Nov. 27, 1951 A. G. EDWARDS 2,576,580

BOTTLE CAP

Filed Nov. 16, 1948

Fig. 1

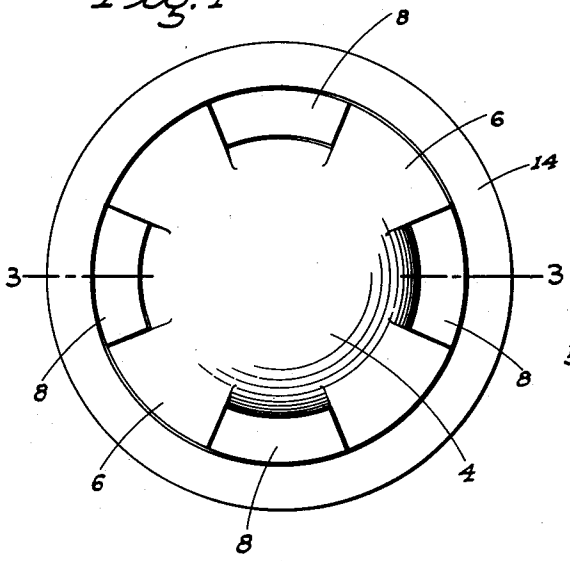


Fig. 2

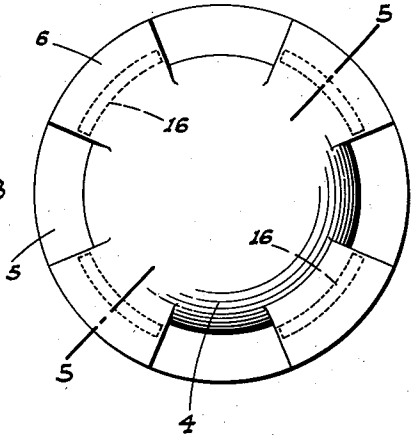


Fig. 3

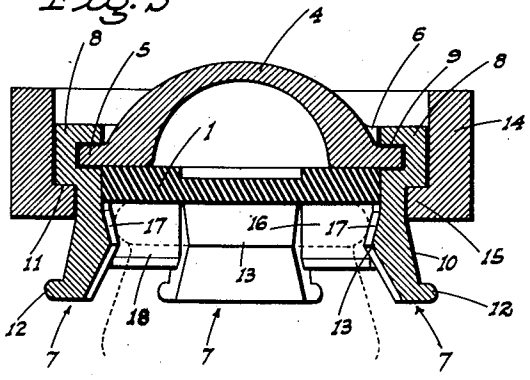


Fig. 5

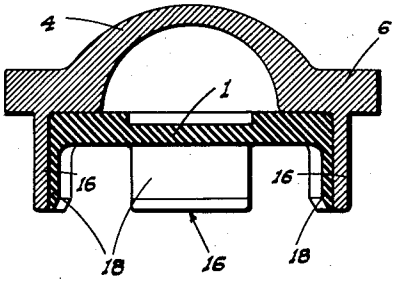


Fig. 4

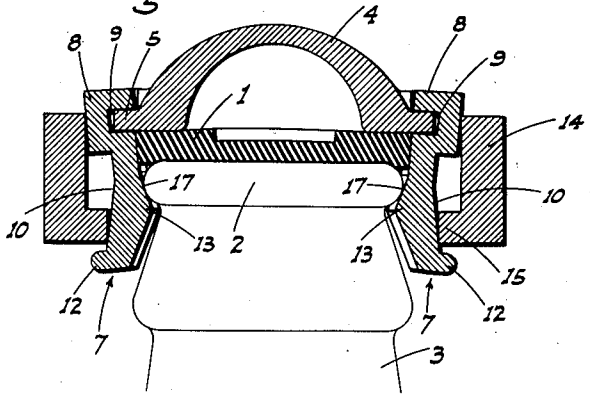
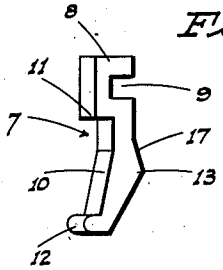


