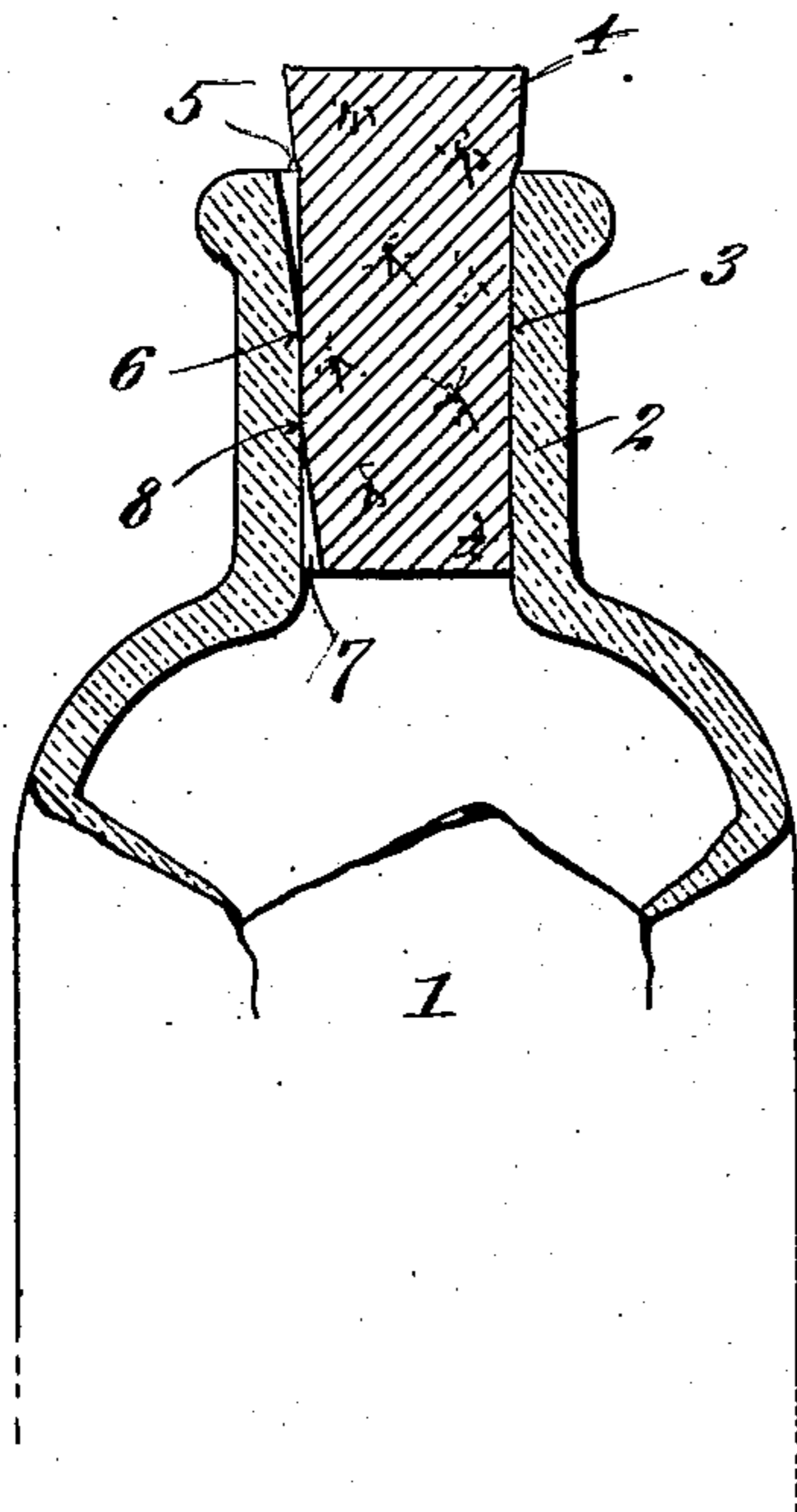


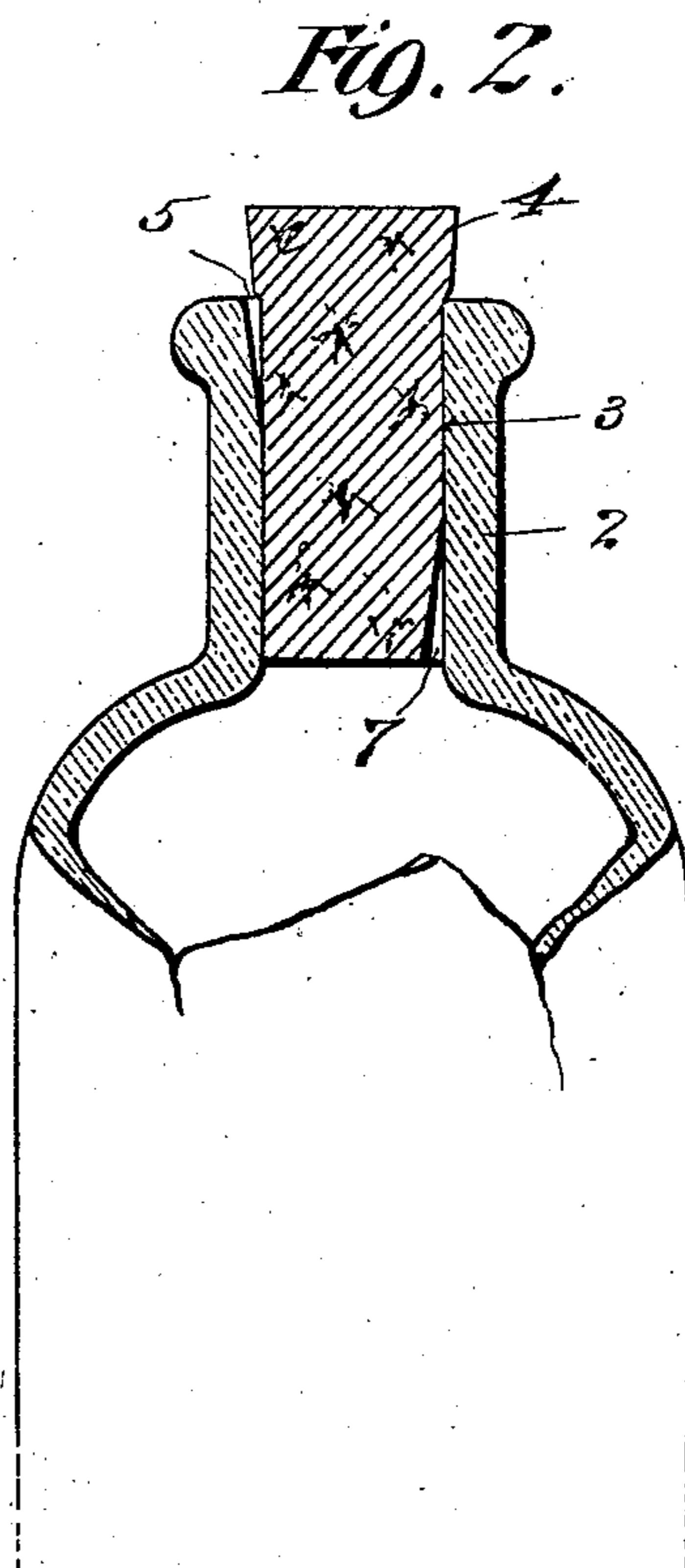
No. 845,400.

PATENTED FEB. 26, 1907.

