May 16, 1961 C. C. DUNGFELDER ET AL 2,984,334

BOTTLE CARRIER

Filed Dec. 16, 1957 4 Sheets-Sheet 1

Fig. 1

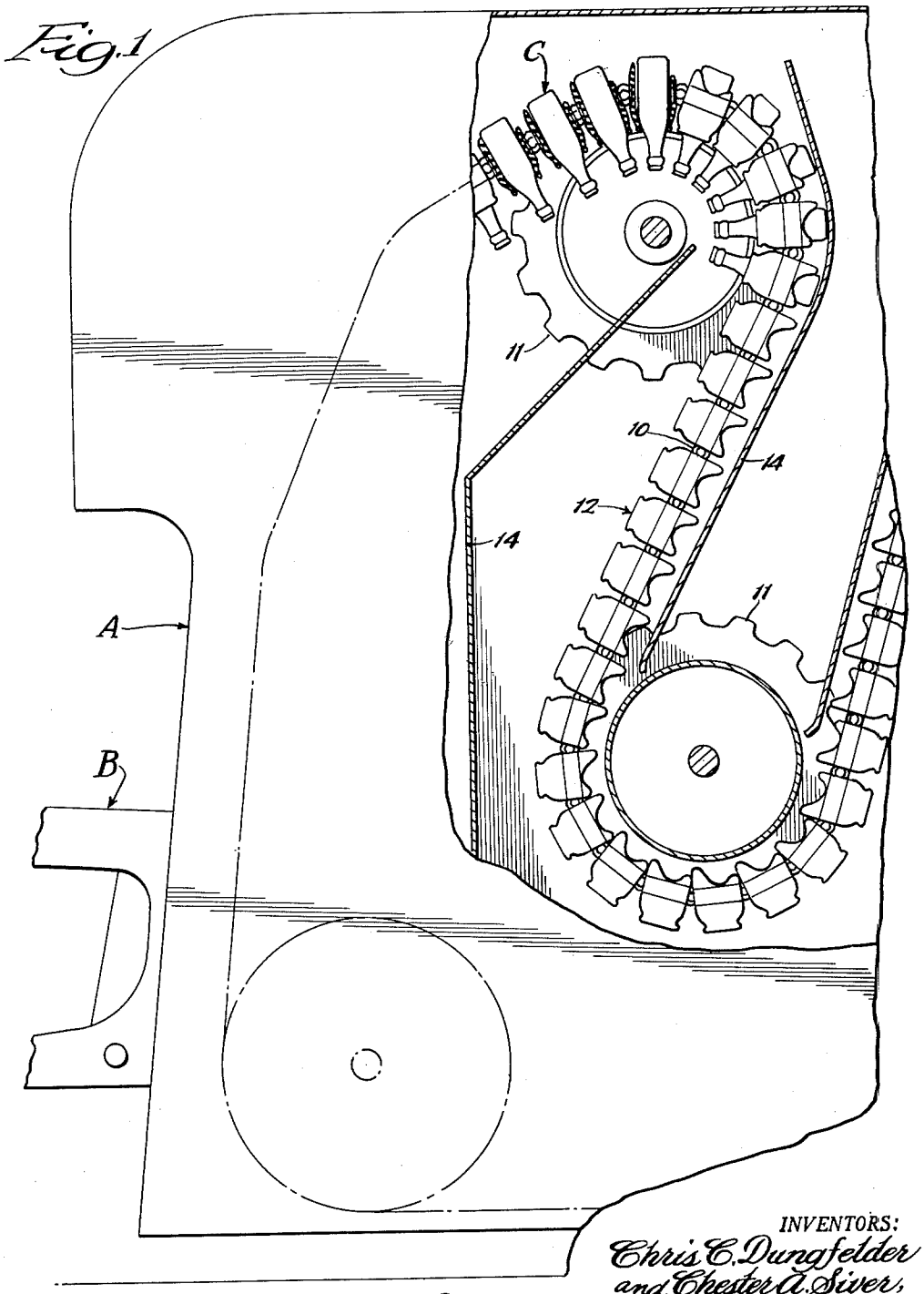

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Fig. 2

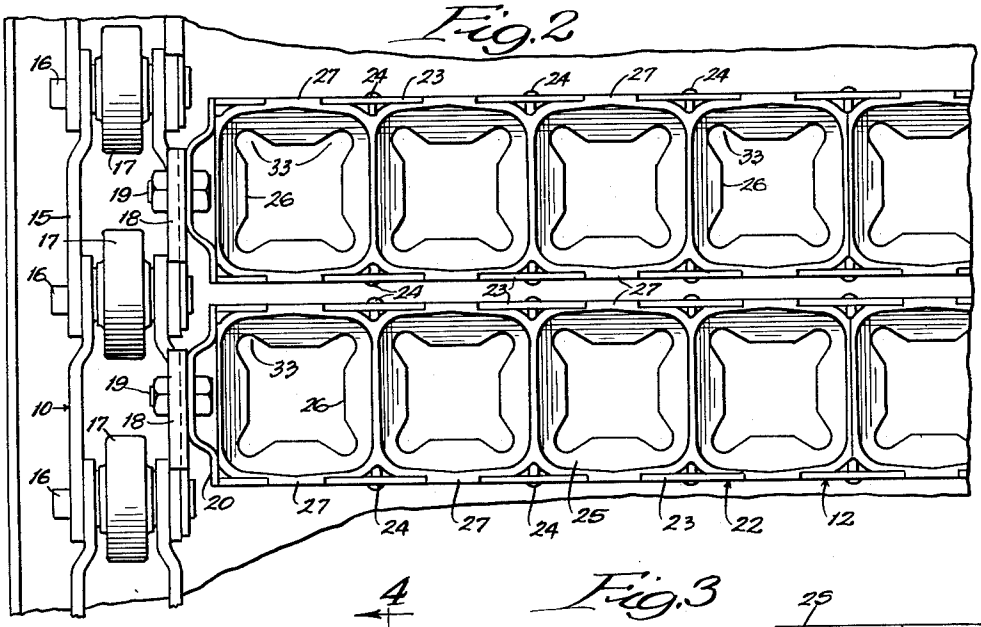

Fig. 3

