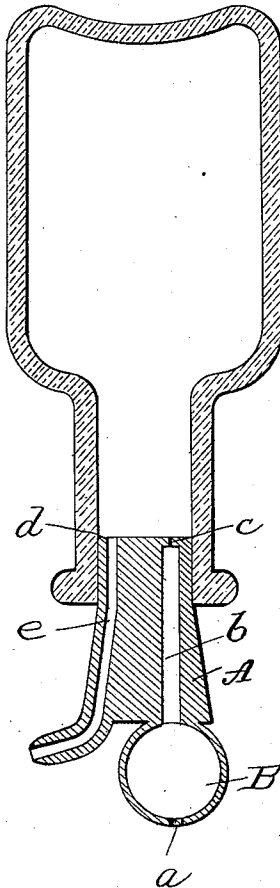


(No Model.)

W. R. SINE.
MEDICINE DROPPER.

No. 599,642.

Patented Feb. 22, 1898.



Attest

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UNITED STATES PATENT OFFICE.

WILLIAM R. SINE, OF WILLIAMSPORT, PENNSYLVANIA.

MEDICINE-DROPPER.

SPECIFICATION forming part of Letters Patent No. 599,642, dated February 22, 1898.

Application filed July 20, 1897. Serial No. 645,209. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. SINE, a citizen of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in a Medicine-Dropper and Bottle-Stopper Combined; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to make and use the same.

It is the object of my invention to provide a medicine-dropper for bottles or other receptacles adapted to accurately drop the liquid contents of the bottle or receptacle to which it is applied under the control of the user, and it is my further aim to make this dropper in the very simplest form, economical to make, and not capable of getting out of order.

I have shown the invention in the accompanying drawing, in which the figure represents an inverted bottle with my attachment in place in the mouth thereof.

I prefer to make the dropper as an integral part of the stopper, and in the form shown the stopper A is made of rubber adapted to fit the mouth of the bottle. Integral with the stopper is the bulb B, having an opening *a* to the outside air and in connection with a passage *b*, extending through the stopper to near its lower end. The bulb B need not be integral with the stopper, as it may be made separately and suitably attached thereto. The passage *b* through the stopper is adapted to convey the air forced by the compression of the bulb into the interior of the bottle, and the passage *b* is in connection with the interior of the bottle through a slit *c*, adapted to open sufficiently to allow the compressed air to pass into the bottle, its normal position being a closed one and preventing the flow of the liquid contents through the same into the bulb B. When the stopper is made of rubber, the elasticity of the material and the pressure incident to the position of the stopper within the neck of the bottle are sufficient to keep the slit *c* closed and prevent the egress of the liquid through this opening, but the compression of the bulb is sufficient to

force the air through the passage *b* and the slit *c* into the bottle. This action of forcing air by pressure within the bottle will of course displace a portion of the liquid contents, and this runs out through the opening *d* in the bottom of the stopper, which leads to a channel *e*, having a suitable nozzle or outlet, from the end of which the liquid falls in drops.

It will be understood that my invention relates to that class of droppers which require that the bottle be inverted and it is necessary to prevent the liquid from running down the air-tube into the bulb. It is perfectly evident that with the use of a bulb having no connection with the outside air and an air-passage forming a free communication between the bulb and the interior of the bottle just as soon as pressure is removed from the bulb the partial vacuum formed by the expansion of the bulb will draw in the liquid and the bulb will become filled with the liquid. In my construction, however, after the compression of the bulb it is expanded again by the ingress of the outside air through the opening *a* and there is no tendency for suction on the contents of the bottle, and further than this the opening in the air-passage closes as soon as the pressure of air ceases, and this prevents the flow of the liquid to the bulb.

What I claim is—

1. A dropping attachment for bottles and the like, requiring the bottle to be inverted, comprising a bulb adapted to be compressed and having an air-inlet to expand the same, a passage through the stopper from the bulb and a normally-closed opening at the bottom of said passage adapted to allow the ingress of air under pressure but to obstruct the egress of the liquid and an independent passage through the stopper for the discharge of the liquid.

2. A dropping attachment for bottles requiring the bottle to be inverted, comprising a rubber stopper having an air-inlet passage and a liquid-exit passage, a bulb in communication with the outside air for forcing air through the air-inlet passage and a slit in the bottom of the stopper connecting the air-in-

let passage with the interior of the bottle,
said slit being normally closed by reason of the
elasticity of the material of the stopper and
preventing the egress of the liquid through
5 the air-passage in the inverted position of the
stopper, substantially as described.

In testimony whereof I have signed this

specification in the presence of two subscrib-
ing witnesses.

WILLIAM R. SINE.

Witnesses:

W. H. AGER,

T. H. HAMMOND.