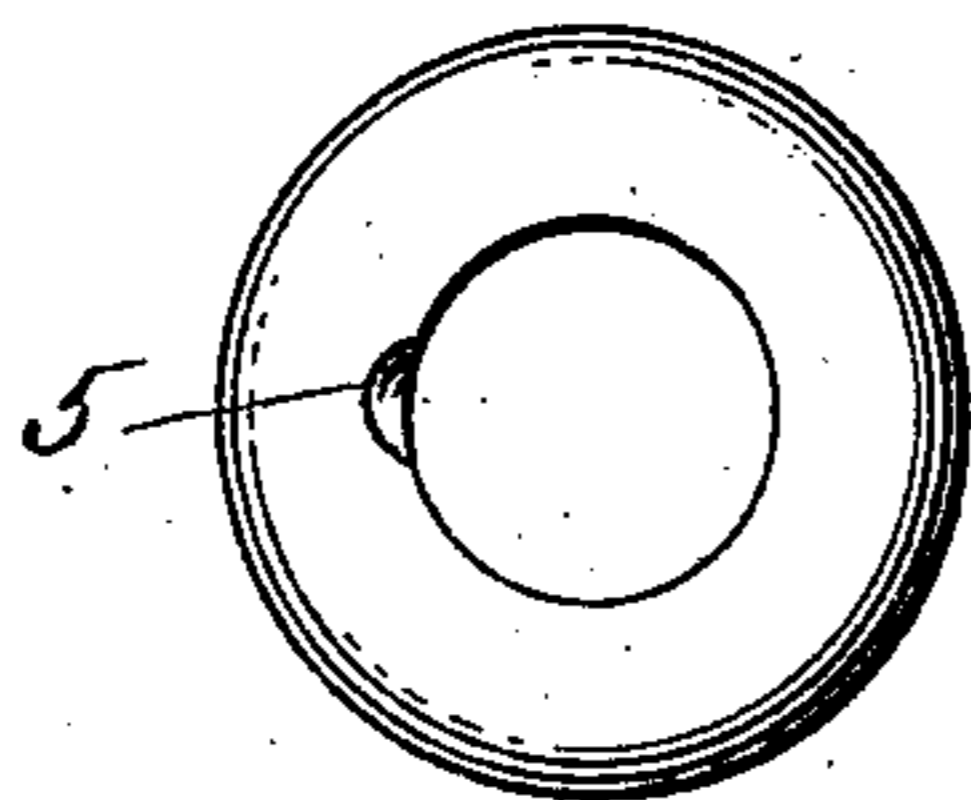
R. H. FERGUSON.  
DROPPING BOTTLE.  
APPLICATION FILED NOV. 15, 1906.