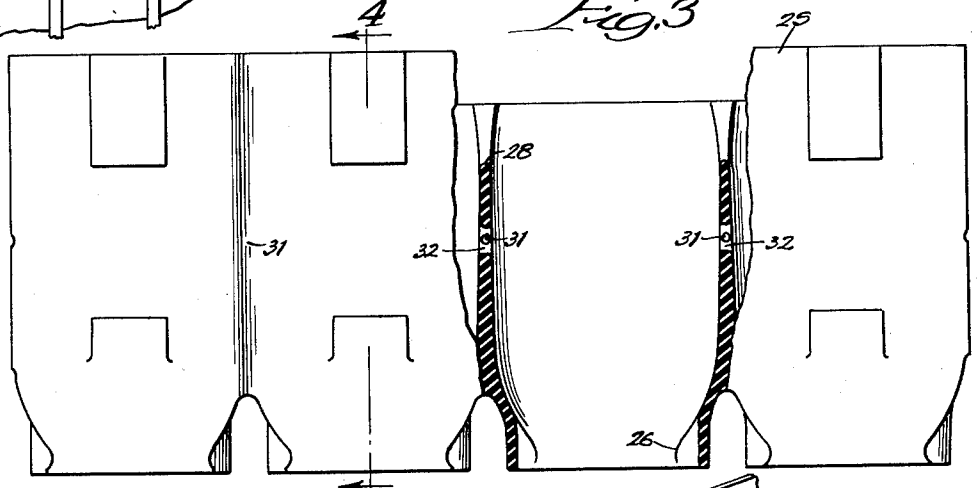

Fig. 4

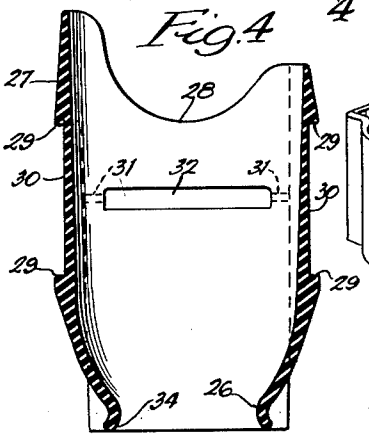

Fig. 5

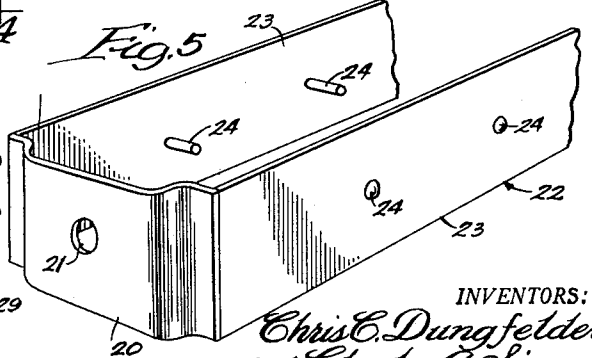

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Fig. 6

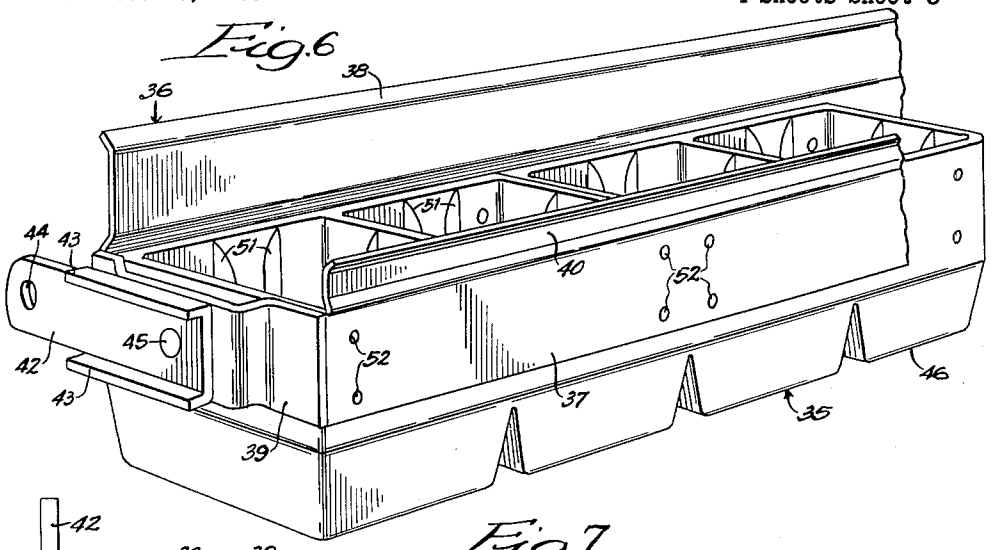


Fig. 7

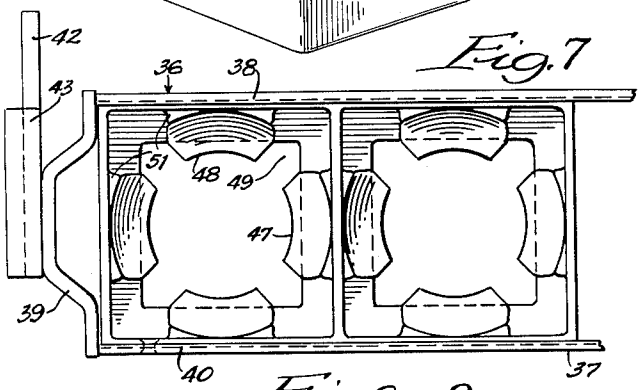


