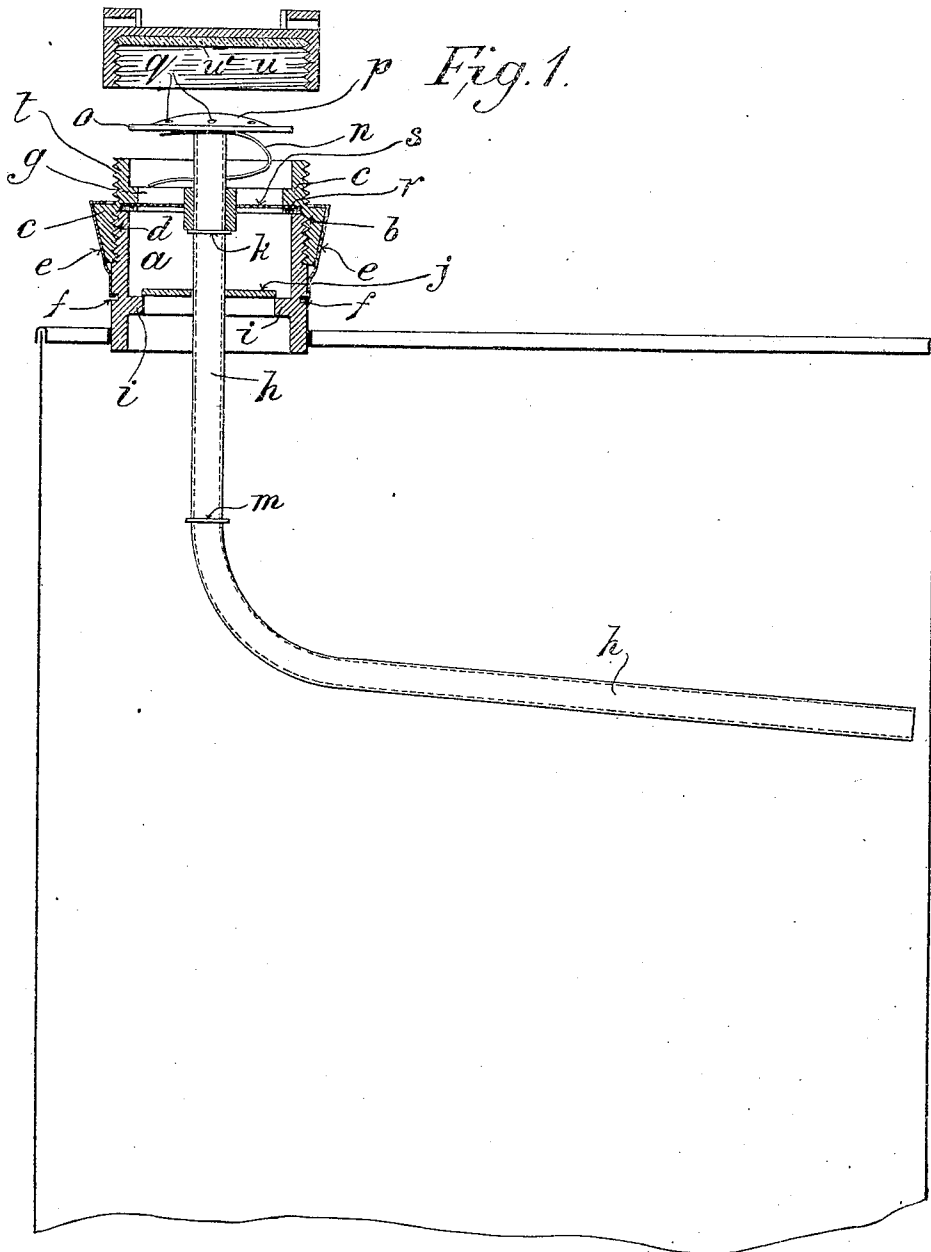


T. HEFFERNAN & H. C. BRAUN.
STOPPERING DEVICE FOR BOTTLES OR THE LIKE.
APPLICATION FILED OCT. 7, 1908.

948,325.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.