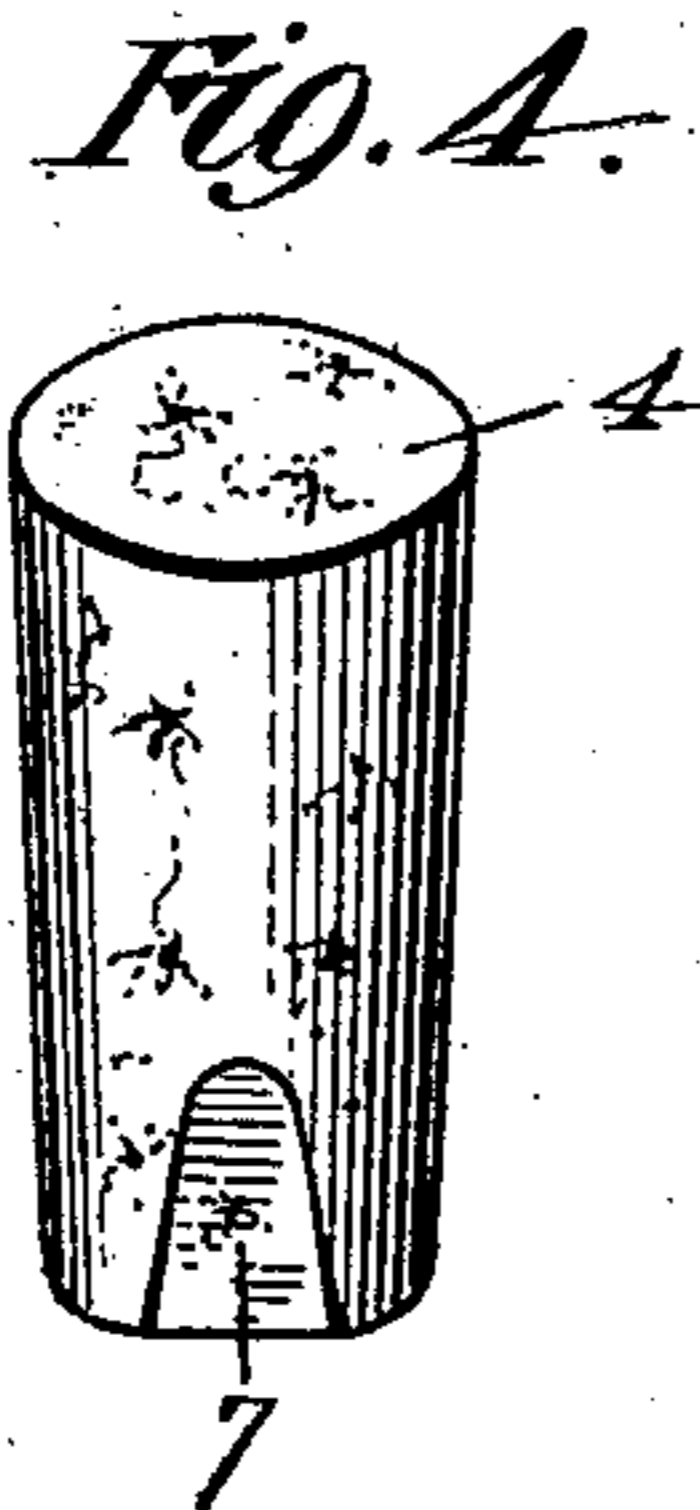
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

Witnesses  
*Frank S. Ober.*  
*Waldo M. Chapin*

Inventor  
*Robert H. Ferguson*  
By his Attorneys  
*Rosenbaum & Stockbridge*

# UNITED STATES PATENT OFFICE.

ROBERT H. FERGUSON, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO E. R. SQUIBB & SONS, A CORPORATION OF NEW YORK.