Fig. 8

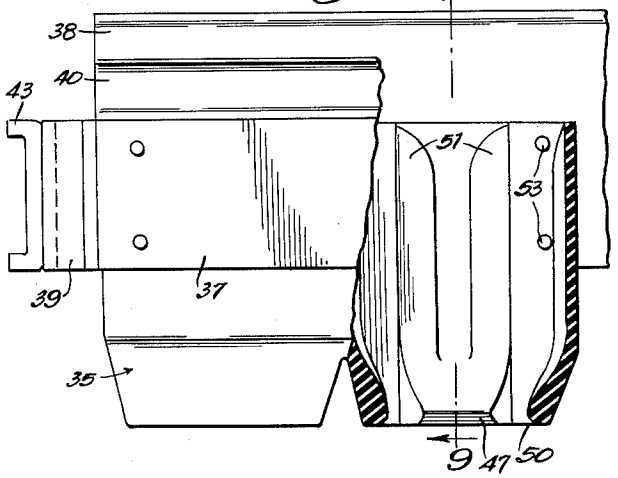
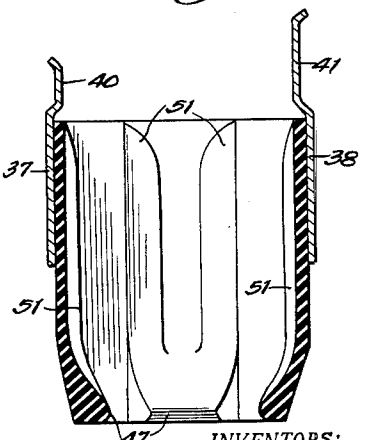


Fig. 9



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BOTTLE CARRIER

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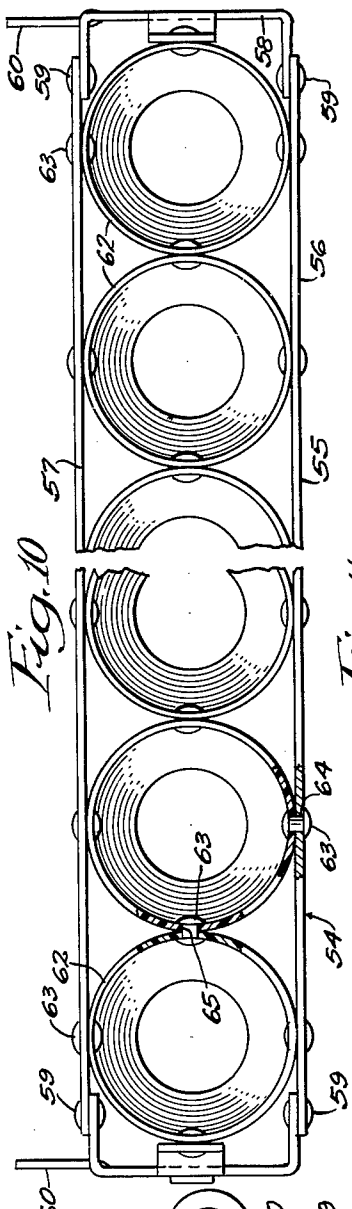

