

Feb. 6, 1940.

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2,189,587

BOTTLE CARRIER

Filed Oct. 15, 1936

FIG 1

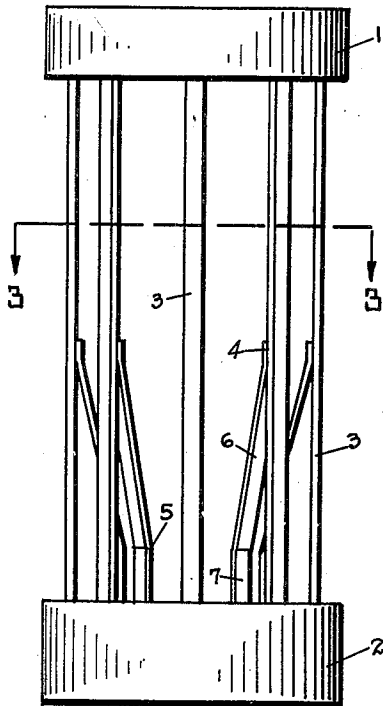


FIG 2

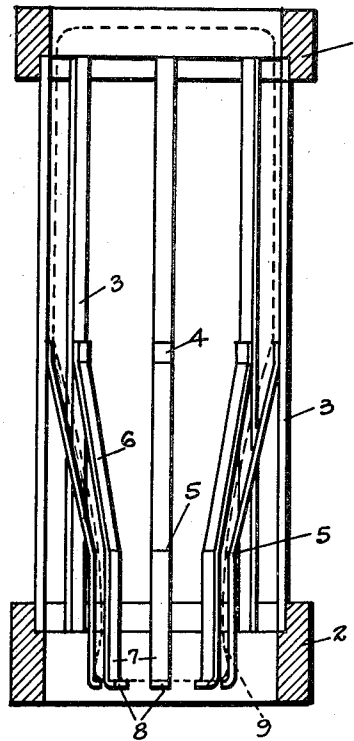


FIG 3

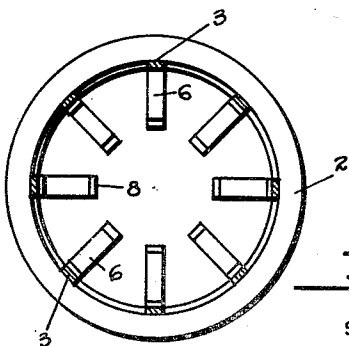


FIG 4

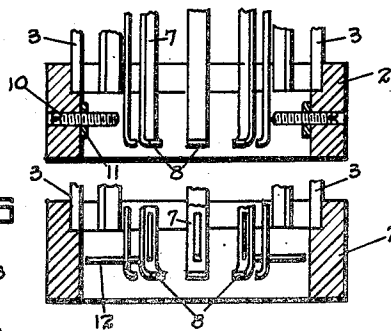


FIG 5

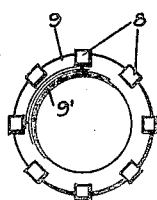


FIG 6

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## UNITED STATES PATENT OFFICE

2,189,587

## BOTTLE CARRIER

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Application October 15, 1936, Serial No. 105,694

20 Claims. (Cl. 141—7)

This invention relates in general to bottle carriers and in particular to a cylindrical bottle carrier used in connection with a bottle washing and sterilizing machine. This application is a continuation in part of my copending application Serial No. 74,629, filed April 16, 1936, and relating to improvements in "Bottle washer and sterilizer".

The object of the invention, therefore, is to provide a bottle carrier for use with the above-mentioned "washer and sterilizer", said carrier having resilient bottle holding members adapted to hold a bottle in inverted position, the carrier being capable of use with bottles of various sizes and shapes without any change in construction.

When used in my washer and sterilizer, long rows of the carriers are advanced simultaneously through the machine, each carrier bearing against the adjacent one, making it imperative that the carriers be of a substantial and rigid design. It is therefore, a further object of this invention to provide a carrier of rigid outer construction, and having resilient inner members for carrying the bottles in an inverted position, the construction of the carriers allowing the bottles therein to be reached by a maximum of liquid discharged from the sprays in the washing and sterilizing machine.