## DROPPING-BOTTLE.

No. 845,400.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed November 15, 1906. Serial No. 343,498.

*To all whom it may concern:*

Be it known that I, ROBERT H. FERGUSON, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Dropping-Bottles, of which the following is a full, clear, and exact description.

My invention relates to dropping-bottles, particularly for volatile fluids—such as chloroform, ether, &c.—which must be very tightly sealed in their receptacles in order to avoid evaporation.

It has been found that the only kind of bottles that can be used for containing chloroform and which will efficiently prevent evaporation are glass bottles with tightly-fitting stoppers made of ordinary cork, the stoppers having a long bearing-surface for their engagement with the neck of the bottle. When chloroform and similar volatile fluids are packaged in this way, evaporation is largely overcome, and at the same time this is the cheapest and most convenient receptacle for original packing and shipping purposes when the chloroform is manufactured. The only difficulty lies in measuring out the liquid when it is desired to be used, and this is particularly true, since only a few drops or fairly-limited quantity is ordinarily required at any one time. If the receptacle is opened wide for the purpose of pouring out a small quantity, the liquid is liable to boil and vaporize, which interferes with measuring out the small quantities required, and it is also wasteful and dangerous.

It is the principal object of my invention to wholly overcome this defect and to provide a very simple means embodied in the bottle when the liquid is originally packaged at the factory which enables the same to be used as a dropping-bottle to exactly measure out any desired quantity of the liquid, but which is absolutely tight under normal conditions.

With this object in view the invention consists in the features of construction and combination hereinafter set forth and claimed.

In the drawings, Figure 1 is a partly-sectional view of a bottle and stopper embodying the principles of my invention. Fig. 2 is a similar view showing the parts in their normal or tight relation. Fig. 3 is a top view of

the neck of the bottle. Fig. 4 is a perspective view of the stopper.

I have discovered that while a broad zone of cork pressed against the glass neck of a bottle acts as an absolute barrier against the escape of the chloroform or volatile fluid that a narrow zone of cork does not have this effect, but allows the liquid to pass under its own vapor-pressure. In carrying out my invention I make use of this principle and obtain a receptacle which is normally perfectly tight, but which can be manipulated to permit the escape of the liquid at any predetermined rate.

Referring to the drawings, in which like parts are designated by the same reference-sign, 1 indicates a bottle having a neck portion 2 with a smooth interior surface 3 substantially similar in its general characteristics to any ordinary bottle.

4 indicates the cork, which is quite long, so as to enter the neck of the bottle to a considerable distance. The size of the cork is such as to fit quite tightly in the neck of the bottle.

Instead of having the interior surface of the bottle-neck smooth and circular at all points I provide a notch or channel 5 on one side of the internal surface 3, and which extends downward thereon for a certain limited distance to the point 6. The cork 4 is also channeled upward from its bottom edge for a short distance, as shown at 7. The channel in the cork terminates at a point 8, and it will be observed that there is a zone or area between the points 6 and 8 at which the cork fits tightly against the surface of the glass, no matter to what angular position the cork may be turned. If, however, the parts are in the relation shown in Fig. 1, the channels 5 and 7 are nearer to one another than at any other position of the cork, the distance of separation being the distance between the points 6 and 8. If the cork is turned angularly through half a revolution, the channels 5 and 7 are at their farthest apart relations, corresponding to more than half a circumference of the cork. In accordance with the principle above stated the liquid will issue from the bottle under its own vapor-pressure when the cork is at the relation of Fig. 1, passing slowly across the zone 6 8 from the channel 7 to the channel 5. The liquid will therefore drop from the bottle at a predeter-

mined rate, depending on the width of the zone 6 8. When the cork is turned to the position of Fig. 2, the channels 7 and 5 are so apart that no liquid can escape, and the  
5 bottle in this condition will keep the liquid for an indefinite time without any appreciable evaporation.

The channel 7 of the cork may be made in any desired way; but I prefer to form this  
10 channel by merely filing or cutting away a small portion of the cork, so as to produce a flattened area. This simple arrangement is found to be very effective in practice, particularly as any other form of channel is  
15 harder to make and is, moreover, liable to

close up is use under the expanding influence of the liquid upon the cork.

What I claim is—

A means for dropping volatile fluids comprising a bottle having a channel in the neck, 20 and a stopper having a cut-away portion adapted to approach but not actually reach a position to register with said channel.

In witness whereof I subscribe my signature in the presence of two witnesses.

ROBERT H. FERGUSON.

Witnesses:

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