Fig. 6



INVENTOR

Albert G. Edwards

BY Watson & Watson

ATTORNEYS

Patented Nov. 27, 1951

2,576,580

UNITED STATES PATENT OFFICE

2,576,580

BOTTLE CAP

Albert G. Edwards, Diamond Springs, Calif., assignor to Mero Co. Inc., Modesto, Calif., a corporation of California

Application November 16, 1948, Serial No. 60,359

7 Claims. (Cl. 215—45)

1

This invention is directed to, and it is an object to provide, an accessory in the form of a novel bottle cap adapted for use on bottles from which the original crimped cap has been removed, but wherein contents remain for keeping. The cap is especially useful for bottles having carbonated beverages or the like therein.

Another object of the invention is to provide a novel bottle cap which can be placed on, or removed from, a bottle with ease and by hand; the cap, when in place, effectively and positively sealing the bottle against fluid leakage.

A further object of the invention is to provide a bottle cap which can be manufactured economically, and mainly of plastic, by reason of its simple design.

An additional object of the invention is to provide a bottle cap which is attractive in appearance, and of a convenient size for ready manipulation.

It is also an object of the invention to provide a bottle cap which includes a novel combination of a sealing gasket, locking fingers, gasket clamping dome, and a retention and actuating ring.

A further object of the invention is to provide a practical bottle cap, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is an enlarged plan view of the novel bottle cap.

Fig. 2 is an enlarged plan view of the gasket clamping dome, detached, but with the gasket therein.

Fig. 3 is a cross section on line 3—3 of Fig. 1, showing the novel bottle cap as in use; i. e. as clamped in sealing engagement with the upper end of the neck of a bottle.

Fig. 4 is a similar view, but shows the cap in released position but before removal from the neck of the bottle.

Fig. 5 is a cross section on line 5—5 of Fig. 2.

Fig. 6 is a perspective view of one of the locking fingers, detached.

Referring now more particularly to the characters of reference on the drawings, the novel bottle cap comprises a circular sealing gasket 1 of substantial thickness, and of a diameter slightly greater than the diameter of the bead 2 on the upper end of the neck 3 of a conventional bottle for beverages or the like. This sealing

2

gasket is of a heavy-duty, resilient material, such as rubber.

A gasket clamping dome 4 is seated on top of the sealing gasket 1, and said dome includes, at its lower end, an annular, radially outwardly extending flange 5, which flange 5 projects beyond the periphery of said sealing gasket 1. At a plurality of equally circumferentially spaced points, the flange 5 is increased in height, whereby to form integral segmental spacers 6.

Each portion of the flange 5 is fitted, between the adjacent spacers 6, with a locking finger, indicated generally at 7, which is constructed and mounted as follows:

Each locking finger comprises an arcuate head 8 having an inwardly opening, arcuate notch 9 therein; such notched head straddling a corresponding portion of the flange 5 between adjacent ones of the spacers 6.

The outer edge of each locking finger 7 is inclined downwardly and outwardly to form a cam 10, and above said cam the outer end bottom portion of the head 8 forms a downwardly facing shoulder 11. At the lower end of each locking finger 7, and below the cam 10, there is an outwardly projecting stop lug 12. The inner edge of each locking finger 7 is formed, intermediate its ends, with an inwardly projecting nub 13 disposed some distance below the bottom of the sealing gasket 1.

Directly below each notch 9, the inner edge of the locking finger 7 abuts firmly against the periphery of the sealing gasket 1.

The locking fingers 7, as circumferentially spaced about the dome 4, with the notched heads 8 engaging over corresponding portions of the flanges 5, are retained in place by a retention and actuating ring 14 which surrounds the assembly, with the inner surface of such ring bearing against the outside of the heads 8.

The retention and actuating ring 14 includes, at the bottom, an annular, radially inwardly projecting flange 15, of short extent, which engages beneath the shoulders of said locking fingers 7.