Fig. 10

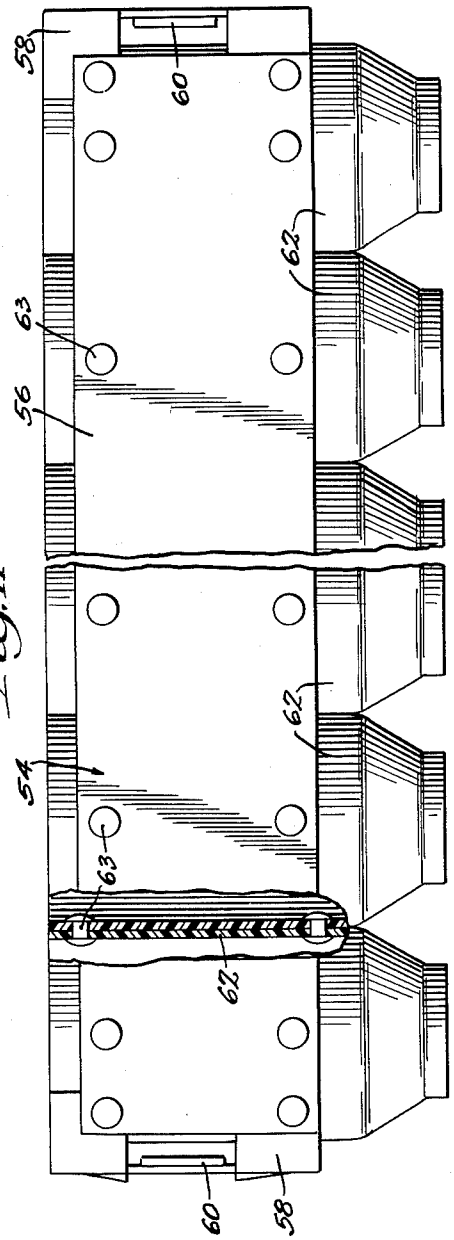

Fig. 11

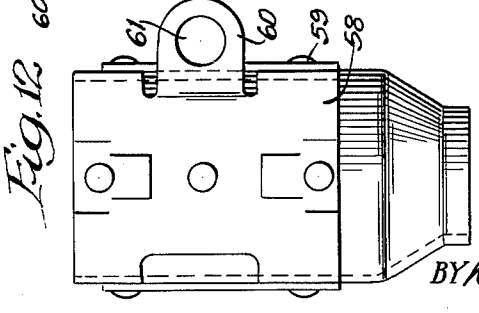

Fig. 12

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2,984,334

BOTTLE CARRIER

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9 Claims. (Cl. 198—131)

This invention relates to a bottle conditioning line and more particularly to bottle carriers of the type used in automatic bottle washers, pasteurizers, etc.

This application is a continuation-in-part of our copending application, Serial No. 301,424, filed July 29, 1952.

Bottle conditioning lines including automatic bottle washers and pasteurizers have extensive use in bottle filling plants, etc. Generally these lines include a manual or mechanical infeed for inserting bottles into bottle carriers, each consisting of a bank of individual bottle carrier pockets aligned in side-by-side relation. The number of pockets in a bank may be 8, 16, 24, etc., depending upon the size and capacity of the conditioning line. A plurality of bottle carriers are secured to a continuous carrier chain in spaced relation and the continuous chain carries the bottle carriers and bottles therein through the various stages of the conditioning line where the bottles are bathed in hot caustic solutions, rinsed in a cold solution, brushed internally and externally, drained, etc., and finally discharged in condition for filling.

Often bottles are not inspected prior to being fed into the bottle carriers and if a bottle is cracked or otherwise damaged, it will nearly always break when subjected to the hot and cold baths and other line operations. A broken bottle in a carrier pocket causes the apparatus to bind or lock before it is shut off, and damage to the bottle carrier results. Further, damage to carriers often results when a bottle is not properly fed into a pocket or discharged therefrom, and binding or locking of the apparatus occurs.

Locking or binding of the apparatus caused by a broken or improperly positioned bottle frequently results in the bottle carrier's being twisted or bent or otherwise distorted and misaligned. This is serious and necessitates replacing of the damaged carrier, for if a carrier is misaligned, the bottles carried thereby will not be properly positioned with respect to the cleaning brushes and the internal brushes will not enter the bottles but will themselves become bent, etc., while the external brushes will improperly engage the bottles and become distorted. Moreover, bottles cannot be fed into and discharged properly from misaligned carriers, and malfunctioning of the apparatus is frequently caused by such damaged carriers.

It is, therefore, an object of the invention to provide a bottle carrier that will withstand the normal wear of conditioning line usage while also withstanding temporary distorting forces occurring when broken bottles or bottles otherwise lodged in the bottle pockets cause binding of the apparatus. Another object of the invention is to provide a bottle carrier that will yield slightly when subjected to distorting forces and will return to a normal position of proper alignment when the distorting forces are removed. Still another object is to provide a bottle carrier having resilient pockets aligned in side-by-side relation that will yield when subjected to distorting forces and will spring back to proper position when the forces are removed, while at the same time the pockets resist wedging of bottles therein so that they may drop freely therefrom of their own weight at the discharge station.

Yet another object is to provide a bank of resilient and yieldable bottle pockets in a bottle carrier for use in automatic conditioning lines that will transfer a distorting force applied at one bottle pocket throughout the entire bank of pockets so as to yield to the distorting force along a side area while springing back to proper position upon removal of the distorting force and at the same time are sufficiently hard and rigid to resist wedging of bottles therein during normal operation. Yet another object is to provide a bottle carrier having a relatively rigid carrier support equipped with a bank of yieldable and resilient bottle-receiving pockets secured thereto in side-by-side relation that will be temporarily deformed slightly when a bottle is lodged within the pocket and that will return to proper alignment when the lodged bottle is removed, while at the same time sufficient rigidity is maintained to cause slippage of a clutching mechanism automatically shutting down the apparatus when binding occurs. Still another object is that of providing relatively stiff bottle carrier pockets that prevent wedging of bottles therein during normal operation, while at the same time the pockets are yieldable and give slightly when subjected to abnormal or distorting forces and that spring back into shape when the forces are removed.