Due to the manner in which the carriers progress through my washer and sterilizer it is necessary that they be cylindrical in form and it is a still further object of the invention to provide a cylindrical carrier adapted to roll freely on a declining surface.

Before being washed and sterilized, bottles are apt to contain corks and other foreign objects whose exit from the bottle must not be impeded. Therefore, it is another object of my invention to provide a carrier devoid of any obstructions to the free passage of the contents of the bottles therefrom.

As far as I am aware, the prior art does not show an individual carrier having rigid outer circular members and resilient inner bottle holding fingers on which bottles of various sizes may be carried.

Further objects and advantages of my invention will be apparent by reference to the following description in connection with the accompanying drawing in which:

Fig. 1 is an elevational view of the carrier comprising my invention.

Fig. 2 is a vertical, cross sectional view through the same.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary, sectional view of a modified form of my invention.

Fig. 5 is a fragmentary, bottom view of the bottle held in the retaining tips.

Fig. 6 is a fragmentary, sectional view of a further modified form of the invention.

Referring now to the drawing by numerals of reference, 1 and 2 designate rigid circular end rings, maintained in fixed spaced relation by a plurality of separating strips 3.

At approximately the midpoint 4 of each separating strip 3 is a resilient bottle retaining finger 5 having inwardly and downwardly disposed portions 6 and downwardly depending portions 7, the end of the depending portions 7 having angular tips 8 against which the end of the bottle 9 may bear.

It will be seen that the tips 8 do not extend beyond the inside edge 9' of the bottle opening and therefore cannot hinder the removal of foreign matter from the bottle.

In the modification shown in Fig. 4, adjusting screws 10 and lock nuts 11 may be provided on the ring 2 to regulate the extent of movement of the portions 7 of the resilient fingers 5. Obviously the adjusting means may be positioned on the portion 7 with the same results.

Fig. 6 shows a further modified form of my invention in which the portions 7 have angular extensions 12 which prevent excessive movement of the resilient fingers 5.

From the foregoing it will be seen that I have provided a bottle carrier of rigid outer construction and a resilient inner construction whereby a bottle may be carried in inverted position, free from danger of breakage. While primarily designed to carry milk bottles of quart, pint and half pint sizes, the carrier may be adapted to hold other types and sizes of bottles or containers.

With the use of my carrier the outer and inner surfaces of the bottle are exposed sufficiently to be sprayed and washed in an efficient manner. The carrier automatically centers the bottle therein and in combination with my "bottle washer and sterilizer", the carriers are centered directly opposite a spray as they move through the device, allowing the bottle in the carrier to be thoroughly sprayed and washed.

It is obvious that changes in form, proportion and details of construction may be resorted to without departing from the spirit of my invention.

What I claim as new and desire to secure by Letters Patent is:

1. A bottle carrier comprising a pair of spaced rigid end rings, a plurality of spaced supports secured to and extending between the rings, resilient bottle retaining fingers secured at one end thereof to said supports, said fingers converging and extending toward one end of said supports and movably related thereto, the movable ends of said fingers each carrying a bottle retaining tip.

2. The structure as specified in claim 1, said 60

bottle retaining tips being of sufficient length to carry the end of the bottle without obstructing the opening therein.

3. The structure as specified in claim 1, including adjusting means for regulating the extent of movement of said fingers.

4. The structure as specified in claim 1, including adjustable means at the free ends of said resilient fingers to regulate the extent of movement of said fingers.

5. The structure as specified in claim 1, including angular members at the free ends of said resilient fingers to prevent excessive movement of said fingers.

6. A bottle carrier comprising a pair of spaced rigid circular end members, a plurality of narrow rigid elongated supports intermediate of and having the ends thereof secured to said circular members equidistant within the peripheral edge thereof, resilient bottle holding fingers having one end secured to the supports and extending longitudinally toward one of the circular members and inwardly toward the central longitudinal axis of the carrier.