Skirts 16 depend from the portions of the flange 5 which form the spacers 6, whereby said depending skirts 16, which are arcuate, extend between adjacent ones of the locking fingers 7.

The assembled cap, when released, has the parts thereof in the positions indicated in Fig. 3, wherein the shoulders 11 of the locking fingers 7 rest on top of the flange 15, and at which time the locking fingers 7 are spaced apart sufficient

to permit the cap to be engaged easily on the upper end of the neck 3 of a bottle, and for the nubs 13 to pass downwardly below the bead 2 of said neck 3. See Fig. 3. Thereafter, the retention and actuating ring 14 is manually grasped and pressed downward so that the flange 15 lowers with respect to the locking fingers 7. When this occurs, the flange riding the cam edges 10, which incline downwardly and outwardly, causes the locking fingers 7 to be swung inwardly so that the nubs 13 grip under the bead 2 of the bottle neck 3 in the manner indicated in Fig. 4. This effectively locks the cap in place on the neck of the bottle, and at the same time places the sealing gasket 1 under compression between the clamping dome 4 and said bead 2, sealing the bottle against fluid escape. The sealing gasket 1 is placed under compression by reason of downwardly and inwardly inclined cam edges 17 on the inside of said fingers above the nubs 13; such cam edges riding under the rounded bead 2, whereby the fingers are pulled downwardly to compress the gasket.

The notches 9 receive the corresponding portions of the flange 5 with sufficient loose play to permit the locking fingers to swing inwardly, as above.

The stop lugs 12 assure that the retention and actuating ring 14 cannot be slid downward off the locking fingers 7, while the shoulders 11 prevent upward escape of said ring.

To release the cap, it is only necessary to slide the ring 14 relatively upwardly, whereupon the locking fingers 7 are sprung outwardly by the compressed sealing gasket 1, and to a position wherein the nubs 13 can readily pass the bead 2; i. e. the starting position of the cap, as in Fig. 3.

The skirts 16, which depend between the locking fingers 7, prevent any splashing or squirting laterally of the cap at the instant of its release from the bottle neck.

It will be noted that gasket 1 includes depending skirts 18 matching and lapping skirts 16 as clearly shown in Fig. 5. These skirts 18 enhance the sealing action of the gasket and positively prevent any of the beverage in the capped bottle from splashing out and entering the working parts of the device.

The above described bottle cap is a device which is simple in its construction, economical to manufacture, and yet extremely practical and convenient for its intended purpose.

From the foregoing description it will be readily seen that there has been produced a device that substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent are desired:

1. A bottle cap comprising a circular sealing gasket, a clamping member seated on the sealing gasket, a plurality of circumferentially spaced locking fingers loosely mounted on the clamping member at the periphery and depending therefrom about the sealing gasket, said fingers having nubs projecting inward therefrom in spaced relation below the sealing gasket, a ring normally surrounding the locking fingers for relative up and down motion, and means between the fingers and ring arranged to urge the fingers inward upon relative downward motion of said ring; the fingers including heads on their upper end, the heads being within the ring and having inwardly opening notches, and the clamping member engaging at its periphery in said notches.

2. A bottle cap comprising a circular sealing gasket, a clamping dome seated on the sealing gasket, a plurality of circumferentially spaced locking fingers loosely mounted on the dome at the periphery and depending therefrom about the sealing gasket, said fingers having nubs projecting inward therefrom in spaced relation below the sealing gasket, a ring normally surrounding the locking fingers for relative up and down motion, and means between the fingers and ring arranged to urge the fingers inward upon relative downward motion of said ring; the dome including a radially outwardly projecting flange at the bottom, the upper portions of the fingers being notched and receiving said flange therein.