It is a further object of the invention to provide bottle-receiving pockets having means therein to facilitate draining of liquid from within each pocket and about a bottle therein during draining and drying operations. Still a further object is to provide in a bottle carrier a bank of bottle-receiving pockets each having a restricted throat portion adapted to receive the neck of bottles and also having a plurality of spaced channels or recesses extending from an enlarged receiving end of the pocket to the restricted throat portion to facilitate drainage of liquid from the pocket. Yet a further object is to provide in a bottle conditioning line a plurality of spaced bottle carriers secured to a continuous or endless carrier chain and in which the bottle carriers include a relatively rigid carrier support securing a bank of yieldable and resilient bottle-receiving pockets in proper alignment and in which the bottle-receiving pockets are adapted to receive bottles of various size to properly center them, while also being secured to the carrier support in a manner permitting quick and easy replacement of the pockets in the event they are damaged, etc. An additional object is to provide carrier pockets having internal longitudinally-extending ribbing therein providing a positive centering of bottles received within the pockets and to minimize bottle wobbling, etc. Further objects and advantages of the invention will appear as the specification proceeds.

Our invention is illustrated in the accompanying drawings, in which—

Figure 1 is a broken side view of a conditioning line in which a portion of the side wall is broken away to show bottle carriers mounted upon a carrier chain; Fig. 2 is a broken front view in elevation showing the bottle carriers mounted upon a carrier chain; Fig. 3 is a side view in elevation of a bank of carrier pockets and in which one of the pockets is shown in section; Fig. 4 is a sectional view taken on line 4—4 of Fig. 3; Fig. 5 is a broken perspective view of a carrier support; Fig. 6 is a perspective view of a modified form of bottle carrier; Fig. 7 is a broken top plan view of the carrier of Fig. 6; Fig. 8 is a broken side view in elevation of the carrier of Fig. 6 and in which a portion of the carrier support is broken away to show a bottle pocket in partial section; Fig. 9 is a sectional view taken along the line 9—9 of Fig. 8; Fig. 10 is a top view, partially broken

away to show a modified form of carrier pockets; Fig. 11 is a broken front view of the structure shown in Fig. 10, and Fig. 12 is a broken side view of the structure shown in Fig. 10.

Referring to Fig. 1, a bottle conditioning line, which may be an automatic bottle washer, is designated by A. The bottle washer A is equipped with an infeed B from which bottles are fed into the bottle line C. The bottle line C includes a continuous carrier 10 supported upon a plurality of sprockets 11. Mounted upon the carrier chain 10 in spaced relation are a plurality of bottle carriers 12. Bottles 13 are positioned in the bottle carriers 12 and are held within the carriers during certain movements through the line by shields or guards 14.

At least one of the sprockets 11 is driven by a suitable power source and moves the carrier chain 10 and the bottle carriers 12 secured therto through various treating stations of the washer line. The stations may include caustic baths, rinses, brushing operations, etc., and the bottles are finally discharged from the pockets at the opposite end of the line. Conditioning lines of this character are well known in the art and it is believed that a detailed discussion of the lines will not, therefore, be necessary.

The carrier chain 10 consists of a plurality of elongated links 15 secured at either end to a similar link by a pin or cap screw 16. The links 15 are pivotally mounted upon pins 16. The links 15 are joined in pairs to the pins 16 and are spaced apart by rollers 17. The rollers 17 are rotatably mounted upon the pins 16. The spacings between the rollers 17 provide access for the teeth of the sprockets.

Each of the inner links 15 is provided with an aperture or opening 18 receiving a pin or bolt 19 that secures the bottle carriers 12 to the carrier chain 10. For this purpose, the bottle carriers 12 are equipped at each end with a generally U-shaped connector 20 provided centrally with an aperture 21 for receiving the bolt or pin 19. Generally two carrier chains 10 are provided, one at either side of the conditioning lines, and the bottle carriers 12 are secured at each end to the carrier chains and extend between the chains in substantially parallel, spaced-apart relation.

The bottle carriers illustrated in Figs. 2 through 5 consist of a carrier support or frame 22 having side walls 23 of a relatively rigid material such as metal, etc., secured at each end to the connectors 20 by any suitable means such as spot welding, etc. Each of the side walls 23 is equipped with an inwardly-extending stud 24 at equally-spaced position axially along the side wall. The studs 24 are rigidly fastened to the side walls 23 and are adapted to receive and support between the side walls the bottle-receiving pockets 25 in a manner subsequently described.

The bottle-receiving pockets 25 are preferably both yieldable and resilient and may be made from any suitable material having these properties, such as molded rubber. The material used must be able to withstand submersion in hot caustic solutions followed by immediate submersion in cold solutions. A typical solution encountered in practice is a 5% caustic soda solution maintained at a temperature in the range 170–175° F. The material used must be able to withstand immersion in bottle-washing solutions without deterioration or deformation. If molded rubber is used, the rubber must be properly cured so as to withstand such usage without cracking, etc. Though it is preferred that the pockets be yieldable and resilient, it is important that they be sufficiently stiff, rigid, or hard, particularly at the neck portion, to prevent wedging of the bottles within the pockets during normal operation. The bottles must be free to drop from the pockets of their own weight at the discharge station.

