

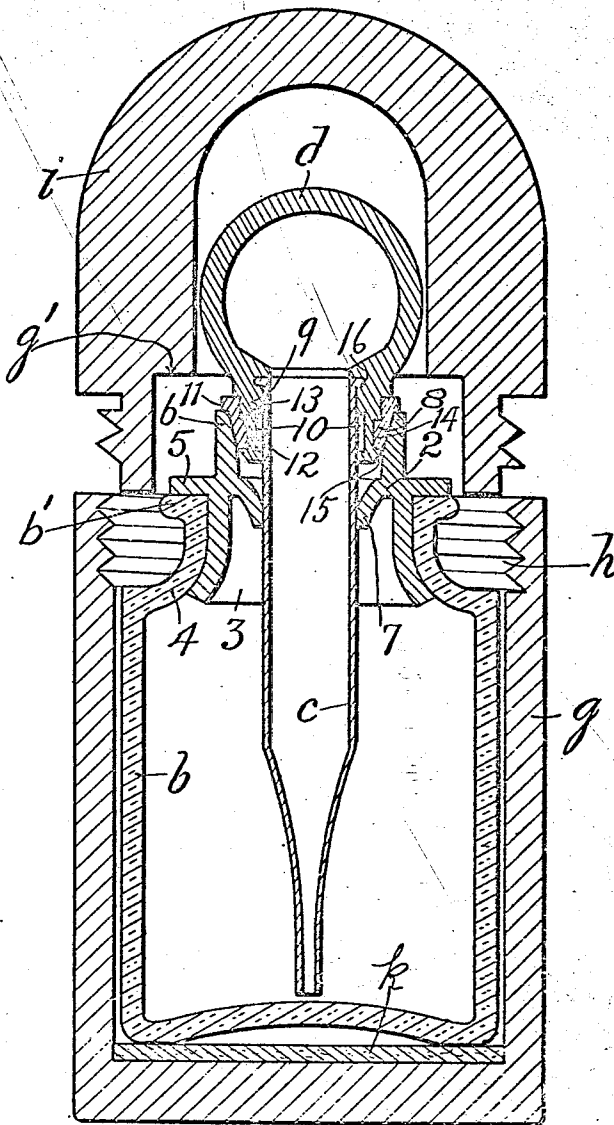
J. F. FITZSIMMONS.

CLOSURE, FITTING, AND CASE FOR INK AND LIKE BOTTLES OR VESSELS.

APPLICATION FILED MAR. 17, 1908.

899,015.

Patented Sept. 15, 1908.



Witnesses
Walter B. Raymond
Chester A. Payne

John F. Fitzsimmons
 Inventor,
 By *his Attorney Samuel L. Watson*

UNITED STATES PATENT OFFICE.

JOHN F. FITZSIMMONS, OF HILLSDALE, MICHIGAN, ASSIGNOR TO FERRIS INK COMPANY, OF
BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CLOSURE, FITTING, AND CASE FOR INK AND LIKE BOTTLES OR VESSELS.

No. 899,015.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed March 17, 1908. Serial No. 421,701.

To all whom it may concern:

Be it known that I, JOHN F. FITZSIMMONS, a citizen of the United States of America, residing at Hillsdale, Michigan, have invented certain new and useful Improvements in Closures, Fittings, and Cases for Ink and Like Bottles or Vessels, of which the following is a specification.

The present invention is in the nature of an improvement upon the invention set forth in my Letters Patent of the United States dated April 21, 1903, and bearing Number 726,038, and has for its primary object the provision of an improved closing joint between the filling-tube and the soft rubber cover of the bottle.

Other objects will appear hereinafter.

One embodiment of the invention is illustrated in the accompanying drawing, forming part hereof, which shows a vertical longitudinal sectional view of my device on a central plane.

In the drawing, the reference symbols *b*, *b'*, *c*, *d*, *g*, *g'*, *h*, *i* and *k* designate parts either identical with or similar in construction and function to the parts in said patent marked with the same references, and only such reference to such parts will be made herein as may be required to connect them with the subject-matter of the improvements herein claimed as new.

The soft rubber bottle-cover 2 is formed with a bell-mouth 3 by means of which it is fitted within or expands against the bottle-neck 4, the friction between the bell and the neck sufficing in practice to retain the cover in place. An external flange 5 on the cover 2 rests upon the bottle-neck flange *b'* and prevents the cover from falling into the bottle, and also forms a cushion for the shoulder *g'* of the cap *i* when the cap is screwed down tightly into the threaded part *h* of the casing *g*. The cover 2 is also provided, at the mouth of the bottle *b*, with the downwardly-extending hollow truncated cone or perforated diaphragm 7, which coacts with the filling tube *c* both to form a seal where their surfaces meet and to strip off surplus ink as the tube is withdrawn, the tube passing through the perforation in the cone-end and distending it in so doing. Above the flange 5 the cover 2 is provided with the tubular flange 6, which, in the preferred arrangement, is coned out or

slightly flared upwardly for a purpose presently to appear.

