No. 696,328. Patented Mar. 25, 1902.

F. R. GRAHAM-YOOLL.

INFANT'S FEEDING BOTTLE.

(Application filed Feb. 14, 1901.)

(No Model.)

Fig. 6

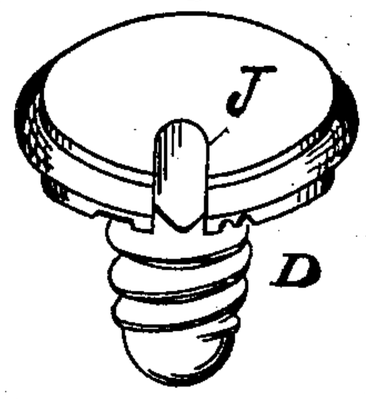


Fig. 1.

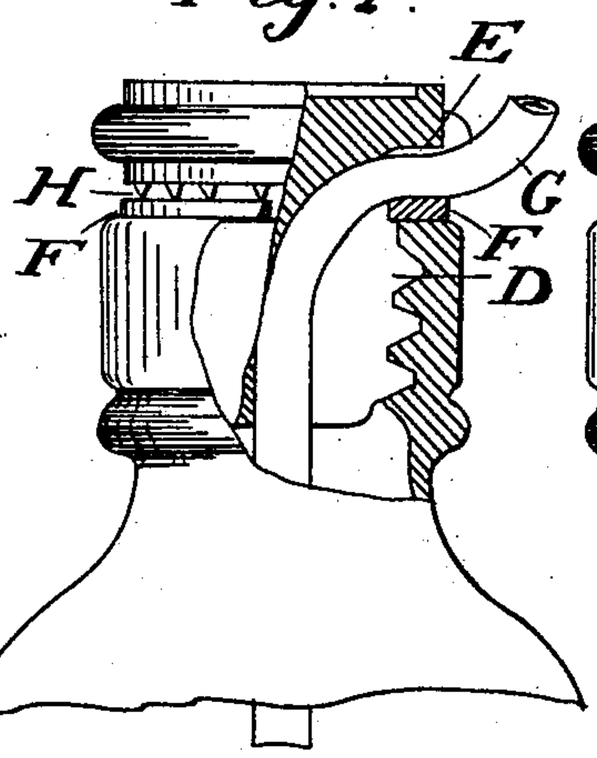


Fig. 2.

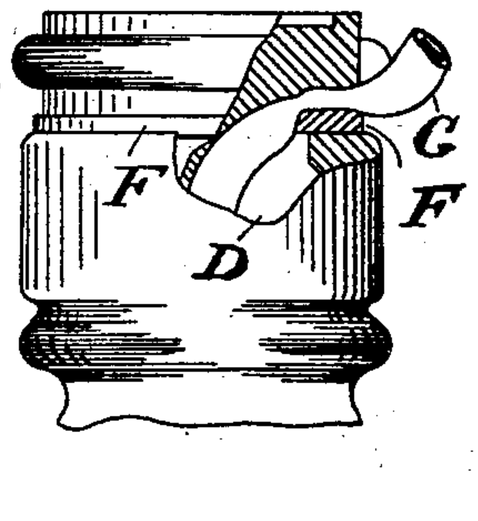


Fig. 4.

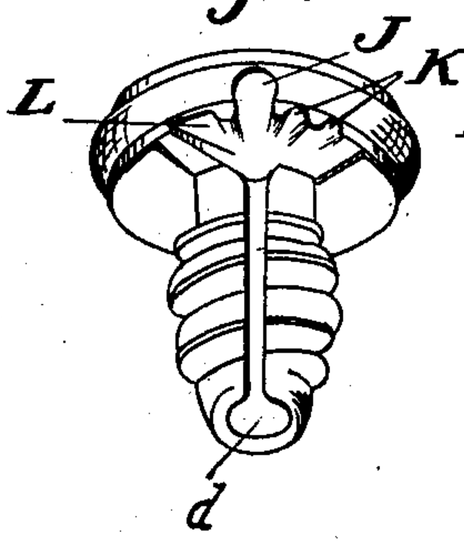


Fig. 3

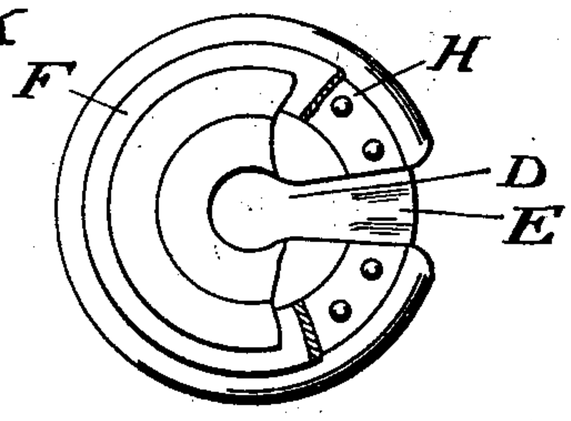
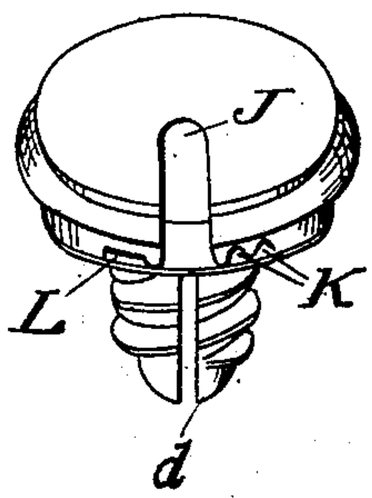


Fig. 5.



