May 13, 1930. B. E. CLARKE ET AL 1,758,219

CAPPING AND SEDIMENT RETAINING DEVICE FOR BOTTLED BEVERAGES

Filed July 28, 1926

Fig. 2.

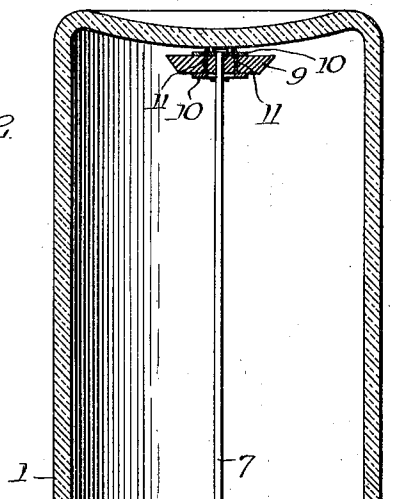


Fig. 3

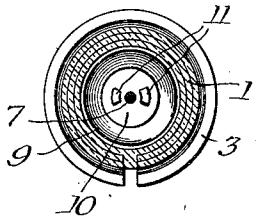


Fig. 1

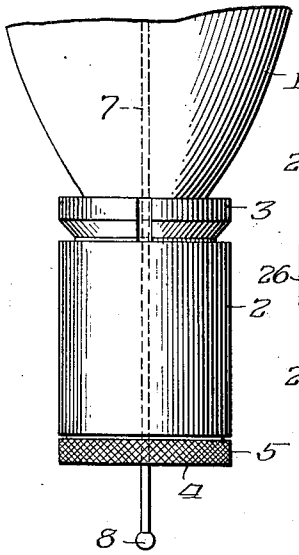
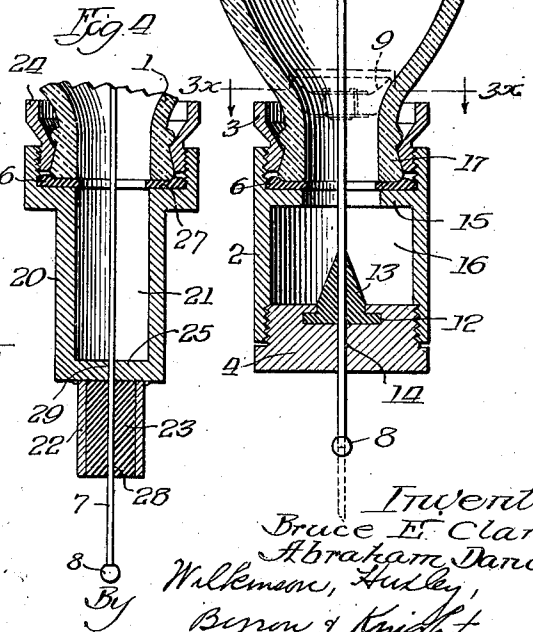


Fig. 4



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UNITED STATES PATENT OFFICE

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CAPPING AND SEDIMENT-RETAINING DEVICE FOR BOTTLED BEVERAGES

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This invention relates to a capping and sediment retaining device for bottled beverages.

It is well known that all beverages bottled at home, for home consumption, contain to a greater or less degree, certain insoluble residues of gelatinous and colloidal nature which do not completely precipitate or settle out except through long standing in an undisturbed condition. This precipitate, which contains the nitrogenous and albuminoid principles existing normally in the substances entering into the composition of the beverage, is easily disburbed either by slight agitation, or through the liberation of carbon dioxide when the pressure is removed or released, as will be the case when the cap or other confining member is removed from the bottle, in order to pour out its contents. When the pressure is so relieved, small bubbles of the confined gases are formed at the bottom of the container and rise rapidly to the surface of the liquid. In so doing they envelop small particles of the sediment and carry them to the surface of the liquid where the gas escapes into the atmosphere, and in so escaping it releases its hold on the particles which in turn, due to the force of gravity, fall back again toward the bottom of the bottle. This carrying and subsequent releasing of the precipitate by the released gases progresses so rapidly, and with such energy, that the liquid contents of the bottle is quickly rendered cloudy, thus presenting an appearance distinctly displeasing to the eye, and possessing a decidedly unpleasant taste. Further, when the container or bottle is about half empty, by the act of pouring the liquid into a glass, the remaining and heavier portions of the sediment become loosened or roiled to such degree that the remaining liquid is muddy in appearance and of an unpalatable taste. The inherent nature of this sediment or precipitate is such that it is very difficult to remove by any of the means at the disposal of the ordinary home.