The bottle-receiving pockets 25 may be formed singly or in banks and preferably the pockets are formed in banks of four. Bottle conditioning lines are usually set up to handle four, eight, sixteen, etc., or some multiple of four, bottles in a bank, and by forming the bottle pockets in banks of four, they may readily be employed initially or as a replacement in most bottle lines. When the pockets 25 are formed singly, they are arranged in side-by-side, inter-connected relation to provide additional resilience in the bank of pockets through deformation in adjacent pockets.

Each of the bottle-receiving pockets 25 consists of a generally rectangular casing providing a compartment that tapers inwardly at one end to provide a restricted neck or throat portion 26. One of the side walls is enlongated and has an outwardly-extending lip 27, while the opposite side wall terminates short of the lip extension 27. The remaining pair of side walls has an arcuate upper portion 28 that merges with the lip portion 27 and with the side wall opposite thereto. The side wall having lip 27 and the side wall opposite thereto are equipped with laterally-extending shoulders 29 providing between the shoulders a recess or channel 30. The channels 30 are adapted to receive the side walls 23 of the carrier support 22 and together with the shoulders 29 lock the pocket 25 in position upon the carrier support. The pockets 25 are formed or molded in a bank of four and each of the adjacent pockets has a common side wall that is provided with a passage 31 extending transversely therethrough and, if desired, may be enlarged centrally as at 32. The passage 31 is adapted to receive the inwardly-extending pins or studs 24 so as to secure the pockets upon the carrier support 22. Alternatively, the studs 24 can be provided as integral projections or teats on the pockets 25 and then heat-riveted to the perimetric frame 22.

The common side wall existing between adjacent pockets 25 terminates short of the forward or throated end of the pockets. The parting line or point at which the common wall terminates is below the critical point of bottle support.

Interiorly, the lower portion of the pocket is arcuate and tapers inwardly and merges into the neck portion 26. The periphery of the neck 26 is generally square-shaped, as seen in Fig. 2. The interior of the pockets is also provided with grooves or channels 33 extending from the upper enlarged portion of the pocket downwardly until they merge with the corners of the neck or throat 26, as seen in Fig. 2. The channels 33 provide a free passage for the draining of solutions, etc., from the interior of the pockets and about the bottles. The provision of these passages or channels 33 permits solutions to drain from the pockets and the bottles very rapidly, and dilution or contamination of one of the treating compartments with a solution from the previous one is thereby lessened and draining and drying of the bottles is greatly facilitated. The throat 26 is arcuate and tapers outwardly, as indicated by the numeral 34, so that bottles pushed into the pockets or drawn outwardly therefrom do not hang on the throat portion.

A modification of the bottle carrier is illustrated in Figs. 6 through 9. In the modification, the bottle carrier 35 includes a carrier support 36 having side walls 37 and 38 and end walls 39. The side wall 37 is equipped along one edge with a generally U-shaped lip 40, while the side wall 38 is equipped at the corresponding edge with an elongated U-shaped lip 41 that is somewhat wider than the lip 40. The side walls 37 and 38 are rigidly secured to the end walls 39 in any suitable manner such as by welding, etc. Each of the end walls 39 is generally U-shaped and is bowed outwardly throughout the central portion. A fastening bar 42 is secured to the end walls 39 at the outwardly-bowed portion by suitable means such as rivets, bolts, welding, etc. The fastening bar 42 has laterally-extending edges 43 forming a channel and a protruding or extending end portion

equipped with an aperture 44. The channel provided by the laterally-extending edges 43 is adapted to receive a link 15 of the carrier chain 10 so as to lock the carrier support upon the chain and the aperture 44 receives the pin or bolt 16 of the carrier chain. The bolt or cap screw 19 may be received through the aperture 45 to further lock the fastening bar and carrier support to the carrier chain.

A bank of carrier pockets 46, preferably formed in a section of four and aligned in side-by-side relation, may be formed of molded rubber as previously described. Each of the pockets 46 is generally square in shape and the side walls provide an interior compartment that is arcuate adjacent the lower end and merges into a restricted throat or neck portion 47. Adjacent pockets 46 have a common side wall that terminates short of the lower ends thereof, forming distinct pockets at the throated end.

As seen in Fig. 7, the throat 47 is circular and is divided into arcuate sections 48 by four grooves or channels 49 that provide a drain for the pockets, as described with reference to the pockets 25 illustrated in Figs. 2 through 5. The throat 47 is itself arcuate and is turned outwardly at 50. The pockets are equipped with internal ribs 51 extending longitudinally within the pockets and for practically the full depth thereof. The ribs 51 are spaced about the pockets 46 and provide a positive centering for bottles received therein and also minimize wobbling of the bottles, etc.

The side walls 37 and 38 of the carrier support are equipped with pairs of apertures 52 spaced axially along the side walls. The pockets 46 are provided with apertures 53 aligned with the apertures 52. The pockets 46 may be secured in position upon the carrier support 36 by rivets or short studs, etc., that extend through the apertures 52 and 53. Thus, the bottle-receiving pockets are firmly locked in place upon the carrier support with the upper edge of the pockets positioned just below the lip portions 40 and 41.