3. A bottle cap comprising a circular sealing gasket, a clamping dome seated on the sealing gasket, a plurality of circumferentially spaced locking fingers loosely mounted on the dome at the periphery and depending therefrom about the sealing gasket, said fingers having nubs projecting inward therefrom in spaced relation below the sealing gasket, a ring normally surrounding the locking fingers for relative up and down motion, and means between the fingers and ring arranged to urge the fingers inward upon relative downward motion of said ring; the dome including a radially outwardly projecting flange at the bottom, the upper portions of the fingers being notched and receiving said flange therein, and the fingers bearing against the periphery of the sealing gasket, the latter being of compressible material.

4. A bottle cap comprising a circular sealing gasket of compressible material, a clamping dome seated on the sealing gasket, the dome including a radially outwardly projecting annular flange at its lower end extending beyond the periphery of the gasket, a plurality of circumferentially spaced locking fingers about and depending below the gasket, said fingers including heads on their upper end notched and engaging over the flange on the clamping dome, nubs projecting inward from the fingers in spaced relation below the gasket, an actuating and retention ring surrounding the fingers, the heads on the fingers forming downwardly facing outside shoulders, a radially inwardly projecting flange on the ring below and initially engaged by said shoulders, and means between said flange and fingers operative to urge the latter inward upon relative downward motion of the ring.

5. A bottle cap comprising a circular sealing gasket of compressible material, a clamping dome seated on the sealing gasket, the dome including a radially outwardly projecting annular flange at its lower end extending beyond the periphery of the gasket, a plurality of circumferentially spaced locking fingers about and depending below the gasket, said fingers including heads on their upper end notched and engaging over the flange on the clamping dome, nubs projecting inward from the fingers in spaced relation below the gasket, an actuating and retention ring surrounding the fingers, the heads on the fingers forming downwardly facing outside shoulders, a radially inwardly projecting flange on the ring below and initially engaged by said shoulders, and downwardly and outwardly inclined cam edges on the outside of the fingers below said shoulders whereby the flange on the ring, when relatively lowered,

rides said cam edges and urges the fingers inwardly.

6. A bottle cap comprising a circular sealing gasket of compressible material, a clamping dome seated on the sealing gasket, the dome including a radially outwardly projecting annular flange at its lower end extending beyond the periphery of the gasket, a plurality of circumferentially spaced locking fingers about and depending below the gasket, said fingers including heads on their upper end notched and engaging over the flange on the clamping dome, nubs projecting inward from the fingers in spaced relation below the gasket, an actuating and retention ring surrounding the fingers, the heads on the fingers forming downwardly facing outside shoulders, a radially inwardly projecting flange on the ring below and initially engaged by said shoulders, and means between said flange and fingers operative to urge the latter inward upon relative downward motion of the ring; the flange on the clamping dome being increased in thickness between the heads so as to maintain proper circumferential spacing of the fingers.

7. A bottle cap comprising a circular sealing gasket of compressible material, a clamping dome seated on the sealing gasket, the dome including a radially outwardly projecting annular flange at its lower end extending beyond the periphery of the gasket, a plurality of circumferentially spaced locking fingers about and depending below the gasket, said fingers including heads on their upper end notched and engaging over the flange on the

clamping dome, nubs projecting inward from the fingers in spaced relation below the gasket, an actuating and retention ring surrounding the fingers, the heads on the fingers forming downwardly facing outside shoulders, a radially inwardly projecting flange on the ring below and initially engaged by said shoulders, and downwardly and outwardly inclined cam edges on the outside of the fingers below said shoulders whereby the flange on the ring, when relatively lowered, rides said cam edges and urges the fingers inwardly; there being downwardly and inwardly inclined cam edges on the inner edge of the fingers above the nubs but below the gasket.

ALBERT G. EDWARDS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
835,366	Purcell	Nov. 6, 1906
1,441,742	O'Brien	Jan. 9, 1923
1,545,227	Baltzley	July 7, 1925
1,862,620	Graham	June 14, 1932
2,045,480	Magnesen et al.	June 23, 1936
2,421,356	Saffady	May 27, 1947
2,439,845	DeSwart	Apr. 20, 1948

FOREIGN PATENTS

Number	Country	Date
446,612	Great Britain	May 4, 1936