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UNITED STATES PATENT OFFICE.

FREDERICK RICHARD GRAHAM-YOOLL, OF EDINBURGH, SCOTLAND.

INFANT'S FEEDING-BOTTLE.

SPECIFICATION forming part of Letters Patent No. 696,328, dated March 25, 1902.

Application filed February 14, 1901. Serial No. 47,272. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK RICHARD GRAHAM-YOOLL, contractor, a subject of the Queen of the United Kingdom of Great Britain and Ireland, and a resident of Murano House, 8 Murano Place, Edinburgh, Scotland, have invented new and useful Improvements in or Relating to Infants' Feeding-Bottles, of which the following is a specification.

This invention relates to means for regulating the flow of liquids, especially in infants' feeding-bottles. To this end I provide a stopper, of wood, glass, vulcanite, or other material, having a screw-threaded shank adapted to work in an internal thread in the neck of the bottle and a top extended in the form of a flange to close down upon a rubber washer interposed between it and the top of the bottle. In the periphery of the stopper-top is formed a recess communicating with a passage in the shank of the stopper for the reception of a rubber feeding-tube, and on either side of the recess are one or more depressions of less depth, in which the tube may be set, so that when the stopper is screwed down to a greater or less extent the passage in the tube may be unobstructed or may be contracted more or less or may be completely closed, as hereinafter described.

In the accompanying drawings, Figure 1 is an elevation, partly in section, showing the stopper closed down and the feeding-tube unobstructed. Fig. 2 is a similar view showing the tube compressed, so as to stop the flow. Fig. 3 is a bottom view. Figs. 4, 5, and 6 are perspective views showing slight modifications.

I provide means to regulate or arrest the flow of liquid through the tube G, of rubber or similar elastic material, by passing the tube through a groove or recess D, formed in the periphery of the stopper. The said groove or recess D extends down the side of the stopper through the screwed portion and is surmounted by a shoulder or abutment E in proximity with the neck of the bottle, while a rubber ring, band, or washer F surrounds the stopper where it bears upon the top of the bottle and serves normally to retain the tube G in place on the stopper when the latter is removed from the bottle.

The above-described parts are so arranged that when the stopper is screwed home into the bottle with a normal force the rubber washer prevents the exuding of any liquid, but allows a full flow through the tube. If, however, the stopper be screwed in slightly more, the rubber washer F is caused to bear upon and contract the tube G against the shoulder or abutment E, thus diminishing the flow, while a still further screwing in of the stopper causes the rubber washer to completely flatten or squeeze the tube and stop the flow, as shown in Fig. 2 of the drawings.

The groove D in the stopper is preferably inclined toward the center and terminates in a central aperture at the lower end, as shown in Fig. 4, and is formed with a housing *d*, which retains the tube in a central position. The flange of the stopper, against which the band or washer F bears, may be formed with a series of projections or studs H, Fig. 3, to facilitate the compression of the washer and to assist in relieving the pressure on the tube when the stopper is unscrewed.

The invention may be carried into effect by constructing the stopper as shown in Figs. 4, 5, or 6 of the drawings—that is to say, with a groove J in the flange or shoulder E of sufficient depth to contain the tube when full flow is desired, a lateral groove K of less depth in which the tube is placed and confined to secure partial flow, and a notch or groove L of still less depth for complete arrestment of the flow. The stopper in this case is partially unscrewed from the bottle, the tube placed in the desired groove or notch, and the stopper screwed home again.

In Fig. 5 the notch J for allowing full flow through the tube is extended to a greater degree toward the center of the stopper.

In Fig. 6 the groove D extends only a short distance down the side of the stopper from the top and connects with the central aperture in the screwed shank of the stopper, said aperture being of large diameter to allow the tube to be readily passed up therethrough.

In each case the action of compressing the elastic tube between the stopper-flange E and washer F is the same.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of a suitable bottle; a

feeding-tube G of elastic material; and a screw-threaded stopper having a recess D extending to the outside for the reception of the feeding-tube and a peripheral flange E between which and the top of the bottle the said tube is compressed to a greater or less extent, substantially as described.

2. The combination of a bottle having an internally-threaded neck; a feeding-tube of elastic material; and a stopper having a screw-threaded shank and a flanged top with recesses on one side of different depths for the reception of the feeding-tube whereby said tube may be left unobstructed or the flow therethrough obstructed to a greater or less extent by compression of the tube between the stopper-flange and the top of the bottle when the stopper is screwed down, substantially as described.

3. The combination of a screw-neck bottle, a flanged and screw-threaded stopper therefor, a feeding-tube of elastic material and an elastic washer between which and the stopper-flange the tube is interposed so as to hold the tube to the stopper when the latter is removed and to be interposed between the stopper-flange and top of the bottle when the stopper is screwed down, substantially as described.

FREDERICK RICHARD GRAHAM-YOOLL.

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