle cap, bearing against the finger and the supporting plate, if no bottle supporting springs were used, would be too great to permit the outward movement of the bottle, in other words, the bottle would jam. Hence, the springs were used to permit the bottle to be swung outward. These springs were expensive and, furthermore, the space between each spring and the base plate would be very liable to collect dirt.

Again, in my prior construction, it would be necessary to provide some means whereby the bottle should be prevented from shifting laterally and hence spring clamps were provided mounted upon a vertical standard which embraced the neck of the bottle closely adjacent the body of the bottle. These spring clamps were expensive and tended to make it difficult to remove the bottle either by the vender or the vendee. Furthermore, there was a metal top to the carrier which extended outward and then was refolded upon itself, then extended downward and then upward to constitute the cap detaching spurs. This refolded sheet of metal was liable to collect dirt and dirt would collect within the upwardly extending fold or bend which constituted the cap detaching means.

My present construction avoids these difficulties, because each bottle is supported entirely by its neck, that is, by means engaging the bulbous portion of the bottle closely adjacent its mouth, so that there is no necessity of any base plate or any supporting springs and, as a consequence, the bottle as it is swung outward at its lower end, has nothing to jam against.

Furthermore, I have provided the lateral depending members which prevent lateral swinging of the bottle and by their transverse curvature prevent the bottles from accidentally falling out from between the bottle neck clamps, thus doing away with the necessity of special bottle neck clamps projecting horizontally from a supporting rod, as in my previous construction.

Again, in my prior patent above referred to, there was no means for retaining the bottle caps, so that these bottle caps became strewn over the floor of the stand or on the ground and had to be gathered up later. If they were left on the floor, they would be stepped on, to the injury of shoes, and might even cause falls.

With my present construction, the bottle cap is retained in the carrier so that the members **15** with the bends have a double function. They support the bottle by its bulbous portion and also act to retain the cap when the bottle is swung to remove it. This retention of the cap cannot occur, however, unless the cap is expanded, as shown in my Figure 4, and this expansion could not be accomplished in my prior patent by the overhanging member, and the caps could not be positively held in place by the downwardly depending lugs shown in my prior patent, which merely frictionally engaged the cap.

Furthermore, in my present construction, the web and the plate are held in engagement with each other by a rivet which is constituted by the shank of the spreader, and this spreader **20** in turn, because it is elongated in the direction of swing of the bottle, tends to steady the bottle and prevents its accidentally swinging outward and detaching itself from the carrier.

While I have illustrated this device as being in the form of a carrier carried around by the vendor, yet it is to be understood that the supporting plate **10** might be mounted upon a central support of a base and the bottles be supported entirely by their necks as illustrated in the drawing, without departing from the spirit of the invention, and it is within the purview of my invention to mount the plate **10** upon such a support.

What is claimed is:—

1. A bottle carrier including a bottle gripping device comprising a normally horizontal top having two opposed downwardly extending side portions, the side portions extending outward and then sharply inward to engage beneath the bead at the mouth of the bottle and beneath the lower edge of the bottle cap, the side portions then extending downward and inward in a curve approximately fitting the bulbous portion adjacent the mouth of a bottle, the lower edges of these side portions being re-entrantly curved to fit the transverse curvature of the bottle neck immediately below said bulbous portion, the rear portion of the top of the bottle carrier being provided with a downwardly extending inwardly hooked spur engageable beneath the bottle cap whereby when the lower portion of the bottle is swung outward the spur will remove the bottle cap, the top of the bottle gripping device being formed with a downwardly extending spreader adapted to constitute the fulcrum against which the cap bears when the bottle is swung to detach the cap and acting to depress or indent the center of the cap to thus cause it to spread and prevent the cap dropping out of the gripping device, the spreader extending in a plane approximately parallel to the plane of the side portions and having a longitudinally flat lower edge face adapted to bear against the upper surface of the bottle cap and steady the bottle against swinging movement longitudinally of the side portions.

2. A bottle carrier including a bottle gripping device comprising a normally horizontal top having two opposed downwardly extending side portions, the side portions extending outward and then sharply inward to engage beneath the bead at the mouth of the bottle and beneath the lower edge of the bottle cap, the side portions then extending downward and inward in a curve approximately fitting the bulbous portion adjacent the mouth of a bottle, the lower edge of these side portions being re-entrantly curved to fit the transverse curvature of the bottle neck immediately below said bulbous portion, the rear portion of the top of the bottle carrier being provided with a downwardly extending inwardly hooked spur engageable beneath the bottle cap whereby when the lower portion of the bottle is swung outward the spur will remove the bottle cap, the top of the bottle gripping device being formed with a downwardly extending wedge-shaped spreader adapted to constitute the fulcrum against which the cap bears when the bot-

tle is swung to detach the cap and acting to depress or indent the center of the cap to thus cause it to spread the cap laterally so that the lower margin of the cap is pressed against said side portions to thus prevent the cap dropping out of the gripping device.

3. A bottle carrier of the character described, comprising a normally horizontal supporting plate having a handle on its upper face, the lower face of the plate having attached thereto a bottle neck gripping means, comprising two downwardly extending lateral members, each lateral member extending downwardly and then sharply inward to engage beneath the bead at the mouth of a bottle and beneath the edge of the cap thereon, then extending downward and inward in a curve to embrace and fit against the bulbous portion of the bottle neck adjacent said bead, the last named portion being concavely curved transversely to fit circumferentially around the bulbous portion of the neck, there being a downwardly extending hook-shaped member disposed between said side portions and at the rear thereof, the hook-shaped member extending downward, then inward, then upward to engage beneath the edge of the bottle cap and detach said cap when the bottle is swung forward, there being a spreader extending downward toward the middle of the bottle cap and against which the bottle cap is forced when the bottle is swung outward to disengage the cap.

4. A bottle carrier, including a normally horizontal carrying plate having an upwardly projecting handle, a metallic web disposed against the under face of the plate and having end portions extending downward and arranged and constructed to engage beneath the lower edge of a bottle cap and engage with the bulbous portion of the bottle neck whereby the bottle is entirely supported by said end portions of the web, the rear of said web having an integral downwardly extending cap-detaching member having an upwardly extending spur engaging beneath the lower edge of said cap, and a spreader depending from the middle of the web and adapted to engage the top of the bottle cap, said spreader having a relatively small shank constituting a rivet and riveting the spur and web to the supporting plate.

5. A bottle carrier including a normally horizontal plate having a carrying handle projecting upward from the upper surface of the plate, the undersurface of the plate having a pair of depending opposed resilient bottle neck gripping members, the members being spaced from each other and substantially parallel below their upper ends and being free to move toward or from each other, each member being formed and constructed to engage beneath the bead at the upper end of the bottle mouth and extending downward and inward to fit against and engage partially around and beneath the bulbous portion of the bottle neck below said bead whereby the bottle is supported entirely by its upper end but may be detached by moving the bottle in a direction approximately parallel to the depending members.

6. A bottle carrier including a normally horizontal plate having a carrying handle projecting upward from its upper surface and having a pair of opposed resilient bottle neck gripping members depending from the underface of the plate, the members being spaced from but substantially parallel to each other below their upper ends, the members extending downward and inward to engage beneath the bead on the upper end of the bottle and then extending successively outward, downward and inward and being transversely curved to fit against and extending partially around and beneath the bulbous portion of the bottle neck whereby the bottle is supported entirely by its neck but may be detached by swinging the bottle in a plane parallel to the planes of said depending members.

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