(No Model.)

W. S. SWAN.

BOTTLE STOPPER AND FEED.

No. 540,521. Patented June 4, 1895.

Fig. 1.

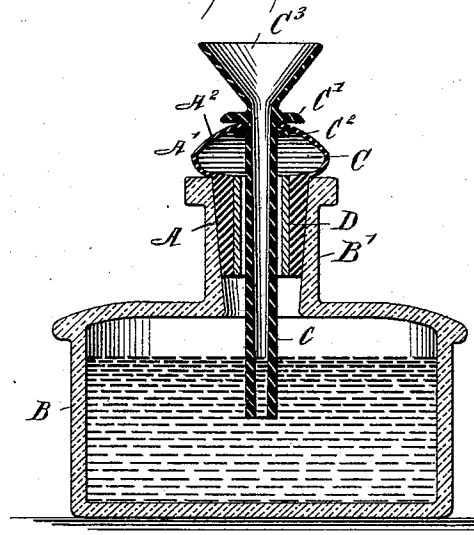


Fig. 2.

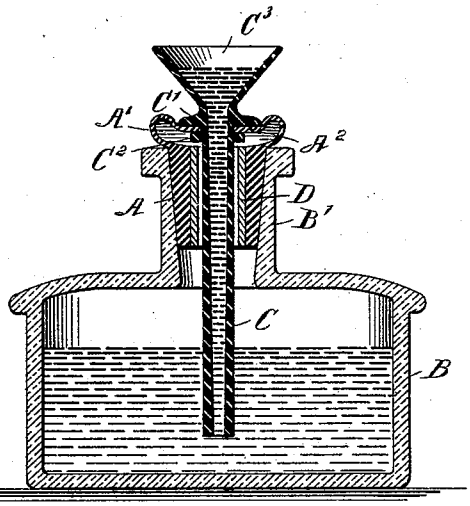


Fig. 3.

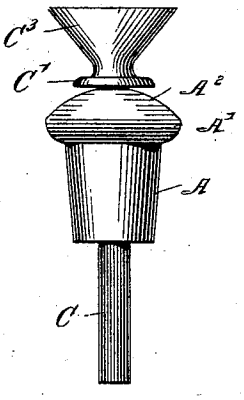
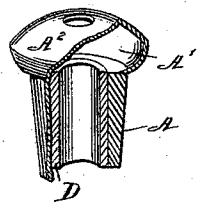


Fig. 4.



WITNESSES:

William Goebel

Rud. J. Forster

INVENTOR

W. S. Swan

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM S. SWAN, OF MAUMEE, OHIO.

BOTTLE STOPPER AND FEED.

SPECIFICATION forming part of Letters Patent No. 540,521, dated June 4, 1895.

Application filed August 16, 1894. Serial No. 520,511. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SWAN, of Maumee, in the county of Lucas and State of Ohio, have invented a new and Improved Bottle Stopper and Feed, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved bottle stopper and feed, more especially designed for use on ink bottles and ink stands, and arranged in such a manner as to permit of conveniently supplying a pen with ink, and to prevent the ink from rapidly evaporating and becoming thick.

The invention consists in certain parts and details, and combinations of the same, as will be hereinafter fully described and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement as applied on an inkstand. Fig. 2 is a similar view of the same with the funnel-pipe depressed. Fig. 3 is a side elevation of the improvement, and Fig. 4 is a perspective view of the stopper with parts broken out.

The improvement is provided with a tubular stopper A, preferably made of rubber or other elastic material, and adapted to be inserted in the neck B′ of the bottle or stand B, containing the liquid to be supplied to pens and other similar devices. On the top of the stopper A is formed an air chamber A′, having a diaphragm top A^2, formed with an aperture adapted to receive the funnel pipe C, provided near its upper end with two flanges C′ and C^2, between which extends a portion of the said diaphragm top, whereby a tight joint is insured between said diaphragm top and the funnel tube C, and said tube is prevented from being withdrawn from the stopper.

The funnel pipe C extends through the stopper A, into the bottle or stand B, as indicated in Figs. 1 and 2. On the extreme upper end of the said pipe C is formed a funnel C^3, adapted to be engaged by the pen which presses the funnel pipe downward to cause the ink to rise in the funnel so as to supply the pen with liquid.

The stopper A is lined with a sleeve D, of hard rubber or other suitable material having an internal diameter slightly greater than the diameter of tube C, so as to provide an air passage from the bottle into the air chamber A′. This sleeve D, not only serves to guide the funnel tube C, but has its upper end arranged at the lower end of air chamber A′, and acts as a stop against which strikes the lower flange C^2, so as to prevent the funnel from being pressed too far down whereby the ink would overflow therefrom. The sleeve D terminates at the lower end of the stopper A.

In order to use the device on an ink bottle, inkstand, or a similar article, the operator first presses the funnel C^3 into the position shown in Fig. 2, whereby the diaphragm top A^2 is pressed inward, to expel the air in the chamber A′. The stopper A is then inserted in the neck B′, after which the operator releases the pressure on the funnel C^3, whereby the flexible diaphragm top A^2 returns to its normal position. Shown in Fig. 1. Now when it is desired to supply a pen with ink, the operator inserts the pen in the funnel, presses downward to cause the flexible top A^2 to move inward to expel the air from the chamber A′, the said air passing through the sleeve D into the stand B, to insure a pressure on the liquid therein, and to cause the liquid to rise in the pipe C through the funnel C^3, as indicated in Fig. 2, thus supplying the inserted pen with ink. As soon as the operator removes the pen from the funnel C^3, the funnel pipe returns it to its normal position by the action of the diaphragm top A^2.

It is understood that the diaphragm top and the sides of the air chamber are formed integral with the stopper A.

The device is very simple and durable in construction, and can be very cheaply manufactured and readily applied to any kind of a bottle, ink well and similar article.

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

1. The combination of a tubular stopper having an air chamber formed at its upper portion and an elastic diaphragm arranged over said air chamber, a sleeve of hard material arranged in the tubular portion of the stopper, a depressible funnel arranged over said diaphragm and adapted to be upheld normally by the elasticity thereof, and a fun-

nel tube extending from said funnel through said diaphragm and the central opening of the sleeve in the tubular portion of the stopper, said funnel tube having an enlarged upper portion adapted to engage the upper end of the said sleeve when the funnel is depressed, whereby the downward movement thereof is limited, substantially as set forth.

2. The combination of a tubular stopper of rubber or similar soft material, having an air chamber formed at its upper portion, and an elastic centrally perforated diaphragm arranged over said air chamber, a depressible funnel arranged over said diaphragm and adapted to be upheld normally by the elasticity thereof, a funnel tube connected to the funnel and passing through the central perforation in the diaphragm and also through the central opening of the tubular stopper, two projecting flanges formed around the upper part of the funnel tube and adapted to embrace the edges of the elastic diaphragm between them, and a sleeve D, of hard material, the internal diameter of which is larger than the diameter of the funnel tube, whereby an air passage is left therebetween, said sleeve being arranged in the central opening of the tubular stopper with its upper end in position to be engaged by the lowermost flange on the funnel tube when the funnel is depressed, whereby the same is stopped against excessive movement.

WILLIAM S. SWAN.

Witnesses:
T. P. HINISH,
EMMA W. PERRIN.