The soft rubber bulb *d* is grooved, preferably, internally at 16 to fit on the flange usually found on filling tubes *c*, and the neck 9 of said bulb *d*, in the preferred arrangement, is shouldered at 13 and is provided with an external flange 15 to form a peripheral circumferential groove 14 for the reception of the ring 8, which is shouldered internally at 12 to fit against shoulder 13 aforesaid. The ring 8, which is of a material such that it will not corrode in the ink or other fluid contained in the bottle *b*, is flanged externally at 11 and, in the preferred arrangement, is tapered below said flange 11 to fit inside the tubular flange 6, the ring being of an external diameter somewhat greater than the internal diameter of the flange 6 so as to distend the last-named when the parts are assembled as shown in the drawing. Preferably, the ring 8 is of hard rubber.

The tubes *c* are not of uniform dimensions, externally, while the parts 9 and 8 are of standard or uniform dimensions, and, in order to assemble these parts without losing or rejecting any for lack of uniformity in size and also to provide the necessary elasticity and flexibility to produce a tight closure, the neck 9 is provided with the annular internal groove 10 therein, located opposite to, or inside of, the ring 8, as shown in the drawing, whereby variations in diameter of the tubes *c* will be compensated for by the compression of the walls of the groove 10 into such groove, or toward the tubes *c*, in some cases.

It will be observed that the described construction provides two seals to prevent the escape of liquid from the bottle *b*, one such seal being that at the contact, surface against surface, of the funnel 7 and the tube *c*, and the other such seal being that at the contact of ring 8 and the upright flange 6, in both of which seals we have the pressure of an elastic ring or flange against a hard and rigid body. It will also be noted that the bell-mouth 3 and flange 5 retain the closure 2 in place without the aid of other means. It will also be noted that the seal by the flange 7 is right up to the mouth of the bottle *b*, thereby permitting one to fill the said bottle almost to the top thereof. The rabbet or shoulder *g'* of the cap *i* seats on the flange 5 as the cap is

screwed down tight on the casing *g* and thus retains the bottle *b* firmly yet elastically in place in the casing *g*. Also, as in said Letters Patent, the cap *i* retains the bulb *d* in place.

5 *k* is a pad in the bottom of the casing *g*.
What I claim as new and desire to secure by Letters Patent of the United States is—

1. The combination with an ink-bottle, of a rubber stopper therefor provided with an apertured diaphragm at the bottle-mouth and with a bell mouthed tube fitting within the bottle-neck and retaining the stopper by friction.

15 2. The combination with an ink-bottle, of a rubber stopper therefor provided with an external flange resting on the neck-end, a bell mouthed tube fitting within the bottle-neck and retaining the stopper by friction, and an apertured diaphragm at the bottle mouth.

20 3. The combination with an ink-bottle, of a rubber stopper therefor provided with a bell mouthed tube fitting within the neck and retaining the stopper by friction and with a tubular flange above the bottle-mouth, and a filling tube having a plug for coaction with said flange.

25 4. The combination with an ink-bottle, of a rubber stopper therefor provided with a bell mouthed tube fitting within the bottle-neck and retaining the stopper by friction, with an external flange resting on the neck-end, and with a tubular upright flange above the bottle, and a filling tube having a plug for coaction with said tubular flange.

30 5. The combination with an ink-bottle, of a rubber stopper therefor provided with a bell mouthed tube fitting within the bottle-neck and retaining the stopper by friction, with an external flange resting on the neck-

end, with an upright tubular flange above 40 the bottle, and with a perforated diaphragm at the bottle-mouth, and a filling-tube having a plug for coaction with said tubular flange.

6. The combination with a filling-tube, of a rubber bulb fitting on the end thereof and 45 provided with an internal annular groove in the neck thereof below the top of the tube, and a ring fitting said neck opposite said annular groove.

7. The combination with a filling-tube, of 50 a rubber bulb having a neck fitting on the top of said tube and provided with an internal annular groove in said neck below the top of said tube and with a circumferential groove opposite said internal groove, and a 55 ring fitting in said circumferential groove.

8. The combination with a filling-tube, of a rubber bulb having a neck fitting on the top of said tube and provided with an internal annular groove below the top of said tube, 60 a ring fitting on said neck opposite said annular groove, an ink-bottle and a rubber stopper therefor provided with a seat for said ring.

9. The combination with a filling-tube, of 65 a rubber bulb having a neck fitting on the top of said tube and provided with an internal annular groove below the top of the said tube, a ring fitting on said neck opposite said groove, an ink-bottle, and a rubber stopper 70 for said bottle provided with an upright annular flange for coaction with said ring.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN F. FITZSIMMONS.

Witnesses:

SAMUEL S. WATSON,
ALICE A. LILLIE.