Another modification of the bottle carrier is illustrated in Figs. 10–12. In this modification, the bottle carrier 54 includes a rectangular frame 55 having side walls 56 and 57 and end walls 58. The side and end walls are interconnected to form a rectangular frame by means of rivets 59. A fastening lug 60, provided as a part of end walls 58, is provided with an aperture 61 for mounting on a carrier chain, or the like. A bank of individually formed carrier pockets 62 is mounted within carrier support 55. Each pocket 62 is secured both to support 55 and to its adjacent abutting pocket 9 by rivets or other fastening means 63. The rivets 63 securing pocket 62 to the side walls 56 and 57 extend through suitable apertures 64 provided in the side walls 56 and 57. Similar apertures 65 are provided in pockets 62 to unite adjoining pockets into an interconnected bank. Thus, flexure of one pocket is resisted by the resilience in adjacent pockets, since the adjacent pockets would also be somewhat deformed.

The bottle-receiving pockets 25, 46 or 62, and the carrier supports 22, 36, or 55, may be fabricated separately of each other. The bottle receiving pockets are formed of a yieldable resilient material that may be properly cured, rubber molded into a section or individual pockets. If desired, the channels 30 and other parts may be machined. It is important that the pockets, though resilient and yieldable, be sufficiently hard or stiff so as to prevent wedging of the botles within the pockets, or gripping of the bottles by the pockets during normal operation. It is desired that the bottles drop free of the pockets by their own weight at the discharge of the conditioning line, and wedging would prevent this advantage. At the same time, then, the pockets are yieldable when subjected to distorting forces, but do not yield to the bottles during normal operation and bottles do not wedge therein, even when equipped with concentric rings about the shoulders thereof.

The carrier supports are constructed of a relatively rigid material such as a metal and may be, for example, stainless steel. In the modifications illustrated in Figs. 6–12, the pockets are secured in position upon the carrier support by riveting, etc., the rivets extending through aligned apertures in the carrier side wall and in the side walls of the pockets. If the carrier supports and pockets shown in Figs. 2–5 are employed, the side walls 23 of the carrier support are positioned in the recesses 30 provided by the laterally-extending shoulders 29 and are locked in position by the shoulders 29. Studs or pins 24 extend into the passages 31 to further secure the pocket 25 in place upon the carrier support 22.

When adjacent the bottle infeed and in position to receive bottles, the extended side wall of the pocket or carrier support is positioned on the under side of the bottle carrier so that either the lip 27 or the lip 41 extends outwardly and forms a lower edge for the bottle carrier over which a bottle being inserted into position within the pocket may slide and be guided thereby. The interior of the pockets is such that each pocket is adapted to receive bottles of various sizes and readily accommodate quarts, pints and splits. Bottles are properly aligned within the pockets by the lower arcuate portions of the pockets and the restricted throat portion 26 or 47, and also by the ribs 51, in the pockets illustrated in Figs. 6–9, which also prevent bottle wobbling. Accurate alignment permits the external and internal cleaning brushes to properly engage the bottles to perform the cleaning operation without damage to the brushes that would result from improper alignment of the bottles. After the bottles have been carried through the various cleaning or conditioning stages of the line, the bottles may be automatically discharged from the pockets by suitable and known means at the terminal end of the line. During the removal operation the carrier pockets are inverted and the elongated lip portion 27 or 41 is at the upper edge of the carrier. It is preferred that the bottles drop free from the pockets by their own weight and the pockets should not, then, grip the bottles, but, rather, support them freely therein.

If a cracked bottle is inadvertently fed into the conditioning line, the bottle will frequently be broken when subjected alternately to the vastly different temperature ranges of the various solutions. When this occurs, the broken bottle lodges within the carrier pocket, since the discharge means cannot remove a badly damaged or shattered bottle from a pocket. The damaged bottle thus lodged within the carrier pocket will cause the apparatus to lock or bind at the discharge end of the conditioning line, or if the bottle carrier moves beyond this point, it will then lock at the infeed end when another bottle is prevented from being completely inserted into a pocket by the broken or damaged bottle already therein. Although most conditioning apparatus is equipped with a clutch and trigger switch that causes the apparatus to shut down when a binding or locking occurs, the line must move some small distance before the shutdown can be completed. Therefore, with a bottle carrier locked in any position while at the same time the carrier chain attempts to move the carrier beyond this position, the normal result will be a bending or twisting or otherwise distorting of the carrier.

However, here the pockets 25, 46 or 62 are both yieldable and resilient, and while they reinforce the carrier supports 22, 36, or 55 throughout their entire length and distribute the distoring force throughout a wide area, the pocket itself yields slightly, and this yielding is sufficient to prevent damage to the carrier during the time required to shut the machine down. When the broken bottle is removed and the distorting force thereby withdrawn, the resiliency of the pocket causes it to spring back into its proper position. Therefore, no damage is caused to the

bottle carriers and it is not necessary to replace the carrier before the conditioning line can again be used. This results in a great savings in time, material and expense.