7. A cylindrical bottle carrier comprising corresponding equal size end rings, separating strips secured to and between the end rings, resilient fingers having one end secured to the separating strips, the free ends of said fingers converging toward one of the end rings.

8. A cylindrical bottle carrier comprising corresponding equal size end rings, separating strips between the end rings and secured at spaced intervals about the inside periphery thereof, resilient fingers secured at one end thereof to the separating strips, the free ends of said fingers converging toward one of the end rings.

9. A carrier comprising a cylindrical cage having open ends and rigid end rings of equal diameter, said cage between the end rings being of openwork structure, resilient retaining members within the cage and secured thereto, said retaining members being constructed and arranged to loosely support articles in the cage.

10. A carrier comprising a cylindrical cage having open ends and rigid end rings of equal diameter, said cage between the end rings being of openwork structure, resilient retaining members positioned within the cage and supported thereby, each of said retaining members having a free end converging toward one end of the cage and movably related thereto.

11. A carrier comprising a cylindrical cage having open ends and rigid end rings of equal diameter, said cage between the end rings being of openwork structure, resilient retaining members positioned within the cage and supported thereby, each of said retaining members having a free end converging toward one end of said cage and movably related thereto, the free ends of said members each carrying an article retaining tip.

12. A carrier comprising a cylindrical cage having open ends and rigid end rings of equal diameter, said cage between the end rings being of openwork structure, resilient retaining members positioned within the cage and supported thereby, each of said retaining members having a free end converging toward one end of said cage and movably related thereto, the free ends of said members each being provided with a retaining tip of sufficient length to carry the end of a bottle or the like without obstructing the opening therein.

13. A carrier comprising a cylindrical cage having open ends, resilient retaining members positioned within the cage and supported thereby, each of said retaining members having a free end converging toward one end of said cage and movably related thereto, the free ends of said members each carrying an article retaining means, and adjusting means for regulating the extent of movement of said members.

14. A carrier comprising a cylindrical cage having open ends, resilient retaining members positioned within the cage and supported thereby, each of said retaining members having a free end converging toward one end of said cage and movably related thereto, and adjustable means at the free ends of said resilient members to regulate the extent of movement of said members.

15. A carrier comprising a cylindrical cage having open ends, resilient retaining members positioned within the cage and supported thereby, each of said retaining members having a free end converging toward one end of said cage and movably related thereto, and angular members at the free ends of said resilient members to prevent excessive movement of said resilient members.

16. A carrier comprising a cylindrical cage having open ends and rigid end rings of equal diameter, said cage between the end rings being of openwork structure, resilient retaining members positioned within the cage and supported thereby, each of said members having a free end extending longitudinally toward one end of the cage and inwardly toward the central longitudinal axis of the cage.

17. In a device of the class described, a carrier for retaining bottles or the like, comprising equal size, spaced, cylindrical end members, rigid spaced supports secured to and between the end members and within the periphery thereof, and resilient retaining fingers carried by the supports and positioned between said end members for loosely supporting the bottle in the carrier.

18. In a device of the class described, a carrier for retaining bottles or the like, comprising equal size, spaced cylindrical end members, rigid spaced supports secured to and between the end members and within the periphery thereof, resilient retaining fingers carried by the supports and positioned between said end members for loosely supporting the bottle in the carrier, each of said fingers having a free end converging toward one end member of the carrier within the periphery of the end member and movably related thereto.

19. A carrier comprising a cylindrical cage having open ends, resilient retaining members positioned within the cage and supported thereby, each of said members having a free end converging toward one end of said cage and movably related thereto, and adjusting means on the cage for regulating the extent of movement of the free ends of the retaining members.

20. A carrier comprising a cylindrical cage having open ends, resilient retaining members positioned within the cage and supported thereby, each of said members having a free end converging toward one end of said cage and movably related thereto, and adjusting means on the cage in alignment with each of the members for regulating the extent of movement of the free ends thereof.

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