The purpose of the present invention is to provide a means for retaining and removing the sediment or precipitate, maintaining the normal gas pressure, and capping the container so as to preserve the contents against bacterial invasion and subsequent serious chemical change, which will render the beverage unfit for human consumption. The only practical method at present employed for the removal of the above mentioned precipitate is by the use of suction or pressure filters, which render the beverage clear and sparkling and free from a greater portion of the suspended nitrogenous and colloidal substances. But this method involves the use of elaborate and expensive equipment, and the filtering must be completed before the beverage is bottled. All of which makes the above method impractical if not impossible for home use. Then too, if the beverage is filtered before bottling the carbon dioxide is allowed to escape and must be replaced by some artificial means after the beverage is placed in the bottle and the bottle is capped.

In practicing the present invention the normal gaseous content of the beverage is retained, and the suspended matter and precipitate can be segregated and removed without disturbing or otherwise affecting the liquid itself, and the container can be recapped so that no other capping device or gas retaining means is necessary. In other words, the present invention serves a manifold purpose in that it is a sediment retainer and eliminator, a capping device, and a gas retaining mechanism so constructed that it is easy of manipulation and can be readily and securely attached to the glass containers now used for storing and preserving home beverages.

Contrary to popular conception, it has been proven by actual experiment that the sediment or precipitate, which forms and is deposited in all home made beverages, has certain definite and easily determined deleterious effects upon the digestive organs. This ill effect can be explained, in part at least, by saying that the precipitate is composed largely of disintegrated and decomposed protein bodies and certain other chemical substances which are formed during the processing of the beverage. The present invention provides a means for removing, to a large degree, all of the precipitate, and in so doing it ren-

ders the finished product more pleasing to the eye, more pleasant to the taste, and free from products which produce ill-effects upon the organs of digestion.

In order that the invention may be fully understood, the preferred embodiment thereof will now be described in detail, by way of illustration, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation showing the capping and sediment retaining device as applied to the neck of the bottle;

Figure 2 is a side elevation in cross-section showing an inverted bottle, sediment collecting chamber and attaching means;

Figure 3 is a cross-sectional view taken on line 3×—3× of Figure 2, and

Figure 4 is a cross-sectional view of a modification of our invention showing the rubber washer mounted on the outside of the end wall of the chamber.

Referring to the drawings, 1 represents a bottle such as used for beverages, especially the type used for home consumption. 2 represents the cylindrical body portion forming a chamber 16 having an internal flange 15 and threads at its upper end which constitute together with the split ring 3 and the washer 6 means for attaching and sealing the chamber and neck of the bottle. The lower end of the chamber 2 is internally threaded and receives the closing plug 4. The plug 4 is centrally perforated so as to receive the plunger rod 7, the upper end of the plug 4 being recessed as at 12 concentric with the perforation which recess forms a seat and retaining flange for the conical washer 13. The washer 13 is preferably made of soft rubber and is centrally pierced so as to surround and closely bind the plunger rod 7 thus preventing any escape of gas or liquid through the opening in the plug 4 and also serving to create a drag, resisting any free movement of rod 7.

