

No. 731,048.

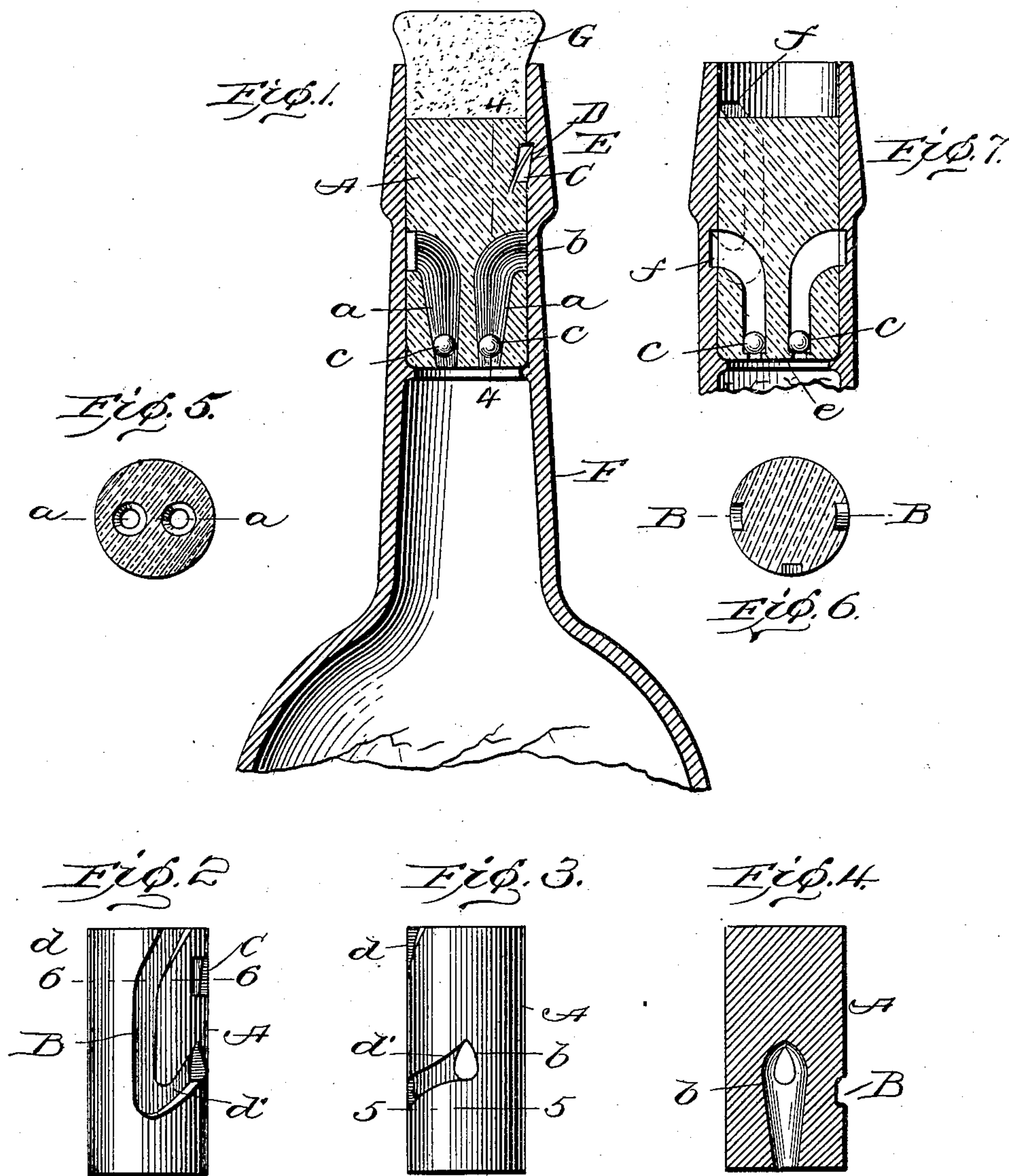
PATENTED JUNE 16, 1903.

J. GUTHRIE.

STOPPER DEVICE FOR NON-REFILLABLE BOTTLES, &c.

APPLICATION FILED OCT. 14, 1902.

NO MODEL.



Inventor

James Guthrie

By

W. A. Redmond

Attorney

Witnesses

J. M. Fowler Jr.
Ed. J. Redmond

UNITED STATES PATENT OFFICE.

JAMES GUTHRIE, OF CHICAGO, ILLINOIS.

STOPPER DEVICE FOR NON-REFILLABLE BOTTLES, &c.

SPECIFICATION forming part of Letters Patent No. 731,048, dated June 16, 1903.

Application filed October 14, 1902. Serial No. 127,259. (No model.)