Witnesses

T. P. Britt
C. C. Duffy

Inventors

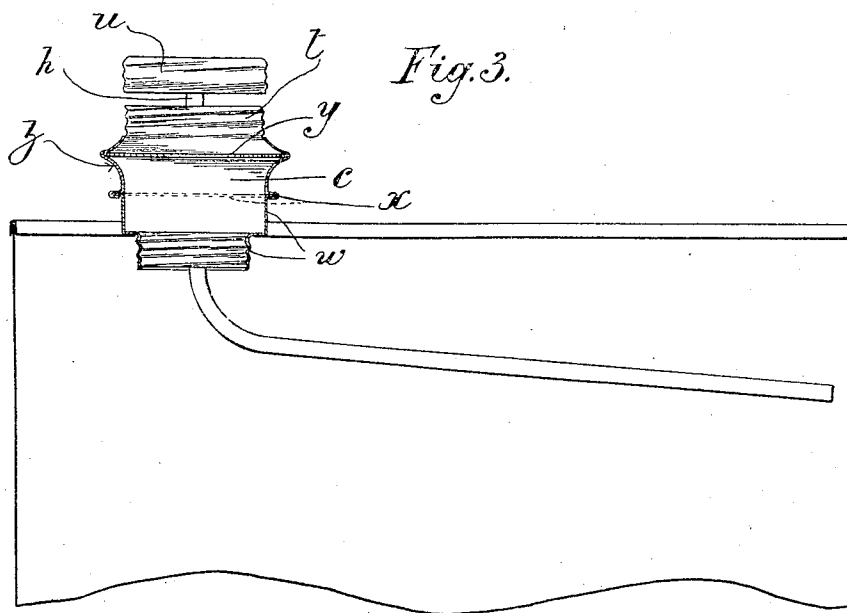
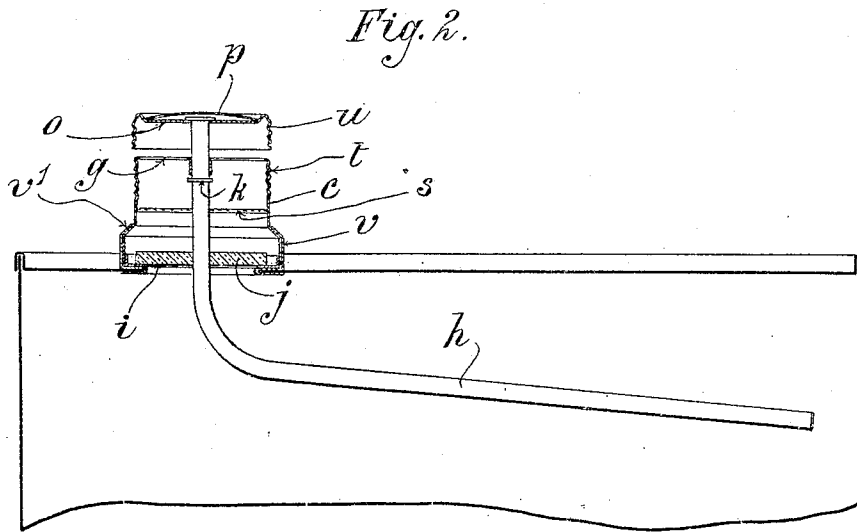
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by C. E. Duff
attys.

UNITED STATES PATENT OFFICE.

THOMAS HEFFERNAN AND HENRY CHARLES BRAUN, OF LONDON, ENGLAND, AS-SIGNORS TO N. R. CAPSULE SYNDICATE, LIMITED, OF LONDON, ENGLAND.

STOPPERING DEVICE FOR BOTTLES OR THE LIKE.

948,325.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed October 7, 1908. Serial No. 456,651.

To all whom it may concern:

Be it known that we, THOMAS HEFFERNAN and HENRY CHARLES BRAUN, subjects of the King of Great Britain and Ireland, residing at London, England, have invented Improvements in Stoppering Devices for Bottles or the Like, of which the following is a specification.

This invention relates to the stoppering of bottles, cans and like vessels by means of devices which either prevent refilling or render it extremely difficult to enable this to be performed.

The object of the invention is to provide improved devices of this kind which without being complicated in construction are more effectual in use than those hitherto proposed, to which end the invention consists of certain novel arrangements and combinations of parts all as hereinafter more specifically described and claimed.

In the accompanying drawings, Figure 1 is a central vertical section of a stopper applied to an oil can, the parts being in position ready to permit the contents to be poured out. Figs. 2 and 3 are similar views of two modifications, certain parts being in elevation.