An alternative form is shown in Figure 4, which comprises a body portion 20 forming a chamber 21, the other end of which is closed by an integral partition 25. The partition 25 is provided with an orifice 29, and cylindrical receptacle 22 attached to its outer surface, which receptacle contains the rubber block corresponding to that shown at 13 in the other modification, the same being centrally pierced at 28 in alignment with the orifice 29 in a manner to receive the rod 7. The upper end of this embodiment is provided with the shoulder 27 and washer 26 and is adapted to be attached to the end of the bottle by means of the retaining ring 24, similar to the construction and operation of the corresponding parts in the other modification.

The attaching ring 3 is split in order that it may be placed over the flanged enlargement on the outer end of the neck of the bottle and being adapted to receive the chamber member 2 which is screwed onto the lower portion thereby restricting the ring causing it to tightly bind the flanged end of the bottle and also causing the internal flange of the chamber member 2 to be drawn closely to the edge of the bottle and to force the washer 6 into intimate engagement with these parts. The plunger rod 7 is provided at its lower end with an enlargement 8 which renders it convenient for manipulation. The upper end of plunger rod 7 is provided with a flexible sealing washer 9 which is attached in any convenient manner, such as shown in Figure 2, between two metal disks 10 and binding straps 11.

In operation, after the bottle has been filled with the beverage and the capping and sediment retaining device applied as above described, the bottle is placed for a predetermined period in its inverted position, as shown in Figure 2, the plunger rod 7 at this time being in elevated position and being so held by the drag offered by the binding action of the washer 13. This position permits the suspended particles under the influence of gravity to collect in chamber 2 during which time the contents remain sealed. When it is desired to permanently cap the bottle, the rod 7 is withdrawn to an extent sufficient to cause the sealing washer 9 to tightly engage internally the restricted portion of the bottle as shown in dotted lines in Figure 2, thus causing the clarified beverage to be completely separated from the sediment and at the same time maintaining the beverage in its charged condition. Plug 4 may then be removed by turning the roughened gripping flange 5 and the sediment disposed of. The bottle is then turned to its upright position, the capping and sediment retaining device is then removed and the bottle recapped by any of the conventional means now in use.

Our invention affords means whereby it is made possible to efficiently separate the sediment from the beverage employing the natural settling action by gravity and permitting a disposal of the sediment without allowing the contents of the bottle to become exposed to the air or the escape of gas therefrom.

It is not to be construed from the foregoing that the device as above described is the only way in which it can be constructed and applied. Even though a valve be introduced within the sediment retaining chamber 2, it would not affect or change the underlying principle embodied in the present invention, nor would the provision of some other means for attaching the device to the bottle container alter the ultimate results attained through the working of the present invention.

We claim:

1. In a capping and sediment retaining device for bottled beverages, a container for sediment having a threaded upper end and a port through which it communicates with the

interior of the bottle container, a bottle attaching ring engaging said threads, a plunger rod and seal, the plunger rod extending through said container and into the interior of a bottle and being adapted to be operated at will.

2. In a capping and sediment retaining device for bottled beverages of substantially the character described, a pressure retaining cap having a recess, a plunger rod passing through said cap, a soft rubber member seated in the recess and so constructed as to close in around the plunger rod and thus prevent the escape of gas.

3. In a capping and sediment retaining device for bottled beverages, a hollow cylindrical body forming a chamber for collecting sediment, said chamber having a port at its lower end through which it is adapted to communicate with the atmosphere, and a port at its upper end through which it communicates with the interior of the bottle container, a closure for said lower port, an attaching member for securing it to the bottle and forming a seal therewith, a plunger rod and head extending through said chamber into the bottle adapted to have closing engagement with the neck of the bottle, said plunger rod having its outer end extended beyond said device for manual control.

4. In combination with a bottle, a sediment collecting device comprising a cap member having a chamber therein, a ring for engaging the top of the bottle having means for attaching said cap thereto, said cap having means cooperating with said last named means, and acting while in position to bind said ring on said bottle and means extending through said cap into said bottle for separating said chamber from the interior of said bottle.

Signed at Tulsa, Oklahoma, this 20th day of July, 1926.

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