

(No Model.)

F. M. DIXON.
DROPPING BOTTLE.

No. 246,477.

Patented Aug. 30, 1881.

Fig. 2.

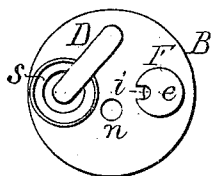


Fig. 3.

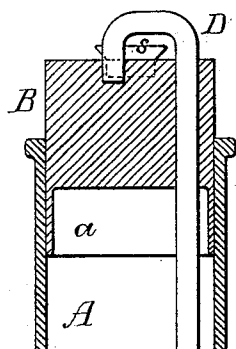


Fig. 1.

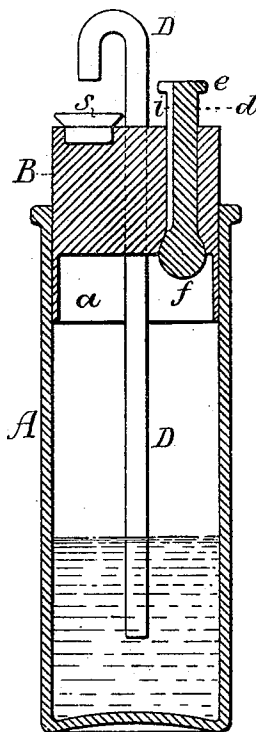


Fig. 4.

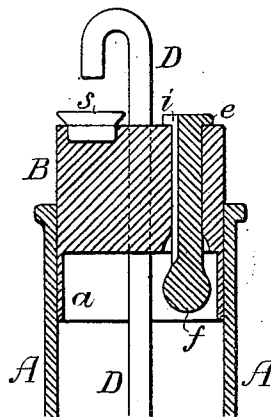


Fig. 5.

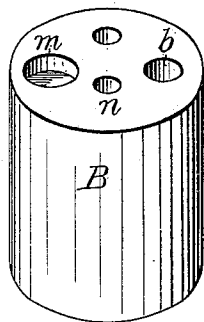
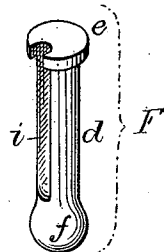


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANKLIN M. DIXON, OF PHILADELPHIA, PENNSYLVANIA.

DROPPING-BOTTLE.

SPECIFICATION forming part of Letters Patent No. 246,477, dated August 30, 1881.

Application filed January 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN M. DIXON, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Dropping-Bottles, of which the following is a specification.

My invention relates to certain improvements in the dropping-bottle for which Letters Patent were granted to me on the 2d day
10 of November, A. D. 1880, the objects of my present improvements being too fully described hereinafter to need preliminary explanation.

In the accompanying drawings, Figure 1 is
15 a vertical section of my improved dropping-bottle; Fig. 2, a plan view; Figs. 3 and 4, views of part of Fig. 1, with some of the parts in different positions; and Figs. 5 and 6, detached perspective views of the stopper and a valve
20 with which the same is provided.

The device is similar in general construction and operation to that formerly patented, A being the bottle, B the sliding stopper, and D the dropping-tube carried by said stopper,
25 having its lower end submerged in the liquid, and bent at its upper end, so as to deliver drops of the liquid into a suitable receptacle on forcing the stopper B into the bottle. Rubber was found to be the best material of which
30 to make the stopper B; but as it was necessary to have the stopper of a certain length in order to obtain the proper bearing, said stopper, if made solid throughout, proved to be costly, and its lower edge would not yield to
35 accommodate itself to slight inequalities on the interior surface of the bottle. In order to overcome these objections, I make the lower portion, *a*, of the stopper—say for about one-third of its length—tubular, thereby lessening the
40 weight of the stopper and providing a flexible lower portion which can yield readily. It was also found to be difficult to properly govern the dropping of the liquid by the forcing in of the stopper, the compression of the air in the
45 bottle being such that the liquid continued to drop from the tube D after pressure had been removed from the stopper. An increase in temperature also caused the discharge of liquid from the tube, owing to the expansion of the
50 air in the bottle.

In order to overcome these objections, I form in the stopper B, in addition to the opening for the tube D, an opening, *b*, to which is adapted a valve, F, consisting, in the present instance, of a stem, *d*, having at the upper end
55 a suitable head or enlargement, *e*, and at the lower end a bulb, *f*, the stem *d* being snugly fitted to the opening *b*, and the bulb *f* being adapted to a seat formed by enlarging the lower end of said opening. In one side of the
60 stem *d* is formed a groove, *i*, which extends from the top of the bulb *f* to the top of the stem, so that when the valve is drawn up and the bulb adapted to its seat, as in Fig. 1, communication with the interior of the bottle
65 through said groove is cut off; but on depressing the valve to the position shown in Fig. 4 air can pass freely from the interior of the bottle through the groove. When the bottle is in use the valve F is closed, as in Fig. 1, and the
70 stopper is depressed, as usual, to cause the flow of the liquid through the tube D. When the proper number of drops has been delivered, however, the valve is opened, so that the pressure within the bottle is relieved and the
75 flow terminates instantly. The valve being allowed to remain open during the time that the bottle is not in actual use, expansion of the air in the bottle due to an increase of temperature cannot effect the discharge of liquid
80 through the tube D.

In the top of the stopper B are two recesses, *m* and *n*, the former being adapted for the reception of a vessel, *s*, so arranged in respect to the bent upper end of the tube D that the
85 latter may be turned so as to terminate above and discharge liquid into the said vessel. (See Figs. 1, 2, and 4.) The recess *n* is so arranged in respect to the tube D that when the said tube is depressed the bent end of the same may
90 be adapted to the recess, as in Fig. 3. The entrance of dust into the tube or bottle, or the evaporation of the contents of the bottle when the latter is not in use, is thus prevented.

The valve F is introduced into its place from
95 above, the stopper being sufficiently elastic to permit the passage of the bulb *f* through the opening *b*. This form of valve is not absolutely essential in carrying out my invention, although it is preferred, as it is simple in con-
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struction and has been found to work well in practice.

I claim as my invention—

- 5 1. The combination of the bottle A and tube D with a stopper having a thin-walled tubular lower portion, *a*, as set forth.
2. The combination of the bottle, the tube D, and a stopper having a valved opening, as specified.
- 10 3. The combination of the stopper having the opening *b* with the valve F, consisting of a stem, *d*, with groove *i* and bulb *f*, as specified.
4. The combination of the dropping-tube

having a bent upper end, the stopper having a recess, *m*, and the vessel *s*, adapted to said recess, as described. 15

5. The combination of the dropping-tube having a bent upper end with the stopper having a recess, *n*, as set forth. 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN M. DIXON.

Witnesses:

HARRY SMITH,

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