To all whom it may concern:

Be it known that I, JAMES GUTHRIE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Stopper Devices for Non-Refillable Bottles, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to non-refillable bottles or other receptacles, and particularly to a stopper device adapted for insertion into the neck of a bottle, jug, or other receptacle for liquids or any material substance adapted to or capable of flowing, such as a finely-powdered material; and it has for its object to provide a simple, comparatively inexpensive, and effective device for preventing the refilling of a receptacle after it has once been emptied; and it consists of the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section through the neck of a bottle, showing the stopper device in position and also in vertical section; Fig. 2, a side elevation of the stopper device; Fig. 3, a similar view from the opposite side; Fig. 4, a vertical section on the line 4 4, Fig. 1; Fig. 5, a horizontal section on the line 5 5, Fig. 3; Fig. 6, a horizontal section on the line 6 6, Fig. 2; and Fig. 7 a vertical section through the neck of a bottle and the stopper device, showing modified forms of the invention.

Referring to the drawings, A represents the stopper, which may be made of any size and shape desired or necessary for the size and shape of the opening of the receptacle to which it is to be applied, and it may be of any preferred material, such as glass or any other suitable material or metal.

In the body of the stopper is formed in any desired or preferred manner the vertically-extending channels or tubular openings *a*, extending from the bottom end of the stopper upwardly the desired distance and then laterally to the side of the stopper. These channels or tubular openings are preferably tapering or flaring toward their upper ends,

and the openings in which they terminate, as at *b*, are somewhat oval in outline, as best seen in Figs. 3 and 4. In the channels *a* are arranged the balls or spheres *c*, said balls or spheres being of a size to readily enter the openings *b* and to have free movement in the tubular channels *a* to a point near the bottom ends of said channels, at which point the converging walls of the channels prevent their further descent.

A groove or channel B is formed in the stopper at opposite sides thereof, which extends from the top of the stopper slantingly for a short distance, as at *d*, and then vertically to a point slightly slanting and upwardly to said openings, as at *d'*, in which they terminate, as clearly shown in Figs. 2 and 3.

C represents a recess in the side of the stopper, in which a spring D is secured, and E a notch in the inner wall of the neck of the bottle F, into which said spring projects to lock the stopper in place after it has been inserted.

While I have shown the channels *a* tapering in form, and I prefer such shape, still it is obvious that the vertical portion of the channels may be of the same diameter throughout and the balls or spheres of a size to fit and slide or roll therein, and a flange *e*, as shown in Fig. 7, be formed at the bottom of the channels to arrest the descent of the balls or spheres. Also in same view I have shown the channels which communicate with the openings *b* formed in the inner wall or surface of the neck of the bottle, as at *f*, instead of in the stopper, as it is obvious such an arrangement will work equally well.

A stopper G, of cork preferably, is inserted in the mouth of the bottle over the stopper device.

In operation the balls are inserted through the openings *b* into the channels *a* and their descent therein arrested, either by reason of the shape of the channels or the flange *e*, and the stopper is then inserted in the mouth until the spring engages the notch in the neck of the bottle, and thus locks the stopper in position, so that it cannot be removed without first breaking the bottle. To empty or decant the liquid, the cork G is withdrawn and the receptacle turned or tilted into a horizontal position, causing the balls to roll or gravi-

tate to the upper or outlet ends of the channels, and the contents of the receptacle following escape around and over the balls into the grooves or channels B, and thus out of the bottle.

It is obvious that the bottle cannot be re-filled while the stopper is in place, because upon turning the receptacle to an upright position the balls will prevent the passage of any liquid or substance, while if it is attempted to force anything into the receptacle while the same is in any other position the means employed will drive the balls into position to prevent the liquid or other substance entering.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A stopper device for non-refillable receptacles, comprising a stopper having a channel formed in its body and extending vertically toward its upper end, a laterally-extending channel communicating with said vertical channel and opening in the peripheral surface of said stopper, a ball adapted for gravi-

tating movement in said channels to close the same, and an outlet-groove communicating with said laterally-extending channel.

2. A stopper device for non-refillable receptacles, comprising a stopper having vertically-extending tapering channels, lateral channels communicating with said vertical channels and terminating in the peripheral surfaces of said stopper, balls adapted to gravitate in said channels, and outlet-grooves communicating with said lateral channels.

3. A stopper device for non-refillable receptacles comprising a stopper having channels extending from the peripheral surface through the body to the bottom end, balls adapted to fit within said channels and to gravitate therein, and outlet-grooves communicating with said channels.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES GUTHRIE.

Witnesses:

M. L. SPELLMAN,
HUGH M. STERLING.