Referring first to Fig. 1, *a* is the nozzle or inlet of the can, externally screw threaded at *b*, *c* a metal stopper body internally screw threaded at *d* and *e* a soft metal capsule which can be spun or otherwise deformed to embrace the stopper body *c* and enter a groove *f* in the nozzle *a*. The said body *c* is also formed with a spider *g* serving as a bearing or guide for the limited axial passage therethrough of a movable air inlet tube *h* and has the extremity within the can arranged at an angle to the part that passes through the spider so that it extends to a point within the can where air can be admitted above the level of the liquid while the latter is being poured from the can. *i* is a seat in the nozzle or inlet *a* and *j* a flat disk valve adapted to slide freely along the tube *h* within the limits imposed by a ring or collar *k* and the said seat *i* after the stoppering device has been applied to the can, and within the limits imposed by the ring or collar *k* and another ring or collar *m* upon the tube *h* before the body *c* is secured to the nozzle or inlet *a*. The ring or collar *k* also serves to limit upward movement of the tube *h* under the action of a spring *n* which may be

employed to engage the underside of a plate *o* and hold it and the tube *h* in the position shown while pouring out the contents. The tube *h*, which passes through the plate *o* is protected by a small cap or cover *p* having small air inlet holes *q* to admit air to the tube. *r* is a washer interposed between the nozzle or inlet *a* and stopper body *c* to form a tight joint and *s* is a screen or disk of wire gauze for use when the can is to receive inflammable oils and so prevent the possibility of flame passing into the can and causing an explosion. *t* is an externally screw threaded extension upon the stopper body *c* upon which may be screwed a cap or cover *u* having a washer *u*¹ and serving to make an airtight and fume-tight joint.

In the modification shown in Fig. 2, the body *c* of the stopper is fashioned of thin sheet metal as is also the cap or cover *u*, the latter however in this case confining the plate *o* so that it cannot be removed therefrom. The perforated plate *p* of the previous example for admitting air to the tube *h* is in this modification incorporated in the top of the cap or cover *u*. The retention of the body *c* upon the can is effected by inserting the same into a socket *v* the edge *v*¹ of which is crimped and spun, pressed over or clamped tightly to the said body *c*.

In the modification shown in Fig. 3, the lower extremity of the body *c* is screw threaded to enable it to be screwed into a correspondingly threaded socket *w* having a flange *x* which together with a flange *y* on the body *c* serve to receive a retaining capsule *z* similar to that described with reference to Fig. 1 of the drawings.

What we claim is:—

1. A stoppering device, comprising a hollow body, a valve seat, a valve coacting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and is movable to a limited extent axially, an impermeate plate through which the tube passes and by which it is carried, and means for retaining the body to prevent its removal without detection.

2. A stoppering device, comprising a hollow body, a valve seat therein, a valve coacting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and is movable to a limited extent axially, a plate

carried by the said air inlet tube, a perforated cap protecting and communicating with the said air inlet tube and means for retaining the body to prevent its removal without detection.

3. A stoppering device, comprising a hollow body, a valve seat therein, a valve co-acting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and valve and is bent to introduce air above the level of the liquid while being poured out, a plate carried by the said air inlet tube, a perforated cap surmounting said plate and communicating with the air inlet tube and means for retaining the body to prevent its removal without detection.

4. A stoppering device, comprising a hollow body, a valve seat therein, a valve co-acting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and valve and is bent to introduce air above the level of the liquid while being poured out, a bearing in said body in which the air inlet tube is free to slide, an imperforate plate through which the tube passes and by which it is carried, and means for retaining the body to prevent its removal without detection.

5. A stoppering device, comprising a hollow body, a valve seat therein, a valve co-acting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and valve and is bent to introduce air above the level of the liquid while being poured out, a bearing in said body in which the air inlet tube is free to slide, a plate through which the tube passes and by which it is carried, a perforated cap surmounting said plate and means for retaining the body to prevent its removal without detection.

6. A stoppering device, comprising a hollow body, a valve seat therein, a valve co-acting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and valve and is bent to introduce air above the level of the liquid while being poured out, a plate carried by the said air inlet tube, a screwed cap confining the aforesaid plate and adapted to impart longitudinal motion to the air inlet tube, and means for retaining the body to prevent its removal without detection.

7. A stoppering device, comprising a hollow body, a valve seat therein, a valve co-acting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and valve and is bent to introduce air above the level of the liquid while being poured out, a plate carried by the said air inlet tube and through which it passes, a screwed cap having a perforated top confining the aforesaid

plate and adapted to impart longitudinal motion to the air inlet tube, and means for retaining the body to prevent its removal without detection.