While our carrier pockets are able to withstand temporary distorting forces without damage and at the same time stand up under the normal wear of conditioning line usage, the carriers may be also cheaply fabricated and easily installed in a conditioning line. Since the carrier and carrier support is protected from damage by the yieldable and resilient character of the bottle-receiving pockets **25**, **46** and **62**, the pockets themselves are the only parts subjected to great wear, and our unique arrangement for securing the pockets in sections to the carrier supports permits ready removal of a damaged pocket or section and replacement with a new one. Moreover, since the pockets are both yieldable and resilient, the bottles are not scuffed and marred and otherwise damaged in our pockets as they normally are in the usual bottle carriers. Thus, an important ancillary advantage is achieved.

While in the foregoing specification we have described embodiments of our invention in considerable detail for the purpose of illustration, it is to be understood that these details may be varied widely by those skilled in the art without departing from the spirit of our invention.

We claim:

1. In carrier apparatus adapted for use in bottle conditioning lines, a relatively narrow, rigid carrier frame having side walls and end walls defining an elongated space therein, a carrier bank comprising a plurality of side by side carrier pockets, said pockets being interconnected with each other to define a unitary bank and being formed of a resilient yieldable material having sufficient resistive strength to maintain the characteristics of the carrier pockets during normal use, said pockets thereby being adapted to cooperate in resisting a distorting force applied to a given pocket by translating the force through adjacent pockets to dissipate the force throughout a large area, said bank being positioned within said frame and being secured to the side walls thereof at spaced-apart points therealong, each of said pockets having an enlarged mouth and a restricted throat for receiving a bottle therein, and each pocket having a substantial portion thereof and toward its throat extending beyond the limits of said frame.

2. In carrier apparatus adapted for use in bottle conditioning lines, a relatively narrow, rigid carrier frame having side walls and end walls defining an elongated space therein, a carrier bank comprising a plurality of side by side carrier pockets, said pockets being formed integrally with each other to define a unitary bank and being formed of a resilient yieldable material having sufficient resistive strength to maintain the characteristics of the carrier pockets during normal use, said bank being positioned within said frame and being secured to the side walls thereof at spaced-apart points therealong, each of said pockets having an enlarged mouth and a restricted throat for receiving a bottle therein, and each pocket having a substantial portion thereof and toward its throat extending beyond the limits of said frame.

3. In a bottle carrier structure adapted for use in bottle conditioning lines, a relatively narrow, rigid perimetric frame having spaced side walls and end walls, a plurality of side by side bottle carrier pockets formed integrally with each other to define a unitary bank, the bank of bottle carrier pockets being received within said frame, each of said pockets having an enlarged mouth and a restricted neck for receiving a bottle therein and being formed of a resilient yieldable material resistive to deformation during normal use thereof, and pin means extending through the walls of said frame and into the bank of pockets at spaced-apart points therealong for securing the bank within said frame, each of said pockets toward the portion thereof providing the neck extending a substantial distance beyond the limits of said frame.

4. The structure of claim 3, in which said bank is provided along each side thereof with a longitudinally-extending channel dimensioned to receive and receiving the respective side walls of said frame therein, whereby each of said channels cooperates with said pin means in securing the bank of pockets within said frame.

5. In a structure of the character described, a substantially rigid, relatively narrow perimetric frame having side walls and end walls defining an elongated space therein, a bank of carrier pockets received within said space, said pockets being arranged in side by side relation and being formed integrally with each other to provide said bank, said bank being molded rubber and each of said pockets being adapted to receive a bottle therein and having a substantial portion thereof extending beyond the dimensional limits of said frame, and a plurality of pins extending through the side walls of said frame and through said bank at spaced-apart points therealong to secure the bank within said frame.

6. The structure of claim 5, in which each of said pockets is provided with spaced-apart shoulders along the sides thereof adjacent the side walls of said frame to define channels extending longitudinally along the bank for receiving the side walls of said frame therein.

7. The structure of claim 5, in which said bank is molded of a resilient yieldable plastic material capable of withstanding submersion in 5% caustic soda solution maintained at a temperature of 170–175° F. without deterioration or deformation of said material.

8. The structure of claim 5, in which said bank is molded of a resilient yieldable material capable of immersion in bottle washing solutions without deterioration or deformation.

9. In carrier apparatus adapted for use in bottle conditioning lines, a relatively narrow, rigid carrier frame having side walls and end walls defining an elongated space therein, a carrier bank comprising a plurality of side by side carrier pockets, said pockets being joined with each other on adjacent sides to define a unitary bank and being formed of a resilient yieldable material having sufficient resistive strength to maintain the characteristics of the carrier pockets during normal use, said pockets thereby being adapted to cooperate in resisting a distorting force applied to a given pocket by translating the force through adjacent pockets to dissipate the force throughout a large area, said bank being positioned within said frame and being secured to the side walls thereof at spaced-apart points therealong, each of said pockets having an enlarged mouth and a restricted throat for receiving a bottle therein, and each pocket having a substantial portion thereof and toward its throat extending beyond the limits of said frame.

References Cited in the file of this patent

UNITED STATES PATENTS

1,756,554	Hippenmeyer	Apr. 29, 1930
2,051,091	Ladewig	Aug. 18, 1936
2,094,398	Dostal	Sept. 28, 1937
2,105,795	Risser	Jan. 18, 1938
2,444,925	Fischer	July 13, 1948
2,522,912	Weiss	Sept. 19, 1950
2,823,789	Henning	Feb. 18, 1958