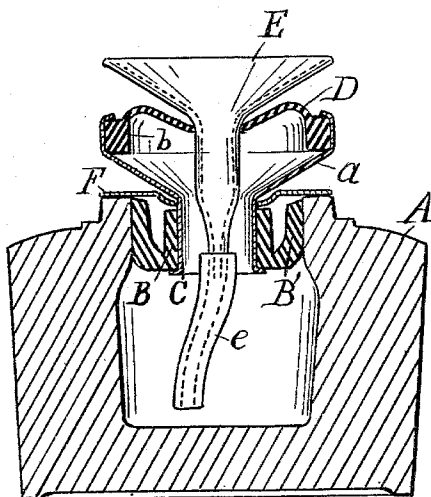


(No Model.)

G. R. WEED.
STOPPER ATTACHMENT FOR INK BOTTLES.

No. 552,859.

Patented Jan. 7, 1896.



Witnesses:
Samuel W. Balch
Wm. H. Whitman

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UNITED STATES PATENT OFFICE.

GUSTAVUS R. WEED, OF ORANGE, ASSIGNOR TO HENRY BERGFELS, OF
NEWARK, NEW JERSEY.

STOPPER ATTACHMENT FOR INK-BOTTLES.

SPECIFICATION forming part of Letters Patent No. 552,859, dated January 7, 1896.

Application filed April 17, 1895. Serial No. 546,003. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS R. WEED, a citizen of the United States of America, residing at Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Stopper Attachments for Ink-Bottles, of which the following is a specification.

My invention consists in certain improvements upon the stopper shown in my former patent, No. 500,982, granted to me July 4, 1893.

In the accompanying drawings, which form a part of the specification, the figure is a cross-section of an ink-bottle with my improved stopper, the section being taken on a vertical plane through the middle of the bottle and stopper. The dipping-tube is shown in elevation.

The stopper is inserted in the mouth of the bottle A.

There is a round orifice cut through and centrally located in the stopper, so that the stopper is practically a collar or ring B, preferably of rubber. From the bottom of this collar a circular flange B' extends outwardly and upwardly. This flange bears against the neck of the bottle and holds the stopper in place. The stopper seals the bottle as a perforated flexible cork. Through the circular aperture in the stopper is passed an air-tube C, which is open at the bottom and top. It is upset at the bottom so that the stopper shall be readily withdrawn with the tube. This air-tube has a flaring top *a*, which is turned up to form a ring to hold the diaphragm D. This ring is held in the fingers when the stopper is being inserted in the bottle. It may be called a "guard and pressure" ring, because it guards and holds the rim of the diaphragm and because there the stopper can be gripped without altering its shape. The stopper is inserted and withdrawn by pushing or pulling on the air-tube held by its ring. A stop-disk F, with a round hole at its center, is slipped on the guard-ring above the stopper and bears against the base of the flaring top. It prevents the stopper being pushed too far into the bottle. The diaphragm is of flexible and elastic material, preferably of rubber, and has a thickened rim *b* which fits into the guard-ring. The diaphragm is per-

forated at the center, and through the hole there passes a dipping-tube E. This is preferably of glass. It is a funnel with a stem that is straight throughout part of its length, 55 is tapered at one end so as to reduce the size of bore, and is flared outwardly at the other end to form the mouth of the funnel. Upon the tapering end is slipped a piece of rubber tubing *e* which extends down into the ink-well. 60

The peculiar advantage of a dipping-tube having a straight stem, as shown, is that it can be readily slipped up and down in the hole in the diaphragm and will stay wherever it is put, within the limit of the straight portion 65 of the stem.

If the stopper is inserted in a bottle with the dipping-tube in place, as is quite commonly done, the air above the ink in the bottle is compressed and the ink will be forced 70 up into the dipping-tube and may spurt onto the hands. The vertical adjustment of the dipping-tube makes it easy to avoid this by pulling the tube up before attempting to insert the stopper, and the taper of the tube 75 aids in avoiding this and also in avoiding any spurring when the pen is pressed into the funnel of the dipping-tube. The straight part of the dipping-tube is also advantageous because the tube will not work out when pressed 80 by the pen, as it might do if tapering along its whole length; but it is not necessary to remove the stopper in order to fill the bottle. The stopper is set in place with the stop-disk resting on the rim of the mouth of the bottle. 85 The dipping-tube and diaphragm can be removed and ink poured into the flaring or funnel-shaped top of the air-tube. The diaphragm is then slipped into place and the dipping-tube inserted through the hole in the 90 diaphragm. Adjustments for differences in height of ink in the bottle are effected with the dipping-tube.

One advantage of the construction shown in this present application over that shown 95 in the former patent is that the diaphragm in the present application is under compression instead of being under tension, as in the former patent. For this reason it can be removed and replaced with less wear on the diaphragm, and when in place is much less liable 100 to be punctured by the pen being accidentally

brought in contact. In order that it shall stay in place and shall have the springiness necessary to operate properly under the pressure of the pen, the diaphragm must of course
5 be made a little larger in circumference than the circumference of the inner wall of the pressure-ring.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—
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1. The combination of a perforated stopper provided with an air tube with a funnel-shaped top and a ring, and a diaphragm slipped within the ring so that it is supported
15 at its circumference thereby, substantially as described.

2. The combination of a perforated stopper provided with an air tube with a funnel-shaped top and a ring, a diaphragm slipped
20 within the ring, so that it is supported at its circumference thereby, and a dipping tube passing through the diaphragm, substantially as described.

3. The combination of a perforated stopper, an air tube passing therethrough, and
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having a flaring end, a diaphragm supported on the flaring end, a dipping tube passing through the diaphragm said dipping tube having a straight stem, a flaring mouth and a tapering end, substantially as described. 30

4. The combination of a hollow perforated stopper, an air tube passing therethrough with a funnel-shaped top and a ring, a diaphragm supported on the ring, and a dipping tube passing through the diaphragm and provided
35 with a flaring end, a stem straight in part, and a tapered bore, substantially as described.

5. A perforated elastic stopper consisting of a collar and a circular flange extending outwardly and upwardly from the bottom
40 thereof, combined with an air tube passing through the stopper, which is flared and provided with a ring at its upper end, substantially as described.

Signed by me, in East Orange, New Jersey, 45
this 15th day of April, 1895.

GUSTAVUS R. WEED.

Witnesses:

FRANK R. WICKES,
SPENCER L. MARSH.