8. A stoppering device, comprising a hollow body, a valve seat therein, a valve co-acting with said seat to oppose introduction of liquid through the body, an air inlet tube that extends through the body and valve and is bent to introduce air above the level of the liquid while being poured out, a plate carried by the said air inlet tube to prevent access being gained to the valve, a screen arranged between the valve and the protecting plate to prevent ignition of gaseous contents, and means for retaining the body to prevent its removal without detection.

9. A bottle or like stoppering device, comprising a hollow body having an externally screw threaded portion, a spider in the body, a bearing in the spider, an air inlet tube movable longitudinally in said bearing, a valve seating, a valve movable along the air inlet tube, a collar on the tube limiting its movement in the bearing, a protecting plate carried by the tube above the spider, a cap capable of being screwed upon and off the externally screw threaded portion of the hollow body, and means for retaining the body to prevent its removal without detection.

10. A bottle or like stoppering device, comprising a hollow body having an externally screw threaded portion, a spider in the body, a bearing in the spider, an air inlet tube movable longitudinally in said bearing, a valve seating, a valve movable along the air inlet tube, a collar on the tube limiting its movement in the bearing, a protecting plate carried by the tube above the spider, a spring interposed between the spider and the protecting plate, a cap capable of being screwed upon and off of the externally screw threaded portion of the hollow body, and means for retaining the body to prevent its removal without detection.

11. A bottle or like stoppering device, comprising a hollow body having an externally screw threaded portion, a spider in the body, a bearing in the spider, an air inlet tube movable longitudinally in said bearing, a valve seating, a valve movable along the air inlet tube, a protecting plate carried by the tube above the spider, a spring interposed between the spider and the protecting plate, a perforated cap secured above the protecting plate and communicating with the air inlet tube and capable of being screwed upon and off of the externally screw threaded portion of the hollow body, and means for retaining the body to prevent its removal without detection.

12. A bottle or like stoppering device, comprising a hollow body having an externally screw threaded portion, a spider in the

body, a bearing in the spider, an air inlet tube movable longitudinally in said bearing, a valve seating, a valve movable along the air inlet tube, a protecting plate carried
 5 by the tube above the spider, a spring interposed between the spider and the protecting plate, a perforated cap secured above the protecting plate and communicating with the air inlet tube and capable of being
 10 screwed upon and off of the externally screw threaded portion of the hollow body, a gauze screen between the valve and spider, and means for retaining the body to prevent its removal without detection.

15 13. A bottle or like stoppering device, comprising a hollow body, a spider in the body, a bearing in the spider, an air inlet tube movable longitudinally in said bearing, a valve seating, a valve movable along the
 20 air inlet tube, a protecting plate carried by the tube above the spider, a spring interposed between the spider and the protecting plate, a perforated cap secured above the protecting plate and communicating with
 25 the air inlet tube, a gauze screen between the valve and spider and an easily destructible capsule securing the hollow body.

14. A stoppering device comprising a thin metal hollow body having an external shoulder, a valve seat therein, a spider and tube
 30 bearing above said seat, an air inlet tube passing through the bearing, a plate arranged above the said spider and through which the tube passes, a screwed cap having
 35 a perforated top confining said protecting plate and adapted to move the air tube

while being screwed onto or off the hollow body, a valve through which the tube passes, arranged above the seat, and a socket having a crimped edge adapted to be compressed
 40 over the shoulder on the stopper body.

15. A stoppering device comprising a thin metal hollow body having an external shoulder, a valve seat therein a spider and tube bearing above said seat, an air inlet tube passing
 45 through the bearing, a plate arranged above the said spider and through which the tube passes, a screwed cap having a perforated top confining said protecting plate and adapted to move the air tube axially while
 50 being screwed onto or off the hollow body, a valve through which the tube passes, arranged above the seat, an internally screw threaded socket to receive the stopper body, a correspondingly screw threaded portion on
 55 the said stopper body, a flange on the exterior of the said socket and a capsule adapted to be spun or compressed over the socket flange and the shoulder on the body of the stopper.
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16. In a stoppering device, an air inlet tube that is bent to extend laterally within the vessel to which the said device is applied and that is mounted to permit the stoppering device to be rotated relative thereto.
 65

Signed at London England this 26th day of September 1908.

THOMAS HEFFERNAN.

HENRY CHARLES BRAUN.

Witnesses:

H. D. JAMESON,

C. P. LIDDON.